Deep Learning

Aleyna Işıkdağlılar 152120171057

Sina Kuşoğlu 152120171039

Mislina Çetiner 152120171005

Eskişehir Osmangazi University

Faculty of Engineering and Architecture

Departmant of Computer Engineering

Introduction to Computer Engineering Lecture Project

Doç. Dr. Eyyüp GÜLBANDILAR

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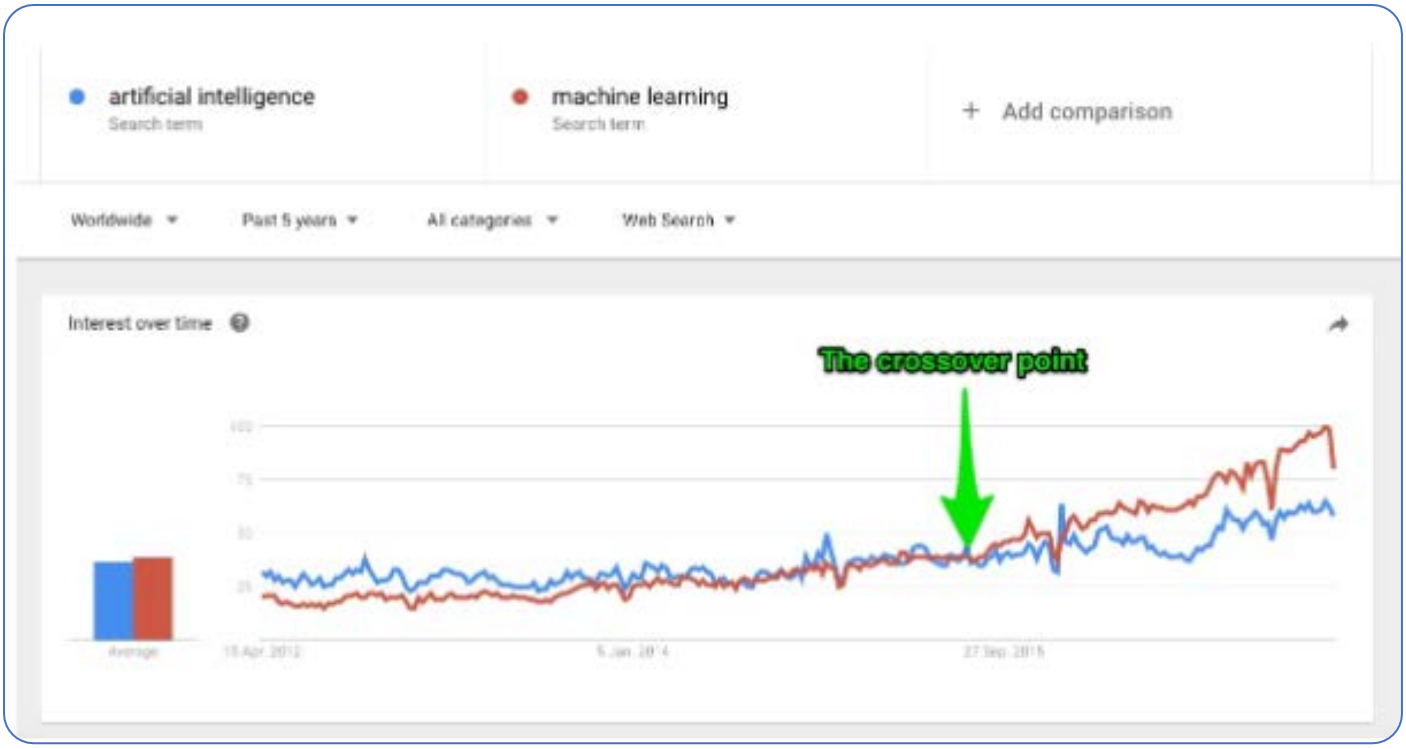
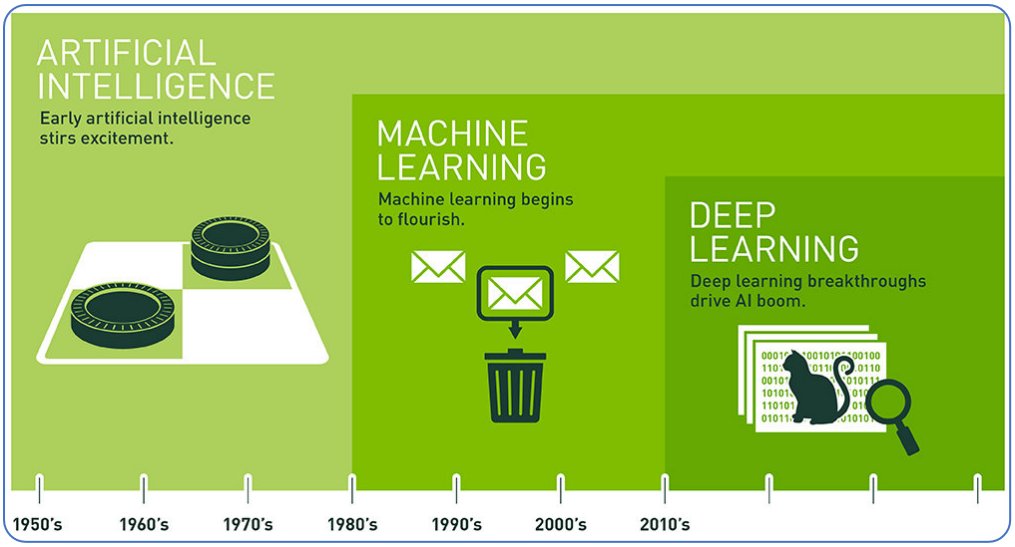
Artificial intelligence is the general name of the technology for the development of machines, which are created by completely artificial vehicles, without the use of any living organisms, that can exhibit behaviors and behaviors like human beings. Artificial intelligence, which emerged in 1950s with the works of the famous British mathematician Alan Turing, can be considered as an all-encompassing umbrella. It refers to the ability of computer programs to do things that a person can do, such as thinking, acting.(1.)

Machine Learning is a sub-branch of Artificial Intelligence. According to data from Google Trends, Machine Learning started to become more popular in September 2015 than Artificial Intelligence. If Machine Learning is a sub-branch of Artificial Intelligence, Deep Learning is the sub-branch of Machine Learning.(1.)



(Picture 1.)

The term. Deep Learning was first used by Igor Aizenberg and his colleagues in 2000 to talk about Artificial Neural Networks, and the term became popular. Artificial Neural Networks are algorithms that support deep learning, play an important role in image recognition technology and robotic technologies. The neural networks, which are inspired by nerve cells in the human brain, contain many layers. The more layers, the deeper the network. And it is predicted that these layers will be more than 1000. In summary, deep learning is a way of achieving machine learning. As the ANNs became more powerful and complex, deep learning was developed to facilitate powerful machine learning and generate AI.(1.)



(Picture 2.)

The areas of use of deep learning are extremely broad and continue to expand with the advancement of technology. Because it is a subdivision of machine learning, deep learning is usually linked to machine learning.

•Face recognition
• Voice recognition
• Defining the environment
• Object analysis
• Tissue & object analysis

However, this technology requires a significant amount of labeled data. For example, millions of images and thousands of hours of video are required to develop non-driver cars. Computer power is also very important at this point.(1.)

Elon Musk: Artificial intelligence can cause World War 3.(2.)

Hawking: The machines will soon be more active than people and will be able to manage the Earth. Humanity must find a planet that can make colony and settle down here. Because we have come to an irreversible point. The global population is increasing by alarming and our Earth is very small. It's time to hurt ourselves.(3.)

Bill Gates: It could be our artificial intelligence friend. Artificial intelligence is the latest technology that enables us to produce more products with less effort.(4.)

Putin: The leader of artificial intelligence will be the ruler of the world.(5.)

Aşağıdakilerden hangisi deep learning'in kullanım alanıdır ?

A) Yüz tanıma
B) Ses tanıma
C) Ortam tanımlama
D) Nesne analizi
E) Hepsi -Doğru Cevap

Which of the following is the use area of the deep learning?

A) Face recognition
B) Voice recognition
C) Defining the environment
D) Object analysis
E) All of them

Deep learning terimini ilk kim kullanmıştır?

A) Igor Aizenberg -Doğru Cevap
B) Alan Turner
C) Frank Rosenblatt
D) Christopher Watkins
E) David Rumelhart

Who used the term deep learning first?

A) Igor Aizenberg
B) Alan Turner
C) Frank Rosenblatt
D) Christopher Watkins
E) David Rumelhart

References:

1. https://www.import.io/post/history-of-deep-learning/(05.12.2018)
2. https://www.bbc.com/turkce/haberler-dunya-41159359(05.12.2018)
3. https://www.bbc.com/turkce/haberler/2014/12/141202_hawking_yapay_zeka(05.12.2018)
4. https://www.dunyahalleri.com/bill-gates-yapay-zeka-ile-dost-olabiliriz/(05.12.2018)
5. https://www.ensonhaber.com/putin-yapay-zeka-uretiminde-lider-olan-dunyayi-yonetecek.html(05.12.2018)
6. Picture 1.- https://www.import.io/wp-content/uploads/2017/06/Screen-Shot-2017-05-25-at-5.49.43-pm.png(05.12.2018)
7. Picture 2.- https://cdnendustri40.4flyy.com/image/79fd51c646d449f2a01156f0ac5e497f/yapay-zeka-makine-öğrenimi-derin-öğrenme-nvidia-endüstri40.jpg(05.12.2018)

FUZZY LOGİC

&

CLASSICAL LOGİC

Aslı ÇALIŞKAN 152120161030

Alperen ÇETİN 152120161030

Doğukan KAHVECİ 152120131102

What is logic?

Logic is the study of correct and incorrect reasoning. Logicians want to understand what makes good reasoning good and what makes bad reasoning bad. Understanding this helps us to avoid making mistakes in our own reasoning, and it allows us to evaluate the reasoning of others. It makes us better thinkers.

Classical Logic:

Classical logic (or standard logic) is an intensively studied and widely used class of formal logics. Each logical system in this class shares characteristic properties: Law of excluded middle and double negative elimination. Law of noncontradiction, and the principle of explosion.

Fuzzy Logic:

Fuzzy logic is an approach to computing based on "degrees of truth" rather than the usual "true or false" (1 or 0) Boolean logic on which the modern computer is based.

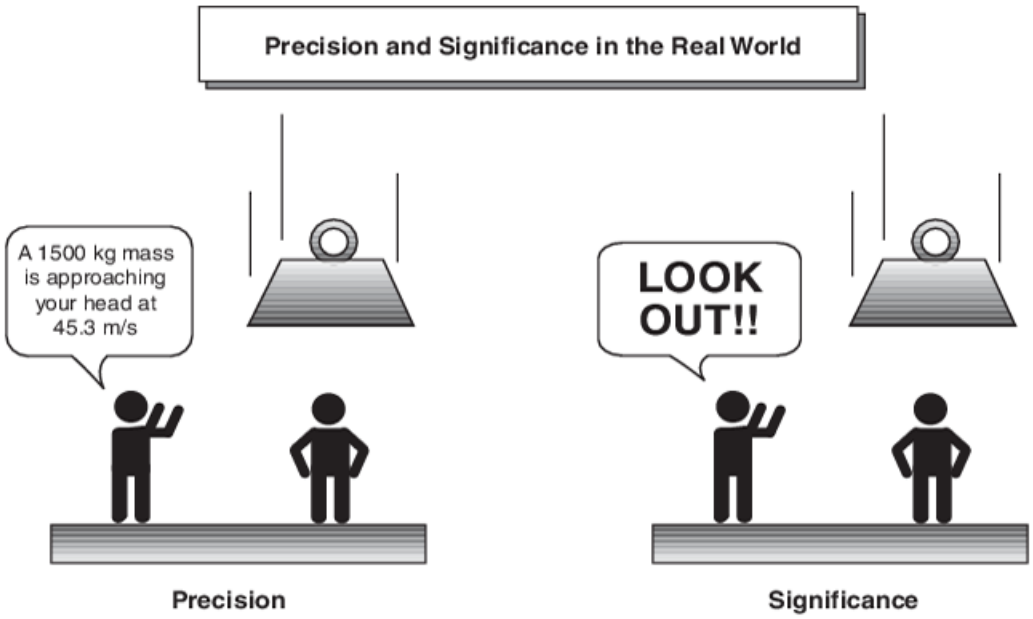
The idea of fuzzy logic was first advanced by Dr. Lotfi Zadeh of the University of California at Berkeley in the 1960s. Dr. Zadeh was working on the problem of computer understanding of natural language Natural language (like most other activities in life and indeed the universe) is not easily translated into the absolute terms of 0 and 1. (Whether everything is ultimately describable in binary. terms is a philosophical question worth pursuing, but in practice much data we might want to feed a computer is in some state in between and so, frequently, are the results of computing.) It may help to see fuzzy logic as the way reasoning really works and binary or Boolean logic is simply a special case of it.

Fuzzy Logic Features:

- Verbal variables are used.
- Words can be calculated
- There are no principles of non-existence and non-conflict.

Reasons For Using Fuzzy Logic:

- Provides flexibility
- Based on natural language.
- Describe non-linear functions.



Questions

1-)The truth values of traditional set theory is _____ and that of fuzzy set is _____

a) Either 0 or 1, between 0 & 1

b) Between 0 & 1, either 0 or 1

c) Between 0 & 1, between 0 & 1

d) Either 0 or 1, either 0 or 1

2-)The room temperature is hot. Here the hot (use of linguistic variable is used) can be represented by _____

a) Fuzzy Set

b) Crisp Set

c) Fuzzy & Crisp Set

d) None of the mentioned

3-) Fuzzy logic is usually represented as

a) IF-THEN-ELSE rules

b) IF-THEN rules

c) Both IF-THEN-ELSE rules & IF-THEN rules

d) None of the mentioned

Artificial intelligence applications and methods in medicine

ECE MELİS BOZDAĞ

152120171055

BERKAY HÜSEYİNOĞLU

152120171032

ONUR AKKEPENEK

152120171023

Eskişehir Osmangazi University

Faculty of Engineering and Architecture
Departman Of Computer Engineering

Introduction to Computer Engineering

Lecture Project

Doç. Dr. Eyyüp GÜLBANDILAR

Artificial intelligence applications and methods in medicine

- Artificial Intelligence (AI) is the science and engineering of creating intelligent machines and especially computer programs.
- 'Medical AI' is mainly concerned with building computer programs that can perform clinical diagnoses and suggest treatments.The ability of AI to detect meaningful relationships in a data set is used in many clinical situations to diagnose, treat and predict the results.
- The main AI methods used extensively are expert systems, fuzzy logic, genetic algorithm, and artificial neural networks. Medical expert systems are developed according to the recommendations of medical experts. They come up with recommendations and suggestions for the doctors, according to the patient data.
- Artificial neural networks contain neurons that mimic biological nervous systems. A network is obtained by connecting these neurons in various ways. Artificial neural networks are used extensively for determining previously unseen patterns in medical research data, classification, controlling medical devices, and detecting the characteristics of medical images.
- The abilities of AI methods have been investigated in almost all branches of medicine, and have application potentials. Before applying these still-developing methods in real clinical environments, further clinical experimentations are needed. In this study, different AI methods are reviewed and important clinical studies that have used these methods are investigated.[2]

- “The science and engineering of making intelligent machines”.

The main artificial intelligence methods :

Expert systems

Fuzzy logic

Genetic algorithm

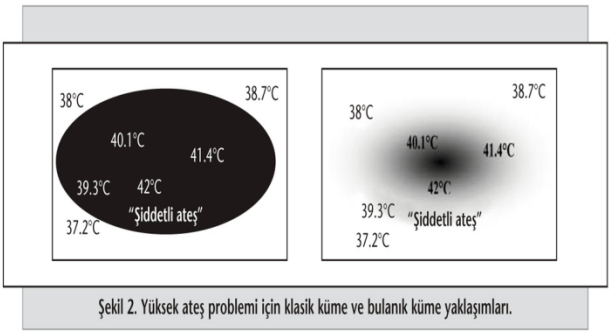
Artificial neural networks[3]

- Expert systems are computer systems which are capable of modeling reasoning and decision-making that can be done by a person skilled in the art.
- These systems are developed with the recommendations of medical experts. [2]

- Genetic algorithms are searches and optimization methods that works in a way which is similar to the evolutionary process observed in nature.
- These systems are acting on the principle of survival of the best.

Unclear medical conditions can be defined by fuzzy sets.[5]

- Fuzzy logic proposes methods of generating solutions with approximate results.
- Each entity in the fuzzy set has a membership degree. According to these values, it takes the one tone of gray.[2]

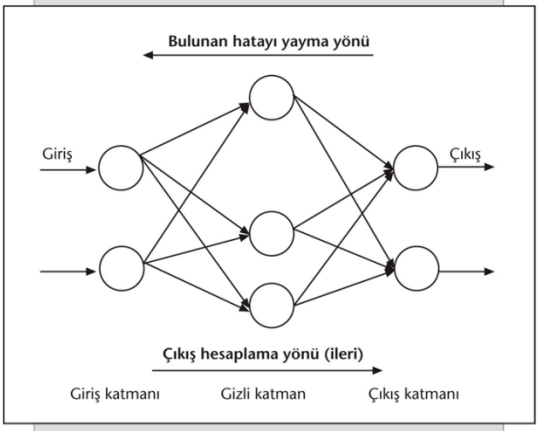


Şekil 2. Yüksek ateş problemi için klasik küme ve bulanık küme yaklaşımları.

[2]

- ANN simulates the operation of a simple biological nervous system.

- ANN is capable of learning, memorizing and revealing the correlation between data.
- In order to show the desired behavior, it must be adjusted accordingly , in other words , it must be educated
- ANN is one of the most important tools used in modeling and decision making.



Şekil 7. Geri beslemeli yapay sinir ağı. [2]

What are the applications of artificial intelligence in medicine?

Diagnosis and classification of diseases are among the very important problems in medicine[1].Other problems of artificial intelligence relate to problems in predicting the outcome of the disease, such as survival rate, predicting the patient's response to a particular treatment.[2]

Artificial intelligence methods:

- *Expert systems*
- *Fuzzy logic*
- *Genetic algorithm*
- *Artificial neural networks[3]*

Successful examples by scientists are designed to assist as a doctoral assistant. Artificial intelligence methods such as Y.S.A are very powerful tools that can be used by physicians to analyze, model and understand complex cynic data.

Using these artificial intelligence methods: [4]

1. Heart failure .

2. Liver diseases.
3. Determination of in lung nodules by nodal image and characterization of nodules .
4. Determination of growth and developmental periods.

It is practically impossible for a physician to read thousands of articles published every hour and include them in their own diagnosis and treatment methods. However, when it comes to artificial intelligence, it is not difficult to follow scientific studies. The reason for this is that people do not have the potential to compete with a computer in pursuing developments.

There are a number of SCI magazines that publish articles about the applications of artificial intelligence in medicine. [5]

• Artificial Intelligence in Medicine

• Computers in Biology and Medicine

• Computer Methods and Programs in Biomedicine

• Medical & Biological Engineering & Computing

• IEEE Transactions on Information Technology in Biomedicine

REFERENCES

1) **Turkiye Klinikleri J Med Sci 2009;29(2):314-20**
2) http://www.yogunbakimdergisi.org/managete/fu_folder/2010-01/html/2010-9-1-031-041.htm)
3) https://fikirjeneratoru.com/cesitli-yapay-zeka-tekniklerinin-karsilastirilmasi/
4) https://www.ntv.com.tr/saglik/yapay-zeka-ile-kalp-hastaliklari-ve-akciger-kanserine-dogru-teshis-kardiyologlar,EeAKennDgkCRg5gjO2JFYQ
5) (https://docplayer.biz.tr/3313861-Tipta-yapay-zeka-uygulamalari.html)
6) https://fikirjeneratoru.com/cesitli-yapay-zeka-tekniklerinin-karsilastirilmasi/
7) http://geneltip.org/upload/sayi/89/GTD-00718.pdf

Introduction & History of Computers

(Report)

Computer Engineering Department

Introduction to Computer Engineering

Prepared by:

Aysegul Kadem(152120171044)

Hager Hamza(152120171075)

Belal Rahimi(152120171077)

Contents

Belal Rahimi's part:

* What is a Computer?

* Data and Information

* Information Technology (IT)

and a small part of history of computers

Computers:

Our main part is actually history of computers, but we thought it could be better to have a brief information about computers itself.

Computers are electrical devices that accept the data, process it and give us an output and store them or we can say that they are calculating machines that can do the operations at a very high speed.

Data and information part:

Now let's talk about data and information; I just want to give an example, imagine you are going to cook a meal, you have potatoes, tomatoes, oil and water these are data and when the meal is ready or cooked it is information, now data is a collection of raw facts like numbers, symbols and characters. Now processed or organized data is called information.

Information Technology part:

The use of systems like computers and telecommunications for storing and sending information is called information technology. And I want to say that computers are a very important part of information technology.

History of computers part:

Before computers people were doing the job of computing by themselves for ex: in companies and business places there were special guys just to count and this how the name computer comes.

In ancient times people were using objects like Abacus which was 3000 years before birth of Christ and Slide rule which was made by Oughtred in 1621 and Shickard in 1623.

Now let's talk about Pascaline which was made by Blaise Pascal in 1645. The amazing thing about Pascal is that he was educated by his father and he was an inventor, physicist, mathematician and a writer.

Hajer Hamza's part:

History of computers;

1- Charles Babbage (1791-1871)

Charles Babbage was an English mathematician and inventor. He invented the Difference Engine in 1830, then he was working on a project called Analytical Engine, but he couldn't continue to invent it because of his death in 1871.

He was planned to be use logical processing unit, data storage unit and input output unit on the Analytical Engine. This logic was the basic principle of the computers, for this reason he is called the father of the computer.

2- ENIAC (Electronic Numerator Analyzer and Computer)

ENIAC was produced by John Mauchly in Pensilvanya University in 1946. It was a digital electronic computer. It was very heavy and occupied a large area and able to make 5000 collection in 1 second. It was made for military purposes.

3- EDVAC (Electronic Discrete Variable Automatic Computer)

In the same years a computer named (EDVAC) was created by the mathematician John Von Newmenin.

This computer was 10 times smaller than ENIAC and it could run 100 times faster.

4- IBM 700 SERIES

The Electronic Computers (ENIAC and IBM 700 series) made by using vacuum tubes. The vacuum tubes started to be used after 1950.

5- UNIVAC

It was made after EDVAC in 1951. It developed by inventors who invented ENIAC and UNIVAC computers. It was the first time to use magnetic tape in storing data.

6- Intel 4004 Microprocessor

Microprocessor technology was used after 1970 integrated circuit technology continued to develop.

7- Apple

Apple was invented in 1975 by two university students in a garage of their house.

Apple didn't have a keyboard and a monitor. Apple's first personal computer is Apple Macintosh.

8- IBM PC

IBM PC is the first personal computer that was released in 1981. In a short time it became standard in its segment, so soft wares are being written according to that.

Aysegul Kadem's part:

Generations and summary;

First generations; vacuum tubes computers were made in years between 1946 and 1959.

These computers were huge and they were using lots of energy and they were giving lots of heat.

Second generations; transistor computers were made in years between 1959 and 1964.

People started using transistors after vacuum tubes, they faster and they were using less energy and were giving less heat.

They were using the ASSEMBLY machine language.

Third generations; integrated circuits computers were made in years between 1964 and 1970.

These computers became famous in both medium and large business because they were smaller, faster and reliable. There are lots of transistors on one piece of silicon.

Fourth generations; microprocessor computers were made in 1970 till now.

These computers are so fast, they can store lots of information and they can use CD and disk.

These computers are smaller than the others physically and portable easily.

Summary

Today we have learned lots of things about computers and the difference between data and information.

We have learned the history of computers and its generations, now we know that what's the first PC and the size and fastness of computers.

References

- Websites: Bilgisayar ve bilgisayarin tarihcesi.Retrieved October 5,2011,from https://atabilgisayardonanim.wordpress.com/2011/10/bilgisayar-ve-bilgisayarin-tarihcesi2.pdf
- Bernard John Poole,A Brief history of computers,from www.pitt.edu/~super7/44011-45001/44911.ppt
- R.Orcun Madran.Bilgisayarin Tarihcesi.Published September,2013.Retrieved November 30,2018,from www.madran.net.
- Paul A.Freiberger and Michael R.Swaine.History of computer.Retrieved November 30,2018,from https://www.britannica.com

iOS

152120171016 Berkay Gönenç GÖKSAL

152120161004 Alihan DEMİRCİ

Eskisehir Osmangazi University

Faculty of Engineering and Architecture

Department of Computer Engineering

INTRODUCTION TO COMPUTER ENGINEERING TERM PROJECT

Assoc. Prof. Dr. Eyyup Gulbandılar

7 December 2018

Part 1

INTRODUCTION

OVERVIEW

- What is an Operating System?
- What is iOS?
- History of iOS
- iOS Jailbreaking
- Features

Our project topic is iOS. We will give informations about operating system, iOS history, jailbreaking on iOS and features of iOS versions.

Numbers at the end of the line are indicate the references.

Part 2

Development

What is an Operating System?

1. A set of programs that manage computer hardware resources and provide common services for application software. [1]
2. Examples of the widely used operating systems; iOS, Mac OS X, Microsoft Windows, Linux and Android. [1]

What is iOS?

1. Originally known as the iPhone OS, the name was changed with the introduction of the iPad. [2]
2. iOS is a mobile operating system for Apple-manufactured devices. iOS runs on the iPhone, iPad, iPod Touch and Apple TV. [3]
3. It is the second most popular mobile operating system globally after Android. [4]

History of iOS

1. The operating system was unveiled with the iPhone at the Macworld Conference & Expo on 9 January 2007, released in June of that year. [5]

2. In 2005, when Steve Jobs began planning the iPhone, he had a choice to either "shrink the Mac, which would be an epic feat of engineering, or enlarge the iPod". Jobs favored the former approach but pitted the Macintosh and iPod teams. Macintosh team with Scott Forstall winning by creating the iPhone OS. [5]
3. At the time of its unveiling in January, Steve Jobs claimed: "iPhone runs OS X" and runs "desktop applications", but at the time of the iPhone's release, the operating system was renamed "iPhone OS". [5]

Jailbreaking

1. Since its initial release, iOS has been subject to a variety of different hacks centered around adding functionality not allowed by Apple. Prior to the 2008 debut of Apple's native iOS App Store, the primary motive for jailbreaking was to bypass Apple's purchase mechanism for installing the App Store's native applications. [6]
2. In 2010, the Electronic Frontier Foundation (EFF) successfully convinced the U.S. Copyright Office to allow an exemption to the general prohibition on circumvention of copyright protection systems under the Digital Millennium Copyright Act (DMCA). The exemption allows jailbreaking of iPhones for the sole purpose of allowing legally obtained applications to be added to the iPhone. [6]

Features

- **iPhone OS 1 (29 June 2007):**

  Third-party native applications were not supported. [7]
- **iPhone OS 2 (11 July 2008):**

  It was the first release of iOS to support third-party applications via the App Store. [7]
- **iPhone OS 3 (17 June 2009):**

  It was the last version dropped the "iPhone OS" naming convention. [7]
- **iOS 4 (21 June 2010):**

The operating system added a multitasking feature, letting apps dealing with internet calling, location and audio playback function in the background. [7]

- **iOS 5 (12 October 2011):**

  Revamped notifications, the operating sytem also added iCloud and iMessage. For the first time, system software updates can be installed wirelessly. Siri introduced. [7]

  When the screen was lock, users can take photos. [8]

- **iOS 6 (19 September 2012):**

  Added a new Apple Maps app and a Passbook app, for managing different types of tickets. FaceTime was updated to work over a cellular connection. [7]

  Panorama option added on camera. Also, users can add videos and photos in their mails. [9]

- **iOS 7 (10 June 2013):**

  The new look featuring flatter icons, introduced AirDrop, CarPlay, phone and car integration and automatic app updates in the App Store. [5]

- **iOS 8 (17 September 2014):**

  Updated keyboard with QuickType, app updates in the release included the new Health app. Apple updated its Music app with a streaming service called Apple Music. Siri has Turkish language option in 8.3 update. [5]

  Using Touch ID in Third-party application. [10]

- **iOS 9 (16 September 2015):**

  Apple added a Night Shift mode, brought new user experience functions, including Quick Actions, and Peek and Pop, based on the touch-sensitive display technology in the iPhone 6S. [5]

  Taking live photos and 3D Touch. [11]

- **iOS 10 (13 September 2016):**

  Maps has a redesigned interface, Photos has algorithmic search and categorization of media known as "Memories". Native apps could be removed. [5]

- **iOS 11 (19 September 2017):**

Siri was updated to translate between languages, camera had new settings for improved portrait-mode photos. [5] Operating system also introduced the ability to record the screen. [12] Mobile data and Personal Hotspot use in control center easily. [13]

- **iOS 12 (17 September 2018):**

  Performance optimizations were made in order to speed up common tasks across all supported iOS devices. Tests done by Apple on an iPhone 6 Plus showed apps launching 40 percent faster, the system keyboard activating 50 percent faster, and the camera opening 70 percent faster.
  Screen Time is a new feature in iOS 12 that records the amount of time a user spent on the device. CarPlay can now run third-party navigation applications. Messages in iOS 12 introduces a new type of customizable Animoji called "Memoji" which allows a user to create a 3D character of themselves. FaceTime now supports video and audio with up to 32 people at once. [14]

Part 3
The End

Referenes:

(1) https://farkiminfarki.wordpress.com/2014/11/18/isletim-sistemi-ve-cesitleri-nelerdir/

(2) https://www.lifewire.com/what-is-ios-1994355

(3) https://www.techopedia.com/definition/25206/ios

(4) https://en.wikipedia.org/wiki/IOS

(5) https://en.wikipedia.org/wiki/IOS#History

(6) https://en.wikipedia.org/wiki/IOS#Jailbreaking

(7) https://en.wikipedia.org/wiki/IOS_version_history

(8) http://www.ozgurcetin.com.tr/ios-5-yenilikleri/

(9) http://www.kahramanugurlu.com/ios-6-ile-gelen-yenilikler/

(10) https://webrazzi.com/2014/06/02/apple-ios8/

(11) https://shiftdelete.net/10-gizli-iphone-6s-ozellikleri-65088

(12) https://shiftdelete.net/ios-11-yayinlandi

(13) https://shiftdelete.net/ios-11-icin-25-gizli-ozellik-ios-11-gizli-ozellikleri-mercek-altinda

(14) https://www.apple.com/ios/ios-12/

ENDUSTRY 4.0

152120171050-ORHAN İNAÇ

152120171013-ENES SOLAK

152120181066-İBRAHİM ERTAN YILMA

Eskisehir Osmangazi University

Faculty of Engineering and Architecture

Computer Engineering Departman

Introduction to Computer Engineering Lecture Project

Lecturer Eyyüp Günbandılar

December 2018

Industrial Revolution

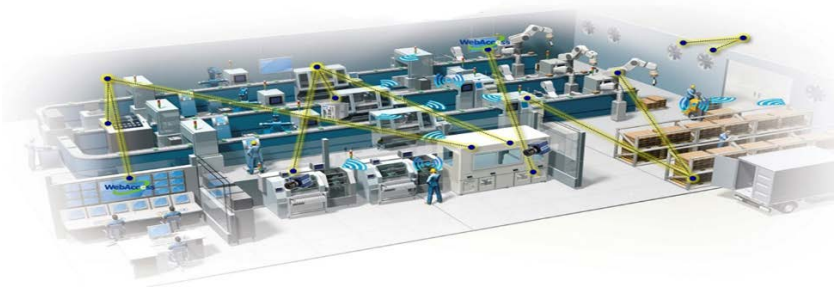
What is Industry 4.0 ¿

Industry 4.0 in general terms; Robotic production is taken over completely, development of artificial intelligence, production of three-dimensional printers from factories to homes, huge amounts of information by analyzing the data collected by data analysis and many other innovations can be examined.

