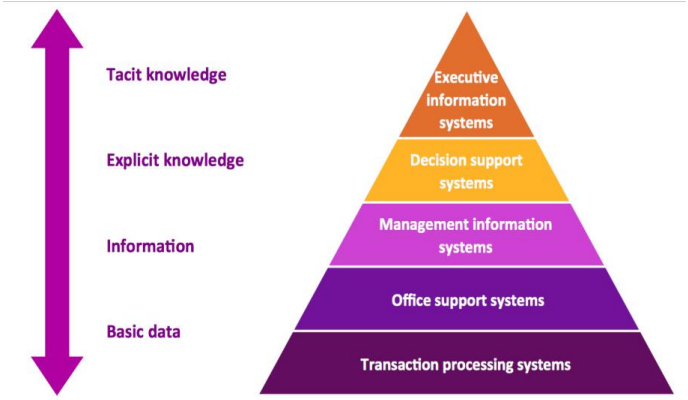
Information Technology

intro

1.what is an information system?

- technically
- a set of interrelated components
- that collect, process, store, and distribute information to support decision making and control in an organization”

2. What arenTypes of Information Systems used according to the levels of management ?

- 

3. Information Technology

• In general, information technology includes any expertise (scientific knowledge) that helps create, modify, store, manage, or communicate information.

4.What are the component of IS?

- Hardware
- Software
- Data
- People
- Process

5. What is Hardware ?

• Tangible, physical portion

the part you can touch.

• Computers, keyboards, disk drives, and flash drives

6.What is Software?

- A set of instructions that tell the hardware what to do.

• Software is not tangible – it cannot be touched

7.what are the two types of software?

- System software (Operating systems and utility programmes - Eg: Microsoft
- Windows, Ubuntu Linux, Antivirus software, File compression tools, Disk wipe
- tools)

• Application software (Eg: Microsoft word, WordPad, Microsoft Excel, Apple

- Numbers

8. What is data?

- Collection of facts (eg: your address - street, city, postal code or your phone number)
- • Like software, data is also intangible.
- • Pieces of unrelated data are not very useful.
- But when we organized them then it be useful

9. What happen in Main Frame Era?

- 1950 – Room Size Machine
- used to do calculation, use to organize and store large volumes of information.
- 1960-, Manufacturing Resources Planning (MRP) systems, ability to manage the manufacturing process
    - Dominant manufacturer of Mainframe computers : IBM

10. What Happen in PC Revolution?

- 1975 Micro computer were introduced
- it's a stand alone machine used to help small organization
- it can be connected to network
- Manufacturers of PCs : Apple, IBM

11. What Happen Client Server?

• Allowed users to log in to the Local Area Network (LAN) from their PC (the "client") by connecting to a central computer called a "server.

- Enterprise Resource Planning (ERP) systems were developed and run on the client-server architecture.

12. What Happen The Internet, World wide web and E-commerce?

- Introduction of the World wide web drove the use of the Internet as a way of sharing information about businesses.
- In 1994, e-commerce platform such as Amazon, eBay were introduced

13. What is Web 2.0 ?

• New type of interactive website, where you did not have to know how to create a web page or do any programming in order to put information online, became known as Web 2.0.

14. Wahts happen in post pc era?

- Cloud computing
- It provides users with mobile access to data and applications, making the PC more of a part of the communications channel rather than a repository of programs and information.

15. ICT4D?

- E learning
- E health
- E governance
- E business

16. Importance of Information Technology (IT)

An organization can use information technology for several purposes;

• To improve operational excellence

• To introduce new products, services, and business models

• To improve customer and supplier intimacy

• To improve decision making • To gain competitive advantage • To ensure survival

Hardware Introduction

17.What is hardware?

- The physical parts of computing devices

18. What is a Computer?

- Computer is a progrmmable device
- accepts data, performs operations on that data, and stores data

19. What are the Basic operations?

• Input: Entering data into the computer

• Processing: Performing operations on the data

• Output: Presenting the results

• Storage: Saving data, programs, or output for future use

• Communications: Sending or receiving data

20. examples oof input devices?

21. what are the exmples for output device?

- speakers
- monitor
- printer
- plotter
- mouse

22. Whats happen in a Computer - Block Diagram?

- 1) Input devices convert human readable data into a machine readable form (binary)
- 2) RAM stores data temporary and provide data to the CPU
- CPU process data and issue control commands
- CPU process data and issue control commands
- 5) Storage store data permanently

23.What are the Types of Computers?

1. Embedded computers
2. Mobile devices
3. Personal computers
4. Midrange servers
5. Mainframe computers
6. Supercomputer

24. What is System Unit?

: The main case of a computer

25.What were containing in a system unit?

- – Houses the processing hardware of a computer
- Also contains memory, the power supply, cooling fans, and interfaces to connect peripheral devices
- Houses the drive bays in which storage devices (hard drives, DVD drives, etc.) are located – With a desktop PC, usually looks like a rectangular box

26. What is mother board?

- Motherboard or system board: The main circuit board inside the system unit.

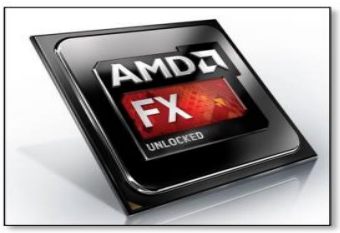
27. What is CPU?

- Central Processing Unit (CPU): circuitry and components packaged together and attached to the motherboard.
- DO most of the processings in computer
- Computer_micro processor

28.According to the core of CPU?

- Dual-core CPU: Contain the processing components (cores) of two separate processors on a single CPU.
- Quad-core CPU: Contains 4 cores.
- Different CPUs are typically designed for desktop PCs, portable PCs, or servers. – CPUs of Personal Computers are often made by Intel or AMD

29. Difference between Intel and AMD?

Intel	AMD Ryzen (Advanced Micro Devices)
Very expensive	Cheaper than intel
Slower than AMD Ryzen	Very faster
The microprocessor with poor gaming performance.	The microprocessor with higher Gaming CPU
Versions of intel ➢ Intel i9, i7,i5,i3...etc. 	Versions of AMD Ryzen ➢ AMD Ryzen 9,7,5... etc. 

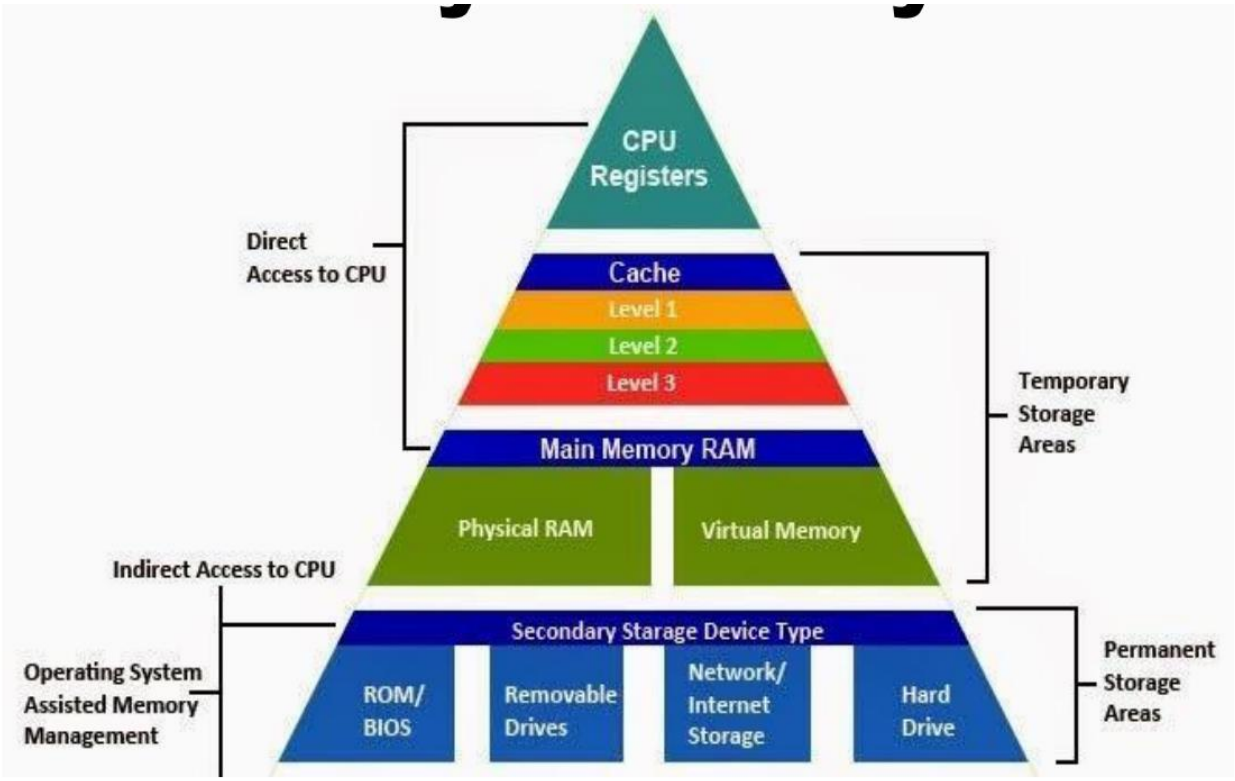
30. What are the CPU factors considerd?
    - Clock speed
    - Cache memory
    - Number of cores

31. Wht is a GPU?
    - Chips that display image on screen.

32. GPU location
    - motherboard, inside the CPU, or on a video graphic board.
    - some cases, both the CPU and GPU are integrated into one CPU package - Ex : APU – Accelerated Processing Units is the integrated processor of AMD

33. What is the meaning of BUS?
    - An electronic path within a computer over which data travels
    - • Bus width: The number of wires in the bus over which data can travel

34. Draw a computer memory hierarchy?



35. What is a Ram?

- RAM (random access memory):
- Temporary memory that the computer uses –
- Consists of chips connected to a memory module which is connected to the motherboard

36. what are the characteristic of ram?

- Holds data and program instructions while they are needed.
- – Adequate RAM is needed to run programs
- Volatile: Contents of RAM is lost when the computer is shut off – Some forms of nonvolatile RAM are also available

37. What is cache memory?

- Cache memory: Special group of very fast memory chips located on or close to the CPU
- More cache memory typically means faster processing – Usually, internal cache today

38. What is ROM?

• ROM (read-only memory): Read-only chips located on the motherboard into which data or programs have been permanently stored – Retrieved by the computer when needed
Being replaced with flash memory
• Flash memory: Type of nonvolatile memory that can be erased and reprogrammed – Some flash memory chips are used by the PC – Flash memory chips are also used in flash memory storage26 media (sticks, cards, and drives)

39. What is two types of storage systems?

- Storage medium
- Storage device

40. What is storage medium?

- is the hardware where data is actually stored (for example, a DVD or a flash memory card).

41. What is storage device?

- The device that saves data onto the storage medium, or reads data from it, is known as the storage device.

42. What are the types of storage device?

- Internal
- External
- Remote

43. Give examples for internal and external storage devices?

- Magnetic Hard Disk Drives (HDDs

internal or external,backups are needed, Head crashes can occur

- ***Solid State Drive***

use for mobile devices and computers

use flashdrive technology

- ***Solid-State Hybrid Drives (SSHDs***
- also called hybrid drives, • contain both flash memory chips and magnetic hard drives

44. What are the external storage devices?

- usb pens-Also called USB flash memory drives, thumb drives

45.give examples for network storage devices?

- ***cloud storage-***(Eg. Onedrive, Google Drive, Drop Box, icloud etc…)
- Growing in importance because more and more applications are web-based • Increasingly being used for backup purpose
- ***network storage.- this storage devices were not directly connected to users computer. they connected to internet or localdrive***

ex-ITRC file servers

46.