INDUSTRY 4.0 DESIGN PRINCIPLES

The design principles allow manufacturers to investigate a potential transformation to Industry 4.0 technologies. These are the design principles:

- Interoperability
- Virtualization
- Decentralization
- Real-Time Capability
- Service-Orientation Modularity

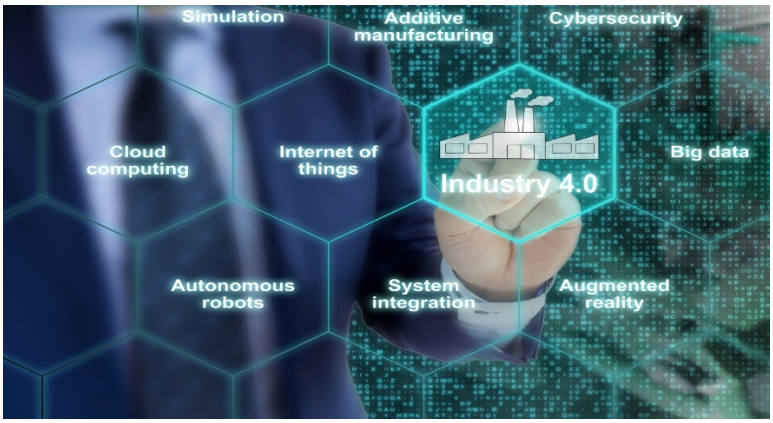


Advantages of Industry 4.0

1. Efficiency

With fewer people and more automation, companies can make decisions more rapidly and keep efficiency high. Automation also tends to keep quality high, and that's an area that further boosts efficiency.

(https://www.controleng.com/articles/six-benefits-of-industrie-4-0-for-businesses/)



2. Agility

With a focus on high mix, small lots, and even one-off manufacturing, Industrie 4.0 brings agility to the next level. When products know their own specifications, it accelerates processes throughout production processes.

(https://www.controleng.com/articles/six-benefits-of-industrie-4-0-for-businesses/)

3. Innovation

Since Industrie 4.0 production lines are made to accommodate high mix and low volumes, they are ideally suited to new product introduction and experimentation in design.

(https://www.controleng.com/articles/six-benefits-of-industrie-4-0-for-businesses/)

4. Customer experience

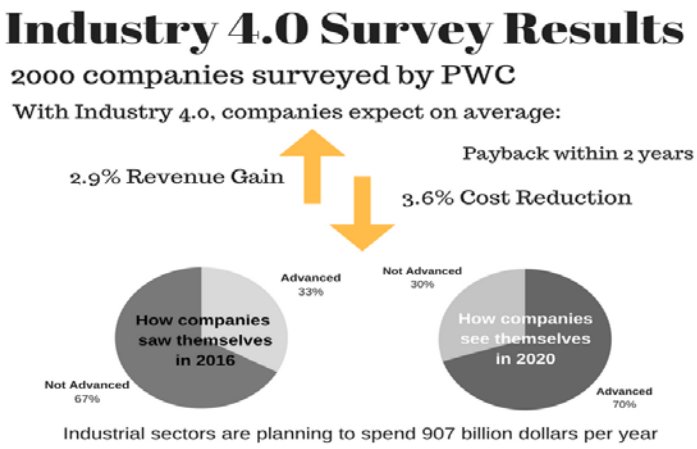
The responsiveness and deep information availability available with Industry 4.0 mean manufacturers can give customers better service. In some cases, self-service views into the operation may be possible.

(https://www.controleng.com/articles/six-benefits-of-industrie-4-0-for-businesses/)

5. Costs

While Industrie 4.0 will require initial investments, once the intelligence is built into products and processes, the costs will plummet. Fewer quality problems lead to less material waste, lower personnel and operating costs. The speed and ability to handle such a high mix seamlessly will also lower costs.

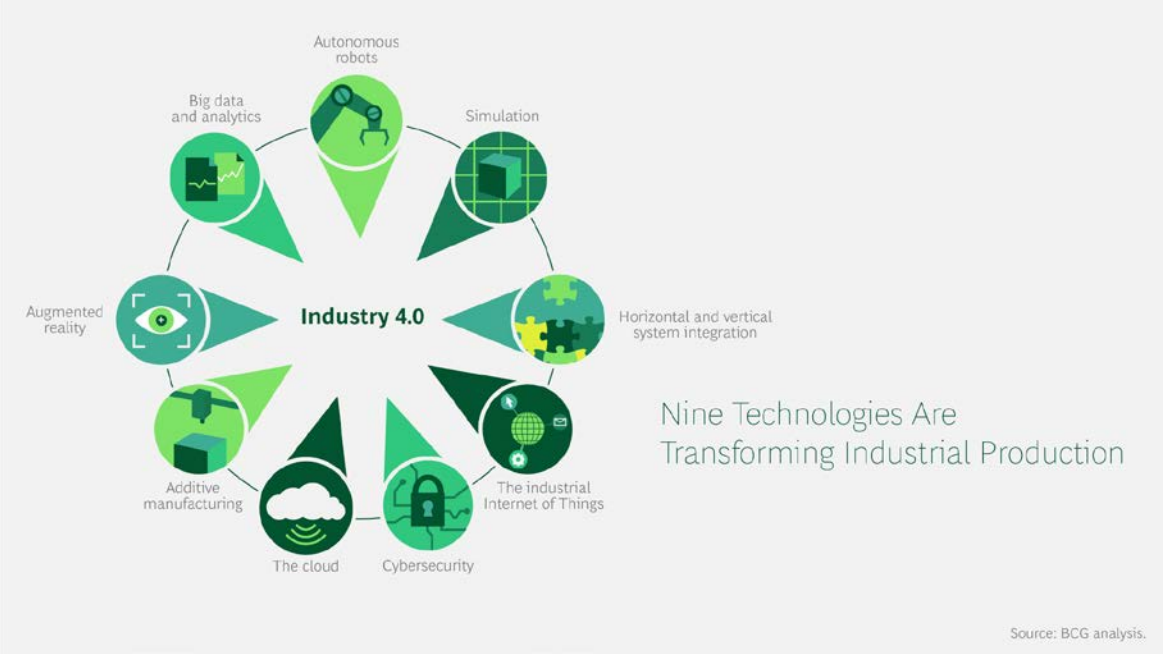
(https://www.controleng.com/articles/six-benefits-of-industrie-4-0-for-businesses/)



6. Revenues

With better quality, lower costs, higher mix, and the ability to serve customers well, Industrie 4.0 puts manufacturers on a path to be a preferred supplier to current customers. It also opens up ways to serve larger markets, offer customized and thus higher-margin products, and with intelligent products and operations to offer services to accompany the products.

(https://www.controleng.com/articles/six-benefits-of-industrie-4-0-for-businesses/)



BIG DATA AND ANALYTICS

In an Industry 4.0 context, the collection and comprehensive evaluation of data from many different sources—production equipment and systems as well as enterprise- and customer-management systems—will become standard to support real-time decision making.

(https://www.bcg.com/capabilities/operations/embracing-industry-4.0-rediscovering-growth.aspx)

AUTONOMOUS ROBOTS

Robots will eventually interact with one another and work safely side by side with humans and learn from them. These robots will cost less and have a greater range of capabilities than those used in manufacturing today.

Siemens Corporate Technology'nin Otomasyon ve Kontrol Teknolojisi Alanında Ürün Tasarımı, Modelleme ve Simülasyon Araştırması grubunun başında olan Livio Dalloro, örümcek robotların bir gün endüstri işçilerinin yeni bir türü olabilecek temsilcileri olduğunu öngörüyor. (KAYNAK: SIEMENS)

(https://www.endustri40.com/katmanli-uretimde-otonom-orumcek-robotlar/)

HORIZONTAL AND VERTICAL SYSTEM INTEGRATION

With Industry 4.0, companies, departments, functions, and capabilities will become much more cohesive, as cross-company, universal data-integration networks evolve and enable truly automated value chain

https://www.bcg.com/capabilities/operations/embracing-industry-4.0-rediscovering-growth.aspx

SIMULATION

Simulations will be used more extensively in plant operations to leverage real-time data and mirror the physical world in a virtual model, which can include machines, products, and humans.

(https://www.bcg.com/capabilities/operations/embracing-industry-4.0-rediscovering-growth.aspx)

THE INDUSTRIAL INTERNET OF THINGS

This will allow field devices to communicate and interact both with one another and with more centralized controllers, as necessary. It will also decentralize analytics and decision making, enabling real-time responses.

(https://www.bcg.com/capabilities/operations/embracing-industry-4.0-rediscovering-growth.aspx)

CYBERSECURITY

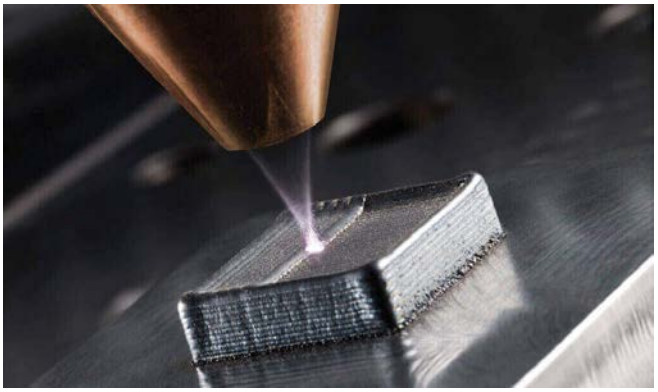
With the increased connectivity and use of standard communications protocols that come with Industry 4.0, the need to protect critical industrial systems and manufacturing lines from cybersecurity threats increases dramatically. As a result, secure, reliable communications as well as sophisticated identity and access management of machines and users are essential.

(https://www.bcg.com/capabilities/operations/embracing-industry-4.0-rediscovering-growth.aspx)

ADDITIVE MANUFACTURING

Companies have just begun to adopt additive manufacturing, such as 3-D printing, which they use mostly to prototype and produce individual components. With Industry 4.0, these additive-manufacturing methods will be widely used to produce small batches of customized products that offer construction advantages, such as complex, lightweight designs.

(https://www.bcg.com/capabilities/operations/embracing-industry-4.0-rediscovering-growth.aspx)



AUGMENTED REALITY

Augmented-reality-based systems support a variety of services, such as selecting parts in a warehouse and sending repair instructions over mobile devices. These systems are currently in their infancy, but in the future, companies will make much broader use of augmented reality to provide workers with real-time information to improve decision making and work procedures.

(https://www.bcg.com/capabilities/operations/embracing-industry-4.0-rediscovering-growth.aspx)


E-Maschine

REFERENCES

https://www.endustri40.com/katmanli-uretimde-otonom-orumcek-robotlar/

https://www.endustri40.com/endustri-tarihine-kisa-bir-yolculuk/

https://www.bcg.com/capabilities/operations/embracing-industry-4.0-rediscovering-growth.aspx

https://youtu.be/c3kP-jjgx1E

https://www.controleng.com/articles/six-benefits-of-industrie-4-0-for-businesses/

Questions 1:

Which of the following is an advantage of industry 4.0?

a) Efficiency
b) Better Costs
c) Customer Experience
d) Innovation
e) All of the Above

Answer:e

Questions 2:

Which of the below is not a design principle of industry 4.0?

a) Interoperability
b) Virtualization
c) Termination
d) Decentralization
e) Real-Time Capability

Answer:c

Orhan İNAÇ / Enes SOLAK / İbrahim Ertan YILMAZ

INTRODUCIN TO COMPUTER ENGINEERING

DAMLA DALGIÇ

152120171052

MUZAFFER ARDA USLU

152120171007

ESKİSEHİR OSMANGAZI UNIVERSITY

ASSOCIATE PROFESSOR DR EYYUP GULBANDILAR

- The First Computer Viruses:

In 1948, the idea of a computer program that was copied by John Von Neuman was first proposed.A program called Elk Cloner was created outside the laboratory or computer and was defined as the first computer virus. The virus written by Rich Skrenta in 1982 infected Apple DOS 3.3 operating system and spread through floppy disks. This virus was originally a joke prepared by a high school student and was hidden in the game files. In the 50th run, the virus was released, and a controversy about the virus named Elk Cloner was completed on a blank screen.

His first Ph.D. thesis on Computer Virus was prepared in 1983.

The first PC (Personal Computer) virus (c) was a boot sector virus called Brain and was written in 1986 by two brothers, Simple and Amjad Farooq Alvi, who worked in Lahore, Pakistan. The brothers officially prepared the virus to block the pirated copies of the software they wrote. However, analysts claim that the Ashar virus, a kind of Brain variant (variant), was actually created before the Brain when the codes were examined.

Before the spread of computer networks, many viruses were spreading through removable media, especially floppy disks. In the early days of the personal computer cycle, many users were migrating information or programs from one computer to another with floppy disks. Some viruses were spreading to programs on these disks. Some were also trying to load themselves into the boot sectors and become active as soon as the computer was run.

Elk Cloner:

The program with a personality,

It will get on all your disks,

It will infiltrate your chips,

Yes, it’s cloner!

It will stick to you like glue,

It will modify ram too.

Sen in the cloner!

- What Is The Computer Virus?

In fact, computer viruses are common for years. However, increasing computer users and connecting computers with the Internet cause this problem to grow day by day. Computer viruses are small software programs.

A computer virus is a malicious program that self-replicates by copying itself to another program. In other words, the computer virus spreads by itself into other executable code or documents.

Viruses often perform some type of harmful activity on infected hosts.

Computer viruses are computer programs that can cause harm to your computer in different ways. These programs are programmed to damage your computer according to the way you run.

In addition, all the virus code (known as the virus) is activated on a system after replication (spreading to other files on your computer, infecting other computers over the network, etc.).

- Types of Computer Virus:

There are several types of viruses.

1)Boot Virus: These viruses are very common, but they are easy to prevent. A boot sector virus is a program that spreads by inserting itself into the boot sector of a hard disk.

2)File Virus: A virus is a program that spreads by attaching itself to other programs on the computer.Such as .com, .exe, sys.,dll, .ovl,or ,scr…

3)Macro Virus: Viruses are the most common. Some are really harmful, others are just doing things that make you nervous. Such things are considered harmful because they affect productivity, even if they do not harm the information used.

- How Does Computer Virus Spread?

A virus is a small program that spreads by attaching itself to the computer. Easily copy itself from program to program. E-mail attachments.Downloads, Shared files ,Cracked Softwares,Fake Websites,Networks ,From Mobile Devices.

- What Does a Computer Virus Do?

A virus tries to take control of computer system it has infected at the first opportunity availible. It makes copies of itself and also try to carry harmful task written in its program. This process can happen so quickly that the user is not even aware of the presence of a virus in his/her computer.

A virus might corrupt or delete data on your computer, use your e-mail program to spread itself to other computers, or even erase everything on your hard disk.

- How to Identify Computer Viruses?

Computer speaks to me.Computer running extremely slow. Applications won’t start. Can’t connect internet or internet slows. System memory and disk space is reduced. Error messages on regular basis. The lengths, dates and times of the .COM and .EXE adjustable programs change. If music is playing when the key is pressed, it should be suspected that the system has a virus.

- Prevention from Computer Viruses:

Install reliable Anti-virus program. Avoid opening suspicious websites. Never opening attachment without scanning. Set-up automatic scanning. Know what to look. Install a firewall (Screening).

- Best Antivirus Softwares:

Norton antivirus

MacAfee virus scan

Kaspersky antivirus

- References:

http://www.antivirusworld.com/articles/history.php

http://www.articlesbase.com/information-technology- articles/antivirus-history-277310.html

https://en.wikipedia.org/wiki/Computer_virus

Questions:

1-Which of the following is NOT a harmful software?

A) Worms

B) SpyWare

C) Trojan Horses

D) FireWall

E) Rootkits

2-Which of the following is NOT a way to protect your computer from a virus?

A) Disable autorun

B) Use an anti-virus program.

C) Clear Internet cache and browsing history.

D) Be cautious with emails links.

E) Don’t sneeze to on computer.

History of Internet

The history of the Internet begins with the development of electronic computers in the 1950s. Initial concepts of wide area networking originated in several computer science laboratories in the United States, United Kingdom, and France The U.S. Department of Defense awarded contracts as early as the 1960s, including for the development of the ARPANET project, directed by Robert Taylor and managed by Lawrence Roberts. The first message was sent over the ARPANET in 1969 from computer science Professor Leonard Kleinrock's laboratory at University of California, Los Angeles (UCLA) to the second network node at Stanford Research Institute (SRI).

Packet switching networks such as the NPL network, ARPANET, Tymnet, Merit Network, CYCLADES, and Telenet, were developed in the late 1960s and early 1970s using a variety of communications protocols. Donald Davies first demonstrated packet switching in 1967 at the National Physics Laboratory (NPL) in the UK, which became a testbed for UK research for almost two decades. The ARPANET project led to the development of protocols for internetworking, in which multiple separate networks could be joined into a network of networks.

The Internet protocol suite (TCP/IP) was developed by Robert E. Kahn and Vint Cerf in the 1970s and became the standard networking protocol on the ARPANET, incorporating concepts from the French CYCLADES project directed by Louis Pouzin. In the early 1980s the NSF funded the establishment for national supercomputing centers at several universities, and provided interconnectivity in 1986 with the NSFNET project, which also created network access to the supercomputer sites in the United States from research and education organizations. Commercial Internet service providers (ISPs) began to emerge in the very late 1980s. The ARPANET was decommissioned in 1990. Limited private connections to parts of the Internet by officially commercial entities emerged in several American cities by late 1989 and 1990, and the NSFNET was decommissioned in 1995, removing the last restrictions on the use of the Internet to carry commercial traffic.

In the 1980s, research at CERN in Switzerland by British computer scientist Tim Berners-Lee resulted in the World Wide Web, linking hypertext documents into an information system, accessible from any node on the network. Since the mid-1990s, the Internet has had a revolutionary impact on culture, commerce, and technology, including the rise of near-instant communication by electronic mail, instant messaging, voice over Internet Protocol (VoIP) telephone calls, two-way interactive video calls, and the World Wide Web with its discussion forums, blogs, social networking, and online shopping sites. The research and education community continues to develop and use advanced networks such as JANET in the United Kingdom and Internet2 in the United States. Increasing amounts of data are transmitted at higher and higher speeds over fiber optic networks operating at 1 Gbit/s, 10 Gbit/s, or more. The Internet's takeover of the global communication landscape was almost instant in historical terms: it only communicated 1% of the information flowing through two-way telecommunications networks in the year 1993, already 51% by 2000, and more than 97% of the telecommunicated information by 2007. Today the Internet continues to grow, driven by ever greater amounts of online information, commerce, entertainment, and social networking. However, the future of the global internet may be shaped by regional differences in the world.

Merit Network

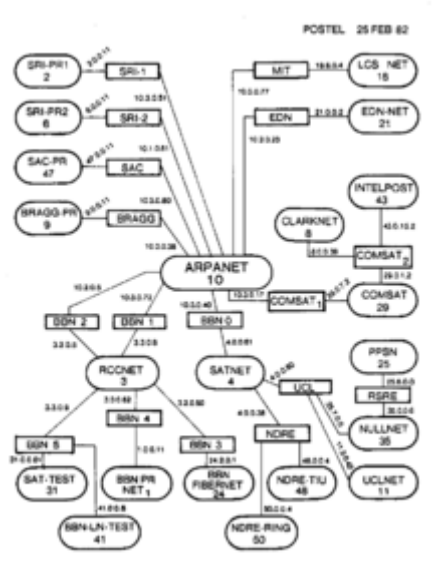
The Merit Network was formed in 1966 as the Michigan Educational Research Information Triad to explore computer networking between three of Michigan's public universities as a means to help the state's educational and economic development. With initial support from the State of Michigan and the National Science Foundation (NSF), the packet-switched network was first demonstrated in December 1971 when an interactive host to host connection was made between the IBM mainframe computer systems at the University of Michigan in Ann Arbor and Wayne State

University in Detroit. In October 1972 connections to the CDC mainframe at Michigan State University in East Lansing completed the triad. Over the next several years in addition to host to host interactive connections the network was enhanced to support terminal to host connections, host to host batch connections (remote job submission, remote printing, batch file transfer), interactive file transfer, gateways to the Tymnet and Telenet public data networks, X.25 host attachments, gateways to X.25 data networks, Ethernet attached hosts, and eventually TCP/IP and additional public universities in Michigan join the network. All of this set the stage for Merit's role in the NSFNET project starting in the mid-1980s.

CYCLADES

The CYCLADES packet switching network was a French research network designed and directed by Louis Pouzin. First demonstrated in 1973, it was developed to explore alternatives to the early ARPANET design and to support network research generally. It was the first network to make the hosts responsible for reliable delivery of data, rather than the network itself, using unreliable datagrams and associated end-to-end protocol mechanisms. Concepts of this network influenced later ARPANET architecture.

Merging the networks and creating the Internet (1973–95)



Map of the TCP/IP test network in February 1982

TCP/IP

Main article: Internet Protocol Suite

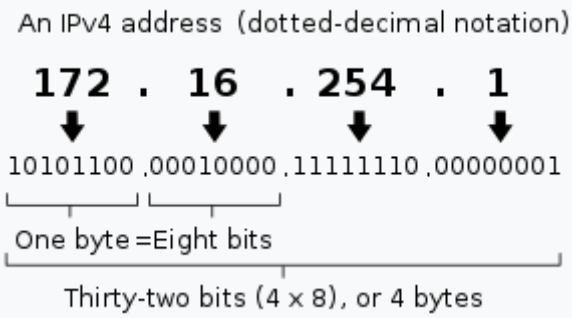
With so many different network methods, something was needed to unify them. Robert E. Kahn of DARPA and ARPANET recruited Vinton Cerf of Stanford University to work with him on the problem. By 1973, they had worked out a fundamental reformulation, where the differences between network protocols were hidden by using a common internetwork protocol, and instead of the network being responsible for reliability, as in the ARPANET, the hosts became responsible. Cerf credits Hubert Zimmermann, Gerard LeLann and Louis Pouzin (designer of the CYCLADES network) with important work on this design.

The specification of the resulting protocol, *RFC 675* – *Specification of Internet Transmission Control Program*, by Vinton Cerf, Yogen Dalal and Carl Sunshine, Network Working Group, December 1974, contains the first attested use of the term *internet*, as a shorthand for *internetworking*; later RFCs repeat this use, so the word started out as an adjectiverather than the noun it is today.

A Stanford Research Institute's Packet Radio Van, site of the first three-way internetworkedtransmission.

With the role of the network reduced to the bare minimum, it became possible to join almost any networks together, no matter what their characteristics were, thereby solving Kahn's initial problem. DARPA agreed to fund development of prototype software, and after several years of work, the first demonstration of a gateway between the Packet Radio network in the SF Bay area and the ARPANET was conducted by the Stanford Research Institute. On November 22, 1977 a three network demonstration was conducted including the ARPANET, the SRI's Packet Radio Van on the Packet Radio Network and the Atlantic Packet Satellite network.

Stemming from the first specifications of TCP in 1974, TCP/IP emerged in mid-late 1978 in nearly its final form, as used for the first decades of the Internet, known as "IPv4".which is described in IETF publication RFC 791 (September 1981).



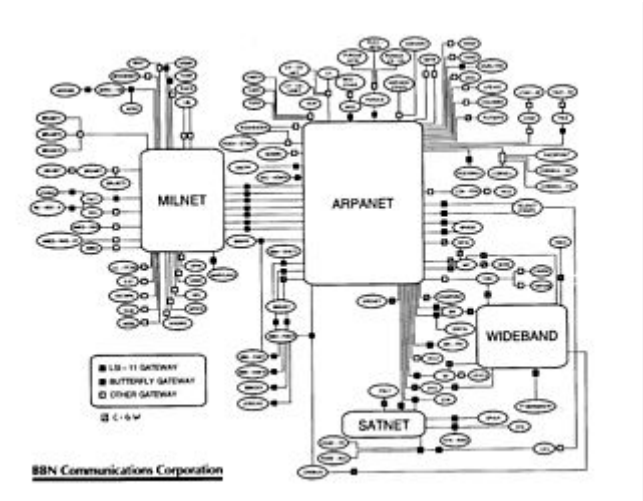
Decomposition of the quad-dotted IPv4 address representation to its binary value

IPv4 uses 32-bit addresses which limits the address space to 2^{32} addresses, i.e. 4294967296 addresses. The last available IPv4 address was assigned in January 2011.IPv4 is being replaced by its successor, called "IPv6", which uses 128 bit addresses, providing 2^{128} addresses, i.e. 340282366920938463463374607431768211456. This is a vastly increased address space. The shift to IPv6 is expected to take many years, decades, or perhaps longer, to complete, since there were four billion machines with IPv4 when the shift began.

The associated standards for IPv4 were published by 1981 as RFCs 791, 792 and 793, and adopted for use. DARPA sponsored or encouraged the development of TCP/IP implementations for many operating systems and then scheduled a migration of all hosts on all of its packet networks to TCP/IP. On January 1, 1983, known as flag day, TCP/IP protocols became the only approved protocol on the ARPANET, replacing the earlier NCP protocol.

From ARPANET to NSFNET

Main articles: ARPANET and NSFNET

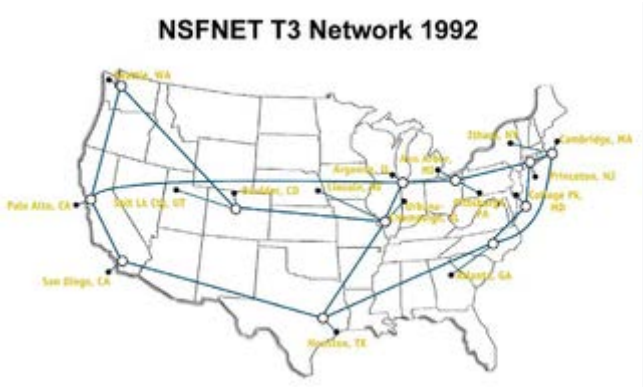


BBN Technologies TCP/IP Internet map of early 1986.

After the ARPANET had been up and running for several years, ARPA looked for another agency to hand off the network to; ARPA's primary mission was funding cutting edge research and development, not running a communications utility. Eventually, in July 1975, the network had been turned over to the Defense Communications Agency, also part of the Department of Defense. In 1983, the U.S. military portion of the ARPANET was broken off as a separate network, the MILNET. MILNET subsequently became the unclassified but military-only NIPRNET, in parallel with the SECRET-level SIPRNET and JWICS for TOP SECRET and above. NIPRNET does have controlled security gateways to the public Internet.

The networks based on the ARPANET were government funded and therefore restricted to noncommercial uses such as research; unrelated commercial use was strictly forbidden. This initially restricted connections to military sites and universities. During the 1980s, the connections expanded to more educational institutions, and even to a growing number of companies such as Digital Equipment Corporation and Hewlett-Packard, which were participating in research projects or providing services to those who were.

Several other branches of the U.S. government, the National Aeronautics and Space Administration (NASA), the National Science Foundation (NSF), and the Department of Energy(DOE) became heavily involved in Internet research and started development of a successor to ARPANET. In the mid-1980s, all three of these branches developed the first Wide Area Networks based on TCP/IP. NASA developed the NASA Science Network, NSF developed CSNET and DOE evolved the Energy Sciences Network or ESNet.



T3 NSFNET Backbone, c. 1992

NASA developed the TCP/IP based NASA Science Network (NSN) in the mid-1980s, connecting space scientists to data and information stored anywhere in the world. In 1989, the DECnet based Space Physics Analysis Network (SPAN) and the TCP/IP-based NASA Science Network (NSN) were brought together at NASA Ames Research Center creating the first multiprotocol wide area network called the NASA Science Internet, or NSI. NSI was established to provide a totally

integrated communications infrastructure to the NASA scientific community for the advancement of earth, space and life sciences. As a high-speed, multiprotocol, international network, NSI provided connectivity to over 20,000 scientists across all seven continents.

In 1981 NSF supported the development of the Computer Science Network (CSNET). CSNET connected with ARPANET using TCP/IP, and ran TCP/IP over X.25, but it also supported departments without sophisticated network connections, using automated dial-up mail exchange.

In 1986, the NSF created NSFNET, a 56 kbit/s backbone to support the NSF-sponsored supercomputing centers. The NSFNET also provided support for the creation of regional research and education networks in the United States, and for the connection of university and college campus networks to the regional networks.[53] The use of NSFNET and the regional networks was not limited to supercomputer users and the 56 kbit/s network quickly became overloaded. NSFNET was upgraded to 1.5 Mbit/s in 1988 under a cooperative agreement with the Merit Network in partnership with IBM, MCI, and the State of Michigan. The existence of NSFNET and the creation of Federal Internet Exchanges (FIXes) allowed the ARPANET to be decommissioned in 1990. NSFNET was expanded and upgraded to 45 Mbit/s in 1991, and was decommissioned in 1995 when it was replaced by backbones operated by several commercial Internet Service Providers.

Transition towards the Internet

The term "internet" was adopted in the first RFC published on the TCP protocol (RFC 675:Internet Transmission Control Program, December 1974) as an abbreviation of the term *internetworking* and the two terms were used interchangeably. In general, an internet was any network using TCP/IP. It was around the time when ARPANET was interlinked with NSFNET in the late 1980s, that the term was used as the name of the network, Internet, being the large and global TCP/IP network.

As interest in networking grew and new applications for it were developed, the Internet's technologies spread throughout the rest of the world. The network-agnostic approach in TCP/IP meant that it was easy to use any existing network infrastructure, such as the IPSS X.25 network, to carry Internet traffic. In 1982, one year earlier than ARPANET, University College London replaced its transatlantic satellite links with TCP/IP over IPSS.

Many sites unable to link directly to the Internet created simple gateways for the transfer of electronic mail, the most important application of the time. Sites with only intermittent connections used UUCP or FidoNet and relied on the gateways between these networks and the Internet. Some gateway services went beyond simple mail peering, such as allowing access to File Transfer Protocol (FTP) sites via UUCP or mail.

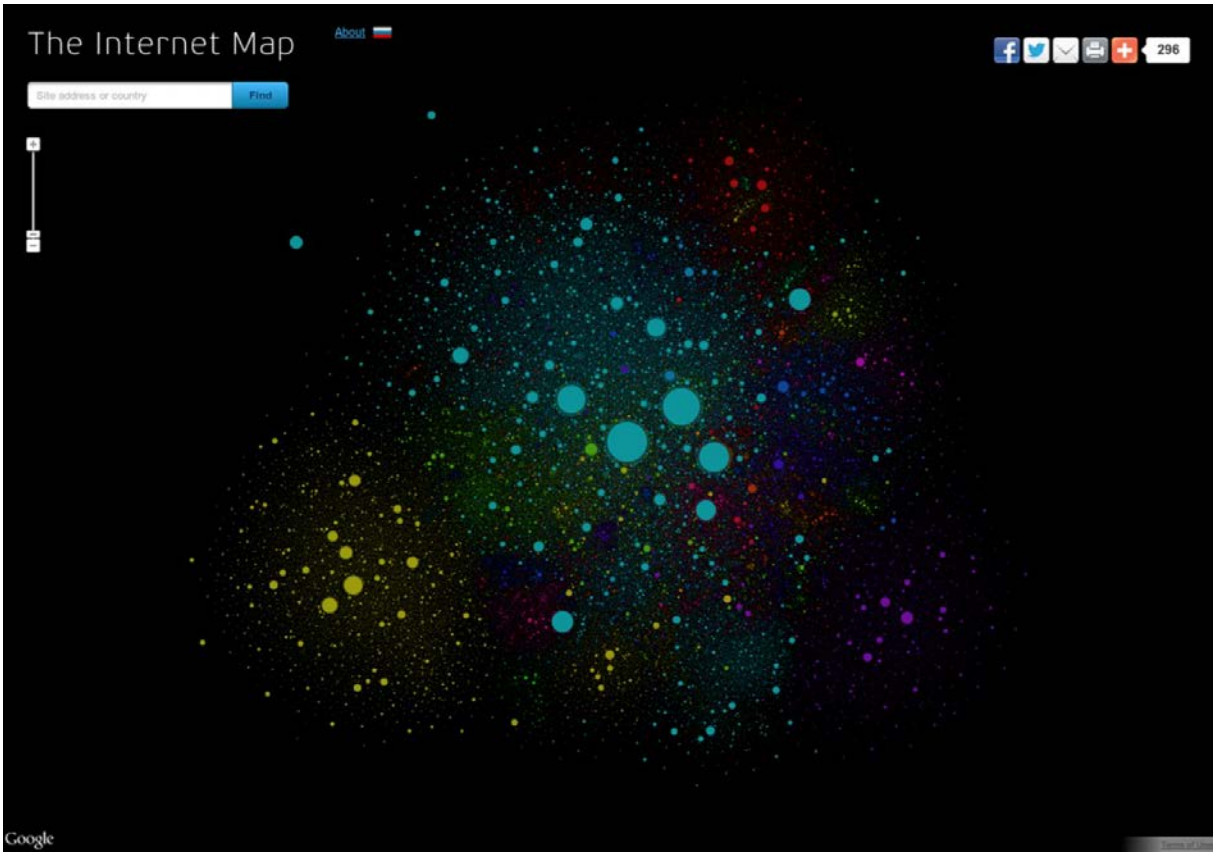
Finally, routing technologies were developed for the Internet to remove the remaining centralized routing aspects. The Exterior Gateway Protocol (EGP) was replaced by a new protocol, the Border Gateway Protocol (BGP). This provided a meshed topology for the Internet and reduced the centric architecture which ARPANET had emphasized. In 1994, Classless Inter-Domain Routing (CIDR) was introduced to support better conservation of address space which allowed use of route aggregation to decrease the size of routing tables.

1965: Two computers at MIT Lincoln Lab communicate with one another using packet-switching technology.
1968: Beranek and Newman, Inc. (BBN) unveils the final version of the Interface Message Processor (IMP) specifications. BBN wins ARPANET contract.
1969: On Oct. 29, UCLA's Network Measurement Center, Stanford Research Institute (SRI), University of California-Santa Barbara and University of Utah install nodes. The first message is "LO," which was an attempt by student Charles Kline to "LOGIN" to the SRI computer from the university. However, the message was unable to be completed because the SRI system crashed.
1972: BBN's Ray Tomlinson introduces network email. The Internetworking Working Group (INWG) forms to address need for establishing standard protocols.
1973: Global networking becomes a reality as the University College of London (England) and Royal Radar Establishment (Norway) connect to ARPANET. The term Internet is born.

1974: The first Internet Service Provider (ISP) is born with the introduction of a commercial version of ARPANET, known as Telenet.
1974: Vinton Cerf and Bob Kahn (the duo said by many to be the Fathers of the Internet) publish "A Protocol for Packet Network Interconnection," which details the design of TCP.
1976: Queen Elizabeth II hits the “send button” on her first email.
1979: USENET forms to host news and discussion groups.
1981: The National Science Foundation (NSF) provided a grant to establish the Computer Science Network (CSNET) to provide networking services to university computer scientists.
1982: Transmission Control Protocol (TCP) and Internet Protocol (IP), as the protocol suite, commonly known as TCP/IP, emerge as the protocol for ARPANET. This results in the fledgling definition of the Internet as connected TCP/IP internets. TCP/IP remains the standard protocol for the Internet.
1983: The Domain Name System (DNS) establishes the familiar .edu, .gov, .com, .mil, .org, .net, and .int system for naming websites. This is easier to remember than the previous designation for websites, such as 123.456.789.10.
1984: William Gibson, author of "Neuromancer," is the first to use the term "cyberspace."
1985: Symbolics.com, the website for Symbolics Computer Corp. in Massachusetts, becomes the first registered domain.
1986: The National Science Foundation’s NSFNET goes online to connected supercomputer centers at 56,000 bits per second — the speed of a typical dial-up computer modem. Over time the network speeds up and regional research and education networks, supported in part by NSF, are connected to the NSFNET backbone — effectively expanding the Internet throughout the United States. The NSFNET was essentially a network of networks that connected academic users along with the ARPANET.
1987: The number of hosts on the Internet exceeds 20,000. Cisco ships its first router.
1989: World.std.com becomes the first commercial provider of dial-up access to the Internet.
1990: Tim Berners-Lee, a scientist at CERN, the European Organization for Nuclear Research, develops HyperText Markup Language (HTML). This technology continues to have a large impact on how we navigate and view the Internet today.
1991: CERN introduces the World Wide Web to the public.
1992: The first audio and video are distributed over the Internet. The phrase "surfing the Internet" is popularized.
1993: The number of websites reaches 600 and the White House and United Nations go online. Marc Andreesen develops the Mosaic Web browser at the University of Illinois, Champaign-Urbana. The number of computers connected to NSFNET grows from 2,000 in 1985 to more than 2 million in 1993. The National Science Foundation leads an effort to outline a new Internet architecture that would support the burgeoning commercial use of the network.
1994: Netscape Communications is born. Microsoft creates a Web browser for Windows 95.
1994: Yahoo! is created by Jerry Yang and David Filo, two electrical engineering graduate students at Stanford University. The site was originally called "Jerry and David's Guide to the World Wide Web." The company was later incorporated in March 1995.
1995: Compuserve, America Online and Prodigy begin to provide Internet access. Amazon.com, Craigslist and eBay go live. The original NSFNET backbone is decommissioned as the Internet’s transformation to a commercial enterprise is largely completed.
1995: The first online dating site, Match.com, launches.
1996: The browser war, primarily between the two major players Microsoft and Netscape, heats up. CNET buys tv.com for $15,000.
1996: A 3D animation dubbed "The Dancing Baby" becomes one of the first viral videos.
1997: Netflix is founded by Reed Hastings and Marc Randolph as a company that sends users DVDs by mail.
1997: PC makers can remove or hide Microsoft’s Internet software on new versions of Windows 95, thanks to a settlement with the Justice Department. Netscape announces that its browser will be free.
1998: The Google search engine is born, changing the way users engage with the Internet.

1998: The Internet Protocol version 6 introduced, to allow for future growth of Internet Addresses. The current most widely used protocol is version 4. IPv4 uses 32-bit addresses allowing for 4.3 billion unique addresses; IPv6, with 128-bit addresses, will allow 3.4 x 1038 unique addresses, or 340 trillion trillion trillion.
1999: AOL buys Netscape. Peer-to-peer file sharing becomes a reality as Napster arrives on the Internet, much to the displeasure of the music industry.
2000: The dot-com bubble bursts. Web sites such as Yahoo! and eBay are hit by a large-scale denial of service attack, highlighting the vulnerability of the Internet. AOL merges with Time Warner
2001: A federal judge shuts down Napster, ruling that it must find a way to stop users from sharing copyrighted material before it can go back online.
2003: The SQL Slammer worm spread worldwide in just 10 minutes. Myspace, Skype and the Safari Web browser debut.
2003: The blog publishing platform WordPress is launched.
2004: Facebook goes online and the era of social networking begins. Mozilla unveils the Mozilla Firefox browser.
2005: YouTube.com launches. The social news site Reddit is also founded.
2006: AOL changes its business model, offering most services for free and relying on advertising to generate revenue. The Internet Governance Forum meets for the first time.
2006: Twitter launches. The company's founder, Jack Dorsey, sends out the very first tweet: "just setting up my twttr."
2009: The Internet marks its 40th anniversary.
2010: Facebook reaches 400 million active users.
2010: The social media sites Pinterest and Instagram are launched.
2011: Twitter and Facebook play a large role in the Middle East revolts.
2012: President Barack Obama's administration announces its opposition to major parts of the Stop Online Piracy Act and the Protect Intellectual Property Act, which would have enacted broad new rules requiring internet service providers to police copyrighted content. The successful push to stop the bill, involving technology companies such as Google and nonprofit organizations including Wikipedia and the Electronic Frontier Foundation, is considered a victory for sites such as YouTube that depend on user-generated content, as well as "fair use" on the Internet.
2013: Edward Snowden, a former CIA employee and National Security Agency (NSA) contractor, reveals that the NSA had in place a monitoring program capable of tapping the communications of thousands of people, including U.S. citizens.
2013: Fifty-one percent of U.S. adults report that they bank online, according to a survey conducted by the Pew Research Center.
2015: Instagram, the photo-sharing site, reaches 400 million users, outpacing Twitter, which would go on to reach 316 million users by the middle of the same year.
2016: Google unveils Google Assistant, a voice-activated personal assistant program, marking the entry of the Internet giant into the "smart" computerized assistant marketplace. Google joins Amazon's Alexa, Siri from Apple, and Cortana from Microsoft.

The Internet Map



https://internet-map.net/

Hasan Dalkılıç-152120171004

Fatih Arslan-152120161003

References:

https://en.wikipedia.org/wiki/History_of_the_Internet

https://tr.wikipedia.org/wiki/%C4%B0nternet%27in_tarihi

https://teknokoliker.com/2014/01/internet-tarihi-ve-gecmisten-gunumuze-internetin-gelisimi.html

https://www.yenisafak.com/bilgi/turkiyede-internetin-kisa-tarihi-3404209

https://www.livescience.com/20727-internet-history.html

https://internet-map.net/

CYBER SECURITY

ELIF ESRA EKER

152120171041

ILKAY YUKSEL

152120171054

Eskisehir Osmangazi University

Faculty of Engineering and Architecture

Computer Engineering Departman

Introduction to Computer Engineering Lecture

Lecturer Eyyüp Gülbandılar

December 2018

WHAT IS CYBER ?

Cyber is an abstract and broad infrastructure that works in the information systems infrastructure. Includes different meanings such as cyber, virtual reality, computer

networks and internet networks. Cyber security covers many different fields, from information to computer security.Any device that interacts with the internet, can receive and send signals is a threat. It is necessary to be conscious in order not to be harmed by threats. (https://medium.com/@alisabrikim/siber-güvenlik-nedir-İnternette-ne-kadar-güvendeyiz-c55691b98679)

CYBER THREATS

Cybercrime; Through informatics systems crimes committed.

Cyber Terrorism; Cyber terrorism is the action taken through computer systems to achieve a specific political goal.

State Supported Cyber Attacks; The security of information and informatics systems is becoming part of national and international security.

In the near future, inter-state fight will be concentrated in cyber space.

(http://www.bilgesam.org/Images/Dokumanlar/0-81-2014041721siberguvenlik.ppt)

CYBER WEAPONS

Bacteria,Worm,Virus,Trojan horse,Logic bomb,Back door,Slave computers,Rootkit,Advanced Cyber Threats,Attack kits.

CYBER DEFENSE SYSTEMS

Authentication systems,The firewall,Antivirus,Data leakage prevention system,Network access control system,Content filter,Encryption Systems,Digital signature…

REFERENCES

- http://www.bilgesam.org/Images/Dokumanlar/0-81-2014041721siberguvenlik.ppt
- http://www.istanbulsaglik.gov.tr/w/anasayfalinkler/belge/siber_guvenlik_sunum.pdf
- https://medium.com/@alisabrikim/siber-güvenlik-nedir-İnternette-ne-kadar-güvendeyiz-c55691b98679

INTRODUCTION TO COMPUTER ENGINEERING

152120171037 Eda ÇAM

152120171056 Yasemin GERBOĞA

Eskişehir Osmangazi University

Faculty of Engineering and Architecture

Computer Engineering Department

Introduction to Computer Engineering Project

DOÇ.DR. Eyüp GÜLBANDILAR

DECEMBER 2018

CHAPTER 1

INTRODUCTION

- Free Software
- Linux's History
- Features
- Windows vs Linux
- GNU/Linux Distributions
- Why should I use Linux?
- Where is GNU/Linux use?
- Companies and Devices Running on GNU/Linux
- Linux's Commands
- Source

Free Software

- Free Software is a concept related to the freedom of users to run, copy, distribute, work, modify and develop software.
- Free software is a program used and distributed at no charge to the user.
- Freedom to run the software for any purpose. (Freedom # 0)
- Whatever you want it to learn how the program works and the freedom to change it . (Freedom #1) The source code of the software is a prerequisite for this.

  Source code: A set of instructions and expressions written by a programmer using a computer programming language. This code is then converted to computer language by a compiler. This code is called object code
- Freedom to distribute copies. (Freedom #2)
- Freedom to develop and publish the program so that the whole community can benefit. (Freedom #3) The source code of the software is a prerequisite for this.

  A program is free software if users have these freedoms.

Free Software Applications

- Photo editing: GIMP : This application is an application like Photoshop.
- Video player: VLC Media Player : Video player
- Streaming audio: Spotify : Open source application that allows you to listen to music
- Virtual machines: VirtualBox: Virtual machine creation program.
- LibreOffice : This application is an application like Microsoft Office.
- Firefox :It is a search engine.
- 7zip: This application is an application like WinRAR. It is a file compression program
- FileZilla: Remote server connection protocol.

Linux's History

- LINUX is a core of a Unix based operating system which is started to develop by a student (Linus Torvalds)of Computer at Helsinki University to try the architecture of protected mode of Intel's new processor 80386.
- It's a open source free software that has been developed rapidly by the contribution of many software developers from all over the world after the announcement made on the Internet and it is still developing with the same support.
- Linux accepts the 100% GNU declaration. GNU, GNU unix is not the logic of the same type of system to act as a closed-code Unix system has received a kind of duel request and has won this duel
- Linus was bitten by the penguin in her tent in a camp where he went. He decided to make it a symbol of Linux.

Features

- Security vulnerabilities are less than other operating systems.
- You have a very fast computer without worrying about your system.
- Programs that are completely similar to an application that we purchase for a fee are free of charge.
- Continuous update and long-term product support.
- From a crashed windows system, you can recover the data with linux.
- You can use it without leaving a trace with Life run feature.
- You can make changes with Linux. You can create panels and interfaces.

Windows VS Linux

	Windows	Linux
Attack/Security	More than 11000 to date malicious software was discovered.	Nearly 800 malware attacks have occurred.
Control	Control operating system hand is.	User-managed system.

Price	from $ 45- $ 450	from $ 0 - $ 350
Design	All prepared by a professional team and created under a single roof.	It is mostly prepared by amateur designers. A separate design team is available for every Linux distribution. This is the labor force.
Graphical Interface	Windows Explorer	GNOME, KDE desktop

GNU/Linux Destributions

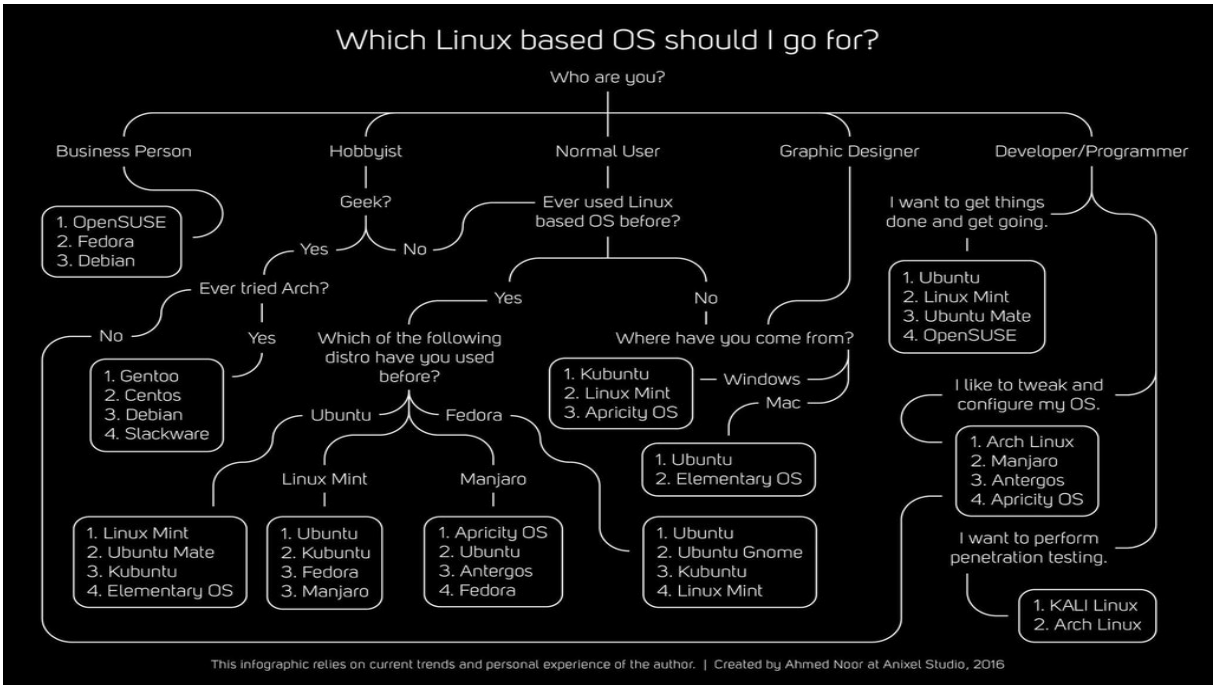
- Linux distribution is a collection of free softwafe projects that have become a complete operating system.
- Slackware Linux: It is the oldest distribution.(1992)
- Redhat: It is a commercial Linux distribution developed by Redhat. This is preferred in many servers worldwide. Because it is a well-tested and stable Linux distribution.
- Fedora Core:
  Redhat can be named as the continuation of Linux fedora, is produced by a non-profit organization.
- Mandriva: It is the most popular distribution among home users.
- SuSe(Software and System Development): It is a Linux distribution by Novell.
- Debian: It is one of the most common Linux distributions. Google is also preferred on many well-known websites.

Ubuntu: It provides a simple and up-to-date and secure operating system for its users to use and install. Ubuntu has not been developed within a company, but by means of programmers in various parts of the world. In 2007,Ubuntu selected the most popular Linux distribution.

- Pardus: PARDUS is an open source operating system based on Debian GNU / Linux. It can be downloaded for free and easily installed over the Internet. In order to make Pardus a competitive and sustainable operating system for personal or corporate use, TUBITAK ULAKBIM continues its development and maintenance efforts.
- ANDROID: It is an original and free operating system based on Linux, developed by Google and Open Handset Alliance for mobile devices

Why should I use Linux?

- To forget the virus word forever.
- Because it's free.
- Since you don't need to install more tools after installing the system.
- To avoid dealing with drivers.
- Update your software with a single click.



Where is GNU/Linux used?

- GNU/Linux;It is used in automation systems, servers,digital sensors of cars,operating systems of televisions, the majority of mobile devices, defense industry, aircraft software, radars,ships,banks and so on.

Companies and Devices Running on GNU/Linux

Almost all university computing centers, as well as companies such as Google, Ford,McDonalds',IBM,Twitter,HSBS,Hyndai,Ford,Oracle,eToys,Samsung,Hp,NASA,Wikipedia,General Motors,Siemens, use the Linux operating system.

Linux's Commands

- Pwd: If we want to know which file we're in, we write pwd.
- Ls:"Ls" command is used to know which files in the current directory.
- CD: " cd " is the command used to go to a directory.
- mkdir & rmdir: " mkdir "command is used when you create a folder or directory. " Rmdir" can be used to delete an empty directory.
- Man:The man command is used to learn more about and how to use a command.

- Nano: " nano " is the text editor currently installed on the Linux command line.
- gcc: GNU C compiler
- Whoami:Tells who you are.
- Sudo: " sudo " is a command commonly used in the Linux command line. Sudo comes from the word "SuperUserDo Sud. We can use this command if we want to use root privileges in an operation or if an administrative structure is required.

QUESTİONS

- 1)Which of the following is not a Linux distribution?
- A)Ubuntu
- B)Mandriva
- C)Fedora
- D)Unix
- E) Debian

- 2)What is the task of the 'mkdir' command?
- A) It is used to learn more about and how to use a command.
- B) It is the text editor currently installed on the Linux command line.
- C) It is used when you create a folder or directory.
- D) It tells who you are.
- E) It used to go to a directory.

RESOURCE

https://www.cloudeos.com/topluluk/hangi-isletim-sistemi-secmelisiniz

https://linux.web.tr/blog/15/linux-dagitimi-secimi

https://xaphtrick.wordpress.com/2008/04/30/linux-uzerinde-gcc-kullanimi-c-kodlarini-derleme-ve-calistirma/

https://wiki.ubuntu-tr.net/index.php?title=Temel_Linux_komutları

https://aktif.net/tr/Aktif-Blog/Teknik-Makaleler/Yeni-Baslayanlar-icin-Basit-Linux-Komutlari

https://fossbytes.com/windows-10-free-open-source-software-alternative/

https://www.pcgamer.com/the-best-free-pc-software/

https://www.gnu.org/philosophy/free-sw.tr.html

https://medium.com/türkiye/özgür-yazılım-ve-açık-kaynak-dünyası-1fe42df1591b

https://www.profelis.com.tr/tr/blog/yazi/1808/linux-ve-windows-farki/

https://www.bilisimkonulari.com/windows-ile-linuxun-karsilastirilmasi.html

https://www.technopat.net/sosyal/konu/linux-ve-windows-karsilastirilmasi.301904/

https://onedio.com/haber/ozgurluge-ve-ozgur-yazilima-destek-18-maddeyle-neden-windows-yerine-linux-kullanmaliyiz-717488

https://www.gnu.org/philosophy/categories.tr.html

https://bianet.org/bianet/kultur/13818-ozgur-yazilim-linux-windowsa-karsi

https://www.pardus.org.tr

https://linux.org.tr/linux-nedir/

http://www.belgeler.org/lis/archive-tlkg-lis-1g.html

INTRODUCTION TO COMPUTER ENGINEERING

Yiğithan Güven :152120171068

Mustafa Harun Turkmenoğlu :152120171059

Eskişehir Osmangazi University

Faculty of Engineering and Architecture

Computer Engineering Department

Introduction to Computer Engineering Project

DOÇ.DR. Eyüp GÜLBANDILAR

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CHAPTER 1

INTRODUCTION

Brief History of Money

What is Cyrptocurrency ?

Why Cyrptocurrency is important

What is Blockchain ?

Cyrptocurrency Types

Brief History of Money

Trade System

Trade involves the transfer of Trade involves the transfer of goods or services from one person or entity to another, often in exchange for money. A system or network that allows trade is called a market.An early form of trade, barter, saw the direct exchange of goods and services for other goods and services.[1][need quotation to verify] Barter involves trading things without the use of money.Later, one bartering party started to involve precious metals, which gained symbolic as well as practical importance.[citation needed] Modern traders generally negotiate through a medium of exchange, such as money.from one person or entity to another, often in exchange for money
A system or network that allows trade is called a market.

Printed Money

The first known banknote was first developed in China during the Tang and Song dynasties, starting in the 7th century.

Electronic Banking

Electronic Bankining that enables customers of a bank or other financial institution to conduct a range of financial transactions through the financial institution's website. The online banking system will typically connect to or be part of the core banking system operated by a bank and is in contrast to branch banking which was the traditional way customers accessed banking services.

What is Cyrptocurrency ?

A cryptocurrency is a digital or virtual currency that uses cryptography for security.

Cryptocurrencies are systems that allow for the secure payments of online transactions.

Cryptocurrencies are making it easier to transfer funds directly between two peers in a transaction, without the need for a trusted third party such as a bank or credit card company

The first blockchain-based cryptocurrency was Bitcoin, which still remains the most popular and most valuable. Today, there are thousands of alternate cryptocurrencies with various functions or specifications. Some of these are clones of Bitcoin while others are forks, or new cryptocurrencies that split off from an already existing one.

Why Cyrptocurrency is important ?