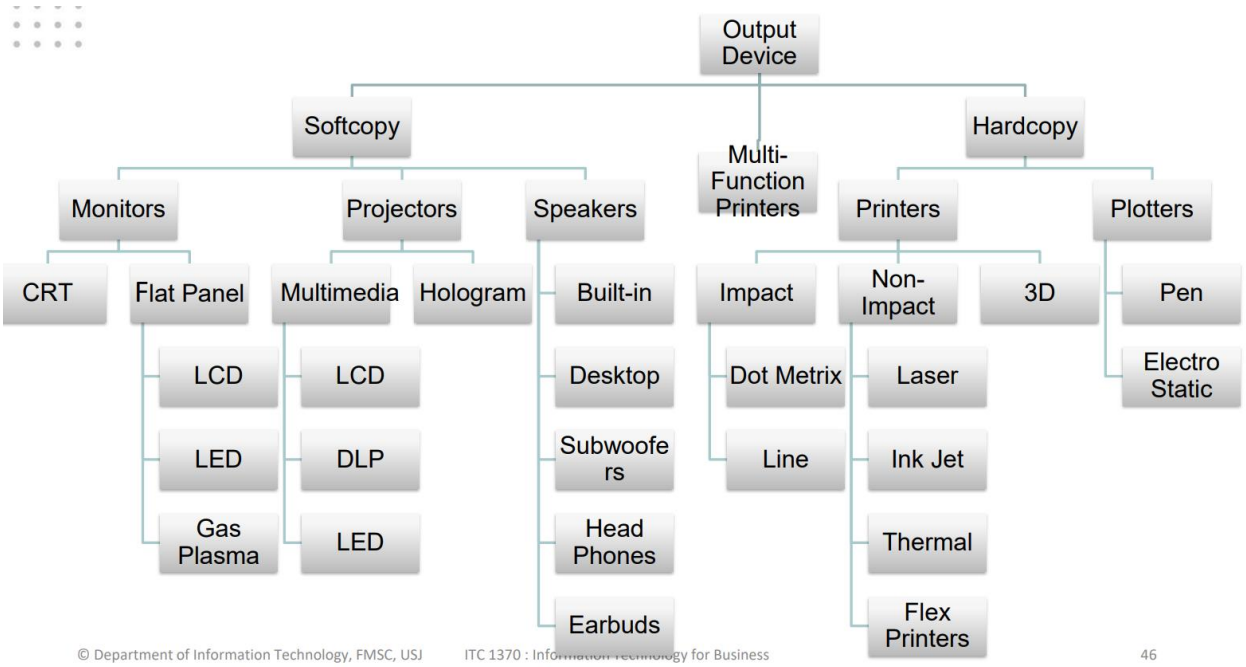
Advantages and disadvantages of network storage and cloud storage

Network storage	Cloud Storage
We don't need to pay a monthly fee	Need to pay a rental
We need to maintain hardware/software	We are free from maintaining hardware/software
We need network specialists	No need of specialists
Don't need internet	Need Internet
We are not dependents	We depend on others
Need initial investment	Scalability

47. what are the ways of input data?

- Data capture
- Data enter

48. what are the out put devices?



49.

Advantages and disadvantages of Soft copy vs Hard copy

Soft copy	Hard Copy
No per copy cost	Per copy cost
Temporary	Permanent
Flexible (Zoom / change colour etc)	Not flexible
Environmentally friendly	

Software

1.What is software?

- Software is a set of instructions that tells the hardware what to do.

2. What are the 2 types of software?

- Two main types of software:
  1. Operating Systems
  2. Application Software
  • Productivity software
  • Utility software
  • Programming software
  • Applications for the Enterprise (ERP)
  Note: System software and Application software are another popular categorization. 4 Software System Software

  3. What is system software?
- it helps to use your computer operating systems and utility programmes.
- The main system software is operating system
- it start your computer and run programmes

4. what is operating system?

- Operating Systems

• All devices have an operating system

• Software which manages the hardware

• Creates the interface between the hardware and the user

• Most popular are Microsoft Windows, Apple Mac OS, and Linux

5. What are the key functions operating system provide?

- booting the computer and providing the user-interface
- managing the hardware resources of the computer;
- 3. managing the software and providing a platform for software developers to write applications
- . 4. managing the network connection and security

6. What are the examples for Operating System?

Ubuntu

- free and open source software

7. What are the types of operating system?

Operating systems are typically designed for a particular type of device

. • Personal operating systems/desktop operating systems

• Operating systems used with personal computers are typically referred to as personal computer operating systems (also called desktop operating systems) and they are designed to be installed on a single computer.

• Server operating systems/network operating systems

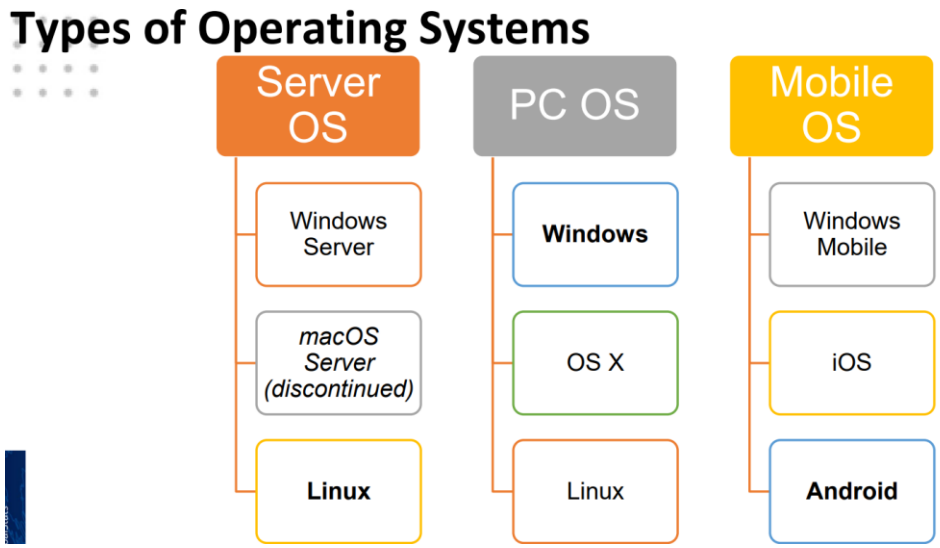
• Also called network operating systems are designed to be installed on a network server to grant multiple users access to a network and its resources

. • Mobile operating systems

• That is designed to be used with mobile phones and other mobile devices

• Embedded operating systems

• That is built into consumer kiosks, cash registers, cars, consumer electronics, and other devices. It is a specialized operating system designed to perform a specific task for a device that is not a fully functioning computer.

8. 

9. What is application software do?

- It help to acompolish a specific goal
- like word processing,calculation,browsing your favourite browser.

10. What are the cateogories of application software?

Categories:

• ***Productivity software*** to help employees complete their job duties such as Microsoft Office

• ***Utility software*** allows you to fix or modify your computer • For example, antivirus software

• ***Programming software*** makes more software

• Programmers can code, test, and convert into a format that the computer will understand

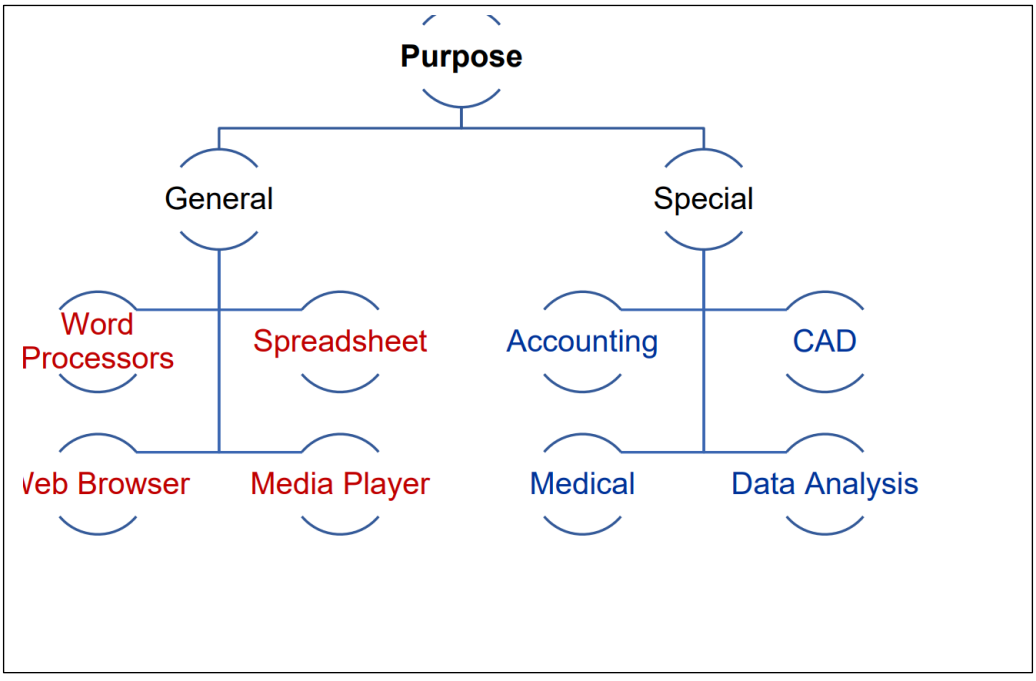
11. How the cost of computer calculated?

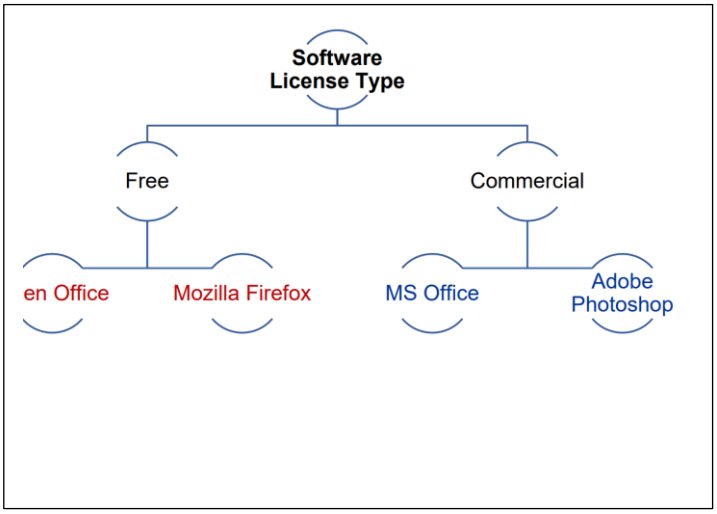
- Hardware cost
- Software cost

12. What are the Different bases can be used to classify application software?

- Purpose
- Software License Type
- Source Code Availability
- Device
- Installation
- Software Ownership

13. how we can classify it according to purpose?