- Fast Transactions
- Staying Anonymous While Transactions
- No Third Party Expenses
- Its more secure thany any traditional methods
- There are no need to store somwhere in the World like a gold and printed Money
- No need to produce a physical copy

Peer To Peer System

P2P exchanges allow the participants of the market to trade directly with each other without any trusted third party to process all trades.

'Regular' cryptocurrency exchanges are companies, which serve as intermediaries between their customers and make a profit by collecting fees. Conversely, the interactions between counterparties on peer-to-peer exchanges are directed exclusively by pre-programmed software, with no requirement for human middlemen.

What is Blockchain

Picture a spreadsheet that is duplicated thousands of times across a network of computers. Then imagine that this network is designed to regularly update this spreadsheet and you have a basic understanding of the blockchain.

Information held on a blockchain exists as a shared database. This is a way of using the network that has obvious benefits. The blockchain database isn't stored in any single location, meaning the records it keeps are truly public and easily verifiable. No centralized version of this information exists for a hacker to corrupt. Hosted by millions of computers simultaneously, its data is accessible to anyone on the internet.

Security Protocol

The SHA (Secure Hash Algorithm) is one of a number of cryptographic hash functions. A cryptographic hash is like a signature for a text or a data file. SHA-256 algorithm generates an almost-unique, fixed size 256-bit (32-byte) hash. Hash is a one way function – it cannot be decrypted back.

Mining and System Gifts

Mining is a peer-to-peer computer process used to secure and verify bitcoin transactions—payments from one user to another on a decentralized network. Mining involves adding bitcoin transaction data to Bitcoin's global public ledger of past transactions. Each group of transactions is called a block. Blocks are secured by Bitcoin miners and build on top of each other forming a chain. This ledger of past transactions is called the blockchain. The blockchain serves to confirm transactions to the rest of the network as having taken place. Bitcoin nodes use the blockchain to distinguish legitimate Bitcoin transactions from attempts to re-spend coins that have already been spent elsewhere.

The primary purpose of mining is to allow Bitcoin nodes to reach a secure, tamper-resistant consensus. Mining is also the mechanism used to introduce bitcoins into the system. Miners are paid transaction fees as well as a subsidy of newly created coins, called block rewards. This both serves the purpose of disseminating new coins in a decentralized manner as well as motivating people to provide security for the system through mining

During the last several years an incredible amount of Bitcoin mining power (hashrate) has come online making it harder for individuals to have enough hashrate to single-handedly solve a block and earn the payout reward. To compensate for this pool mining was introduced. Pooled mining is

a mining approach where groups of individual miners contribute to the generation of a block, and then split the block reward according the contributed processing power.

Cyrptocurrency Types

Bitcoin (BTC)

One of the most commonly known currencies, Bitcoin is considered an original cryptocurrency. It was created in 2009 as an open-source software. The author of the whitepaper that established this digital currency was Satoshi Nakamoto.

Zcash

Part of Zcash's appeal is its enhanced security and privacy. Transactions are recorded on a blockchain, but details of sender, recipient and amount stay private

Ethereum

Created in 2015, Ethereum is a type of cryptocurrency that is an open source platform based on blockchain technology. While tracking ownership of digital currency transactions, Ethereum blockchain also focuses on running the programming code of any decentralized application, allowing it to be used by application developers to pay for transaction fees and services on the Ethereum network.

Ripple

Ripple's intent has always been to aid the sector, primarily by facilitating global payments. The company said in a tweet that three of the top five global money transfer companies are expected to use in payments this year.

Bitcoin Cash

One of bitcoin's signature attributes .Rather than a central entity making decisions, the community of miners vote on things like how to improve the system. In 2017, there was a disagreement within the community over how to address scaling issues. That disagreement led to a fork and the creation of Bitcoin Cash.

Litecoin

Like Bitcoin Cash, Litecoin was also created as a fork from bitcoin. Its main claim to fame is its quicker settlement goal: Litecoin aims to settle transactions in two-and-a-half minutes, compared with 10 minutes for bitcoin.

Which one is not a Cyriptocurrency ?

a) SHA-256
b) Linear Regression

c) Logistic Regression

d) Top Secret Algorithm

e) None of All

Answer is **A**

Which one is not a Cyriptocurrency ?

a) Bitcoin

b) Iota

c) Doge Coin

d) J91 Coin

e) Etherium

Answer is **D**

Resources

https://blockgeeks.com/guides/what-is-blockchain-technology/

https://medium.com/nakamo-to/blockchain-the-trust-protocol-8f7e5d7bff1b

https://www.trustetc.com/blog/September-2018/types-of-cryptocurrency

https://www.bankrate.com/investing/types-of-cryptocurrency/

https://www.trustetc.com/blog/September-2018/types-of-cryptocurrency

https://www.investopedia.com/terms/c/cryptocurrency.asp

https://www.bitcoin.com/bitcoin-mining

What is the Hack ?

Hacking generally refers to unauthorized intrusion into a computer or a network.

The person engaged in hacking activities is known as a hacker.

This hacker may alter system or security features to accomplish a goal that differs from the original purpose of the system.

Hacking Techniques

Hackers employ a variety of techniques for hacking, including:

Vulnerability scanner: Checks computers on networks for known weaknesses.

Password cracking: The process of recovering passwords from data stored or transmitted by computer systems

Packet sniffer: Applications that capture data packets in order to view data and passwords in transit over networks

Spoofing attack: Involves websites which falsify data by mimicking legitimate sites, and they are therefore treated as trusted sites by users or other programs

Root kit: Represents a set of programs which work to subvert control of an operating system from legitimate operators

Trojan horse: Serves as a back door in a computer system to allow an intruder to gain access to the system later

Viruses: Self-replicating programs that spread by inserting copies of themselves into other executable code files or documents

Key loggers: Tools designed to record every keystroke on the affected machine for later retrieval

Hacker

Hacking actions are differentiated as illegal and unacceptable (black/grey hat hacking), or legal and acceptable (white hat hacking).

- Black hat hackers break into computer systems illegally and cause harm by stealing or destroying data, i.e., a banking system to steal money for personal gain.
- White hat hackers use their skills to help enterprises create robust computer systems.
- Grey hat hackers perform illegal hacking activities to show off their skills, rather than to achieve personal gain.

Anonymous

Since their debut in 2003, Anonymous has been credited for attacking several notable targets,

including Amazon, PayPal, Sony, the Westboro Baptist Church, the Church of Scientology, parts of the dark web, and the governments of Australia, India, Syria, the United States, among dozens of others.

Albert Gonzalez

Albert Gonzalez executed one of the largest-known identity thefts the world has ever seen.

In 2010 he was sentenced to 20 years in prison after confessing to stealing millions of personal credit and debit cards accounts. He was accused of stealing as many as 170 million credit card numbers, the Associated Press reported.

Kevin Mitnick

After serving a year in prison for hacking into the Digital Equipment Corporation's network, he was let out for three years of supervised release. But near the end of that period, he fled and went on a 2.5-year hacking spree that involved breaching the national defense warning system and stealing corporate secrets.

Jonathan James

Jonathan James or better known as c0mrade, hacked into Defense Threat Reduction Agency of US department. Further, he installed a sniffer that scrutinized the messages passed on between the DTRA The first juvenile to be imprisoned for a cyber-crime at the age of 16, employees. Not only did he keep a check on the messages being passed around, in the process, he collected the passwords and usernames and other such vital details of the employees, and further even stole essential software. All this cost NASA to shut down its system and to pay from its pocket $41,000. c0mrade, however, had a bitter ending as James committed suicide in 2008.

Kevin Poulsen

How far would you go to win your dream car or a dream house? How far will you go to win an online contest or a radio show contest? Perhaps, you shall keep trying your luck, unless you are Kevin Poulsen! Poulsen infiltrated a radio shows call-in contest just so he could win a Porsche. Dark Dante, as he was better known, went underground after FBI started pursuing him. He, later, was found guilty of seven counts of mail, wire and computer fraud, money laundering and the likes. What turned out to be rewarding in Dark Dante's case is – his past crafted his future. Poulsen now serves as a Senior Editor at Wired.

Astra

Astra, a Sanskrit word for weapon was the penname of a hacker who dealt in the weapon stealing and selling. A 58-year-old Greek Mathematician hacked into the systems of France's Dassault Group, stole vulnerable weapons technology data and sold it to different countries for five long years. While the real identity of the ASTRA remains untraced, officials have said that he had been wanted since 2002. Astra sold the data to approximately 250 people from around the globe, which cost Dassault $360 millions of damage.

Ayyıldız Tim

Ayyıldız Tim founded in New Zealand in 2002 and operating in Turkey itself, patriotic, nationalist and Kemalist Turkish hacker group is defined as. The group has announced its name by hacking the United States Department of Defense website.

Attack on sites with a United States (US) extension.

Attack on the United Nations site

Hacking Israeli state sites.

Attack on sites with Chinese extensions.

Cyber Attack & News

- **Stuxnet is a malicious computer worm, first uncovered in 2010. Thought to have been in development since at least 2005, Stuxnet targets SCADA systems and is believed to be responsible for causing substantial damage to Iran's nuclear program. Although neither country has openly admitted responsibility, the worm is believed to be a jointly built American/Israeli cyberweapon.**
- **Hackers have taken control of printers around the world.It is the latest in a series of such attacks, but this time they say they have the power to destroy the machines.The stunt was first carried out last month, when one member claimed to have forced about 50,000 printers to create posters supporting his favourite vlogger PewDiePie.**

Question

Do you think there will be cyber world war in the future? İf your answer is yes, how people are affected by this situation?

Black hats hackers will cause major problems in the future?

References

https://tr.wikipedia.org/wiki/Ayy%C4%B1ld%C4%B1z_Tim, 13.12.2018 21:46

https://thoughtcatalog.com/siddhi-palande/2014/06/10-best-hackers-the-world-has-ever-known/ , 13.12.2018 21:00

https://www.youtube.com/watch?v=7UaPL5PGywo 11.12.2018 03:57

https://en.wikipedia.org/wiki/Stuxnet#Iran_as_target, 22.12.2018 18:52

https://www.techopedia.com/definition/26361/hacking 13.12.2018 21:03

https://www.bbc.com/news/technology-46552339?intlink_from_url=https://www.bbc.com/news/topics/cp3mvpdp1r2t/cyber-attacks&link_location=live-reporting-story 17.12.2018 19:27

https://www.makeuseof.com/tag/5-of-the-worlds-most-famous-hackers-what-happened-to-them/

https://en.wikibooks.org/wiki/Hacking/Introduction/The_hacker_ethic

INTRODUCTION TO COMPUTER ENGINEERING

Nail Emre Kayapınar

152120151009

Hack and Hacking Crime

Konumuz klasik mantık ve bulanık mantık arasındaki farklılıklar ve benzerlikler. Bu konuda öncelikle klasik mantıktan bahsetmek isterim. Klasik mantık yani diğer adıyla Aristo mantık, günlük hayatta karşımıza fazla çıkmaz. Bunun sebebi klasik mantıkta yalnızca iki önermenin olmasıdır; doğru veya yanlış. Oysa bizim hayatımızdaki hiçbir şey yalnızca iki parametreye bağlı değildir. Ayrıca klasik mantık ikili sistemin temelidir. Klasik mantıktaki doğru ve yanlış ikili birimlerde 1 ve 0 olarak geçer.

Örneğin klasik mantıkta bir şeyi elma olarak tanımlamamız için onun tam bir elma olması gerekir. Eğer ki herhangi bir parçası eksik veya ısırılmış olursa klasik mantığa göre o bir elma değildir.

Bulanık mantığın temelleri ise Lutfi Aliasker Zade tarafından 1965 yılında yayınladığı makale sonucu atılmıştır. Kendisi Azeri asıllı bir Amerikan vatandaşıdır.

Bulanık mantık klasik mantıktan oldukça farklıdır. Klasik mantık 1 ve 0 değerini alırken, bulanık mantık; 1 ve 0 arasındaki tüm değerleri alabilir. Yani günlük yaşamımızı tam anlamıyla karşılayacak olan mantık türü, bulanık mantıktır. Bulanık mantıktaki ifadeler daha çok sözel ifadelerdir. Örneğin; sıcak, soğuk, çok soğuk, çok çok soğuk, biraz sıcak gibi. Klasik mantıkta sadece sıcak ve soğuk olmak üzere iki ifade kullanabiliriz.

Klasik mantıkta çalışan bir programda;

TEMEL GİRDİLER→PROGRAM→SABİT BİR SONUÇ

şeklinde iken bulanık mantıkta ise şu şekildedir;

SAYISI BELLİ OLMAYAN VERİ YIĞINI→PROGRAM→GİRDİLERE VE VARSAYIMA GÖRE DEĞİŞEN BİR VEYA BİRDEN FAZLA SONUÇ

Bir örnek vermek gerekirse, beyni klasik mantıkla oluşturulan bir otomobile “15 metre ileriye park et.” komutu verirken, bulanık mantıkla oluşturulana “Çok fazla uzaklaşmadan park et.” komutu verebiliriz.

Sonuç olarak, bulanık mantık klasik mantığa göre çok daha kapsamlıdır, dolayısıyla bulanık mantık bir yapay zeka öğrenme sistemidir. Gerçeğe (insan zekasına) en yakın yapay zeka, bulanık mantıkla oluşturulabilir.

1)Fuzzy logic is a form of ……. .

A) Two valued logic

B) Crisp Set Logic

C) Many-Valued Logic

D) Binary set logic

E) None of the mentioned

2)The truth values of traditional set theory is_____and that of fuzzy set is_____.

A) Either 0 or 1, between 0&1.

B) Between 0&1, either 0 or 1.

C) Between 0&1, between 0&1.

D) Either 0 or 1, either 0 or 1.

E) None of the mentioned.

WEB DESIGNING

CEM HACIEVLİYAGİL 152120171019

GÖRKEM GÖREN 152120161043

INTRODUCTION TO COMPUTER ENGINEERING

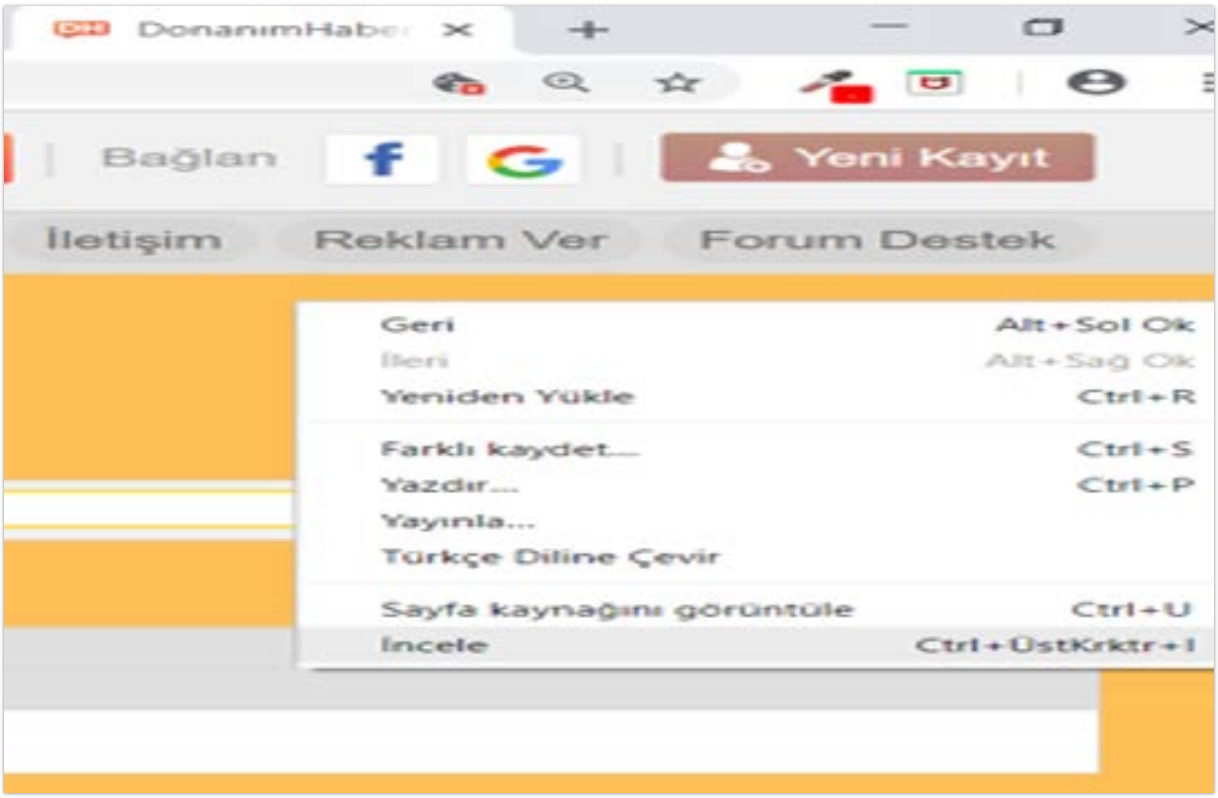
CONTENTS

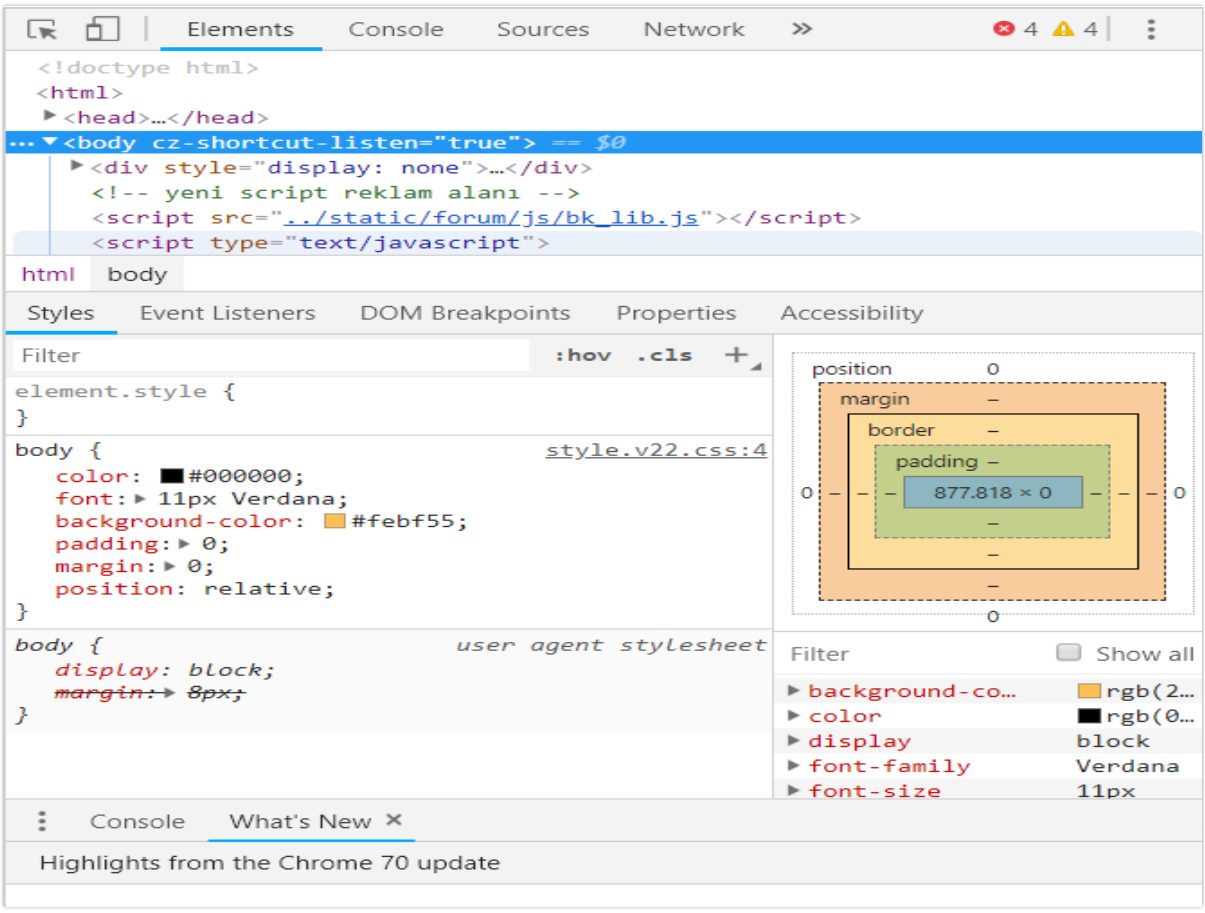
1.0 WHAT IS WEB DESIGNING?

- Actually web is like an universe.This universe is divided as two main topics,they are Front-End and Back-End.In brief,Front-End is designing,Back-End is programming we are going to observe Front-End part of this universe.Web designing is preparing conceptions by using some special rules,algorithms,codes etc.It's on web browsers to show productions (in fact every kind of thing) to people as consumers,researchers,students etc..

1.1 HOW TO DESIGN WEB?

- To design web, designer uses three kind of auxiliary tools.Their names are HTML,CSS,JAVASCRIPT.Those tools are used to edit web sites visually.They are used with compilers such as almost every programming language.Using this kind of tools you can edit every type of web site.





1.2 HISTORY OF HTML

- In 1980, physicist Tim Berners-Lee,in 1989 wrote a memo proposing an Internet-based hypertext system. Berners-Lee specified HTML and wrote the browser and server software in late 1990.[1.0]

1.3 HTML(Hypertext Markup Language)

- With HTML you can edit contents of your web site.Paragraphs,titles,blocks,message boxes,check boxes,adding images etc can be created with it.It's not a programming language you can't compose a program with it.It's really easy and easy to learn.Currently,companies don’t look as nice as javascript to html because;it’s development is finished and there are so many set conseptions for designing.

hemen_uye_ol.html

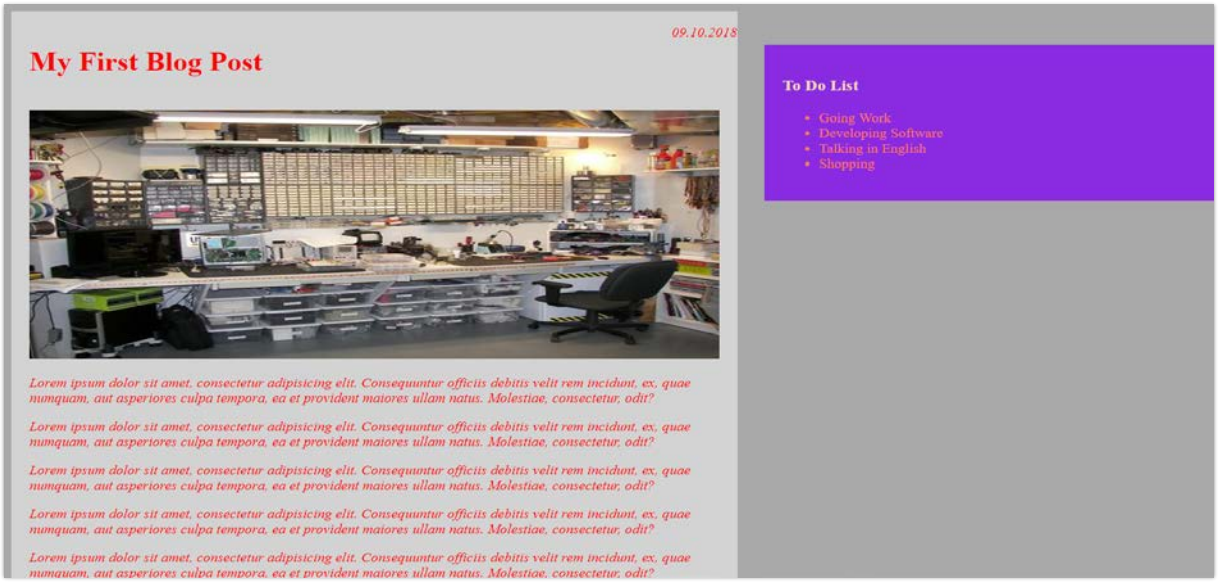
```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>Hemen Üye Ol</title>
</head>
<body>
   <h1>
       Lütfen Formu Eksiksiz Doldurunuz
   </h1>
    <hr>
    <form>
    <h3>Hesap Bilgileriniz:</h3>
    Kullanıcı Adı:<input type="text" name="username" placeholder="Kullanıcı Adınızı Giriniz" required>
    <br>
    <br>
    Eposta:<input type="email" name="email" placeholder="E-postanızı giriniz" required>
    <br>
    Parola:<input type="password" name="password" placeholder="Parolanızı Giriniz" required>
    <h3>Kişisel Bilgileriniz</h3>
    Ad:<input type="text" name="ad" required>
    <br>
    Soyad:<input type="text" name="soyad" required>
    <br>
       Şehir:<select>
        <option>İstanbul</option>
        <option>İzmir</option>
        <option>Ankara</option>
    </select>
    <br>
    Erkek<input type="radio" name="cinsiyet" required>
    <br>
    Kadın<input type="radio" name="cinsiyet" required>
    <br>
    Hobileriniz:
    <input type="checkbox"> Sinema
    <input type="checkbox"> Spor
    <input type="checkbox"> Sanat

    <input type="submit" name="sehir" value="Kaydet" >
    </form>
</body>
</html>
```

1.4 HISTORY OF CSS

CSS was first proposed by Hakon Wium Lie , 1994. At the time, Lie was working with Tim Berners-Lee at CERN.[1.1]

1.5 CSS(Cascading Style Sheets)

- Here, we can edit what we have done with html.We actually develop their styles like color,background-color,display,font-family,font-size,position etc.If we want to improve or develop web site first, we have to have an html construction.In short,it is editing your content.It’s not a dynamic changer it’s constant.

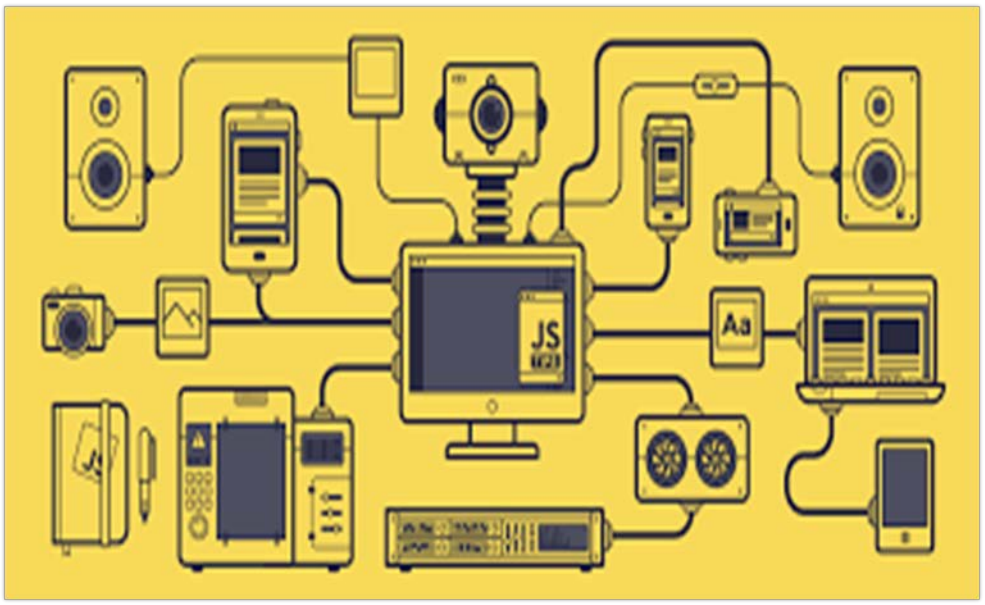


ozgur_calisma.css

```css
body{
    background-color: darkgrey;
    margin: 20px auto;
}

#baslik{
    position: sticky;
    top: 0;
}
#tarih{
    position: absolute;
    right: 0px;
    top:0;
}

p{
   font-style: oblique;
}
#blog{
    width: 50%;
    height: 50%;
    color: red;
    background-color: lightgray;
    padding: 20px;
    margin-left: 20px;
    float: left;
    position: relative;


}
#blog2{
    float: left;
    width: 30%;
    height: 35%;
    background-color: blueviolet;
    color: wheat;
    margin-top: 40px;
    position: relative;
    left: 30px;
    padding: 20px;

}
div img{
    width: 100%;
    height: 300px;
}
li{
    color: coral;
}
```

1.6 HISTORY OF JAVASCRIPT

- Although it was developed under the name Mocha, the language was officially called LiveScript until releases of Netscape Navigator 2.0 in 1995, but it was renamed JavaScript.Also it was developed first-time by Brendan Eich.[1.2]



1.7 JAVASCRIPT

◈ It's a dynamic programming language for editing web sites.

It's different from CSS as continuously changing styles and appearances. It modifies your content more detailedly.