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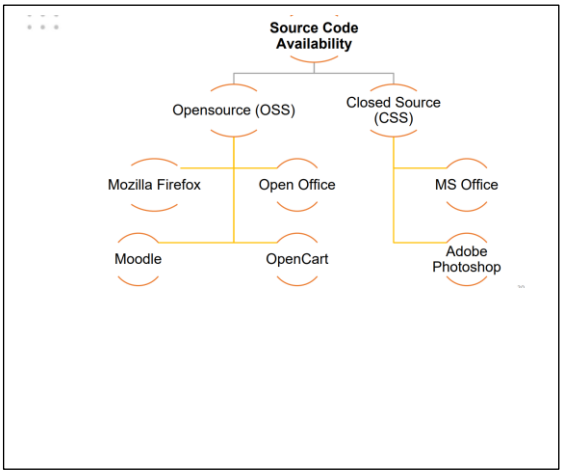
Source Code
Availability
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Closed Source
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Open Office
MS Office
Moodle
OpenCart
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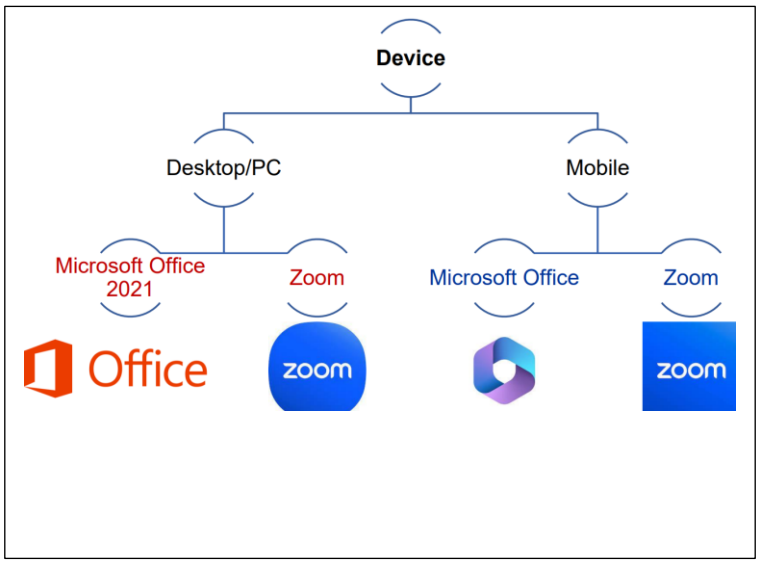
Device
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Microsoft Office
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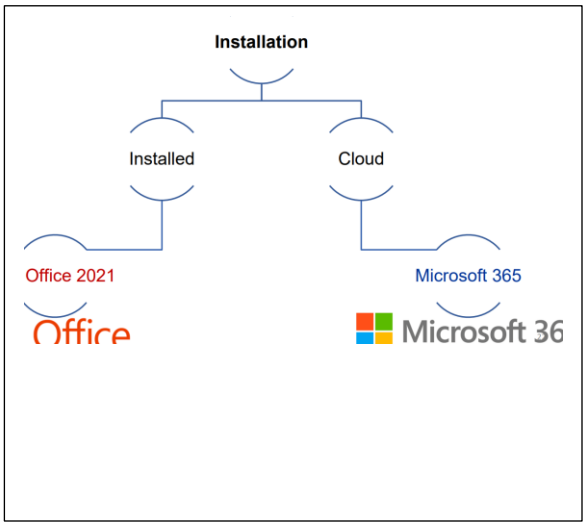

Installation
Installed
Cloud
Office 2021
Microsoft 365
Office
Microsoft 36

10. What are Software Ownership Rights

- When you purchase software, you receive a **copy of the software and a license** to use it.

- You don't actually own the software, ownership rights belong to the software company, and you're still limited by the terms and conditions of the license.
- Software license Gives you the right to use a software program
- Specifies the conditions under which the buyer can use the software
- An agreement, either included in a software package or displayed on the screen when the software is installed or launche.

11. What are the software licence type?

• **Commercial Software** - Copyrighted software developed and sold for profit

• Typically comes with a single-user license (What are the other type of license?)

• **Shareware**

• Copyrighted software distributed on the honor system

• Consumers should either pay for it or uninstall it after the trial period

• **Freeware**

• Copyrighted software programs that are given away by the author for others to use free of charge

• **Public Domain Software**

• Software that is not copyrighted and ownership rights have been donated to the public domain

Rental ware:

Programs that mostly used through cloud on a per term rental basis.(Subscription mode)

• **Open-source Software**:

Programs with source code available to the general public

• Use is growing

• In addition to Linux and other open-source operating systems, there are many open-source apps • Open source is typically cheaper

• Can also be more stable and • Secur.

12.examples for different software types?

Software Ownership Rights

Type of License	Software Example
Commercial software	Adobe Photoshop
Shareware	WinZip
Freeware	Google Chrome, Mozilla Firefox
Public domain software	SQLite
Rental Ware	QuickBooks
Open-Source Software (FOSS)	Linux

13. What is a software package?

- Collection of softwares that sold as a single software

14.Provide examples?

- . Microsoft Office

It includes multiple softwares

- **spradsheet**
- **word**
- **database**
- **Presentation graphics software**
- **Additional productivity tools like calendars, messaging programs, or**
- **collaboration tools**

15. How does a general-purpose software store data?

- It stores data as a files
- excel,word docs,videos

16. How does special purpose software stores data?

- In the past, even specialized software that used to use information systems used standard data files to store data. An information system can have many programs to carry out specific activities. For example, think of software and data in a university system.

- **There are software programs that perform specific activities for students.**
- General Administration Branch = Registration Software
- Library = library software
- Medical Center = Health Reporting Software
- Welfare Branch = Welfare Software • Exam Branch = Exam Software • Faculty = Faculty Student Software

17. What is ERP (Enterprise Resource Planing System)?

- Early systems were independent they use different systems for different functions
- **Enterprise Resource Planning Applications** (ERP) were developed to provide **a common application that supports functions across the entire enterprise** for the company's employees.

18. What are the ERP key ponts?

ERP - Key points

• A software application: ERP is an application that is used by many of an organization's employees.

• Utilizes a central database: All users of the ERP edit and save their information from the same data source

. For example, this means there is only one customer table in the database, there is only one sales (revenue) table in the database, etc

. • Implemented organization-wide: ERP systems include functionality that covers all of the essential components of a business. An organization can purchase modules for its ERP system that match specific needs such as order entry, manufacturing, or planning.

19. What is mobile application?

- Operate on tablets and smartphones
- Each device has its own operating system (e.g., Android or iOS)
- Each application is developed for the specific mobile device's operating system
- Websites are now offering mobile friendly interfaces to run on mobile devices
- Independent of the mobile devices' operating system

20. What is cloud computing SaaS ?

- Internet-based applications, services, and data storage
- • SaaS is also known as on-demand software and Web-based/Webhosted software.
- Software as a service (SaaS) is a software distribution model in which a cloud provider hosts applications and makes them available to end users over the internet.
- Software as a service (SaaS) allows users to connect to and use cloudbased apps over the Internet. Common examples are email, calendaring, and office tools (such as Microsoft 365)

21. What are the advantages and disadvantages of Saas?

Advantages:

• No software to install or upgrade

• If you have Internet access, you can always use it

• No restrictions on how much you store and don't have to worry about losing it

• **Disadvantages**:

• Your information is stored on someone else's computer – how safe is it?

• Internet access is required

• Relying on someone else to provide these service

22. What is a programming software?

- Programming software's purpose is to produce software. Most of these programs provide developers with an environment in which they can write the code, test it, and convert/compile it into the format that can then be run on a computer.

23.

Software is written in a programming language

• Consists of commands organized logically to execute specific functions

• Written in human-readable format (source code) and converted to machinereadable format (object code)

• Object code can be interpreted by the computer to allow interaction with the hardware • Usually done in pieces so several programmers can work together

• **Closed-Source Software** – only object code is available for purchase

• **Open-Source Software**: • Code is shared with everyone to use and add features or fix bugs.

• **Examples are Firefox browser and Linux operating system**

24. Open vs. Closed Source Software

• **Open-Source Software**

: • Software is available for free

• Source code can be reviewed prior to installing

• Large programmer groups can fix bugs and add feature

• May increase risk of attack as everyone knows how your software works

• Closed-Source Software

: • Company that developed the software provides technical support

4 th-Data and Databases

- What are the different between data,information,knowledge and wisdom?
- **Data** is raw fact=Quality,Quantitative
- **Information-When data is organized it will be Information**
- **Knowledge- it developed when information and analysed and make innovations**
- **Wisdom- combination of Knowlede+Experience**
- we discussed two software types how they stores data?
    - General purpose software_ it stores data on files,videos,songs
    - Special purpose software use for special purposes

EX_: General Administration Branch = Registration Software

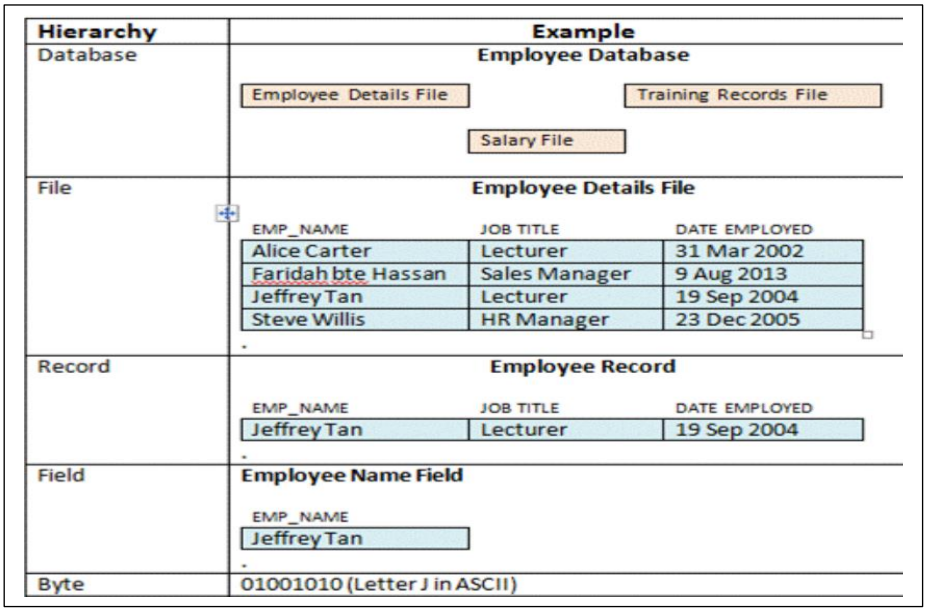
• Library = library software

• Medical Center = Health Reporting Software

• Welfare Branch = Welfare Software

• Exam Branch = Exam Software • Faculty = Faculty Student Software

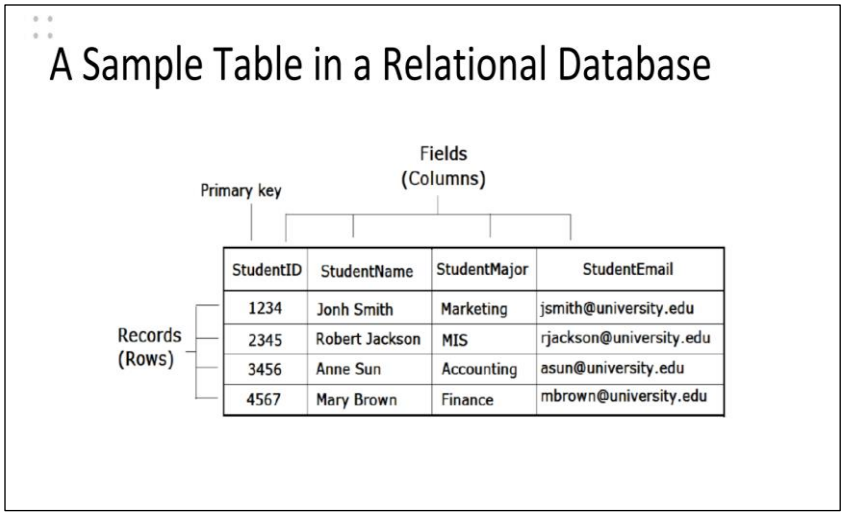
- What is **a Database**?
- A database is an organized collection
- of logically related information, or data,
- typically stored electronically in a computer system
- Organized in rows and columns
- Data gets updated, expanded and deleted as new information is added.
- What are the basic concepts of database?
    - Field- Fields formed by the merging of several characters. Ex: Name, Date of Birth
    - Records_ Collection of fields
    - File-Collection of records
    - Character_made up from bit(0,1) it can be number or letter



- Before the invention of databases, what was the technique used for storing data?
    - A structure that stores data in a plain text file..
    - We could also store the data in a spreadsheet which is also a flat file. e.g Microsoft Excel
- What are the of Disadvantages of Flat File system?
- Data Redundancy
- Data Integrity Issues
- Inefficient (May have to enter/update data multiple times – wastes time)
- High maintenance cost
- Sharing is coarse • Weak Security • Application dependent
- How is data stored in databases?
- The data stored in databases depends on database model
- There are different database models
- The most popular database model is Relational Database Model
    - ✓ In a relational database model, the data are stored in tables which are related to each other using a common field.

7.What is relational database?

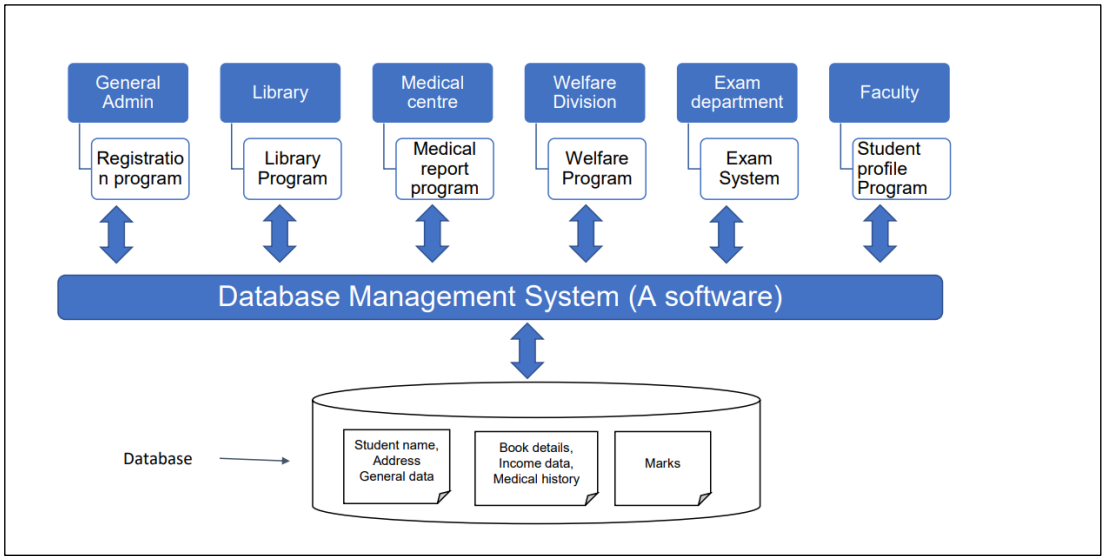
- Data is organized into tables (or relations)
- Each table has a set of fields which define the structure of the data stored in the table.
- Data from several tables are tied together (related) using a field that the tables have in common.



- What are the different types of data model?
- There were different types of data model since 1980
- Most popular data model **is Relational data model**
- **Network model**
- **Hierarchial model**
- **object oriented data model**

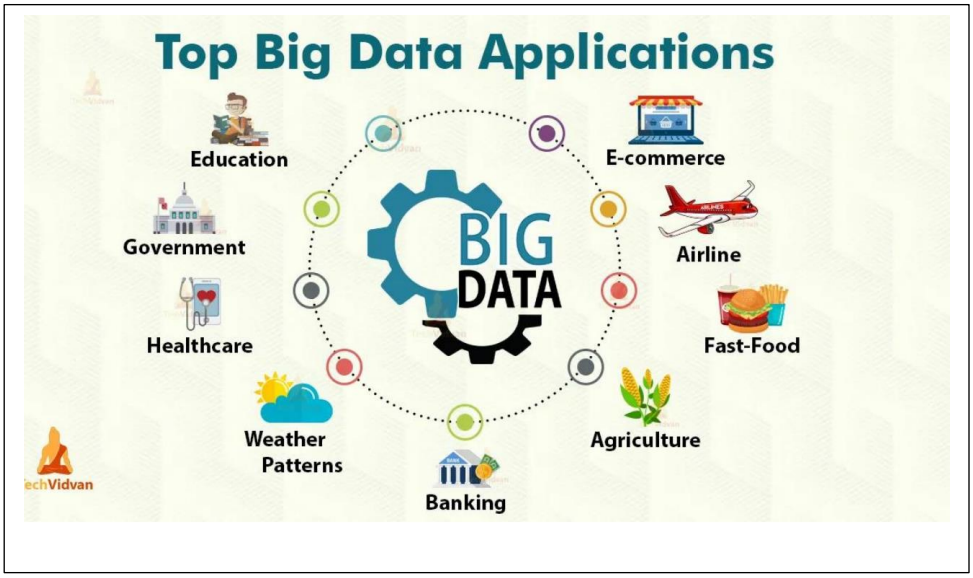
- How can we create and manage databases? Is there a software to do that?
  - Yes There are software we called it as **Data base management systems.**
  - Used to create, maintain, and access computer databases
  - **PC DBMSs include**:
    - Microsoft Access, Corel Paradox, Lotus Approach
    - **For more comprehensive enterprise databases:**
    - Oracle Database, IBM DB2

10.



10.How to create a database?

- • Understand the goal of how the data of the database will be used
- Identify the data needed as part of accomplishing this goal.
- Identify how the data is related to each other.
- Identify tables and fields to organize the data
- **What is big data?**
- The term refers to large data set
- That normal software cannot analyze them
- Storing and analyzing that much data is beyond the power of traditional data management tools
- **what business analytics do?**
- Business analytics involves the use of data analysis tools, statistical methods, and predictive modeling to extract valuable insights from business data, enabling informed decision-making and strategic planning.
- **What fields most used big data?**
- **agriculture**
- **health**
- **business**
- **education**
- **food**



- What are the Advantages of Business Analytics?
  - Understanding target customer behaviour
  - Cutting down expenditures
  - Increase in operating margins in different sectors

- 14. What are the tecniques of Business analytic?
- Data mining
- Machine learning
- Natural language processing
- Statistical Analysis

15. Where should this data be stored before being taken into analysis?

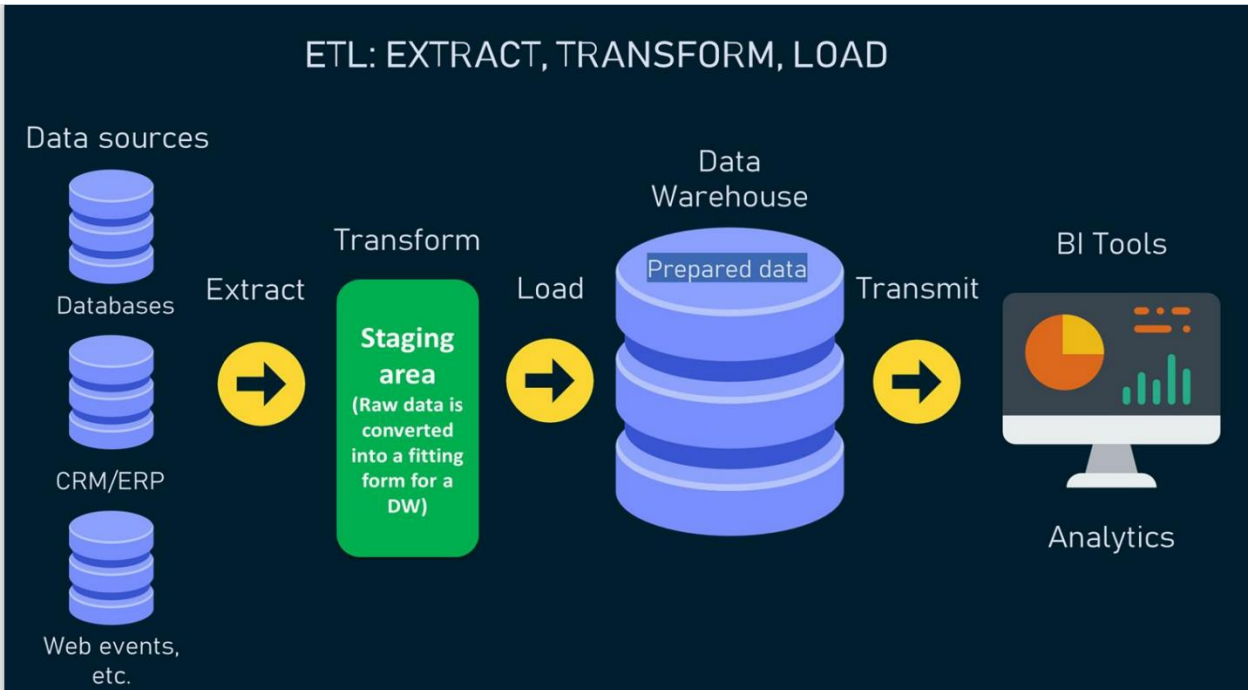
- **Data warehouse**

16. What data warehouse do?

- Consists of extracts from one or more of the organization’s operational databases
- Allows the data to be copied and stored for analysis
- Needs to be refreshed as the data changes
- Data gets a time stamp when it's extracted.
- Allows comparisons between different time periods
- Data is standardized
- All similar fields (e.g., calendar dates) are structured the same • Date is MM/DD/YYYY

17. Wht is a datamart?

- Data marts are smaller subsets of data warehouses for specific business problems



18. Data Warehouse Benefits?

- Allows organizations to understand the data better
- Centralized view of data to identify inconsistent data
- Once inconsistencies are resolved, higher quality data is used to make better business decisions
- Data can be analyzed over multiple periods
- Tools are available to combine data and gain more insight into business operations

19. What is a datamart?

- A **datamart** is a specialized, focused subset of a data warehouse designed to serve a particular business line, department, or group within an organization. It contains a specific segment of data tailored to meet the needs of that group, making it easier and faster for users to access and analyze relevant data without wading through the entire data warehouse

Chapter 05 Networking and Communication

- What is a network?
- A collection of computers and other hardware devices connected together that users can share hardware, software, and data, as well as electronically communicate with each other
- there are individual network to internet
- What are the different network applications?
    - **internet-**world largest network
    - **Telephone networks**- POTS Network
    - **Mobile phones** (wireless phones) - use a wireless network for communications instead of the regular telephone network

      o Cellular Phones -> communicates via cellular technology
      o Satellite phones -> communicate via satellite technology. Used where cell service isn't available
      o Dual mode phones -> cellular technology and Wi-Fi or cellular technology and satellite technology
    - **Global positioning system** (GPS) - Uses satellites and a GPS receiver to determine the exact geographic location of the receiver.
        - ✓ Used in Cars and smartphones, Google Maps to find out real-time traffic situations to avoid congested roads, Consumer devices that are designed for specific purposes (eg: Wearable fitness devices
    - **Monitoring systems** – Monitor the status or location of individuals, vehicles, objects, etc.

        - ✓ RFID-based systems: To locate shipping boxes, livestock, expensive equipment, etc. (Ex: Tracking books at the university library)
        - ✓ GPS-based systems: record location history and allow tracking of real-time location of vehicles/people/objects

- ✓ Electronic health monitors: Take the vital signs of an individual (such as weight, blood-sugar readings, or blood pressure) and transfer readings to a healthcare provider via the Internet or a telephone network for evaluation and feedback and to detect potential problems as early as possible. (Ex: Fitbit)

- **Wireless Power Transmission**
  - ✓ The first wireless power application to become available is wireless charging, which allows your smartphone or other mobile device to be charged by just placing it on a charging surface.
  - ✓ It uses magnetic induction to transfer power wirelessly from the charging device to the target device.

- **Multimedia Networking** - Home Networks are used to connect smart TVs to the Internet
  - ✓ In-built networking capabilities with wireless technology in smart TVs
  - ✓ A streaming media player can be used to connect a conventional TV to the home network Ex: Dialog ViU Mini, Chromecast with Google TV
- **Videoconferencing** - Use of networking technology to conduct real-time, face-to-face meetings between individuals physically located in different places
- **Collaborative computing/Workgroup computing** - Use of collaborative software tools to enable individuals to work together on documents and other project component
- **Telecommuting/teleworking** - Individuals work at home and communicate with their place of business and clients via communications technologies
- **Business process outsourcing** - contracting out the operations of a specific business process to a third-party service provider specialized in it. Ex: Establish call centers in other countries.
- **Remote Freelance working** - doing specific work for clients without committing to full-time employment.
- **Crowdsourcing** - collecting services, ideas or content through the contributions of a large group of people
  - ✓ . Ex: Google maps, Netflix, Amazon

- **Telemedicine -** Use of networking technology to provide medical information and services.
  - ✓ Ex: Remote monitoring and consultations, Remote diagnosis, Tele-surgery (robot-assisted surgery)
- What are Data Transmission Characteristics?
- **Bandwidth**: bandwidth refers to the amount of data that can be transferred (such as via a bus or over a certain type of networking medium) in a given time period
  - ✓ Text data requires the least amount of bandwidth; video data requires the most.
  - ✓ Bandwidth is usually measured in the number of bits per second (bps)
  - ✓ Performance measurement
- **Analog Vs. Digital Signals-** : Data can be represented as either analog or digital signals.

- ✓ Voice and music data in its natural form, for instance, is analog, and data stored on a computer is digital
- ✓ ‐ Most networking media send data using digital signals, in which data is represented by only two discrete states: 0s and 1s.
- ✓ Analog signals, such as those used by conventional telephone systems, represent data with continuous waves.