While doing such as these transformations and changes, designer get benefit from animations actually visual variations.Creating these animations by functions,different methods,algorithms.Also javascript is being developed day by day librarys and frameworks which it has are getting more.


```
function show(){
    interval=setInterval(function() {
    if(index == slaytcount-1){
        do{
        index = Math.floor(Math.random() * slaytcount);
        }
        while(index === slaytcount-1);

    showslide(index);
    }
    else{
        index++;
        showslide(index);
    }
    console.log(index);

}, settings.duration);

}
function showslide() {
    document.querySelector('img').setAttribute('src', models[index].picture);
     document.querySelector('p').textContent = models[index].name;
      $('img').fadeIn("slow");
    $('p').fadeIn("fast");
}
console.log(models[2].name);
document.querySelectorAll('.arrow').forEach(function(item){
    item.addEventListener('mouseenter',function(){
        clearInterval(interval);
    })
});
document.querySelectorAll('.arrow').forEach(function(item){
    item.addEventListener('mouseleave',function(){
        show();
    })
});
var index = 0;
var slaytcount = models.length;
function showslide(i){
    index = i;
    if(i<0){
        index = slaytcount-1;
    }
    if(i>=slaytcount){
        index=0;
    }
document.querySelector('img').setAttribute('src',models[index].picture);
```

1.8 REFERENCES

◈ 1.0 : Tim Berners-Lee, "Information Management: A Proposal." CERN (March 1989, May 1990).

◈ 1.1 :Lie, Håkon Wium; Bos, Bert (1999). Cascading Style Sheets, designing for the Web. Addison Wesley.

- 1.2 :Netscape and Sun announce JavaScript", PR Newswire, December 4, 1995.

QUESTION -1:

WHICH ONE IS THE WEB DYNAMIC PROGRAMMING LANGUAGE?

A)HTML B)CSS C)JAVASCRIPT D)JAVA E)KODLIN

QUESTION -2 :

WHICH ONE IS THE MAIN CONSTRUCTOR WHILE WEB DESIGNING?

A)CSS B)JAVASCRIPT C)C# D)HTML E)PYTHON

DEFINITION OF QUANTUM

Quantum’s definition in the dictionaries is usually described as the smallest discrete unit of any physical property, the most notable ones’ being energy and matter. It was first introduced when the physicist Max Planck used it in a presentation to German Physical Society (GPS). His intention was to find how did radiation changed in colour (From red, to orange and finally blue as its temperature rose). By assuming that radiation existed in discrete units in the same way that matter does, rather then a constant wave, he could find an answer to his question. Planck wrote a mathematical equation involving a figure to represent individual units of energy.
(1 & 2)

QUANTUM MECHANICS

The branch of mechanics that deals with the mathematical description of the motion and interaction of subatomic particles, incorporating the concepts of quantization of energy, wave–particle duality, the uncertainty principle, and the correspondence principle.

(4)

QUANTUM CRYPTOGRAPHY

Quantum cryptography is the science of exploiting quantum mechanical properties to perform cryptographic tasks. The advantage of quantum cryptography lies in the fact that it allows the completion of various cryptographic tasks that are proven or conjectured to be impossible using only classical (i.e. non-quantum) communication.

(8. and https://www.youtube.com/watch?v=UiJiXNEm-Go&t=1s)

QUANTUM GEOMETRY
In theoretical physics, quantum geometry is used to describe physical phenomena at very large scales. At this distance quantum mechanics has mysterious effects on physical phenomenon.
(4)
HISTORY OF QUANTUM COMPUTERS
Usage of quanta calculations in computers rose up in late 80’s by Yuri Manin and Richard Faynman.
David deutsch, introduced quantum computers working mechanism as a chain that can calculate. Acording to his shematics, first qubits are used to take the perimeters. After, using its logical operations, converts the data in a manner that it can understand. Qubits are used for transfer.
To this point scientist around the world have been working hard on creating a quantum computer. Although there have been many studies done on this subject its imporvements are not supassing quantum theories.
(11)

THE DIFFERENCES BETWEEN Q. COMPUTERS AND HOME COMPUTERS
The main difference between these two computers is that, while current computers act on only 0 or 1 (both are called BIT) and eight of them aranged give us 1 byte quantum computers have the thing called Qubits. Similar to

normal computers qubits consist of 1s and 0s. However, qubits can also be either between 0 and 1 (0.2, 0.7 e.c.), they can also be both at the same time. Also more the quanta inside the computer the quicker it will solve a problem.
(10)

WHAT IS A QUANTUM COMPUTER

Quantum computer in its most basic form is the ability to use matter at an atomic scale such as photons to process and get a solution to a very difficult problem. However, as stated before, currently the only thing that quantum computers can be used for is to calculate troublesome equations.
(4 & 6)

SUPERPOSITION
Superposition is the state where a particle is in two different states at the same time. One notible example is the Schörinders' cat. Briefly summirised, a cat is placed inside a closed box. İnside the box there is a machine that has a chance to break the glass which has radioactive matter inside it. After an hour there are two possibilities. One of them, the cat is alive, the other one being, the cat is dead. Before opening the box the cat is considered dead and alive,since we can't actaully see it. Once the boxes is opened the superposition is broken and we see if the cat is dead or alive.
(10&12&google images)

QUANTUM ENTANGLEMENT
Entaglement is the connection between quantum particles. The connection of quantum particles are so powerful that no matter the distance their bond will not break. İf either one shall change than the other shall too. This strange behaviour has been called quantum entanglement by Albert Einstein himself.
(13&google images)

ADVANTAGES AND DISADVANTAGES OF QUANTUM COMPUTING

1. Quantum computing is faster to solve problems.
2. There are many ways that it could be used if improved (health, industry, architecture and many more.)
3. It uses way less energy than that of our current computers.
4. In theory quantum computers can perform any task that a classical computer can do.

(3 & 7)

DISADVANTAGES
1. With current technology a perfect one can't be built.
2. It is not certain if quantum computing can be used in anything other than mathematical problems.
3. Currently normal computers exceed quantum computer's limitations and there may not be any need for quantum computers in the near future.
4. A small change in the environment even the change of light can ruin the algorithms it wants to follow.
5. It requires new algorithm system to work, otherwise it would work like a classical computer does.

(3 & 7)

SLAYT 13:https://www.youtube.com/watch?v=2B680d-qvhI

1. whatis.techtarget.com/definition/quantum

2. www.factmonster.com/dk/encyclopedia/science-and-technology/quantum-theory

3. SELF

4. GOOGLE SEARCH: Google's definition.

5. www.computerhope.com/issues/ch001263.htm

6. www.explainthatstuff.com/quantum-computing.html

7. www.Quora.com/What-are-the-advantages-and-disadvantages-of-quantum-computing

8. http://www.wikizeroo.net/index.php?q=aHR0cHM6Ly9lbi53aWtpcGVkaWEub3JnL3dpa2kvUXVhbnR1bV9jcnlwdG9ncmFwaHk

9. youtube.com

10. https://cangurses.wordpress.com/2017/10/15/nedir-bu-kuantum-bilgisayar/

11.https://www.herkesebilimteknoloji.com/yazarhp/nedir-kuantum-bilgisayar

12.https://medium.com/@diamondtema/schr%C3%B6dingerin-kedisi-deneyi-kuantum-s%C3%BCperpozisyon-817c780904c6

13.https://evrimagaci.org/kuantum-dolaniklik-5208

ALL OF THE SITES HAVE BEEN ACCESSIBLE DUE TO 19.12.2018. AND IS UNKNOWN UNTIL WHEN WILL IT BE ACCESSIBLE.

1-WHİCH VALUES DOES QUBİTS TAKE?

Qubits take the values between 1, 0 ,some value between them or be 1 and 0 at the same time.

2-WHİCH PRİNCİPLES DOES QUANTUM COMPUTERS WORK WİTH?

Superposition- Entanglement

In 31 may 1961, Leonard Kleinrock discussed about a concept similar with the internet for the first time in his paper named "information flow in large communication lines". And come up with packet switching theory.

Then in 1962, J.C.R Licklider in MIT discussed about his "Galactic Network" concept. This concept was very similar with the internet that we use today.

In those days, USA was in the cold war with SSCB. So they need an alternative communication line other than telephone lines. Because, under a situation of having a nuclear attack from SSCB, all the phone lines would have crashed. In conclusion, Licklider became the first head of Computer Research Department of DARPA. He wanted to make computers talk with each other. In order to do that Lawrence G. Roberts and Thomas Merill made an experiment.(They are colleagues of Licklider and Kleinrock. Kleinrock told about his packet switching theory to Roberts back then.)In that experiment they connected to computers to each other (that was the first wide area network connection) and they saw two computers can work well together. But the system in use those days was circuit switching. And they saw that system was very inadequate. So the need for packet switching system was confirmed. Then Roberts went to DARPA to start the preparations for the project ARPANET. It is a line that computers connect each other by using packet switching. In the conference for publishing the ARPANET project Roberts met people from NPL and RAND. All of them were working on packet switching unaware from each other. After an information exchange, the speed in the project increased 50 kbps from 2.4 kbps and theory named "packet switching".

In december 1968 Elmer Shapiro and SRI built the interface message processor (IMP). In 29 October 1969 first internet message was sent from California University to SRI. Kleinrock sent the message by using IMP. The message was "LOGIN". But while retrieving the message, SRI system crashed and only the first two letter were sent succesfully(LO). In the end of sixties 2 more computers connected to the ARPANET. In 70s more and more computers connected from Europe. But infrastructure was inadequate for a global line that everyone can connect. Then between 1973 - 1978 Vinton Cerf and his team wrote the TCP/IP protocol. Cerf's main encouragement was his deaf wife. He wanted his wife to communicate with outer world. That protocol allowed everyone to connect to ARPANET. Today we are still using the same protocol.

It is the period during which the internet is the fastest developing between 1980-90 and at the same time it is the period when the Internet has begun to privatize the state. This is the first time in this period began to mention the term internet. The first person to use this term is vinton cerf. With this rapid development of the Internet, the number of existing networks started to increase rapidly. It was not easy to remember the networks to be connected with IP addresses, and the number of networks to be connected was a complete problem. To resolve this issue, the Domain Name System is now available. Symbolics.com received the date as the first field name received. In 1985, when the requests increased to the domain names were made paid. It is now thought to be the site with over 150 billion domain names worldwide.

By the end of 1980, the internet had to be made public for it to continue its development. With ARPANET, this was not easy to do. Initially, the ARPANET was made more useful, but could not prevent the collapse of the network. In 1989 ARPANET was almost over. In July 1990, the network structure ended completely.

At this point, the barners-lee working in CERN stands out. The invention was able to connect the documents together thanks to its invention, which introduced a new system for managing information flow. By clicking the link in a document, the user was automatically redirected to the document referenced in that link. He also suggested that these documents could be linked without any central control or coordination. This approach was accepted and the foundations of the Web were laid. In 1991, the WWW was introduced. Barners-lee developed a language for the web in hybertext, so he called it the hyber text markup language. In March 1993, it was accepted by the US national science foundation that the Web could no longer be frustrated with academic institutions.

The development of the Internet offered many new jobs. In 1994, Pizzahut's site was the first pizza ordered on the internet. In the same year, the first internet bank was opened and many internet companies emerged. In 1995, Yahoo! After 3 years, search engines like Google appeared.

These companies have been highly valued within a short period of time, and these promising companies have suffered a lot from the internet stock exchange in a short period of time on March 10, 200 due to their withdrawal

from this sector due to their inability to return the investments. Most companies went bankrupt. This event is called the dot -com bubble.

Up to this point, Web 1.0 was used. This platform does not allow any interaction between the user and the site and is known as a read-only Web. In 2004, in the silicon valley, a group came together and launched the Web 2.0 platform in order to take a step forward and erase the traces of the dot-com event.

Web 2.0 was an expanded version of the principles and scope of Web 1.0. What the new Web provided us with was the ability to read, create, edit, and share content on the web. Thus, the social web was introduced to the public. Youtube, facebook, twitter and other companies have grown rapidly.

COMPUTER SECURITY

152120171063 Pınar KIZILARSLAN

152120171008 Ayşe KAYA

Eskisehir Osmangazi University

Faculty of Engineering and Architecture

Department of Computer Engineering

Introduction to Computer Engineering (A) Course Project

Doç. Dr. Eyyüp GÜLBANDILAR

December 2018

WHAT TO DO FOR COMPUTER SECURITY?

There is no 100% security in the Informatics World. Even the best protected systems can be exposed to hacking from time to time.

The common feature of the victims identified so far is that the computer is open 24/7, remote access service is turned on, anti-virus is not installed, there is no firewall.

1. Put Password On Your Computer For Computer Security.

Put passwords on your computers so that you can prevent the entrance of strangers. But do not rely on the password you put in the computer. Because these passwords can be overcome with very simple methods.

You can set two types of passwords to your computer. One of them is bios password and the second one is the normal windows account password. Bios password is hacked harder than the other so you can install the bios password.

2. Use FIREWALL For Computer Security.

Firewall is a security system that encodes software and encodes any system. Firewall usually does not protect against threats from within the network. It does not provide safety for viruses, because viruses can be easily encrypted or compressed in packages that are downloaded from the internet or e-mailed. Therefore, do not ignore the antivirus in addition to your firewall.

3. Use Antivirus Program For Computer Security.

You will determine the appropriate antivirus program according to your computer usage purpose.When choosing an antivirus ,make your selection by considering factors such as the size and importance level of the fles to be scanned. Antivirus program examples: Avast, Norton, AVG, Eset, Kaspersky, Panda.

! Virus in the antivirus program does not come to anyone's mind so be careful when choosing your virus program.

4. Turn Off Your Computer's Open Ports.

A port is a data channel that communicates with a cable between a computer and external devices. You need to turn off the open ports of your computer to prevent leaks from opening these data channels. To turn off the computer's open ports, we need to enter

cmd first and write netstat on the command line and press enter, then open ports will appear, and close what you want.

5. Protect Your Regedit For Your Computer Security.

Viruses that enter your computer initally copy themselves into the regedit . the regedit is a master software that contains input records,settings, preferences , and other data contained within yhe operating system.When you install a new program on your computer , the settings fort this program ,the directory in which this program is located, such as the program version, many more information is recorted in the regedit. To delete the registry, we need to do this by typing cmd ye regedit and delete the data you want to delete. Data deleted from here will not come back again.

6. Archive Your Backups In A Different Environment.

Important data on the server should be backed up regularly to an external storage device.

7. You Should Not Open Any E-mails And Incoming Links That You See In The Internet That You Are Interested In.

8. Turn Off The Remote Access Service.

The Remote Desktop program, which is used for the convenience of remote help-support, also attracts cyber attackers. Cyber attackers, Turkey also scans port 3389 and the range of IP addresses used to identify systems that are open. The attacker targets the Administrator user name on the victim's computer, seizes the password for this account with password cracking programs.

9. Set A Difficult Password.

The following features are required for a generated password to be considered "strong" :

- Must be at least 8 characters.

- In addition to letters, the figure must contains special characters such as " ?, @, !, #, %, +, -, *, % ".

- Capital and lowercase letters must be used together.

There are some errors when creating a password, and because of these errors, attackers can easily access passwords. These errors:- use personal information in the password. - Create passwords with the methods used by most people.- use the same password on each site.

10. Use Updates From The Manufacturer For The Operating System.

When you install tools such as CD, Floppy, Flash Disk, Hard Disk to your computer, scan it into your virus program.

SOME DANGEROUS SOFTWARE

Virus:

Viruses are programs. They copy themselves, they move from place to place. They are activated automatically when your computer is turned on. A virus is easy to migrate to another file or drive.

Macro Virus:

A macro virus is a computer virus written in the same macro language used for software programs, including Microsoft Excel or word processors such as Microsoft Word. When a macro virus infects a software application, it causes a sequence of actions to begin automatically when the application is opened.

Since a macro virus centers on an application and not an operating system, it typically can infect any computer running any operating system, even those running MacOS and Linux.

Adware:

Adware is any software application in which advertising banners are displayed while a program is running. The ads are delivered through pop-up windows or bars that appear on the program's user interface. Adware is commonly created for computers, but may also be found on mobile devices.

The justification for adware is that it helps recover programming development costs for the software developer, and reduces or eliminates the cost for the user.

Malware:

Malware, or malicious software, is any program or file that is harmful to a computer user. Malware includes computer viruses, worms, Trojan horses and spyware. These malicious programs can perform a variety of functions, including stealing, encrypting or deleting sensitive data, altering or hijacking core computing functions and monitoring users' computer activity without their permission.

Trojan:

Trojan is a virüs program that is hidden in a program and performs hidden functions on your computer. Trojans are usually sent into e-mails . They are not activated until the program is stored. When the trojan is activated ,it begins to record all the information about the vulnerable host and servers in the system it is in . Because of the nature of these viruses, it makes the computers that are infected with remote access ,and sends the information it receives to another computer via the internet .The person who placed this virus on your computer , by entering the computer into your computer into your computer very easily by remote access , to make changes to the contents of the file , to delete files , copy your files to your to your own computer ,to read your e-mails, CD-ROM to open and close ,if any,internet banking or credit card ,such as copying your computer can do all the operations you can do.

Worms:

The worm,like a virus , is designed to copy itself from one computer to another but does it automatically . First, it takes control of properties that transmit files or information on the

computer . Once the worm enters your system , i can proceed on its own. The greatest danger of worms is their ability to replicate in large numbers.

Spyware:

The definition of spyware is used for any software that monitors ,collects and sends personal information to the third parties without the user's knowledge or permission.

QUESTIONS:

1) What is the software that controls access to our computer over the Internet or Network and prevents unauthorized people from accessing our information?

A) Adware

B) Firewall

C) Antivirus

D) Port

E) Password

2) What is the program that is uploaded to the computer by user's permission or without permission and collects information about the user or computer and sends them to a remote user?

A) Worms

B) Trojan

C) Spyware

D) Virus

E) Macro virus

CLOUD COMPUTING

Yiğit Akkaş

152120171042

Eskişehir Osmangazi University

Department of Computer Engineering

21/12/2018

What's Cloud Computing?

Cloud computing is a service that makes us able to reach all the data, program and application that we reserve on internet at anywhere with our device that is connected to internet.

How it Got Into Our Lives

Amazon played a key role by modernizing data centers and making the first real cloud computing service “Amazon S3” come into service in 2006. It’s been widely used in world since the year 2008.

Why Do We Need it?

By making software,hardware and data hosting services gather together,it becomes a solution partner for companies. Customers and employees can reach datas at the same time and it makes the operation goes much faster.

What Are Its Advantages

Makes the users’ life easier and saves them from lack of hardware. Lowers the cost. Annihilates the chaos of substructure and protects the data. Makes you able to reach the information from any platform anytime and widens the working area. Because the companies that services cloud

computing take security measures and protects the servers that the datas are being hold,it is safer than host computer.

Shortly,cloud computing is a service that supports you to work everywhere for cheaper and without any setup.

What Are Its Disadvantages

Because it is used by a lot of users,by result of any attack to it might cause takeover of special and private datas of users. To reach the data that is stored,you'll need internet connection. Also if you have a bad connection with low speed,your downloading and uploading will be slow. In case of a service shedding on a cloud computing service provider,all the companies that use this service will effect badly from that and until it ends,the company won't be able to serve for their clients.

Types of Cloud

There's Public Cloud,Private Cloud,Hybrid Cloud and Community Cloud.

Public Cloud

Service is provided from a cloud computing company.They are most vulnerable to various attacks. Small and medium scaled companies mostly use it.

Private Cloud

It's used by large scaled companies that has more important data. Private cloud is safe and the data is under your control,but it is more expensive then public cloud.

Hybrid Cloud

Hybrid cloud means using both private and public clouds, depending on their purpose. Public cloud can be used to interact with customers, while keeping their data secured through a private cloud.

Community Cloud

Implies an infrastructure that is shared between organizations, usually with the shared data and data management concerns. For example, a community cloud can belong to a government of a single country.

Cloud Computing Services

Dropbox,Google Drive,iCloud,Yandex.Disk,SkyDrive and Box.

References:

☐https://tr.wikipedia.org/wiki/Bulut_bilişim

☐https://docs.microsoft.com/en-us/learn/modules/principles-cloud-computing/

☐https://www.endustri40.com/bulut-bilisim-cloud-computing-nedir

☐https://www.dia.com.tr/neden-bulut-bilisim-farki-ne-ayricaligi-ne/

☐https://blog.natro.com/bulut-teknolojisi-nedir/

☐http://ozlempalta.blogspot.com/2014/04/bulut-bilisim-yararlar.html

☐https://www.globaldots.com/cloud-computing-types-of-cloud

SMART HOME SYSTEMS

152120171031 **152120171048**

BAHAR EDA SARAN **ELİF AKAY**

Eskişehir Osmangazi University

Faculty of Engineering and Architecture
Departman Of Computer Engineering

Introduction to Computer Engineering

Lecture Project

Doç. Dr. Eyyüp GÜLBANDILAR

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What is smart home system?

Smart home systems are systems covering multiple sensors, garden irrigation, air conditioning, fire alarm, lighting, security, smart sockets, television and smartphones.

We can program our house and garden from anywhere in the world with the help of tablet and smart phone, whether we want our building as we want it or we can program our building with software developed for smart home systems.

Sensors in smart homes, smart home assistants and mobile phones need to be connected to the home network to communicate with each other.(1)

Smart home systems can have wireless or wired cable systems. Wired systems are more reliable and often harder to hack, wireless systems are easier to install. The new generation of home automation, smart devices, sensors and assistants that we use in our living space communicate with each other. Z-Wave, EnOcean, x10, 6loWPAN and zigbee are the most widely used wireless smart home communication networks in home automation systems. They are all compatible with internet, tablet, computer and mobile phones.

Curtains can be lowered and water and gas valves can be closed when you are not at home.

Recognized messages can be read, the preferred lighting settings, music and TV channels can be opened automatically.

The lighting inside the house can be followed between the rooms, the outside light / sun, day / night differences can be detected and the light intensity inside can be kept constant.

Events such as gas leak, carbon monoxide, fire, smoke, flooding, and security breaches can be sent to your mobile phone as messages and photos, and you can connect to the house and get live view.

Lights and television can be turned on and off at random when there is no one at home to deter thieves. You can also check all lighting from your seat when you are at home.

You can watch the washing machine and dishwasher from your TV screen while you are at home.

Working Principle of Smart Home Systems

The control of all home equipment in the smart home system is in the hands of the host with a single control, so that the person can control or change them at any time from anywhere. For example, systems such as heating, sound, alarm, lighting in smart homes communicate with each other and work in harmony.

A person who forgets the lights on when he goes out can turn off all the lights in the house with just a click of the button, which is controlled by his smart home. If he wants to find his house warm when he returns home in the evening, he can easily switch on the heating systems. As can be seen from these examples, the smart home makes people's lives easier and creates a more comfortable home environment.

Infrared Remote Control: Operating Structure

After a button is pressed on the controller, a number of operations are performed until the commands reach the target device.

1. Clicking the Turn on audio button on the remote control will cause the sound on circuit board to be completed. The integrated circuit detects this.

2. The integrated circuit binary sends the voice command in the system to the LEDs on the front of the remote control.

3. The LED in the binary system sends a series of light pulses corresponding to the voice-on command.

Below are examples of remote control codes in Sony Control-S protocol for Sony TVs.

The remote control signals carry more information than the muting signal:

- start command

- open voice command

- device address

- termination command

command-Submissions

The signals sent when the voice command with the remote control is sent to the Sony TV will be as follows:

When the infrared receiver on the TV receives a signal from the remote control, it will first confirm the address code. Converts light pulses back into binary codes after the address is confirmed. These signals converted to binary code go to the microprocessor and microprocessor to make sound

Smart Home Automation has both *advantages* and *disadvantages* like each system.

Advantages of smart home automation:

*The biggest advantage of Smart Home Automation is ensuring our safety. Smart home security systems let you see your home wherever you are. The cameras can be plugged in, motion detectors, locks, etc. Most of these systems will even notify you of unexpected temperature changes, so you will be warned when there is a possible fire. Smart homes include advanced security systems with cameras, motion sensors and a link to the local police station or a private security company.(2),(3)

* Ensures a more comfortable life thanks to controlled systems.

* Saves time and energy.
- Having the ability to put these things on a timer or switching them on and off when you are away from home will help you save money on your electricity bills. Many of these products allow you to monitor your energy usage and expenses. Smart homes offer improved energy efficiency. The lights can be switched off automatically when there is no one in the room, and the thermostat can be set to allow the indoor temperature to drop before the interior returns to a more comfortable level just before the evening hours reach. All these automated tasks, combined with modern, energy-efficient appliances, combine to save electricity, water and natural gas, reducing pressure on natural resources.(2),(3),(4)

* It enables the physically and physically disabled patients to live more comfortably. It can have smart home accessibility technologies for the elderly or disabled residents. It can do things like voice command systems, control lights, lock doors, phone playback or using computers.(3)

* Easy of use - Almost all smart home products can be loaded without too much hassle, and many of them don't even need to bring you home. Also, if you're already a technology enthusiast, it's easy to learn how to use most of these products.(4)
Integrated hard drives enable homeowners to watch videos or listen to audio in any room; Video intercoms make it easier to communicate with other people at home or at the door. All these smart home technologies facilitate common tasks.

Disadvantages of smart home automation:

• Because it is comfortable to use, it makes people lazy after a while.
• Other people entering the system because of remote control creates negative results.
• increases unemployment.
• A smart home will be highly dependent on your internet connection. If you lose your connection, you will stay with many smart products that won't work. In addition, wireless signals may be interrupted by other electronic devices in your home and may cause some of your smart products to run slowly or not at all.(4)

What does ABB do to increase security?

Industrial developments intensified cybercrime. In order to improve stability, security and robustness in its solutions, ABB officially established the cyber security test as part of the product development process.

Cyber security is important in all stages of design, implementation, life cycle, including the development process of a product. The robustness test is one of the important phases of this phase. For this reason, ABB established the independent Device Security Assurance Center (DSAC).

The test center performs tests on various issues such as port scanning, network density, vulnerability and protocol vulnerability. The above mentioned tests and the other test tools in the accumulation are carried out through the best-in-class test platforms. The test process is carried out by the person skilled in the art in collaboration with the manufacturers of the test platform. ABB testers perform their tests with instructions and support from test platform manufacturers.

Artificial Intelligence and Algorithms

As a result of academic studies in recent years, smart homes have become the only systems that operate according to the user control and learn the user behavior and become autonomous systems according to these behaviors.

Artificial intelligence algorithms are used in artificial neural networks, fuzzy logic, support vector machines and hidden markov model academic studies. With these algorithms, the next step of the user can be estimated, the user locations are monitored within the house and energy savings can be achieved accordingly.

SOURCES

(1)= https://www.bilgiustam.com/akilli-ev-sistemi-nedir-temel-ozellikleri-nelerdir/

(2)= https://bluespeedav.com/blog/item/7-greatest-advantages-of-smart-home-automation

(3)= https://homeguides.sfgate.com/advantages-smart-house-8670.html

(4)= https://regencyhomesomaha.com/advantages-and-disadvantages-of-converting-your-home-into-a-smart-home/

http://arsiv.ntv.com.tr/news/132543.asp

http://nasilkolay.com/akilli-ev-sisteminin-avantajlari

https://www.biliminsesi.com/akilli-ev-nedir/

https://homeguides.sfgate.com/advantages-smart-house-8670.html

https://www.gninsaat.com.tr/akilli-ev-sistemleri-akilli-ev-nedir-nasil-calisir

Cloud Computing

152120171076 Ahmad Zaidan
152120171097 Kumbukani Kamanga
152120171073 Bobursho Abdulov

Eskişehir Osmangazi Üniversitesi

Mühendislik Mimarlık Fakültesi

Bilgisayar Mühendisliği Bölümü

Introduction To Computer Engineering

DOÇ. DR. EYYÜP GÜLBANDILAR

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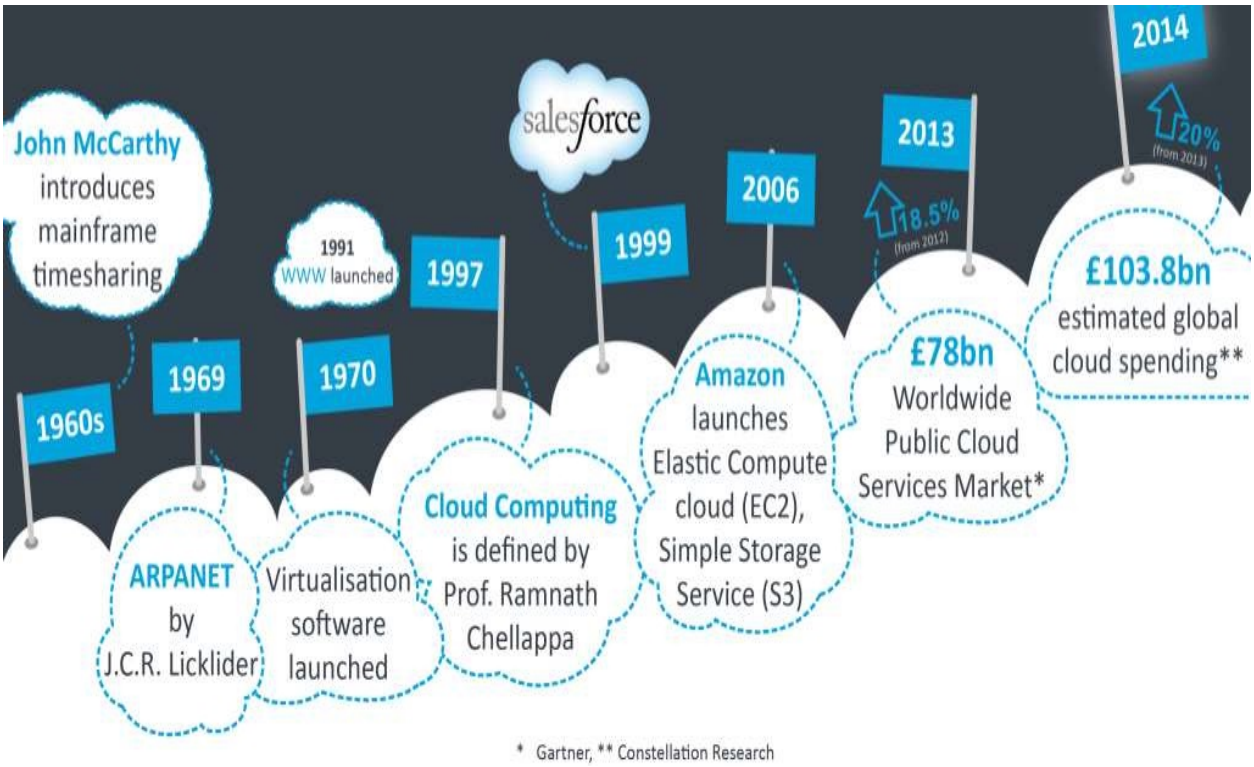
Cloud Computing

Cloud computing is simply accessing all computer services like storage, processing and security on different digital platforms from any remote location using the internet. The word cloud is used because of the analogy between the property of rain clouds and the way the cloud computing is designed.