4.what is Networking Media?

- **Wired network connection**
- **Wireless network connection-bluetooth,wifi**

- wired networking media example?
- **Twisted-pair Cable**: A twisted-pair cable is made up of pairs of thin strands of insulated wire twisted together.
  - ✓ Twisted-pair is the least expensive type of networking cable and has been in use the longest
- **Coaxial Cable**: Coaxial cable was originally developed to carry a large number of high-speed video transmissions at one time,
  - ✓ such as to deliver cable TV service.
- **Fiber-optic** Cable: the newest and fastest of these three types of wired transmission media

- What are the examples of wireless networks**?**
- **Radio signals**: • Send data through the airwaves
  - ✓ Radio frequencies are measured in Hertz (Hz)
- **NFC- near field communication.**
- **Cellular Radio Transmissions.**
- **Microwave and Satellite Transmissions**

6.What is NFC?

- NFC stands for “Near Field Communication” and, as the name implies, it enables short-range communication between compatible devices.
- This requires at least one transmitting device and another to receive the signal

- **How celluar transmission do?**
- Use cellular towers within cells
- Calls are transferred from cell tower to cell tower as the individual moves
- **How does microwave satellite transmission work?**
- Can send large quantities of data at high speeds over long distances.

- Microwave signals can be sent or received using microwave stations or communications satellites
- Microwave stations are earth-based stations that can transmit microwave signals directly to each other over distances of up to about 30 miles.
- Communications satellites are space-based devices launched into orbit around the Earth to receive and transmit microwave signals to and from Earth
- Applications: satellite television and Internet service, GPS receivers, satellite radio receivers, and satellite phones.
- **What are the types of networking architectures?**
- Client-server networks
- Peer to peer network
- **Defined about client server network?**
    - Client: PC or other device on the network that requests and utilizes network resources
    - Server- Computer dedicated to processing client requests
- **What is peer to peer network?**
- ‐ A central server is not used ‐ All computers on the network work at the same functional level ‐ Users have direct access to the computers and devices attached to the network
- Less complicated and less expensive to implement than client-server networks
- Content is exchanged over the Internet directly between users instead of placing content on a Web server for others to view via the Internet.
- **What are the used Network Types (Based on Size and**

Coverage Area)?

- Personal Area Network (PAN)
- Local Area Network (LAN)- A network that use limited geographical area
- Wireless LAN (WLAN)- A LAN that uses no physical wires
- Metropolitan Area Network (MAN)
- Wide Area Network (WAN)

- **what is Organizational Networking?**
- **Intranet**: A private network (such as a company LAN) that is designed to be used by an organization's employees and is set up like the Internet.
- **Extranet**: A company network (Intranet) that is accessible to authorized outsiders like customers and business partners (Ex: Credit Information bureau (CRIB))
- **Internet**: The Internet is a worldwide collection of separate, but interconnected, networks accessed daily by billions of people using a variety of devices
- **Virtual Private Networks (VPNs)-**
    - ✓ A private, secure path across a public network that is set up to allow authorized users.
    - ✓ VPN is necessary for setting up both intranet and extranet environments to establish secure connections over the internet.

- **What are the networking devices?**
- **Networking adapter**

✓ Used to connect a PC to a network or the Internet
✓ Also called network interface card (NIC)
✓ Available in a variety of formats
✓ Adapter must match the type of network being used (Ethernet, Wi-Fi, Bluetooth, etc.)
✓ Are often built into portable computer

- **Switches** – Connects multiple devices together and forwards packets based on their destination within the local network.

Switch

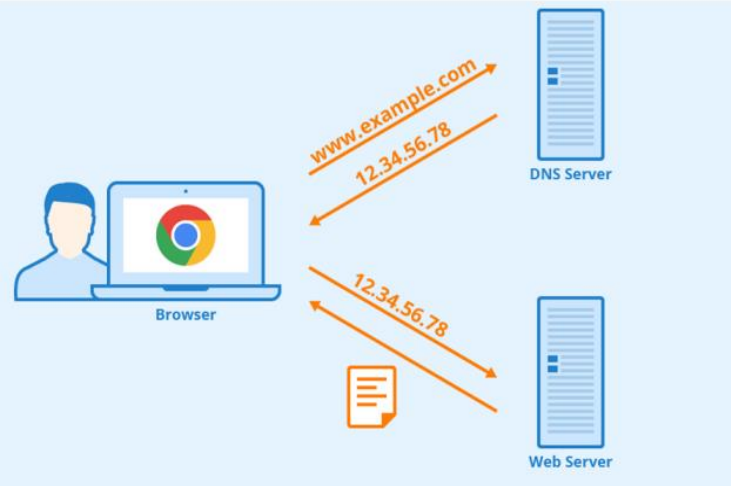

Router

Router – A device that receives and analyzes set of data (packet) and then routes them towards their destination device

Wireless Access Points (WAPs): facilitate the connection of wireless devices to an existing wired local area network (LAN) and allow them to access resources on that network.

14 . What are the networking types?

- **Internet Protocol (IP) Address** – A unique identification number assigned to every device on the Internet
    - **IPv4: format**
    - ✓ of four numbers with values ranging from 0 and 255 separated by a period. (Ex: 192.158.1.38)
    - ✓ Full IP addressing range goes from 0.0.0.0 to 255.255.255.255
    - ✓ Limit 4,294,967,296 addresses
    - **IPv6:**
    - ✓ Eight groups of four hexadecimal digits
    - ✓ (Ex: 2001:0db8:85a3:0000:0000:8a2e:0370:7334)
    - ✓ Hexadecimals are base 16 (0 1 2 3 4 5 6 7 8 9 a b c d e f)
    - ✓ Limit 3.4 x 1038 addresses
- **Domain Name** – common name for a Website so you don't have to remember the IP address.
- **Domain Name System (DNS)** – Acts as the directory of websites on the Internet. Translates domain names to IP addresses.
- **Packet** – The fundamental unit of data transmitted over the Internet



15.What is a communication protocol?

Protocol – Set of rules that allow devices to exchange information.

- **TCP/IP:** TCP/IP is the protocol used for transferring data over the Internet and consists of two protocols
  - Transmission Control Protocol (TCP), which is responsible for the delivery of data, and - Internet Protocol (IP), which provides addresses and routing information.
  - HTTP: HTTP (Hypertext Transfer Protocol) and HTTPS (Secure Hypertext Transfer Protocol) are protocols used to display Web pages
  - FTP: FTP (File Transfer Protocol) and SFTP (Secure File Transfer Protocol) are protocols used to transfer files over the Internet.
  - SMTP: Protocols used to send and receive e-mail over the Internet (Simple Mail Transfer Protocol)

16. What is a networking standards?

- specifies technical requirements, specifications, and guidelines that must be employed to ensure consistency, efficiency, and quality of service of all networking devices.

✓ **Ethernet:** the most widely used standard for wired networks.
  - It is typically used with LANs.
  - Can be used in conjunction with twisted-pair, coaxial, or fiber-optic cabling.
  - the most common today are Fast Ethernet, Gigabit Ethernet, and 10 Gigabit Ethernet.
  - A relatively new Ethernet development is Power over Ethernet (PoE), which allows electrical power, in addition to data, to be sent over the cables in an Ethernet network (often referred to as Ethernet cables)

✓ **Wi-Fi:** One of the most common networking standards used with wireless LANs is Wi-Fi
  - a family of wireless networking standards that use the IEEE 802.11 standard.
  - Wi-Fi is the current standard for wireless networks in the home or office, as well as for public Wi-Fi hotspots
  - Wi-Fi hardware is built into virtually all portable computers and most mobile devices today.

- The speed of a Wi-Fi network and the area it can cover depend on a variety of factors, including the Wi-Fi standard and hardware being used, the number of solid objects between the access point and the computer or other device being used.
- Wi-Fi6 is the latest generation and standard for wireless networking

17. what are the new Trends in Networking?

- **Cloud Computing**

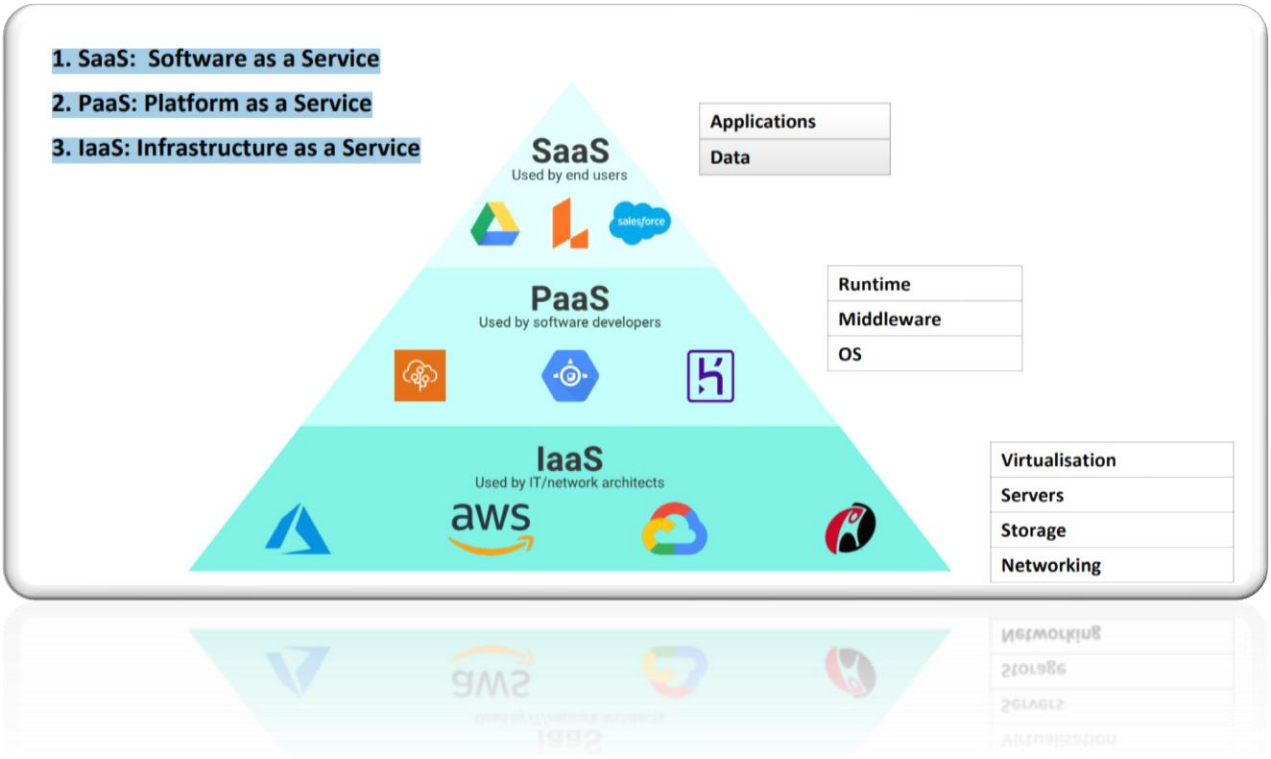
✓ The "cloud" refers to applications, services, and data storage located on the Internet.

✓ Cloud service providers rely on giant server farms and massive storage devices that are connected via the Internet.

✓ Cloud computing allows users to access software and data storage services on the Internet.

18. what are the Cloud computing models?

- 1. SaaS: Software as a Service
- 2. PaaS: Platform as a Service
- 3. IaaS: Infrastructure as a Service



19. What is a datacenter?

• A data center is a facility used to house computer systems and associated components, such as telecommunications and storage systems.

- They are built with redundant or backup power supplies
- redundant data communications connections,
- environmental controls (e.g., air conditioning, fire suppression)

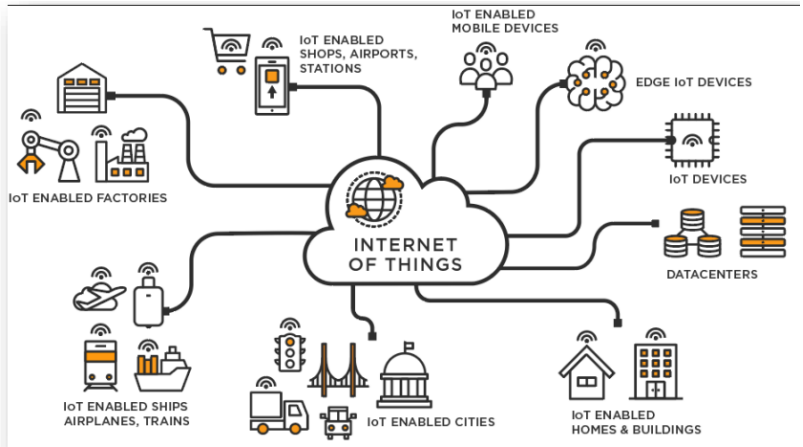
- security controls
- Cloud data centers have become a trend with the IaaS model of cloud computing (Ex: AWS)

20) what are the advantages and disadvantages of cloud computing?

Advantage	**Disadvantage**
No software to install	Security
Available from any computer that has access to the Internet	Access – if you lose Internet, it's over
Can scale to a large number of users easily	Isn't always as easy as it seams
New applications can be up and running very quickly	Service from a giant host might not be as good as what you get inhous
Storage is not limited	Locked into a specific service provider
Can access in anywhere	

20. What is internet of things?

- A network of billions of devices, each with their own unique network address, around the world with embedded electronics allowing them to connect to the Internet for the purpose of collecting and sharing data, all without the involvement of human beings



21. What is Edge computing?

- **Edge computing** is a technology that brings computing power closer to where data is created or needed, rather than relying on a distant central data center

Information Systems Security

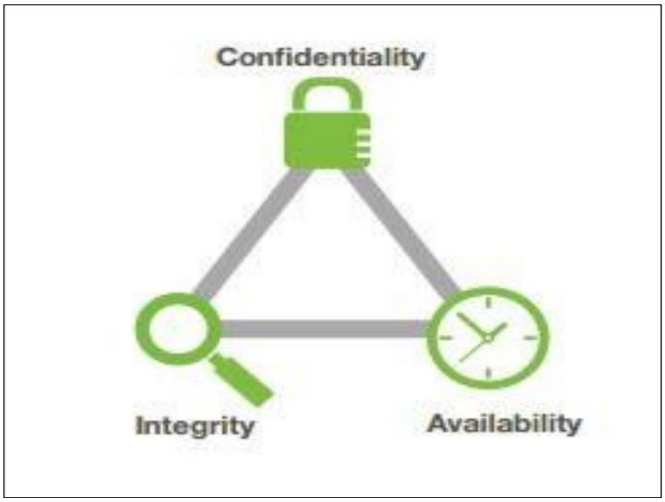
5

1. What is Information Systems Security?

- Information systems security is the collection of activities that protect the information system and the data stored in it.

2.

The Information Security Triad



3. define the information security triad?

- **Confidentiality** — Only authorized users can view information.
- **Integrity** — Only authorized users can change information.
- **Availability** — Information is accessible by authorized users whenever they request the information. • Ex. - Online bankers require banks' web servers to be available twenty-four hours

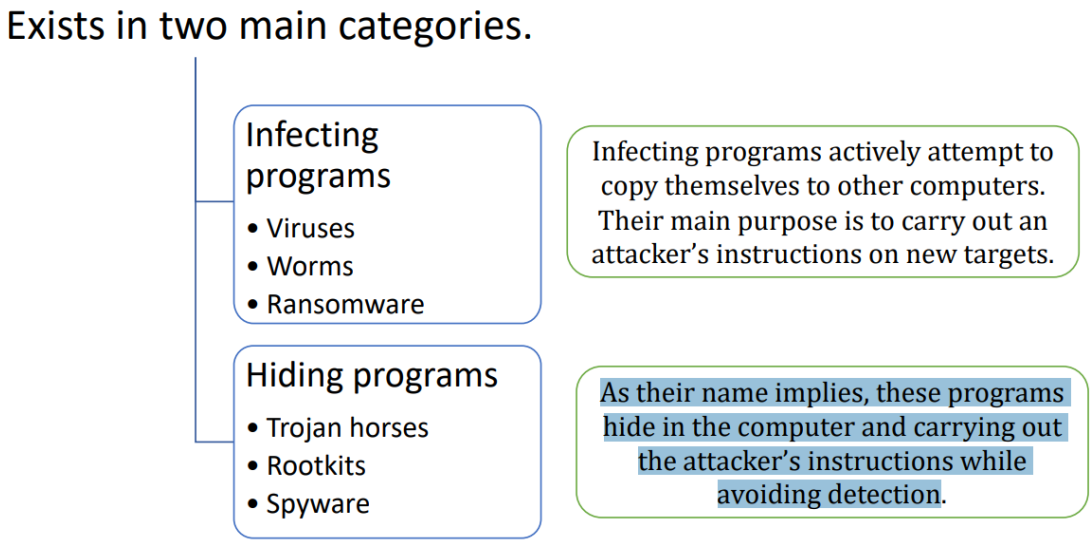
4. What are the Internal and external threats of information systems?
    - Malicious software
    - . Hardware or software failure
    - . Human error/mistakes
    - 4. Internal attacker
    - 5. Equipment theft
    - 6. External attacker

- 7. Natural disaster 8. Terrorism

5.What is Malicious software?

- Some software infiltrates one or more target computers and follows an attacker's instructions
- These instructions can include causing damage, escalating security privileges, revealing private data, or even modifying or deleting data.
- This type of software called Malicious software, or Malware for short.
- The purpose of malware is to damage or disrupt a system

5. what are the two types of malware?



6. define the each malware?
   - **Viruses**- - A computer virus is a software program that attaches itself to or copies itself into another program on a computer. The purpose of the virus is to trick the computer into following instructions that were not intended by the original program developer
   - **Worm**s- A worm is a self-contained program that replicates and sends copies of itself to other computers, generally across a network, without any user input or action. The main difference between a virus and a worm is that a worm does not need a host program to infect. The worm is a standalone program
   - **Trojan Horses** - A Trojan horse, also called a Trojan, is malware that masquerades as a useful program and trick users into running them. Today's Trojans do far more than just save copies of themselves. Trojans can hide programs that collect sensitive information, open backdoors into computers, or actively upload and download file(• ට්‍රෝජන් අශ්වයන් - ට්‍රෝජන් අශ්වයෙකු, ට්‍රෝජන් ලෙසද හැඳින්වේ, එය මෘදුකාංගයකි

- ✓ ප්‍රයෝජනවත් වැඩසටහනක් ලෙස වෙස්වලාගෙන ඒවා ක්‍රියාත්මක කිරීමට පරිශීලකයින් රවටා ගනී.
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- **Rootkits** - A rootkit modifies or replaces one or more existing programs to hide traces of attacks. Although rootkits commonly modify parts of the operating system to conceal traces of their presence, they can exist at any level—from a computer's boot instructions up to the applications that run in the operating system. Rootkits provide attackers with easy access to compromised computers to launch additional attacks
- • **Spyware** - Spyware is a type of malware that gathers information about a user through an Internet connection, without his or her knowledge
- **Ransomware** - Ransomware attacks a computer and limits the user's ability to access the computer's data. Then the attacker demands a payment to restore full access. The demand for a payment, or ransom, gives this type of malware its name. Many current ransomware programs operate by encrypting important files or even the entire disk and making them inaccessible

8 . what is hardware software failures?

- **Hardware failure** - A malfunction within the electronic circuits or electromechanical components (disks, tapes) of a computer system
- ✓ . Possible reasons for failure - ▪ Electricity interruptions ▪ Overheating ▪ Improper grounding of equipment etc
- **Software failure** - The inability of a program to continue processing due to erroneous logic. Possible reasons for failure
- - ▪ Bad logic in code ▪ Incorrect formula ▪ Data type mismatch ▪ Inadequate computer resources etc

9. What are the examples for Human errors or mistakes?

- The use of weak passwords
- • Sending sensitive information to the wrong recipients
- • Sharing password/account information with unauthorized parties
- • Installation of unauthorized, unregistered software (application and OS)
- • The unmonitored download of files from the Internet
- • Falling for phishing scams
- • Coding mistakes
- • Email misdeliver

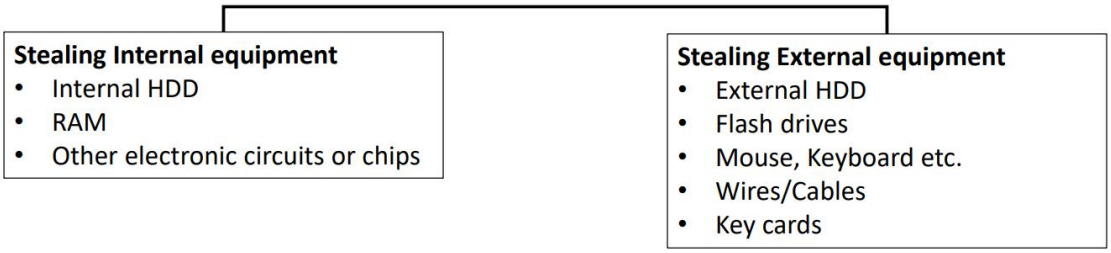
10. What is Internal Attacker?

- An internal attacker is an individual or a group within an organization seeks to ruin operations or misuse organizational assets through its computer system

11. What is equipment theft?

Equipment theft

Act of stealing computer(hardware) equipment.



- Equipment theft can occur with the intention of selling stolen equipment or selling sensitive data outside the organization.

12. Who is a external attacker?

- Person outside in the organization
- Following type of methods use by an external attacker to hack, damage or disrupt a system. • Phishing • Keystroke loggers • Botnets • DOS (Denial of Service) attacks • Man-in-the-middle attacks • Social Engineerin

13. Define thos e attacks?

- **Phishing** - Phishing is an attempt to commit identity theft via email or instant message. The message appears to come from a legitimate source, such as a trusted business or financial institution, and includes an urgent request for personal information. Phishing messages usually indicate a critical need to update an account (banking, credit card, etc.) immediately. The message instructs the victim to either provide the requested information or click on a link provided in the message.
- **Keystroke loggers** - a keystroke logger captures keystrokes, or user entries. The keystroke logger then forwards that information to the attacker. This enables the attacker to capture logon information, banking information, and other sensitive data.
- **DoS (Denial of Service) attacks** - purpose of a denial of service (DoS) attack is to overwhelm a server or network segment to the point that the server or network becomes unusable. A successful DoS attack crashes a server or network device or creates so much network congestion that authorized users cannot access network resources.
- **Botnets –** (short for 'robotically controlled networks'). A botnet consists of a network of compromised computers that attackers use to launch attacks and spread malware. Attackers can use botnets to distribute malware and spam and to launch DoS attacks against organizations or even countries.

- **Man-in-the-middle attacks** - In this type of attack, an attacker intercepts messages between two parties before transferring them on to their intended destination. Attackers use man-in-the-middle attacks to steal information, to corrupt transmitted data, to gain access to an organization's internal computer and network resources, and to introduce new information into network sessions
- **Social Engineering** - Social engineering is the art of one human attempting to deceive another human into doing something or exposing information. This involves tricking authorized users into carrying out actions for unauthorized users.

`14. Who is a hacker?

- Hacker is a person who enjoys exploring and learning how to modify something, particularly related to computer systems.

- **Types of Hackers**
- Black-hat hackers - A black-hat hacker tries to break IT security and gain access to systems with no authorization in order to gain financial benefits, revenge or simply prove technical ability.
- White-hat hackers - A white-hat hacker, or ethical hacker, is an information systems security professional who has authorization to identify vulnerabilities and perform penetration testing.
- Gray-hat hackers - may set out to find vulnerabilities in a system but they will only report their findings to the owners of a system if doing so coincides with their agenda. Or they might even publish details about the vulnerability on the internet so that other attackers can exploit it.

15. What are the Strategies for securing Information Systems

1. Authentication 2. Access Control 3. Encryption 4. Backups 5. Firewalls 6. Intrusion Detection Systems 7. Physical Security 8. Security Policies 9. Anti-malware programs 10. Security Awareness Training

16.