History of Cloud Computing

The idea originally came after the DARPA (the Defense Advanced Research Projects Agency), presented MIT with $2 million for Project MAC. The MAC project was one that allowed multiple users to use the same computer simultaneously. After this project, the concept of virtualization began to become popular which led to the development of modern cloud computing. In the late 1990s cloud computing gained of popularity since people started getting better understanding of what cloud computing is.



How Does Cloud Computing Work?

Cloud computing is made use of in everyday life. The use of email is the most popular, if not obvious, use of cloud computing. What actually happens is you load an application, log into a web service and all the data and applications needed to run this service are on a device in a different location.

It is estimated that there is over 1 Exabyte of data stored in the cloud at the moment. The Gartner prediction is that at the year-end 2018, more than 65% of Global 1000 companies will have stored customer-sensitive data in the public cloud.

Advantages and Disadvantages of Cloud Computing

Cloud computing reduces the cost of managing and maintaining your IT systems. Companies do not have to purchase expensive systems and equipment. They are able to reduce costs by using the resources of their cloud computing service provider. Costs can be reduced because the cost of system upgrades, new hardware and software may be included in a contract; wages for expert staff no longer need to be paid; energy consumption costs may be reduced, and there are fewer time delays.

Businesses can scale up or scale down their operation and storage needs quickly to suit their situation, allowing flexibility as needs change. Rather than purchasing and installing expensive upgrades themselves, their cloud computer service provider handles this. Using the cloud frees up time for other tasks, (like actually running the business!)

However, when a cloud service is breached, cyber criminals can gain access to sensitive data. Moreover, when companies are in the dark about workers using cloud services, those employees can be doing just about anything. Data breaches inevitably result in diminished trust by customers. In one of the larges breaches of payment card data ever, cyber criminals stole over 40 million customer credit and debit card numbers from Target. The breach led customers to stay away from Target stores, and led to a loss of business for the company, which ultimately impacted the company's revenue.

What is the Cloud Made of?

The cloud can be divided broadly into two layers – the front end and back end. On the front end of the cloud there is the things that can be seen by the user (user interface, the application and the client). On the back end of the cloud are the things that run the system (servers, computers that run the applications, and web applications).

Types of Cloud

Based on a Deployment Model	Based on Service
Public Cloud	IaaS
Private Cloud	PaaS
Hybrid Cloud	SaaS
Community Cloud	

Based on deployment model:

- Public Cloud:

1. The whole computing infrastructure is not located in the same location as the customer
2. Excel in performance but vulnerable to attacks
3. Customer has no control on the physical infrastructure

- Private Cloud:

1. Provides same benefits just with dedicated private hardware
2. It's not shared with anyone making it more secure
3. Can be on premises of the company or remotely located

- Hybrid Cloud:

Uses both private and public clouds depending on the purpose

- Community Cloud:

Implies an infrastructure that is shared between organizations

for the reason of shared information between them.

Based on service:

Infrastructure as a service (**IaaS**) is a form of cloud computing that provides virtualized computing resources over the internet.

Platform as a service (**PaaS**) is a **cloud computing** model in which a third-party provider delivers hardware and software tools -- usually those needed for application development -- to users over the internet.

Software as a service (**SaaS**) is a software distribution model in which a third-party provider hosts application and makes them available to customers over the Internet.

Challenges that are facing Cloud Computing:

1. 1.Lack of expertise: Organizations are increasingly placing more workloads in the cloud while cloud technologies continue to rapidly advance. Due to these factors organizations are having a hard time keeping up with the tools.

2.Security: Security has indeed been a primary, and valid, concern from the start of cloud computing technology: you are unable to see the exact location where your data is stored or being processed which leads to data breaches, compromised credentials and broken authentication, hacked interfaces and APIs.

3.Segmented usage and adoption: Most organizations did not have a robust cloud adoption strategy in place. One of them was the speed of cloud adoption. Another one was the staggered expiration of data center contracts/equipment, which led to intermittent cloud migration.

4.Performance dependency: When a business moves to the cloud it becomes dependent on the service providers. On the other hand the performance of the organization's BI and other cloud based systems is also tied to the performance of the cloud provider when it falters.

Companies that implemented Cloud Computing:

1-Netflix

2-Instagram

3-Xerox

4-Apple

5.Pinterest

Cloud Computing usage in the future:

1-Artificial Intelligence: Where processing power is abundant, AI learns quickly. Thus most recent AI systems in the world are cloud based

2.Internet of everything: As each and every device starts interacting with each other, this horde of data will be needed to be stored and processed and cloud computing provides the cheapest and fastest alternative

3.Blockchain: Though bitcoin prices have fallen drastically, block chain technology has the ability from keeping health records to tracing diamonds from mines to customers ---all on cloud computing support

4.Autonomous Vehicles: The backbone of the driverless cars---its software updates and machine learning are all situated in the cloud for example the most advanced cars autopilot system which is tesla's autopilot is cloud based

Exam questions:

1. Which of the following is NOT a benefit of cloud computing?

a) You can access it anytime anywhere
b) Loss or theft of data stored on the cloud
c) Cost effective
d) Secure and reliable

2. Which of the following is a type of cloud?

a) Mushroom cloud
b) Cirrus cloud
c) Cumulonimbus cloud
d) Private cloud

Resources:

- http://insights.motherg.com/blog/blog/why-is-it-called-cloud-computing
- https://www.ibm.com/cloud/learn/what-is-cloud-computing
- https://www.smartdatacollective.com/7-well-known-companies-have-moved-cloud/
- http://www.dataversity.net/brief-history-cloud-computing/
- https://www.rightscale.com/lp/2016-state-of-the-cloud-report
- https://www.business.qld.gov.au/running-business/it/cloud-computing/benefits

INTRODUCTION TO COMPUTER ENGINEERING

BIG DATA

2018 – 2019 Academic Year

152120141069 Rana Zeynep ÜNALDI
152120141042 Pınar KOÇAK

CONTENTS

1. INTRODUCTION

Internet Technologies, which are accepted within the scope of developing information and communication technologies, have become scientific or non-scientific by means of web pages, blogs, social media applications, sensors and many more data gathering devices and applications. This collected data can be used in different research area such as marketing, public realtions, banking, security, smart cities etc. With this collected data increasing in terms of volume, velocity and variety, the concept of "Big Data" has emerged. In this article, we consider the big data.

2. DATA

Data is the name given to raw (unprocessed), real or information particle. Data are obtained through measurement, counting, experiment, observation or research. In terms of IT technology, data is information that converted into binary digital form and stored by computer. This information may be in the form of text documents, images, software programs, audio clips or other types of data [1].

3. BIG DATA

Today, data consists not only of structured data, but also of unstructured data. This variety is growing day by day between itself and its sub-branches [2].

Big Data is a term that describes the large volume of data that structured, semi-structured and unstructured data. Although we thought that it makes a lot of space on the disk, this is not exactly what we call the Big Data. Big Data can be called as "Data is produced quickly and in large volumes in different formats".

Big Data is data that we receive from different sources such as social media shares, photo archives and log files etc., transformed into meaningful and operable format.

With the emergence of big data, classical database methods have been inadequate, difficulties began to arise especially in the analysis and management of data [3].

There are some reasons why big data is used:

- Cost savings
- Time-saving
- Developing new designs
- Supporting business decisions

4. BIG DATA PROCESSING LIFE CYCLE

Data processing is basically the conversion of raw data to meaningful information through a process [4]. There are four phase of big data processing life cycle:

1. Data Collection:

- This is the first phase of all data processing life cycle.
- In this phase, data is obtained from different sources.
- Data can be obtained from fixed data sources or fluid data sources for real-time processing.
- The collection process needs to ensure that the data gathered are both defined and accurate.

2. Data Storage:

- This phase deals with the storage of big data obtained.
- The data must be stored in memory for processing.

3. Data Analytics:

- In this phase, many models, techniques, methods and algorithms can be used in different applications for the processing and analysis of data.
- The techniques can be modified according to the analysis to be performed.

4. Application:

- The obtained results as a result of the processing of data ara used in this phase. In other words, observations and results, which are reported in previous phase, are produced.
- Depending on the application area, the way of benefiting from the data willl also be different.

5. COMPONENTS OF BIG DATA

To understand the big data completely, first we need to understand 5V's of big data. Big Data is characterized into five dimensions called Velocity, Volume, Variety, Veracity and Value [5].

1. Volume: Big data implies enormous volumes of data that is generated by machines, networks and human interaction on systems like social media the volume of data to be analyzed is massive.

2. Velocity: Big Data Velocity deals with the pace at which data flows in from sources like business processes, machines, networks and human interaction with things like social media sites, mobile devices, etc. The flow of data is massive and continuous.

3. Variety: The diversity of the data is due to the diversity of the data sources. The generated data can be seen in structural or non-structural formats. If data is used together in different structures, this diversity of data is a major problem.

4. Veracity: Veracity refers to the trustworthiness of the data. With many forms of big data, quality and accuracy are less controllable but big data and analytics technology now allows us to work with these type of data. The volumes often make up for the lack of quality or accuracy.

5. Value: There is another V to take into account when looking at Big Data: Value! It is all well and good having access to big data but unless we can turn it into value it is useless. So you can safely argue that 'value' is the most important V of Big Data.

6. BIG DATA ANALYTICS

After the data is collected and processed, the data analysis is called getting high value result from this raw data. We store data in relational and non-elational databases. Relational databases (Oracle,MySQL,MsSQL, etc.), as we all know, is a collection of logical relationships based on data stored in physical data blocks in operating systems but stored in logical tables in the database. 80% of the data is gray data, which are music, video, Picture, Office documents etc., that can not be stored in the database. Because this part is mostly related to hardware and operating system, in our view, big data is data that reaches the size that cannot be stored or analysed at low cost in the relational database. In other words, the processing of big data by classical methods is unlikely.

Big data can only processed with big data solutions. Data integrity rules do not apply because they work according to the theory of large distributed file systems. Due to no table structure, the data is stored as denormalized(integrated). For this reason, rather than storing big data with vertical scale, that is very expensive with relational database systems, the method of storing big data very cheaply as a result of the combination of simple hardware with distributed file systems created big data solutions. That is NoSQL databases (Redis, MongoDB, cassandra etc.)

We can keep data in key-value, column family, document and Graph forms in NoSQL databases.NoSQL solutions all have a different purpose. Database is chosen that is suitable fort he purpose to be used. For example; while MongoDB is suitable for adding little data and reading multi-data operation, Redis should be preferred for a system with a multi-write, multi-reading and data loss in the background. Hadoop is used when it is necessary to perform operations with very large data in a short time.

There are profound differences between traditional analysis methods and big data. In order to make his distinction, Prof. Dr. Thomas H. Davenport has created a table as follows:

	Big Data	Traditional Analytics
Data Type	Unstructured format	Row-Column format
Volume of Data	From 100 terabytes to 1 petabytes	Less than 100 terabytes
Velocity of Data	Dinamic	Static
Analysis Method	Machine Learning	Based on Hypotheses
Primary Objective	Data-based products	internal decision support and services

Table 1. *Big Data and Traditional Analytics*

In the context of data analysis,we can group the main issues that researches ara working on in the following ways:

- Machine Learning
- Data Mining
- Text Mining
- Predictive Analytics
- Statistical Analysis

6.1. NOSQL VS SQL

When it comes to choosing a database, one of the biggest decisions an organization may come across is whether to pick a relational (SQL) or non-relational (NoSQL) data structure. Whle both of these ara good choices each have clear advantages and disadvantages which must be kept in mind. We have highlighted the most important differences between SQL and NoSQL [6].

Advantages:

- NoSQL database systems offer high availability compared to relational databases.
- NoSQL database systems can perform read and write performance better than relational database systems.
- NoSQL database systems can be extended horizontally. Thousands of servers can work together as a cluster and work on large amounts of data.

- NoSQL database systems provide ease of programming and maintenance due to their flexible structure.
- In NoSQL database systems, you can choose from many implementations with different features.
- Since NoSQL database systems are suitable for many open source projects and cloud computing technologies, they are more advantageous as cost-effective than relational database management systems.

Disadvantages:

- Moving applications using relational database management systems to NoSQL systems will be difficult at first. Even if the data is moved successfully, code that uses the connection (join) will need to be edited.
- In relational database management systems, you need to provide key-based data access in NoSQL systems instead of query-based data access. Accordingly, it may take time to go to a configuration.
- The concept of transaction transactions in relational database management systems, NoSQL database systems are not included because data loss may be subject to.
- NoSQL database systems do not have as advanced as relational database management systems in data security. Some NoSQL projects there are deficiencies in documentation and professional support.

6.2. DATABASES

A relational database is also called SQL is a structured method of storing data in the form of tables, rows and columns. SQL databases, such as MySQL, Oracle, IBM DB2, Sybase, MS SQL Server etc., are easy to understand and hence are widely supported but they are not enough for big data. On the other hand, NoSQL databases are more much commonly used for big data. There are some of the most frequently used NoSQL databases.

6.2.1. Redis

Redis is an open source key-value data store. In Redis, a server that keeps data as string, hash, list, set, and sorted list and allows you to use various data structures. Redis is generally used for faster and smaller variables. It creates as cluster with horizontal scaling to deliver more performance and less data loss. It is written ANSI C which is published by the American Institute of Standards [7]. It not support complex queries like relational datbases. If you are going to query for complex queries, you must correctly construct the Redis structure. If a transaction receives an error, there is no return.

6.2.2. Google Big Table

Google has achieved success by not using classical methods, by developing the technology that it needs. Google keeps billions of internet pages on Google File Sytem, uses big table as a database and uses Mapreduce to process big data. All of these Technologies work on clusters of thousands of low-cost computers. Google Big Table is written in Java, C++ and Python. It is a database that supports many basic Google services, including Search, Analytics, Maps and Gmail [8].

6.2.3. Cassandra

Cassandra is an open source, distributed NoSQL database developed with Java. The distributed Structure Amazon's dynamo, the data structure was developed by Facebook based on Google's bigball databases. It was transferred to Apachee in 2009. It is widely used because of its scalability, storage of data at very high dimensions, very high read and write speed, data compression capability up to 80%, distributed structure that supports multi-data center. Cassandra supports the CQL query language, which is very similar to SQL [9].

6.2.4. Apache Hbase

HBase is a subproject of the open source Apache hadoop project developed by the Apache Software Foundation. HBase is used when real-time read/write access to data with very large sizes is required.It is also developed based on the big table that Google uses. It is used for distributed systems such as HBase and big table, and the data is kept in key-value pairs.

It is also an advanced system in the Java environment and is used in Facebook's messanger application [10], in the infrastructure of spotify Yahoo and netflix.

6.2.5. MongoDB

MongoDB has emerged as a different and alternative approach from NoSQL relational database management systems, which we have started to hear frequently as a rising star in the world of Informatics in recent years. And the slogans they usually use are changing the world, so should your database .

MongoDB open source NoSQL is a document database. If we look at what the document database is, it is called the database where the data is stored in data types such as JSON.

MongoDB has been used both in the presentation layer and in the stationary data layer since it has support for Mapreduce and supports high-speed real-time data import [11].

6.2.6. Neo4J

It is a graph database distributed and developed by Neo4J technology as an open source company. An open - source NoSql database engine that uses a graph structure to store data and the relationships between data. In Neo4j, everything is held in the form of a node, edge, or attribute. Each node and Edge can have as many attributes as desired. Nodes and edges can be tagged and tagged are useful for search narrowing. The language it is written is java. IBM is used by large companies such as Microsoft [12].

7. BIG DATA USAGE AREAS

There may also be regular data saved in a large database. You can also have irregular data that is not noted in an Excel file. There are some examples of big data: [13]

- Business: Customer personalization, determining the causes of customer loss, distribution and logistics optimization
- Technology: process time reduction, real-time analysis, rapid response in times of crisis, decision-making with automated systems to reduce risks
- Health: detection of disease, monitoring of course and conducting personal DNA analysis to strengthen health
- Public sector: creating transparency by providing data accessibility, adapting actions for appropriate products and services
- Retail sales: store behavior analysis, diversity and price optimization, product placement design, performance improvement, worker productivity optimization
- Personal Location Data: intelligent orientation, geo-targeted advertising, emergency response
- Smart cities: ensuring sustainable economic development and high quality life by managing natural resources

8. REFERENCES

[1] https://techterms.com/definition/data (Access Date: 08.12.2018)

[2] Korcan Doğan, Sacit Arslantekin, Büyük Veri: Önemi, Yapısı ve Günümüzdeki Durum, 2016

[3] Michel Adiba, Juan-Carlos Castrejon-Castillo, Javier Alfonso Espinosa Oviedo, Genoveva Vargas-Solar, José-Luis Zechinelli-Martini, Big Data Management Challenges, Approaches, Tools and their limitations, February 2017

[4] http://www.enterprisefeatures.com/6-important-stages-in-the-data-processing-cycle/ (Access Date: 08.12.2018)

[5] Raghavendra Kune, Pramod Kumar Konugurthi, Arun Agarwal, Raghavendra Rao Chillarige, Rajkumar Buyya, The Anatomy of Big Data Computing

[6] https://www.bmc.com/blogs/sql-vs-nosql/] (Access Date: 10.12.2018)

[7] https://redis.io/topics/introduction (Access Date: 11.12.2018)

[8] https://cloud.google.com/bigtable/ (Access Date: 11.12.2018)

[9]https://teddyma.gitbooks.io/learncassandra/content/about/about_cassandra.html (Access Date: 09.12.2018)

[10] https://hbase.apache.org/ (Access Date: 08.12.2018)

[11] http://www.wikizeroo.net/index.php?q=aHR0cHM6Ly9lbi53aWtpcGVkaWEub3JnL3dpa2kvTW9uZ29EQg (Access Date: 10.12.2018)

[12] http://www.wikizeroo.net/index.php?q=aHR0cHM6Ly9lbi53aWtpcGVkaWEub3JnL3dpa2kvTmVvNGo (Access Date: 12.12.2018)

[13] Şeref Sağıroğlu, Orhan Koç, Büyük Veri Ve Açık Veri Analitiği, Ankara, 2017

Quantum Computers and Quantum Cryptology

Veli Gökay Soysaldı 152120181060

Ahmet Buğra Yaşar 152120181060

Onur Nafi Güzel 152120161107

DOÇ. DR. EYYÜP GÜLBANDILAR

19.12.2018

Quantum Computers

1. In this project I made researches about quantum mechanics quantum computers and quantum computing. The results of my researches show that Quantum Mechanics is a mechanic that investigate pattern of light and very small pieces of matter. [Wired.co.uk,(2018) [1]]

Quantum computers are computers that use quantum mechanics for store data. This computers key things are QUBITS (quantum bits). This QUBITS are different from classical bits. Classical bits are made of 0's and 1's but QUBITS can be 0,1 or 0 and 1 at the same time and that's called 'Superpositon Theory' [Research.ibm.com (2017) [2]] (the main theory that quantum computers belong.).

While doing this project I've used Microsoft PowerPoint. I made researches about how to do a good presentation thus, improved my presentation and PowerPoint skills.

Veli Gökay SOYSALDI

152120181060

QUANTUM CRYPTOGRAPHY AND CONJUGATE CODING

In this Project I did some researches about “Quantum Cryptography” and “Conjugate Coding”. This researches showed to me how it is started. Story of everything started with two students who are Stephen Wiesner and Charles Bennett. I learned that they were just students who is dream sending safe messages. Wiesner told Bennett of his ideas for using quantum mechanics to make banknotes that would be impossible to counterfeit according to the laws of nature. After years Wiesner submitted his paper “Conjugate Coding” to the IEEE Transactions on Information Theory. Unfortunately it was refused. Conjugate coding is a cryptographic tool, introduced by Stephen Wiesner in the late 1960s. It is part of the two applications Wiesner described for quantum coding, along with a method for creating fraud-proof banking notes. His views were far ahead of his time, but today we can understand how valuable they are. At the same time, the society can only accept one change. And we are not able to take advantage of the ideas of the smart people to come to our time.

ONUR NAFİ GÜZEL

152120161107

HISTORY OF CRYPTOGRAPHY AND QUANTUM KEY DISTRIBUTION

For this project, I've first looked at what our ancestors have done to keep information secret, how they've done it and how were the secrets revealed, how were the passwords decrypted. My research showed that cryptology dates back to 500 BCE (Unknown, 2011)

.

As humanity evolves, new secrets appear, new ways to decrypt passwords reveal themselves and new encryption methods occur to out-level the decryption methods. This cycle is what keeps technology going. Right now, the meta encryption method is Quantum Key Distribution. How Quantum Key Distribution (Quintessence Labs, 2017(?))[2]works is kind of similar to how marriage works. There is a groom, a bride and the government as the overseer of the whole process. A message is first sent to the overseer for an allowance to send a message to the receiver. If allowed, message is sent to the overseer at first, and the sender's message is destroyed. Overseer then sends the message to the receiver after checking if any information is lost on the process of sending the message and then destroys the message for himself. [2]

Thanks to this method, it is very secure to send messages and no possible way to decrypt this method of encryption seems to be on its way for a long time.

Ahmet Buğra YAŞAR

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References:

History of Cryptography and QKD	Quantum Computers	Quantum Cryptography and Conjugate Coding
1.iiteeeestudents.wordpress.com 2.quintessencelabs.com 3.reddit.com	2. Research.ibm.com 3. Wired.co.uk 4. Quora.com 5. Dwavesys.com 6. wikipedia.org	1. mpıwg-berlın.mpg.de 2. ntt-revıew.jp 3. blog.tokenıze.com 4. reddit.com

Graphics Card of History

152120171002 Mustafa Batuhan Bayoglu

152120171017 Gokhan Samet Albayrak

152120171029 Ismail Demircan

Eskisehir Osmangazi University

Faculty of Engineering and Architecure

Computer Engineering Departman

Introduction to Computer Engineering Lecture

Doc.Dr.Eyup Gulbandılar

December 2018

IBM released their first two video cards in 1981 with the IBM PC, the Monochrome Display Adapter (MDA) and Color Graphics Adapter (CGA). MDA works only in text mode which only prints ASCII characters and is able to represent 80 columns and 25 lines in the screen. This graphics card had only 4KB video memory and produces only the color green on black background. On the other hand, CGA was considered as IBM's earliest color graphics card and earliest color computer display standard for IBM PC. CGA supported the same 80×20 text mode, 640-200 / 4 (resolution/ color) graphics mode and 16 KB of video memory. However, MDA became more popular in the market specifically for business purposes because of its higher resolution of text and the presence of printer port.

Van Suwannukul, founder of Hercules Computer Technology developed the first popular none IBM graphics card, the Hercules Graphics Card. Its difference from the MDA and CGA were its 720-348 / 2 (resolution/color) graphics mode and 64 KB video memory. What made it so popular was it both supported MDA compatible high resolution text mode and a monochrome graphics mode at the same time.

In the year 1984, Professional Graphics Controller (PGC) and Enhanced Graphics Adapter (EGA) were introduced by IBM. PGC was considered very advanced for its time with its capability of supporting 2D and 3D graphics acceleration for Computer Aided Design applications. This offered higher resolution and color depth than EGA.Then by 1987, came Video Graphics Array (VGA) which offered 640-480 / 16 (resolution/color) graphics mode and 256 KB of video memory. Though its resolution was replaced in PC markets by 1990s, this is making fame on mobile devices. With its release, some corporations like Cirrus Logic, S3 and ATI decided in improving this video card's number of colors used and its resolution. This interest led to what was called the Super VGA (SVGA). SVGA supported 2 MB of video memory and 1024×768 resolution at 256 color mode.

2D and 3D cards were first released to the public in 1995 which had the ability to illustrate multidimensional images which was not present during that time.3dfx Voodoo Graphics 3D chipsets developed by Interactive in 1996 so geometrical shapes and texture mapping operations were performed in the 3rd dimension realm. Following Voodoo, came more 3D video cards from NVIDIA which are Voodoo2, TNT and TNT2.

By then since 2003, ATI video card market has been reined by ATI and NVIDIA with their Radeon and GeForce lines respectively.

What is the Graphic Card?

The video card is an important component of the computer and provides the monitor with an image.

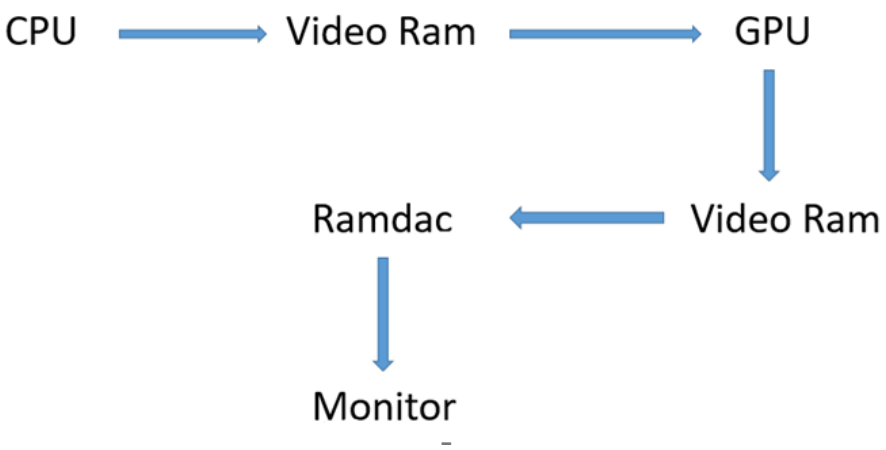
How Does a Graphic Card Work?

1. CPU (Processor): The processor orders the Graphics Processing Unit (GPU).

2. GPU (Graphics Progress Unit): A graphics processor that executes commands on the display card. The goal is to lighten the CPU's load.

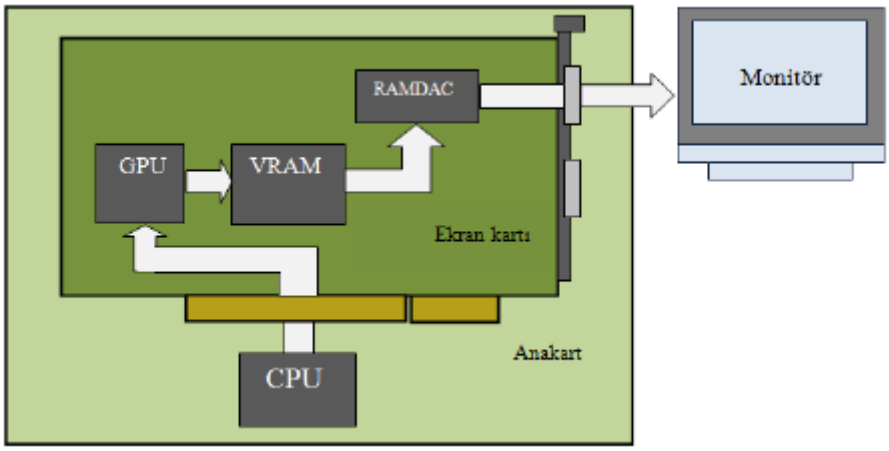
3. Video RAM: The graphics processor uses the memory on the Video Card as a memory when creating the image. The goal is to use the main memory only by the CPU and increase performance.

4. RAMDAC: The video enables the conversion of "0" and "1" from the memory, ie the digital system, to Analoga for the provision of the image.



The data processed by your computer's processor is sent to the memory card of the video card, ie, via Video ram on the motherboard. The information in the Video RAM is processed by the GPU and the processed data is sent back to the Video RAM once the required image calculations have been made. Information

in the memory is sent to RAMDAC for conversion to analog signals. RAMDAC converts the analogue and transfers the signals to the output of the video card. The GPU sends new data to the emptied Video RAM. It manages the video BIOS data stream during all these operations. These operations are repeated continuously to obtain images from the monitor.