Access Control

Once a user has been authenticated, the next step is to ensure that they can only access th information resources that are appropriate. This is done through the use of *access control*. Acces control determines which users are authorized to read, modify, add, and/or delete information.

- Two types

Access Control List (ACL)
Identifies a list of users who have the capability to take specific actions with an information resource such as data files.

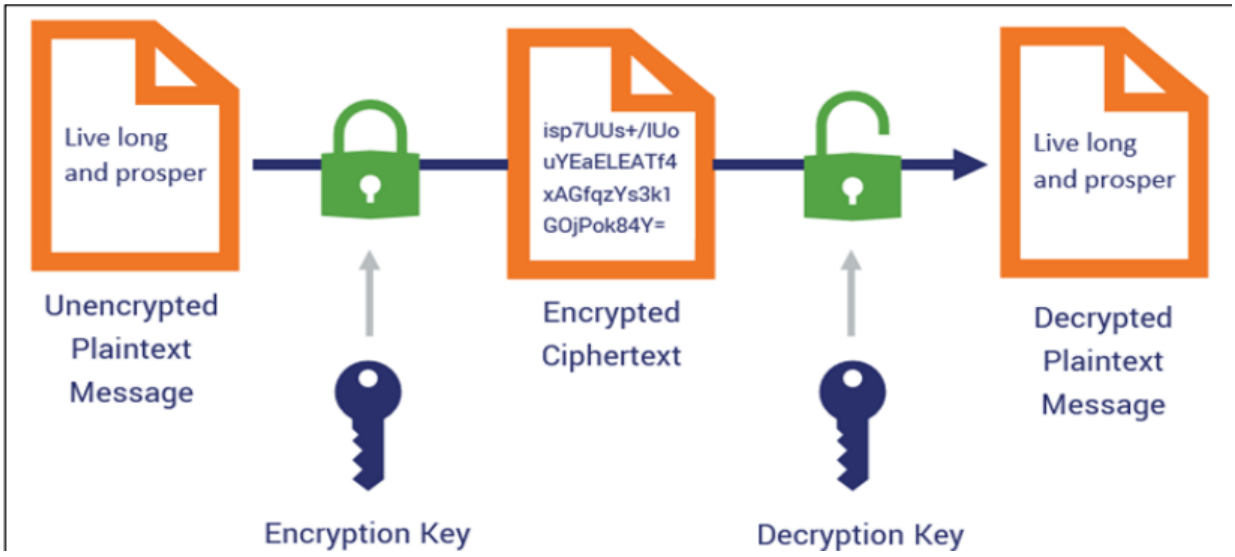
Specific permissions are assigned to each user such as read, write, delete, or add. Only users with those permissions are allowed to perform those functions.
Drawback - Harder to maintain

Role-Based Access Control (RBAC)
Instead of giving specific users access rights to an information resource, users are assigned to roles and then those roles are assigned the access.

This allows the administrators to manage users and roles separately, simplifying administration and, by extension, improving security.

What is encryption?

- Encryption is a process of encoding data upon its transmission or storage so that only authorized individuals can read it
- . This encoding is accomplished by software which encodes the plain text that needs to be transmitted (encryption).
- Then the recipient receives the cipher text and decodes it (decryption



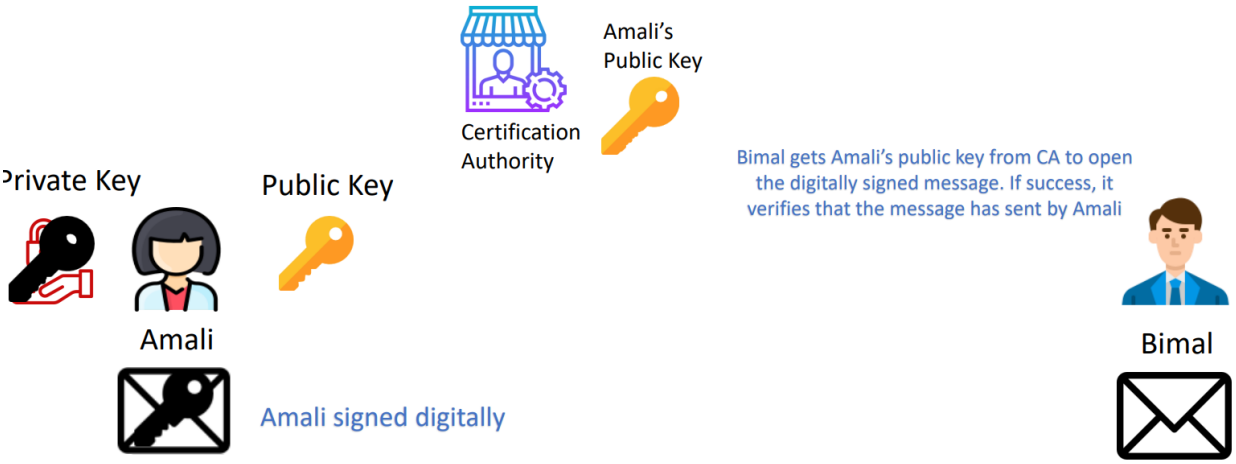
17. what are the 2 types of encryption method?

- 1. Symmetric vs Asymmetric (Encryption) – (Private Key Encryption)

18. what is a digital certificate?

Digital certificate • Digital certificates are electronic credentials that bind the identity of the certificate owner to a pair of electronic encryption keys, (one public and one private), that can be used to encrypt and sign information digitally

. • A digital certificate is a pair of Keys (= Passwords) issued by a trusted certificate authority (CA



19. What is backup?

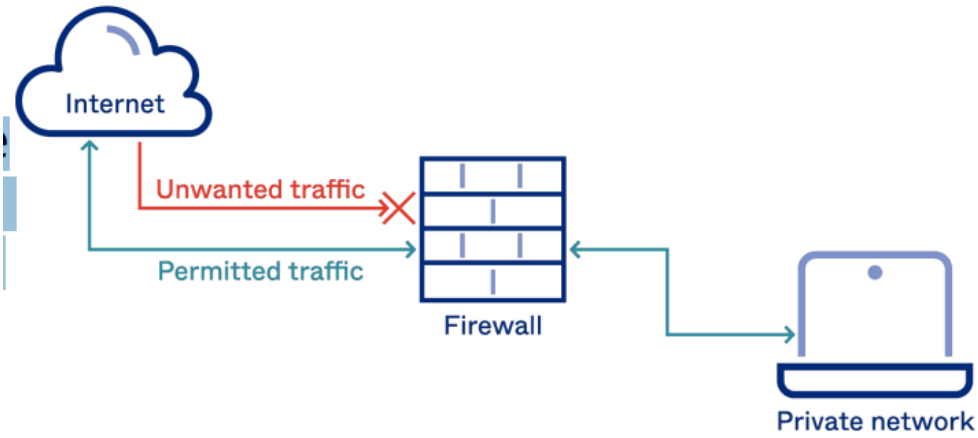
Backups

Process of keeping a copy of a file or other item of data made, on an alternative location,

- in case the original is lost or damaged.
- Not only should the data on the corporate servers be backed up, but individual computers used throughout the organization should also be backed up.
- A good backup plan should consist of following components.
  - ✓ Full understanding of the organization's information resources.
  - ✓ Regular backups of all data.
  - ✓ Offsite storage (Ex- Cloud storage) of backup data sets.
  - ✓ Ex- Google Drive, One Drive etc.
  - ✓ Test of data restoration.

20.What is a fire wall?

- A firewall is a program or dedicated hardware device that inspects network traffic passing through it and denies or permits that traffic based on a set of rules you determine at configuration. A firewall protects all company servers and computers by stopping packets from outside the organization's network that do not meet a strict set of criteria.
- A firewall may also be configured to restrict the flow of packets leaving the organization.



22. What is Intrusion Detection Systems?

- An IDS does not add any additional security. Instead, it provides the capability to identify if the network is being attacked.
- An IDS can be configured to watch for specific types of activities and then alert security personnel if that activity occurs.
- An IDS also can log various types of traffic on the network for analysis later. It is an essential part of any good security system

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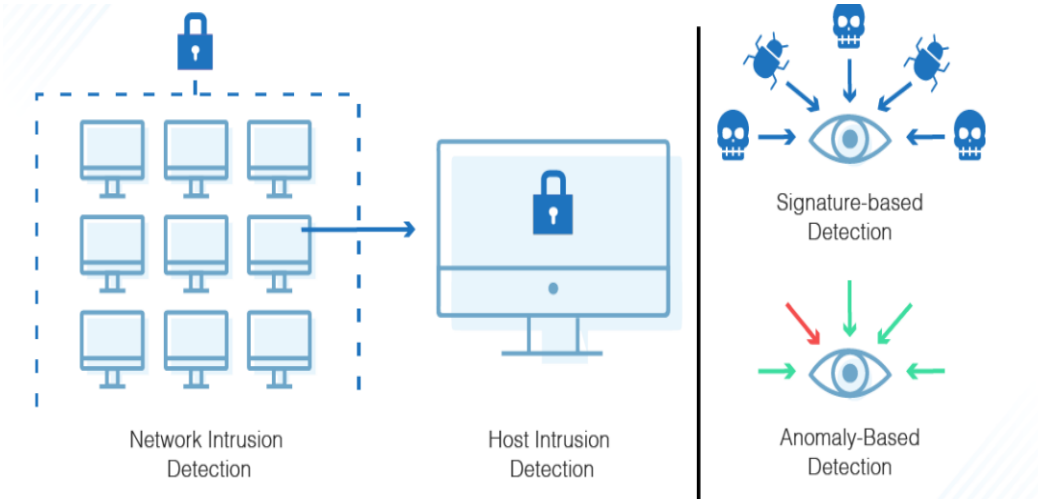


21. What is Physical Security?

These measures include the following.

- Locked doors.
- Physical intrusion detection.
- Secured equipment.
- Environmental monitoring.
- Employee training.
- Uninterruptible power supply (UPS) and/or a backup power generator to keep systems going in the event of a power failure.
- Fire prevention systems.
- Surge protectors to minimize the effect of power surges on delicate electronic equipment.

23. Name 5 security policies?

The security policy may include the following

- Acceptable usage policy
- Email protection policies
- Mobile device policy
- Password Creation and Management Policy
- Business Continuity Plan (BCP)
- Disaster Recovery Plan (DRP)
- Email/communication policy • Remote access policy etc

Anti-malware programs

- is a computer program used to prevent, detect, and remove malware.

Many anti-malware products are available to prevent the spread of all types of malware as well remove malware from infected computers. These include the following:

- BitDefender—www.bitdefender.com
- Kaspersky Anti-Virus—www.kaspersky.com
- Norton AntiVirus—www.symantec.com/norton/antivirus
- ESET Nod32 Antivirus—www.eset.com
- AVG Antivirus—www.avg.com
- McAfee Endpoint Protection—www.mcafee.com

24.

Business Processes

7th lesson

1. What is a Process?

- A process is a series of tasks that are completed in order to accomplish a goal

2. What is a Business Process?

- A set of business activities (tasks) performed by human actors and/or the information system to accomplish a specific outcome

- ✓ Order-to-cash process
- ✓ ▪ Manufacturing process
- ✓ ▪ Inventory Management Process
- ✓ ▪ Application-to-hiring process ▪ Data Backup and Recovery Process etc

3. what is the benefit of process documenterization?

- Documenting a Process
- • As processes grow more complex, documenting becomes necessary.
- • It is essential for businesses to do this because it allows them to ensure control over how activities are undertaken in their organization.
- • It also allows for standardization.
- For example, McDonald's has the same process for building a 'Big Mac' burger in all of its restaurants.

- • The simplest way to document a process is to just create a list. Each step can be checked off upon completion.

4. IF the business process is complex writing in document been not success then whats business do?

- • The most commonly used business process diagramming tools are
  ➢Business Process Modeling Notation (BPMN)
  ➢Data Flow Diagram (DFD)
  ➢Unified Modeling Language (UML).

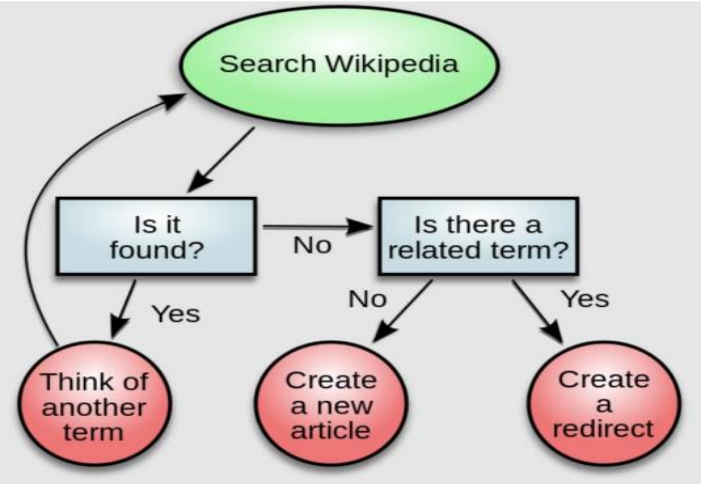
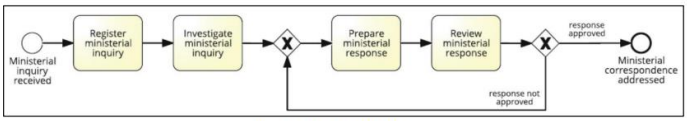


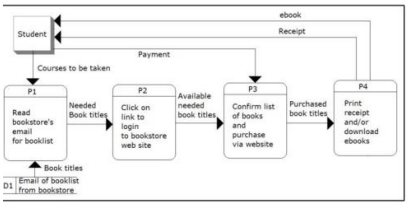
Diagram of the previous example's business process

5.

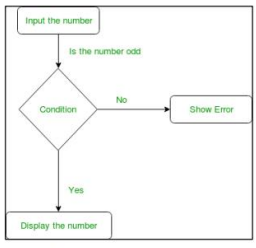
Tools for documentation of business processes



Example for BPMN



Example for DFD



Example for Activity Diagram (UML)

- **Business Process Modeling Notation (BPMN)** - a graphical representation and standard notation used for documenting and modeling business processes
- **Data Flow Diagram (DFD)** - used to depict the flow of data within a system or process.
- **Unified Modeling Language (UML)** - a standardized visual modeling language used in software engineering to model, design, and document software systems.

7. What are the Different systems needed to support business processes in an organization.?

- ❖ **Enterprise Resource Planning** (ERP) System: Integrates and manages core business processes such as finance, accounting, human resources, supply chain, manufacturing etc.
- **Customer Relationship Management** (CRM) System: Manages customer interactions, sales activities, marketing campaigns, and customer support processes
- **Supply Chain Management** (SCM) System: Facilitates the coordination and optimization of the supply chain processes, including procurement, inventory management, demand forecasting, and logistics
- **Human Resources Information System (HRIS**): Handles employee data, recruitment, onboarding, benefits administration, payroll, performance management, and training and development.
- **Document Management System (DMS**): Organizes, stores, and retrieves electronic documents, ensuring version control, document security, and workflow automation.
- **Learning Management System (LMS):** Delivers and tracks employee training and development programs, including e-learning modules, certifications, and performance assessments.
- **E-commerce and Online Sales Platforms**: Supports online sales, order management, and customer self-service through websites or dedicated e-commerce platform

8. How an HRIS supports business processes in an organization.?

- ✓ Recruitment and Onboarding - The HRIS system automates and simplifies the recruitment and onboarding process. It enables the organization to post job openings, receive and track applications, schedule interviews, and generate employment contracts. The system also facilitates new employee onboarding by providing a centralized platform for completing necessary forms, accessing training materials, and familiarizing new hires with company policies and procedures.
- ✓ Time and Attendance Tracking - The HRIS system automates time and attendance tracking, replacing manual timesheets and punch cards. Employees can log their working hours through the system, which accurately captures attendance data. This streamlines payroll processing, reduces errors, and provides real-time visibility into attendance patterns, enabling effective workforce management.
- ✓ Employee Self-Service - The HRIS system offers employee self-service capabilities, allowing employees to access and manage their own information. Employees can view pay stubs, update personal details, request time off, and access relevant HR policies and resources through a self-service portal. This reduces administrative burden, improves data accuracy, and empowers employees to take ownership of their HRrelated tasks

9. What **is BPM?**

- A body of methods, techniques, and tools
- to identify, discover, analyze, redesign, execute, and monitor
- business processes in order to optimize their performance.

10. what is the difference between automation and BPMS?

- it help to get competitive advantage

- automation can make business process efficiency but it not give competitive advantage

11. Why Importance of BPM for an Organization?
    - • Improve Efficiency and Cost Reduction
    - Agility and Adaptability
    - • Collaboration and Communication
    - • Customer Experience Enhancement
12. What is Business Process Re-engineering (BPR)?

- **Business Process Re-engineering (BPR)** is a management strategy that involves completely redesigning and rethinking the way a business operates to achieve significant improvements in critical performance measures like cost, quality, service, and speed

ex- Imagine a company that manufactures products. Through BPR, the company might completely redesign its manufacturing process, adopting new technologies, rearranging workflows, and eliminating unnecessary steps to significantly reduce production time and costs while improving product quality.

In essence, BPR is about taking a bold, fresh look at how a business operates and making big changes to improve how it functions in a competitive market.

13. How information technology combined with business processes can bring an organization competitive advantage.?

- Enhanced Customer Experience
- Streamlined Supply Chain Management
- Agile and Collaborative Work Environment

Lesson 8

People in information system

1. The people in Information Systems can be categorized into 04 main categories What are they?

- The Creators of Information Systems
- Information Systems Operations and Administration
- Managing Information Systems
- End users of Information System

2. Who are the creators of information system?

- The first group of people to be considered, who play a role in designing, developing, and building information systems.
- • These people are generally technical and have a background in system analysis, system design, database design, programming and information security

3. Who is Systems Analyst?

- • The systems analyst links the gap between identifying business needs and imagining a new or redesigned system to fulfill those needs.
- • Generally, the analyst is required to have a good understanding of the business itself, the purpose of the business, the business processes involved, and the ability to document them well

4. What are the 5 steps that done by system analyst?

- 1. Seek out and identify the details
- 2. Specify requirements
- 3. Decide which requirements are most important
- 4. Create a dialog showing how the user interacts with the existing system
- 5. Ask users to critique the list of requirements that have been developed

5. what computer engineer do?

- Computer engineers design the computing devices that are used every day
- Some of the more prominent computer engineering jobs are hardware engineer, software engineer, systems engineer, network engineer

6. Who is a Programmer?

- Programmers spend their time for writing computer code in a programming language
- In the case of systems development, programmers generally attempt to fulfill the design specifications given to them by a systems analyst/designer.
- A programmer may work alone for long stretches of time or work as part of a team with other developers
- A programmer needs to be able to understand complex processes and also the intricacies of one or more programming languages

7. Who is a computer operator?

- A computer operator is the person who oversees the mainframe computers and data centers in organizations

8. What are the duties of them?

- Some of their duties include keeping the operating systems up to date, ensuring available memory and disk storage, providing for redundancy, and overseeing the physical environment of the computer

9. Who is Database administrator?
   Database administrator is a person who design and manage database

10. Who is Help Desk/Support Analyst?

- • Most mid-size to large organizations have their own information technology help desk.
- The help desk is the first line of support for computer users in the company.
- • Computer users who are having problems or need information can contact the help desk for assistance.
- Many times, a help desk worker is a junior level employee who is able to answer basic issues that users need assistance with

11. Who are the people Managing Information Systems?

- CIOS

12. Who is a CIOS?

- • The Chief Information Officer (CIO) is the head of the information systems function
- This person aligns the plans and operations of the information systems with the strategic goals of the organization.
- Tasks include budgeting, strategic planning, and personnel decisions for the information systems function.
- The CIO must also be the face of the IT department within the organization.

13. Who is a ERP manager?

- • Organizations using an ERP require one or more individuals to manage these systems.
- ERP managers make sure that the ERP system is completely up to date, work to implement any changes to the ERP that are needed, and consult with various user departments on needed reports or data extracts.

14. Who is a Functional Specialist?

- • Functional specialists/managers are individuals who have the management authority over a particular organizational unit or a functional group
- They are only responsible for a certain business function.
- They help meet the strategic goals set by top managers.
- A functional manager's roles and responsibilities will depend on their work area.
- For example, a finance manager has responsibilities such as preparing financial reports, creating budgets, directing investment activities, and developing plans for the company's long-term financial goals.

15. Who is IT Projectmanager?

- • A project manager is responsible for keeping projects on time and on budget
- This person works with the stakeholders of the project to keep the team organized and communicates the status of the project to management.
- The project manager coordinates schedules and resources in order to maximize the project outcomes.
- This leader must be a good communicator and an extremely organized person.
- Gantt charts, shown below, are used to graphically illustrate a project's schedule, tasks, and resource

16. Who is Information Security Officer?

- • An information security officer is in charge of setting information security policies for an organization and then overseeing the implementation of those policies.
- This person may have one or more people reporting to them as part of the information security team.
- As information has become a critical asset, this position has become highly valued.
- The information security officer must ensure that the organization's information remains secure from both internal and external threats

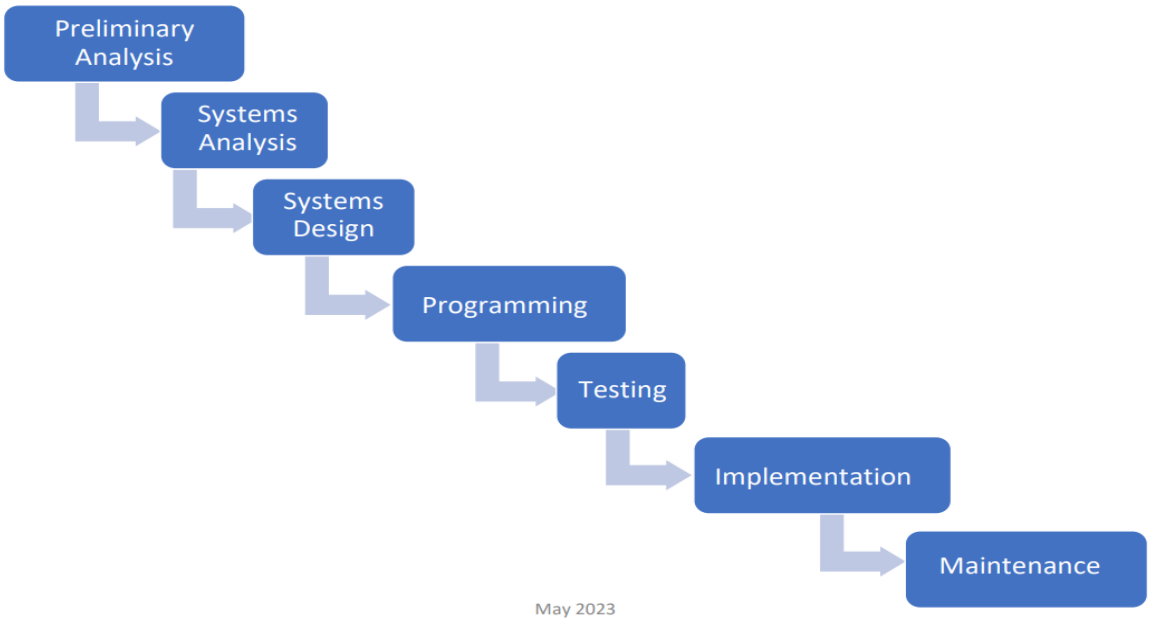
17. Who is Information Officer?

- • Known as Public Information Officers (PIOs).
- • Information Officers in "all administrative units and offices" of the public authority as are necessary to provide the public with access to information
- . • Every government office should have someone in them who is designated as the PIO who will be responsible for receiving and processing applications.
- PIO should be a senior person in the office so that they have the authority to make decisions on whether to release document

9th Information Systems Development

1. Acquisition of new software?

2. Software Development Methodologies?
   - •Systems Development Life Cycle (SDLC) – Waterfall Methodology
   - •Rapid Application Development (RAD)
   - •Agile Methodologies
   - •Lean Methodology
3. What are the steps of SDLC?



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