Graphics Card Components

- **FAN**

  Dual 13-blade fans produce 3X higher airflow and ultra-quiet acoustics.

- **FRAME/COVER**

  A forged and machined-finished diecast aluminum cover with diamond-cut edge detailing provides a rigid, lightweight frame for an open design with beautifully smooth, continuous curves.

- **VAPOR CHAMBER**

  The first full-card vapor chamber is 2X larger to maximize heat spreading and heat transfer to the finstack.

- **GEFORCE RTX NVLINK™ BRIDGE**:

- Using the latest NVIDIA NVLink™ technology for SLI allows up to 50 GBps per link and ample headroom for 4K, 120Hz surround, 8K and NVIDIA G-SYNC

- **NVIDIA TURING GPU**

  Turing and the all-new RTX platform give you up to 6X the performance

of previous-generation graphics cards and brings the power of real-time ray tracing and AI to games.

- **POWER SUPPLY**
  The all new 13-phase iMON DrMOS power supply delivers more headroom and sub-millisecond power management for maximum overclocking.

- **GDDR6 MEMORY**
  Ultra-fast GDDR6 memory provides over 600 GBps of memory bandwidth for high-speed, high-resolution gaming.

Graphics Card Features

- **OPENGL VERSION**

- OPENGL İS USED İN GAMES, WİTH NEWER VERSİONS SUPPORTİNG BETTER GRAPHİCS.

- **DIRECTX VERSION**:

- DİRECTX İS USED İN GAMES, WİTH NEWER VERSİONS SUPPORTİNG BETTER GRAPHİCS.

- **OPENCL VERSION**

  SOME APPLİCATİONS USE OPENCL TO UTİLİSE THE POWER OF THE GRAPHİCS PROCESSİNG UNİT (GPU) FOR NON-GRAPHİCAL COMPUTİNG. NEWER VERSİONS İNTRODUCE MORE FUNCTİONALİTY AND BETTER PERFORMANCE.

- **MULTI-DISPLAY TECHNOLOGY**

- THE GRAPHİCS CARD SUPPORTS MULTİ-DİSPLAY TECHNOLOGY. THİS ALLOWS YOU TO CONFİGURE MULTİPLE MONİTORS İN ORDER TO CREATE A MORE İMMERSİVE GAMİNG EXPERİENCE, SUCH AS HAVİNG A WİDER FİELD OF VİEW

Connection artificial intelligence to video card

- Connection of video card to artificial intelligence: With using Artificial intelligence and Nvidia Tesla V100 graphics cards and PyTorch deep learning software the team who managed to produce high quality slow motion videos from 30 FPS videos.

Sources:

https://www.sistemduragi.com/ekran-karti-hakkinda-her-sey.html/

https://www.ukessays.com/essays/information-technology/the-history-of-the-graphics-card-information-technology-essay.php

http://www.Howstuffworks.com

http://tech-worm.com

http://www.pcustasi.com

https://www.nvidia.com/en-us/geforce/graphics-cards/rtx-2080-ti/

https://versus.com/en/gigabyte-geforce-aorus-rtx-2080-ti

https://shiftdelete.net/nvidia-yapay-zeka-ile-slow-motion-video-uretti

Questions

1)What is IBM's oldest graphics card?

a)Mda

b)Pgc

c)Hercules

d)Ega

e)Cga

2) Which of the following schemes is correct?

a)CPU -> GPU->Video Ram ->Ramdac->Monitor

b)CPU->Video Ram->GPU->Video Ram->Ramdac->Monitor

c)GPU->Ramdac->CPU->Video Ram->Monitor

d)GPU->Video Ram-> CPU>Video Ram->Ramdac->Monitor

e)Ramdac->CPU->GPU->Video Ram->Monitor

Answers 1)e,2)b

CODING LANGUAGES AND HISTORY

YAĞIZ CAN MERMERCİ

152120171047

AYDIN CESUR

152120171022

INTRODUCTION TO COMPUTER ENGİNEERİNG

CONTENTS

1.0 WHAT IS PROGRAMİNG LANGUAGE?

A programming language is a computer language engineered to create a standard form of commands. These commands can be interpreted into a code understood by a machine. Programs are created through programming languages to control the behavior and output of a machine through accurate algorithms, similar to the human communication process.

1.1 HISTORY OF PROGRAMİNG LANGUAGE AND EXAMPLES

Before 1940

In 1837, Charles Babbage, a British professor, created a command set to multipurpose calculator. Although it is not widely used for political, economic and legal reasons, it is considered as the first programming language.

1940s

“ENIAC Coding System” was developed in 1943 for Electronic Numerical Integrator and Computer (ENIAC) , one of the first electronic digital computers.

1943 - Plankalkül (Konrad Zuse)

1943 - ENIAC coding system

1949 - C-10

1950s and 1960s

These years have been the foundations of modern programming languages.

1951 - Regional Assembly Language
1952 - Autocode
1954 - FORTRAN (FORmula TRANslator)
1958 - LISP (LISt Processor)
1958 - ALGOL (ALGOrithmic Language)
1959 - COBOL (COmmon Business Oriented Language)
1962 - APL (A Programming Language)
1962 - Simula
1964 - BASIC (Beginner's All-purpose Symbolic Instruction Code)
1964 - PL/I (Programming Language One)

1970s

In these years, programming languages begin to diversify, and develop structured programming languages.

1970 – PascaL

1972 - C

1972 - Smalltalk

1972 - Prolog

1973 - ML

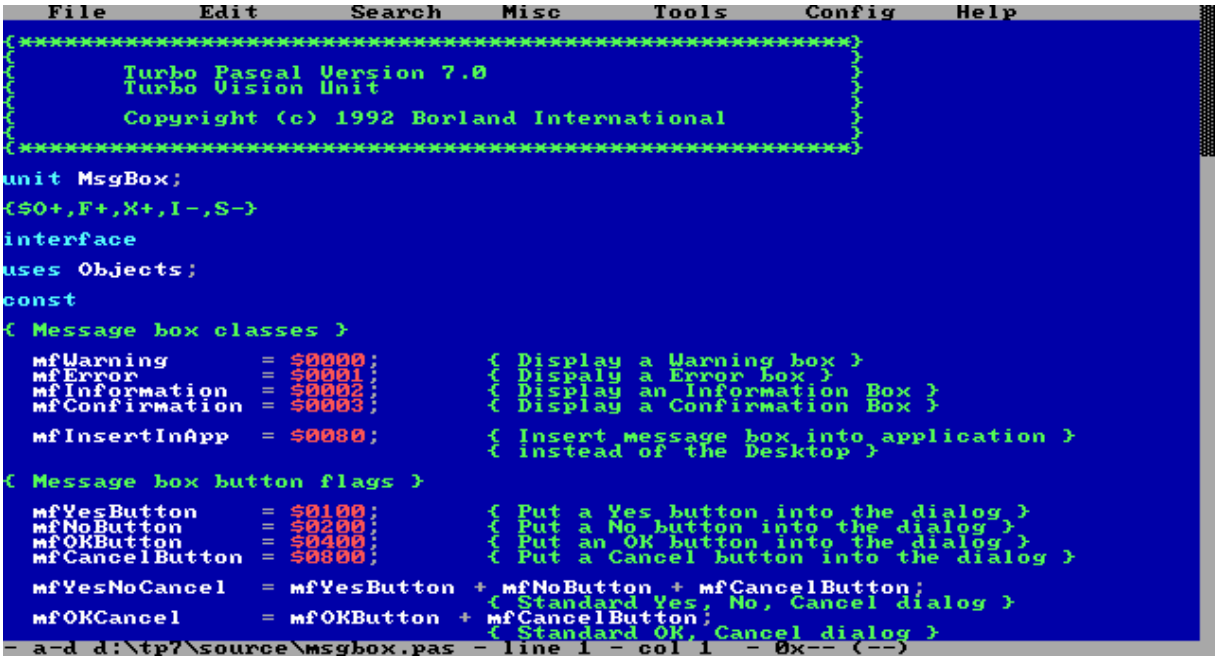
1978 – SQL

PASCAL

Most of the first Macintosh operating system, and TeX, was written with Pascal.

Computer scientist Niklaus Wirth developed Pascal in 1970 to make structured programming easier for compilers.

Pascal was developed on the pattern of the ALGOL 60 language. Wirth had already developed several improvements to this language as part of the ALGOL X proposals, but these were not accepted and Pascal was developed separately and released in 1970. A derivative known as Object Pascal designed for object-oriented programming was developed in 1985; this was used by Apple Computer and Borland in the late 1980s and later developed into Delphi on the Microsoft Windows platform. Extensions to the Pascal concepts led to the Pascal-like languages Modula-2 and Oberon.



(TURBO PASCAL 7.0 PHOTO)

C PROGRAMING LANGUAGE

AT & T Bell is a B language-based structured programming language in order to develop the UNIX Operating System by Ken Thompson and Dennis Ritchie.

Today, up to 95% of all operating systems (Microsoft Windows, GNU / Linux, * BSD, Minix) have been used. It is still quite common that more systems, driver software, operating system modules, and speeds are used wherever they need.

With the development process of programming, after the complexity of programming, the increase of the requirements and the emergence of object orientation in the application programs, the C programmers have switched to C ++, which mostly supports object orientation.

```
}
x = sayi1[0]; //40. basamağa gelindiğ
y = sayi2[0];
if (x + y + 1 >= 10) {
    c = 1;
    printf("%d", c);
```

(INTERFACE OF C PROGRAMİNG)

1980s

The 1980s are the years when languages have been able to develop scalable applications for larger systems. These years were years of object-oriented programming.

1983 - Ada
1983 - C++
1985 - Eiffel
1987 - Perl
1989 - FL (Function Level)

1990s

With the spread of the Internet, it was the years when the Java language was developed and expanded in a very serious way.

1990 - Haskell
1990 - Python
1991 - Java
1993 - Ruby
1995 - PHP
1995 - Delphi
2000 - C#

PYTHON

Python is an object-oriented, interpretive, modular and interactive high-level programming language.

The modular structure supports the class string (system) and any data field input. Can work on almost any platform. (Unix, Linux, Mac, Windows, Amiga, Symbian).

Nowadays, the Python Software Foundation continues its efforts with the efforts of volunteers gathered around it.

JAVA

Java is an open-source, object-oriented, ground-independent, high-efficiency, multifunctional, high-level, step-by-step language that has been developed by James Gosling, a Sun Microsystems engineer.

Java is a programming language developed by James Gosling of Sun Microsystems and was introduced in 1995 as the core component of Sun Microsystems. Although this language derives many syntax from C and C ++, these derivatives contain simpler object model and less low level capabilities. Java applications are typical bytecode (class file) that can run in any Java Virtual Machine (JVM) without depending on the computer architecture.

One of the popular slogans of Java, "write once, run anywhere" (WORA), implies that Java Is compiled Java code can work without the need to recompile on all platforms that support Java.

1.2 CLASIFICATION OF PROGRAMING LANGUAGES

Programming languages are classed among themselves.

Languages that are close to machine codes such as 1100101, which are the most difficult to learn and understand, are the lowest level programming languages. The languages that show the features that are close to human language are the highest level of programming languages.

First Generation Programming Languages - Machine Languages

The first generation programming languages were machine-level languages, which were developed to meet the programming needs of the first computers and were fully developed.

- ARM
- Intel 80x86
- IBM 360
- MIPS R2000|R3000
- MOS Tech 6502
- Motorola 680x
- Power Architecture - (POWER and PowerPC)
- StrongARM
- Sun SPARC, UltraSPARC

Second Generation Programming Languages (Assembly Languages)

Direct processor / machine-specific codes are replaced by commands and abbreviations. However, machine-specific programming is still required. In addition, programs developed with these languages had to be translated into machine language in order to work on machines.

- ASEM-51 [1]
- BAL (Basic AssembLer)
- COMPASS (COMPrehensive ASSembler)
- Emu8086
- FAP (FORTRAN Assembly Program)
- FASM (Flat Assembler; IA-32, IA-64)
- GAS (GNU Assembler)
- HLA (High Level Assembly)

Fourth Generation Programming Languages

These languages, which are much easier to use, with less code writing, ready-to-use templates, and practical solutions for specific needs, are designed to develop applications in areas such as report generator, form generator, case design, data management.

- Informix-4GL
- Progress 4GL
- SQL
- Oracle Forms /Reports
- PostScript
- RPG-II
- Gauss
- ABAP
- Mathematica

Fifth Generation Programming Languages

The fifth-generation programming languages are designed to help the programmer find the solution itself, rather than by developing the algorithm and developing the solution to the computer.

- Prolog
- OPS5
- Mercury

CLASSIFICATION OF PROGRAMS BY USAGE AREA.

1.

In the field of Scientific and Engineering: It is used for engineering or mathematics calculations in universities and scientific institutions. Examples of such languages are Pascal, C, C ++, Java, Fortran.

2.

In Database Usage: Generally used in transactions requiring database such as personnel records, inventory or warehouse control etc. DBase, Sql, Foxpro, Paradox, and so on.

3.

In System Programming: The languages used in the software of operating systems and system programs. Examples are C, C ++, Java and machine languages.

4.

General Purpose use: We can give C, C ++, Java, VB and Pascal as an example to the languages used to develop applications on various subjects.

5.

In Artificial Intelligence Use: It is the languages used in artificial intelligence applications, especially in recent times. Examples include languages such as Prolog and Lisp.

1.3 REFERENCES

1.0: adsız, (2013), PROGRAMLAMA DİLLERİ, < http://algoritma-programlama.blogspot.com/2013/11/programlama-dilleri.html >, accessed: 26 DECEMBER 2018

2.0 :

1-Çamoğlu, Kadir (2009), Geçmişten Günümüze Programlama Dilleri,< https://www.chip.com.tr/blog/kadircamoglu/Gecmisten-Gunumuze-Programlama-Dilleri_1846.html >, accessed: 26 DECEMBER 2018

2-anonymous,(2017),Pascal< https://tr.wikipedia-on-ipfs.org/wiki/Pascal_yaz%C4%B1l%C4%B1mlama_dili.html > ,accesed : 26 DECEMBER 2018

3- *Kernighan, Brian W.; Ritchie, Dennis M. (1978). C Programlama Dili (1. bas.). Englewood Cliffs, NJ: Prentice Hall*

4- Deily, Ned (2018). "Python 3.7.0 is now available". Python Insider. The Python Core Developers. Accessed: 29 March 2018.

3.0 : Same referances has used by 1.0 and 2.0.

REPORT

Virtual Reality and Augmented Reality

Contents

What is VR (Virtual Reality) ?

Virtual Reality is the use of computer modeling and simulation through several technologies that simulate a user's physical presence in a virtual or imaginary environment.

VR needs to be.. (1)

- Believable
- Interactive
- Explorable
- Immersive

Virtual Reality Types (1/2)

Non-Immersive

The viewer becomes partly but not fully immersed in this environment. One of the example is flight simulator. The viewers does not need to wear virtual reality gear such as a data glove or head mounted display (HMD) in this simulator and they are still aware of the real world outside of the virtual environment.

Fully immersive

This type should be plausible, and richly detailed virtual world to explore for the best experience. Therefore, it comes with powerful computers which must be able to detect sounds, sight, and even the slightest movement.

Collaborative

Collaborative reality is usually in the form of virtual reality games and they are not fully immersive. One can share an experience in a virtual world with other people.

History of Virtual Reality (2)

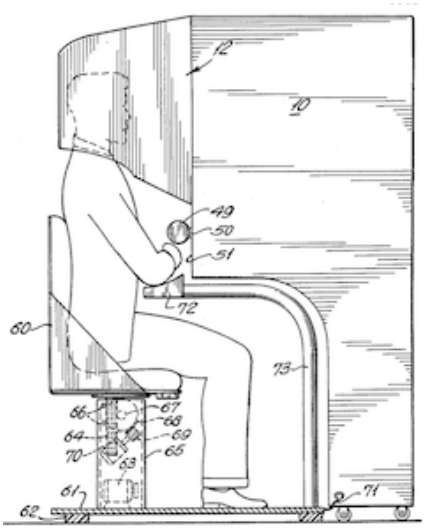
1929 –The First Flight Simulator

In 1929 Edward Link created the "Link trainer" (patented 1931) probably the first example of a commercial flight simulator, which was entirely electromechanical.

Left: Edward Link, Right: The Link Trainer

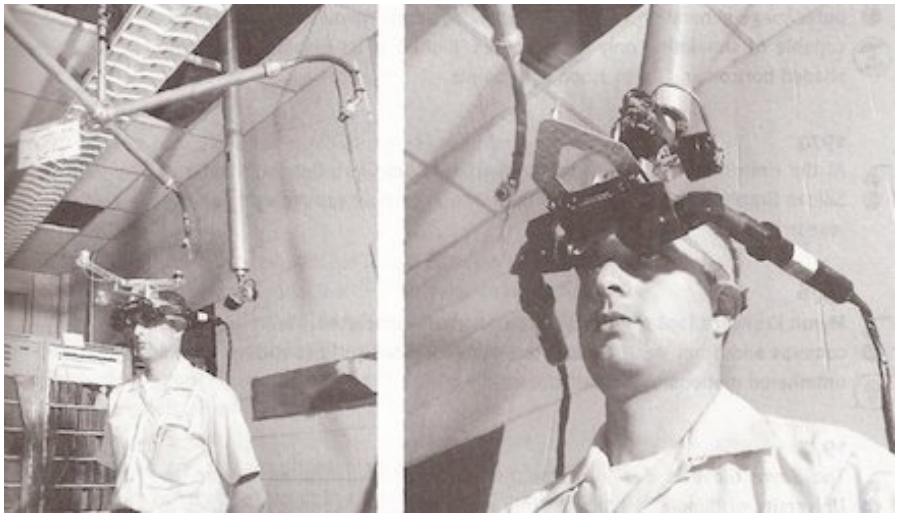
1950s – Morton Heilig's Sensorama

In the mid 1950s cinematographer Morton Heilig developed the Sensorama (patented 1962) which was an arcade-style theatre cabinet that would stimulate all the senses, not just sight and sound. It featured stereo speakers, a stereoscopic 3D display, fans, smell generators and a vibrating chair.



1968 – Sword of Damocles

In 1968 Ivan Sutherland and his student Bob Sproull created the first VR / AR head mounted display (Sword of Damocles) that was connected to a computer and not a camera. The computer generated graphics were very primitive wireframe rooms and objects.



1987 – Virtual reality the name was born

Jaron Lanier, founder of the visual programming lab (VPL), coined (or according to some popularised) the term “virtual reality” in 1987.

1995 – Nintendo Virtual Boy

The Nintendo Virtual Boy was a 3D gaming console that was hyped to be the first ever portable console that could display true 3D graphics but it was a commercial failure despite low price because it was unpractical.

Virtual Reality in the 21st Century

Old gadgets were impractical, uncomfortable and too complex. They were quite expensive too. But in these days, technology developed so much. For this reason, VR devices become smaller and more practical. Also they are cheaper.

Today's Some VR Gadgets (3)

-**OCULUS RIFT**

-**SONY – PLAYSTATION VR**

-HTC VIVE

-SAMSUNG GEAR VR

-**CONTROL VR**

-VIRTUIX OMNI

Applications of VR (2)

- Healthcare/surgery
- Military
- Architecture
- Entertainment
- Education
- Business

- Rehabilitation/treatment of phobias

What is AR (Augmented Reality) ? (4)

Augmented reality is the technology that expands our physical world, adding layers of digital information onto it. Unlike Virtual Reality (VR), AR does not create the whole artificial environments to replace real with a virtual one. AR appears in direct view of an existing environment and adds sounds, videos, graphics to it.

How does Augmented Reality work? (4)

Cameras and sensors

Collecting data about user's interactions and sending it for processing. Cameras on devices are scanning the surroundings and with this info, a device locates physical objects and generates 3D models. It may be special duty cameras.

Processing

AR devices eventually should act like little computers, something modern smartphones already do. In the same manner, they require a CPU, a GPU, flash memory, RAM, Bluetooth/WiFi, a GPS, etc. to be able to measure speed, angle, direction, orientation in space, and so on.

Projection

This refers to a miniature projector on AR headsets, which takes data from sensors and projects digital content (result of processing) onto a surface to view. In fact, the use of projections in AR has not been fully invented yet to use it in commercial products or services.

Reflection

Some AR devices have mirrors to assist human eyes to view virtual images. Some have an "array of small curved mirrors" and some have a double-sided mirror to reflect light to a camera and to a user's eye. The goal of such reflection paths is to perform a proper image alignment.

Augmented Reality Types (4/5)

Marker Based Augmented Reality

Marker-based augmented reality uses a camera and some type of visual marker, such as a QR/2D code, to produce a result only when the marker is sensed by a reader. The AR device calculates the position and orientation of a marker to position the content, in some cases. Thus, a marker initiates digital animations for users to view.

Markerless Augmented Reality

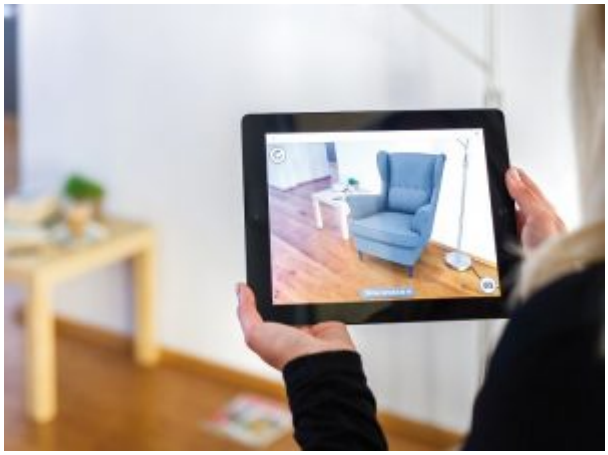
Markerless augmented reality (also called location-based or position-based) uses a GPS, digital compass, velocity meter, or accelerometer which is embedded in the device to provide data based on your location. With the availability of smartphones this type of AR typically produces maps and directions, nearby businesses info.

Projection Based Augmented Reality

Projecting synthetic light to physical surfaces, and in some cases allows to interact with it. It detects user interaction with a projection by its alterations.

Superimposition Based Augmented Reality

Superimposition based augmented reality either partially or fully replaces the original view of an object with a newly augmented view of that same object. Object recognition plays a key role, without it the whole concept is simply impossible



History of AR (6)

Myron Krueger created Videoplace – an artificial reality laboratory. The scientist envisioned the interaction with digital stuff by human movements. This concept later was used for certain projectors, video cameras, and onscreen silhouettes. -**1975**

Steve Mann developed a first portable computer called EyeTap, designed to be worn in front of the eye. **-1980**

Dan Reitan brought interactive AR system for broadcasters, AR is seen on TV for the first time. **-1982**

The term 'Augmented Reality' is attributed to Thomas P. Caudell, a former Boeing researcher. **-1990**

Louis Rosenberg develops one of the first functioning AR systems, called Virtual Fixtures, at the U.S. Air Force Research Laboratory. **-1992**

A group of scientists led by Frank Delgado and Mike Abernathy tested new navigation software, which generated runways and streets data from a helicopter video. **-1999**

Japanese scientist Hirokazu Kato developed and published ARToolKit – an open-source software development kit. **-2000**

Google announced an open beta test of its Google Glass augmented reality glass. **-2013**

Microsoft announced Windows Holographic and the HoloLens augmented reality head. **-2015**

Niantic launched Pokemon Go game for mobile devices. **-2016**

Augmented Reality Devices (4)

- **Mobile devices**

- Special AR devices

- AR glasses (or smart glasses)

- AR contact lenses (or smart lenses)

- Virtual retinal displays (**VRD)**

Applications of AR (4)

Education: interactive models for learning and training purposes, from mathematics to chemistry.

Medicine/healthcare: to help diagnose, monitor, train, localize, etc.

Military: for advanced navigation, marking objects in real time.

Art / installations / visual arts / music

Tourism: data on destinations, sightseeing objects, navigation, and directions.

Broadcasting: enhancing live events and event streaming by overlaying content.

Industrial design: to visualize, calculate or model.

Question-1

Which of this is not a real VR headset?

a) HTC Vive

b) Samsung Gear VR

c) Sony Playstation VR

d) Xbox VR

Question-2

What is A.R. ?

a) Artificial Reality

b) Augmented Reality

c) Attractive Reality

d) Active Reality

References

1 - https://www.explainthatstuff.com/virtualreality.html (26.12.2018)

2 - https://www.vrs.org.uk/ (26.12.2018)

3 - http://www.teknolo.com/sanal-gerceklik-nedir/ (26.12.2018)

4 - https://thinkmobiles.com/blog/what-is-augmented-reality/ (26.12.2018)

5 - https://www.realitytechnologies.com/augmented-reality/ (26.12.2018)

6 - http://www.sweethaven02.com/PDF_Lifelong/Augmented%20reality.pdf (26.12.2018)

7 - https://www.britannica.com/technology/virtual-reality (26.12.2018)

8 - https://www.ispringsolutions.com/blog/vr-made-easy-create-virtual-reality-without-breaking-the-bank/ (26.12.2018)

Alperen Aygün - 152120171014

Yusuf Celil Alak - 152120181016

Başlangıcı 5 Ekim 1991 yılında Linus Torvalds tarafından geliştirilen İşletim Sistemi Çekirdeğine dayanmaktadır. ********** “Linux genelde bir işletim sistemi olarak bilinse de aslında bir işletim sistemi değil, işletim sistemi çekirdeğidir. Çekirdek için ‘İşletim sistemi ile donanımlar arasındaki iletişimi sağlayan bilgisayar yazılımsal parçacığı’ diyebiliriz. ********** “Linus Torvalds Linux’u geliştirirken Unix’ den esinlenmiştir. Ama herhangi bir kod benzerliği bulunmamaktadır. Linux tamamen özgün olarak kodlanmıştır. ********** Linux çekirdeğini ve GNU araçlarını kullanarak oluşturulan işletim sistemlerine Linux tabanlı işletim sistemleri denmektedir. Linux çekirdeği ve GNU araçları yapı olarak Açık Kaynak Kodlu yazılımlar olduğu için her hangi bir ücret ödenmeden alınıp kullanılabilir ve geliştirilebilirler. Linux çekirdeği çok geniş bir yelpazeye yayılmaktadır, örnek vermek gerekirse Bilgisayarlar, Mobil Cihazlar, Akıllı Televizyonlar gibi teknolojinin gidebildiği her yerde işletim sistemi olarak Linux çekirdeğini kullanan işletim sistemlerini görebiliriz. ********** Hatta Linux çekirdeği o kadar güçlüdür ki dünyada ki en güçlü 10 süper bilgisayarın işletim sistemi de Linux çekirdeğini kullanmaktadır. ********** Linux’ un bir diğer önemli özelliği de tüm gelişmelerin herkes tarafından görülebilir olmasıdır. Linux için çıkan tüm geliştirmeler İnternet üzerinden anında yayınlanır ve dünyanın tüm köşelerinden yüz binlerce kullanıcı tarafından test edilir ve geri dönüş sağlanır. Linux hepimizin çekirdeğidir ve gelişiminde hepimiz büyük rol oynarız. Özgür yazılım , kullanıcısına çalıştırma, kopyalama, dağıtma, inceleme, değiştirme ve geliştirme özgürlükleri tanıyan yazılım türüdür. Özgür yazılım ile kastedilen özgürlük, yazılımın kullanım hakları ile ilgilidir, ekonomik boyutu ile değil. Özgür yazılımlar çoğunlukla ücretsiz olsalar da ücretsiz olmak zorunda değildirler.

****

0 numaralı özgürlük : Herhangi bir amaç için yazılımı çalıştırma özgürlüğü.

1 numaralı özgürlük : Her ne istiyorsanız onu yaptırmak için programın nasıl çalıştığını ögrenmek ve onu değiştirme özgürlüğü. Yazılımın kaynak koduna ulaşmak, bu iş için ön koşuldur.

2 numaralı özgürlük : Kopyaları dağıtma özgürlüğü.

3 numaralı özgürlük : Tüm toplumun yarar sağlayabileceği şekilde programı geliştirme ve geliştirdiklerinizi (ve genel olarak değiştirilmiş sürümlerini) yayınlama özgürlüğü. Kaynak koduna erişmek, bunun için bir ön koşuldur.

Bir yazılım, ancak bütün kullanıcıları bu hakların tümüne sahip oldukları zaman özgür bir yazılım olur. Bu özgürlüklere sahip olmak, kimseden izin almamayı ve izin için hiçbir bedel ödememeyi de içerir. Özgür yazılım, çoğu zaman açık kaynak kodlu yazılım kavramı ile karıştırılmaktadır. Bütün özgür yazılımlar açık kaynak kodludur ancak her açık kaynak kodlu yazılım, özgür yazılım olmayabilir.

****

Masaüstü veya sunuculara yönelik olarak özelleştirilmiş birçok Linux çekirdeğini kullanan işletim sistemi bulunmaktadır. Kali Linuxta bunlardan biridir.

Kali Linux Hakkında

****

Kali Linux, BackTrack Linux’un Debian tabanına tekrar temellendirilmesi üzerine oluşturulmuştur. ********** Resmi olarak Offensive Security adlı şirket tarafından fonlanmakta olan Debian tabanlı bir Linux işletim sistemidir.

Profesyonel penetrasyon testleri yapabilmek için ve güvenlik denetimlerini eksiksiz test edebilmek adına gerekli olan tüm araçlarla donatılmıştır. Offensive Security adlı şirketin resmi olarak fonlamasından dolayı penetrasyon testleri, güvenlik testler ve tersine mühendislik yapabilmek adına bulabileceğiniz tüm araçlara sahip olma özelliğini taşımaktadır.

****

Kali Linux Özellikleri

Kali Linux açık kaynaklı bir işletim sistemidir, yani işletim sisteminin kaynak kodları herkese açık şekildedir ve isteyen herkes kendine göre düzenleyebilmektedir.

Kali Linux kişiselleştirilebilir bir işletim sistemidir. Kullanıcılar Kali Linux işletim sistemini kendi isteklerine göre tekrar tasarlayabilirler.

Kali Linux eski sürümü olan BackTrack Linux gibi tamamen ücretsiz bir işletim sistemidir. Offensive Security tarafından yapılan açıklama da şirket Kali Linux'un varolduğu süre boyunca hep ücretsiz kalacağını garanti etmiştir.

BackTrack Linux'un az özelliklerinin aksine Kali Linux 600'ün üzerinde penetrasyon ve test aracına sahip olarak gelmektedir. Eski sürümünde işlevsiz hale gelen ve çalışmayan tüm araçlar arındırılmış, kusursuz bir hale getirilmiştir.

****

Kali Linux Türkçe dil desteğine sahip olmakla birlikte çok geniş bir dil yelpazesine sahiptir. Bunun yanında Kali Linux, eş zamanlı olarak çoklu dil kullanımını desteklemektedir.

****

Kali Linux, Linux işletim sistemleri arasında kablosuz ağ ve kablosuz donanımlara en büyük desteği veren ve neredeyse hepsini destekleyebilen tek işletim sistemidir.

****

Kali Linux için ufak bir araştırma yaparsanız sadece penetrasyon ve güvenlik testi yapmak isteyen kullanıcıların kullandığı bir işletim sistemi olmadığını rahatça görürsünüz. İşin içine tersine mühendislik kavramı girince ve sunduğu özellikleri temel alınca bu işletim sisteminin başka kimler tarafından kullanıldığını anlamak güç olmasa gerek.

****

Evet, Kali Linux aynı zamanda İnternet korsanları tarafından da popüler olarak kullanılıyor

MAHMUT KILIÇ-RENAT AGHASIYEV

AIM

In this work,we wanted to explain working principle of computer graphics and screens but unfortunately I don't think we're completely successful because this subject is extremely deep to explain and we focused on only a few issues.

Firstly, presentation started with “meaning of graphic and visualization”.Then, I mentioned “A Few Uses of Computer Graphics.”

To sum up:

- We can easily understand with help of graphics.
- It makes our lifes easier(in all areas) and makes it difficult for us to make mistakes(in cartography)
- Prevents waste by reducing paper usage(we can store documents)
- Works for different sectors and this explains it’s a main part of computer science.

I think Computer Graphics are necessary in all areas.

Today, I may have made a mistake but I will learn this subject completely,maybe without computations, before graduation.

Computer Graphics

The main images consist of pixels. We need to determine the number of pixels when creating the project.

In the drawings, vector drawings should be preferred more. Vector drawings are the ideal way for the works to be used easily in all sizes. But there are also points to be considered in these drawings. If there is a work you want to publish on the web, it is useful to convert it to a Bitmap file after the project is finished. Otherwise, projects cannot be published on the web.

Many designers are drawing with different programs. First of all, it must be decided to for what purpose he is drawing. If he wants to work on a large photo, the type should be selected. It is important because it can loss its quality. Vector graphics should be used for large photos. Drawings with vector graphics can also be used for small photos.

Image formats vary according to their usage areas. If you want to use a handy image on your web page, the GIF image format is best. If you have more photos and want to back them up, your image format can be JPG, PNG.

There are many image compression methods. There are some things to consider when using them. First we need to look at the picture format. If our image format is not flexible in terms of compression, we have to pay attention. Programs that do not lose quality during compression should be used. The LZW image compression program is more useful and preferred than most programs.

Which graphic type has the same quality when they grow and shrink?

A) BITMAP
B) PNG
C) PSD
D) VECTORIAL
E) TIFF

Which file compresssiom is safely?

A) PCFX
B) FLIF
C) LZW
D) FPIX
E) DICM

What is Cartography?

a. Cartography is the study and practice of making maps.
b. Cartography is the study and practice of coloring pixels.
c. Cartography is the study and practice of creating simulations.
d. Cartography is the study and practice of drawing graphs.

1. CRT's are cheaper than LCD's
2. AutoCAD works only in 3D
3. GUI is faster than CLI

Which of these are true?

a. Only 2
b. 1-3
c. 1-2
d. 1,2 and 3

Eskişehir Osmangazi University

Faculty of Engineering and Architecture

Departmant of Computer Engineering

Introduction to Computer Engineering Lecture Project

Doç. Dr. Eyyüp GÜLBANDILAR

Nora Iseni 152120171078

Dinara Jumayeva 152120171074

Cryptography

1.Introduction to cryptography

- Cipher
- Encryption & Decryption
- Permutation Ciphers and Substitution Ciphers
- CAESAR's Cipher

2.Enigma Machine

3.Modern Cryptography

Introduction to Cryptography

<u>CRYPTO +GRAPHY= secret writing</u> (derived from the Greek)

- ✓ Cryptography is a method of ***protecting information and communications*** through the use of ***codes*** so that only those for whom the information is intended can read and process it.
- ✓ The origin of cryptography is dated from about 2000 B.C.
- ✓ Cryptography was used for hiding different secrets during its history, controlled by governments, applied in wars, in diplomacy and used for espionage.

- ***CIPHER*** – is an algorithm that converts plain text into ***CIPHERTEXT***,

which is a gibberish unless you have a key to undo the Cipher.

- ***ENCRYPTION & DECRYPTION***

The process of making the text secret is called Encryption, and the

reverse process is called Decryption.

- ***PERMUTATION CIPHERS***

The fundamental class of cipher techniques are Permutation ciphers, and here we have an example called columnar transposition cipher.

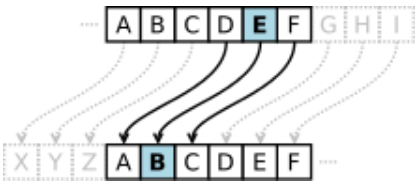
m	e	e	t	
m	e		f	o
r		l	u	n
c	h		-	
s	t	a	n	

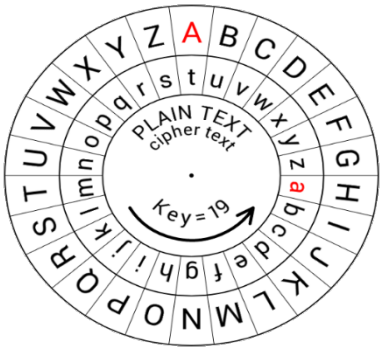
SUBSTITUTION CIPHERS

- Substitution cipher is another class of techniques and works out such as shifting letters in alphabet for a given number, and the best example is the Caesar's cipher.
- A big disadvantage of basic substitution ciphers is that the letter frequencies are preserved.
- For example, E is the most common letter in English, so if your cipher translates E to H, then H will come up the most frequently in the cipher text so we can easy notice that the alphabet is shifted three places forward.

The Julius CAESAR cipher

The Caesar cipher, is one of the simplest and most widely known encryption techniques. It is a type of substitution cipher in which each letter in the plaintext is replaced by another letter.





The Julius Caesar's cipher

Every letter in the alphabet is shifted for 3 places.

For example, with a left shift of 3, **D** would be replaced by **A**,

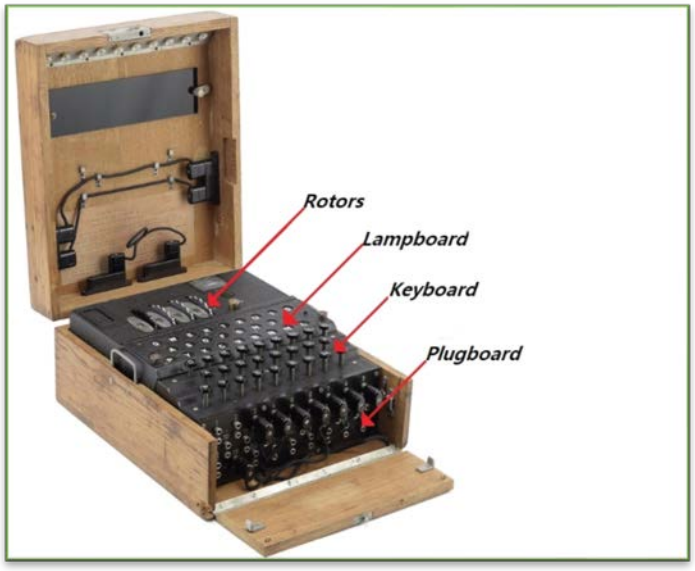
E would become **B**, and so on.

The Enigma Machine

By the 1900s, cryptography was mechanized in the form of encryption machines.

The most famous was the German Enigma, used by the Nazis to encrypt their war-time communications.

The Enigma machines are a series of electro-mechanical rotor cipher machines, it's type writer-like machine, with a keyboard and lamp board, both showing the full alphabet.



Here is given one rotor of Enigma machine,

where we can see how it works.

These are **3 rotors** of enigma machine,

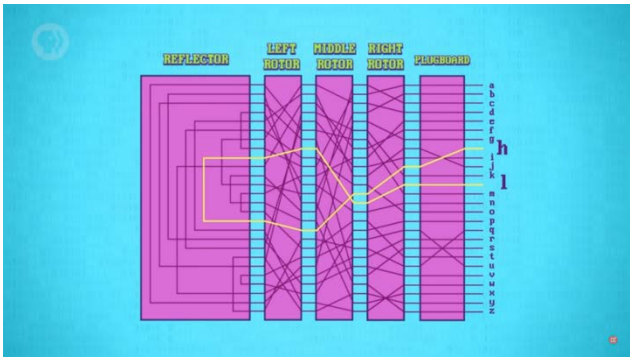
each of them could be rotated into

26 different starting positions.

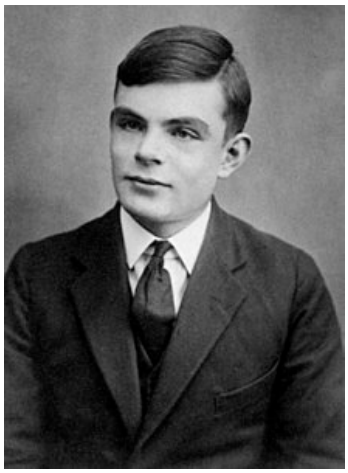
Reflector connected every pin to another.

Plugboard which swapped every coming letter

to another and adding another level of complexity



Alan Turing (1912-1954)



Alan Turing designed a machine called

"The Bomb" to smash the German Enigma code.

The Bomb machine was designed to perform

a sweep of the milliard ways in which the enigma

machine could have been set up.

His machine could crack the enigma machine's code in 15 minutes.

Modern Cryptography

Modern cryptography is based heavily on mathematics.

The math is hard.

There are three types of cryptography which are used to build the

Modern Cryptography:

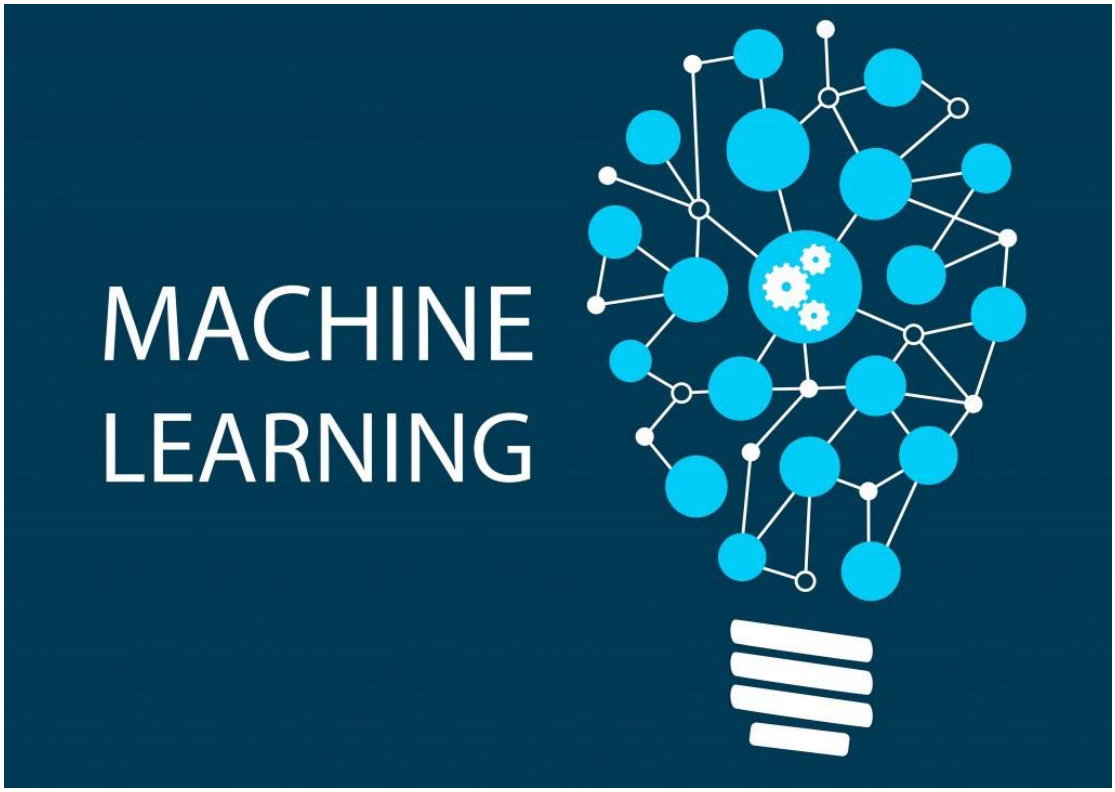
1. Secret Key Cryptography (Symmetric)
2. Public Key Cryptography (Asymmetric)
3. Message Digest (Hashing)

Resources:

1. http://www.wikizeroo.net/index.php?q=aHR0cHM6Ly9lbi53aWtpcGVkaWEub3JnL3dpa2kvQ3J5cHRvZ3JhcGh5
2. http://www.wikizeroo.net/index.php?q=aHR0cHM6Ly9lbi53aWtpcGVkaWEub3JnL3dpa2kvQWxhbl9UdXJpbmc
3. https://www.youtube.com/watch?v=ASfAPOiq_eQ&t=84s

Questions:

1. what is the name of the process of reversing a plain text into a cypher text? Answer: (Encryption)
2. what was the Enigma machine used for? Answer: (is used to encrypt and decrypt the message)



Introduction to Computer Engineering Report

ERCAN ÖZTÜRK (152120181041) | AHMET ÖZCAN (152120151104)

29.12.2018

Summary of the presentation

In our presentation we introduced machine learning to our class. We talked about where it is used. Search engines, drive assistances, character recognition, AlphaGo...

Then, we talk about how it works. It produces a program with data, afterwards can be used with other data. After that, we talked about how it learns things. It learns things with supervised unsupervised learning.

Next, we make an example of machine learning algorithm. The algorithm takes data and produces a model of a reptile using the data's features. The model changes with more and more data therefore it becomes a better model.

In the end, it is still not perfect because it labels swordfish as a reptile. To overcome that we can change or add features.

Finally, we introduce Manhattan distance to calculate distance between features. If we use Euclidian distance, the calculation becomes false, so we need to use Manhattan distance.

Problems:

1) In what way below the machine learning algorithm can't work?

A) Large amounts of data and expected output puts into the system.

B) Expecting feedback according to images put into the system.

C) Algorithms get learned by the system and system gives output according to them.

D) Giving feedback to systems outputs.

E) Expecting the system to learn without giving system data.

2) What below is not the reason machine learning created?

A) Size of data being too large.

B) Solving problems that can already solved easily with traditional programming.

C) Progress of technology.

D) Insufficiency of manpower.

E) Slowness of the process.

Answers:

1-E

2-B

COMPUTER SECURITY

152120171063 Pınar KIZILARSLAN

152120171008 Ayşe KAYA

Eskisehir Osmangazi University

Faculty of Engineering and Architecture

Department of Computer Engineering

Introduction to Computer Engineering (A) Course Project

Doç. Dr. Eyyüp GÜLBANDILAR

December 2018

WHAT TO DO FOR COMPUTER SECURITY?

There is no 100% security in the Informatics World. Even the best protected systems can be exposed to hacking from time to time.

The common feature of the victims identified so far is that the computer is open 24/7, remote access service is turned on, anti-virus is not installed, there is no firewall.

1. Put Password On Your Computer For Computer Security.

Put passwords on your computers so that you can prevent the entrance of strangers. But do not rely on the password you put in the computer. Because these passwords can be overcome with very simple methods.

You can set two types of passwords to your computer. One of them is bios password and the second one is the normal windows account password. Bios password is hacked harder than the other so you can install the bios password.

2. Use FIREWALL For Computer Security.

Firewall is a security system that encodes software and encodes any system. Firewall usually does not protect against threats from within the network. It does not provide safety for viruses, because viruses can be easily encrypted or compressed in packages that are downloaded from the internet or e-mailed. Therefore, do not ignore the antivirus in addition to your firewall.

3. Use Antivirus Program For Computer Security.

You will determine the appropriate antivirus program according to your computer usage purpose.When choosing an antivirus ,make your selection by considering factors such as the size and importance level of the fles to be scanned. Antivirus program examples: Avast, Norton, AVG, Eset, Kaspersky, Panda.

! Virus in the antivirus program does not come to anyone's mind so be careful when choosing your virus program.

4. Turn Off Your Computer's Open Ports.

A port is a data channel that communicates with a cable between a computer and external devices. You need to turn off the open ports of your computer to prevent leaks from opening these data channels. To turn off the computer's open ports, we need to enter cmd first and write netstat on the command line and press enter, then open ports will appear, and close what you want.

5. Protect Your Regedit For Your Computer Security.

Viruses that enter your computer initally copy themselves into the regedit . the regedit is a master software that contains input records,settings, preferences , and other data contained within yhe operating system.When you install a new program on your

computer , the settings fort this program ,the directory in which this program is located, such as the program version, many more information is recorted in the regedit. To delete the registry, we need to do this by typing cmd ye regedit and delete the data you want to delete. Data deleted from here will not come back again.

6. Archive Your Backups In A Different Environment.

Important data on the server should be backed up regularly to an external storage device.

7. You Should Not Open Any E-mails And Incoming Links That You See In The Internet That You Are Interested In.

8. Turn Off The Remote Access Service.

The Remote Desktop program, which is used for the convenience of remote help-support, also attracts cyber attackers. Cyber attackers, Turkey also scans port 3389 and the range of IP addresses used to identify systems that are open. The attacker targets the Administrator user name on the victim's computer, seizes the password for this account with password cracking programs.

9. Set A Difficult Password.

The following features are required for a generated password to be considered "strong" :

- Must be at least 8 characters.

- In addition to letters, the figure must contains special characters such as " ?, @, !, #, %, +, -, *, % ".

- Capital and lowercase letters must be used together.

There are some errors when creating a password, and because of these errors, attackers can easily access passwords. These errors:- use personal information in the password. -Create passwords with the methods used by most people.- use the same password on each site.

10. Use Updates From The Manufacturer For The Operating System.

When you install tools such as CD, Floppy, Flash Disk, Hard Disk to your computer, scan it into your virus program.

SOME DANGEROUS SOFTWARE

Virus:

Viruses are programs. They copy themselves, they move from place to place. They are activated automatically when your computer is turned on. A virus is easy to migrate to another file or drive.

Macro Virus:

A macro virus is a computer virus written in the same macro language used for software programs, including Microsoft Excel or word processors such as Microsoft Word. When a macro virus infects a software application, it causes a sequence of actions to begin automatically when the application is opened.

Since a macro virus centers on an application and not an operating system, it typically can infect any computer running any operating system, even those running MacOS and Linux.

Adware:

Adware is any software application in which advertising banners are displayed while a program is running. The ads are delivered through pop-up windows or bars that appear on the program's user interface. Adware is commonly created for computers, but may also be found on mobile devices.

The justification for adware is that it helps recover programming development costs for the software developer, and reduces or eliminates the cost for the user.

Malware:

Malware, or malicious software, is any program or file that is harmful to a computer user. Malware includes computer viruses, worms, Trojan horses and spyware. These malicious programs can perform

a variety of functions, including stealing, encrypting or deleting sensitive data, altering or hijacking core computing functions and monitoring users' computer activity without their permission.

Trojan:

Trojan is a virüs program that is hidden in a program and performs hidden functions on your computer. Trojans are usually sent into e-mails . They are not activated until the program is stored. When the trojan is activated ,it begins to record all the information about the vulnerable host and servers in the system it is in . Because of the nature of these viruses, it makes the computers that are infected with remote access ,and sends the information it receives to another computer via the internet .The person who placed this virus on your computer , by entering the computer into your computer into your computer very easily by remote access , to make changes to the contents of the file , to delete files , copy your files to your to your own computer ,to read your e-mails, CD-ROM to open and close ,if any,internet banking or credit card ,such as copying your computer can do all the operations you can do.

Worms:

The worm,like a virus , is designed to copy itself from one computer to another but does it automatically . First, it takes control of properties that transmit files or information on the computer . Once the worm enters your system , i can proceed on its own. The greatest danger of worms is their ability to replicate in large numbers.

Spyware:

The definition of spyware is used for any software that monitors ,collects and sends personal information to the third parties without the user's knowledge or permission.

QUESTIONS:

1) What is the software that controls access to our computer over the Internet or Network and prevents unauthorized people from accessing our information?

A) Adware

B) Firewall

C) Antivirus

D) Port

E) Password

2) What is the program that is uploaded to the computer by user's permission or without permission and collects information about the user or computer and sends them to a remote user?

A) Worms

B) Trojan

C) Spyware

D) Virus

E) Macro virus

MAHMUT KILIÇ-RENAT AGHASIYEV

AIM

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c. 1-2
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Yapay zeka nedir?

Yapay zeka, bilgisayarın veya bilgisayar kontrolündeki bir robotun çeşitli faaliyetleri zeki canlılara benzer şekilde yerine getirme kabiliyetidir.

Yapay zeka bilgisayarın insanlar gibi düşünmesini sağlar. Makinelerin karmaşık sorunları insana benzer şekilde çözmesine yardımcı olur. Zeka ve akıl gerektiren sorunlar artık bilgisayar yardımıyla etkili bir şekilde çözülebilir.

Yapay zeka programları karmaşık verilerdeki kalıpları tanıması, tecrübelerinden faydalanması ve insanlar tarafından alınan kararları uygulaması için insan bilgisine ihtiyaç duymaktadır. Yapay zeka sistemleri bir şeyler gözlemlemekte ve daha sonra önceden belirlenmiş parametreler temelinde onu tanımaya çalışmaktadır. Dolayısıyla, belirli bir duruma göre yapay zeka sistemleri, sorunu çözmek için görev yapmakta ve buna tepki vermektedir.

Yapay zekanın amacı

Yapay zeka alanında yapılan çalışmalarda amaçları şöyle sıralayabiliriz:

1) İnsan beyninin fonksiyonlarını bilgisayar modelleri yardımıyla anlamaya çalışmak.

2) İnsanların sahip olduğu zihinsel yetenekleri, bilgi kazanma, öğrenme ve buluş yapmada uyguladıkları strateji, metot ve teknikleri araştırmak.

3) Bu öğrenme metotlarını formel hale getirmek ve bilgisayarlarda bilgi sistemleri halinde uygulamak.

4) İnsanlarını bilgisayar kullanımını kolaylaştıracak insan/bilgisayar ara birimleri geliştirmek.

5) Belli bir uzmanlık alanı içindeki bilgileri bir ‘bilgi sistemi’ (veya ‘uzman sistem’) halinde toplamak.

6) Geleceğin bilgi toplumunun kurulmasında önemli rol oynayacak ‘genel bilgi sistemleri’ geliştirmek.

7) Yapay zeka iş yardımcıları ve ‘zeki robot timleri’ geliştirmek.

8) Bilimsel araştırma ve buluşlarda faydalanmak üzere, ‘araştırma yardımcıları’ geliştirmek.

Yapay zekanın kullanım alanları

• Robotik, robotların tasarımı ve üretimine odaklanmış bir mühendislik alanıdır. Robotlar genellikle insanlar için zor olan görevleri yerine getirmek için kullanılır veya sürekli olarak gerçekleştirmek zordur. Otomobil üretimi için montaj hatlarında veya uzayda büyük nesneleri taşımak için NASA tarafından kullanılırlar. Daha yakın zamanlarda, araştırmacılar sosyal ortamlarda etkileşime girebilecek robotlar oluşturmak için makine öğrenimi kullanıyorlar.

• Doğal dil işleme (DDI), bir bilgisayar programı vasıtasıyla insan ve bilgisayar dili işlenmesidir. Doğal dil işlemen'nin en eski ve en iyi bilinen örneklerinden biri, e-postanın konu satırına ve metnine bakıp çöp olup olmadığına karar veren spamın tespit edilmesidir. Doğal dil işleme'ye güncel yaklaşımlar makine öğrenmesine dayanmaktadır. Doğal dil işlemenin görevleri metin çeviri, his analizi ve konuşma tanıma içerir.

• Desen tanıma, verilerin içindeki kalıpların tanımlanmasına odaklanan bir makine öğrenmesinin bir dalıdır.

• Uzman sistem; karmaşık bir sistemde uzman bir kişinin yaptığı işleri yapan bir bilgisayar programı olarak düşünülebilir.

Başarılı bir uzman sistemin dört temel özelliği vardır. Bunlar;

Önemli performans yeteneği

Makul cevap süresi

Güncellenebilirlik

Etkileşimli kullanıcı ara yüz

Savunma sanayinde yapay zekanın rolü

Ordunun geleceği, siber güvenliği, hassas silahları ve diğer askeri işlevleri geliştiren yapay zeka'ya odaklanabilir.

Yapay Zeka eğitim sistemlerinde kullanılabilir. Örneğin, avcı pilotlarının eğitimi için öngörülemeyen ve uyarlanabilir rakipler sağlayabilir.

Bilgisayarla görme, yazılımın fotoğraf ve videoları anlama becerisidir.

Amazon'un Alexa gibi sistemleri tarafından kullanılan
Nörolinguistik Programlaması, sistemlerin doğal dili kullanarak insanlarla etkileşim kurmasını sağlar

Nörolinguistik Programlama, sistemlerin klavyeleri kullanmadan sipariş almasını sağlayabilir.

Nörolinguistic ayrıca belgeleri tercüme edebilir ve gelecekte tercüman olarak hizmet verebilir.

YAPAY ZEKANIN ASKERİ UGULAMALARI

Sualtı droneları olarak da bilinen İnsansız Su aracı, içerisinde insan olmadan su altında çalışabilen araçlardır.

• Bu araçlar iki kategoriye ayrılabilir.

• Uzaktan kumandayla çalışan bir insan operatör tarafından kontrol edilen, su altında uzaktan çalıştırılan su altı (ROV).

• Doğrudan insan girdisinden bağımsız olarak çalışan özerk sualtı araçları (AUV'ler).

Drone olarak da bilinen İnsansız hava aracı, pilotu olmayan bir uçaktır.

• Drone, Dinamik Uzaktan Kumandalı Navigasyon Cihazları anlamına gelir.

• Bilgisayarlar tarafından bağımsız olarak veya yerde bulunan pilot uzaktan kumandası altında kontrol edilir.

İnsansız kara aracı , zeminle temas halindeyken , insan varlığı olmadan çalışan bir araçtır.

- UGV'ler, insan operatörünün hazır bulunmasının uygunsuz, tehlikeli veya imkansız olabileceği birçok uygulamada kullanılabilir.

• Çevreyi gözlemlemek için bir dizi sensöre sahiptirler.

Özerk robotlar veya uzaktan kumandalı mobil robotlar

• Ulaşımdan arama kurtarma ve saldırıya kadar askeri uygulamalar için tasarlanmıştır.

• Bu askeri robotlar, insan yerine kullanılan robot askerleri içerir.

YAPAY ZEKANIN YARARLARI

Yaşam tarzımızı geliiştirmeye yardımcı olabilir.

• Zihinsel dinçlik ve karar verebilme yeteneği sağlar.

• Ağır inşaatlar, askeri yardımlar veya hatta özel evlerde kişisel yardım için robotlar kullanılabilir.

İnsanlarda daha az yaralanma ve stres olacaktır.

• Sağlık sorunlarımızın birçoğu şimdi yapay zekanın kullanılmasıyla olası çözümlere sahiptir.

QUESTİONS

1) Which of the following is father of the artificial intelligence?

a) Bill Gates

b) Elon Musk

c) John McCarthy

d) Jeff Bezos

e) Lary Page

Answer: C

2) Which of the following is not one of the military applications of AI?

A) Unmanned water vehicle

B) Heavy tanks

C) Unmanned air vehicle

D) Unmanned ground vehicle

E) Military robots

Answer: B