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Tender Heart High School

Class: VIII Computer 07.10.2024

Topic: Networks Teacher: Prabhdeep kaur

Good Morning Students

Students this lesson is of Class VIII, for the Subject of Computers. Topic is "Networks".

Networks is a group of interconnected people or things. In our daily life, we come across different types of networks, such as roads, railways, communication network Network of Banks across the country, Network of Schools, hospitals all over the country. Similarly, computer networks that connect millions of computers together. They have extended the power of a computer beyond the expanse of a room. Internet is an outcome of cyber networking only.

Computer Network and its Components

Computer network, two or more computers that are connected with one another for the purpose of communicating data electronically. Besides physically connecting computer and communication devices, a network system serves the important function of establishing a cohesive architecture that allows a variety of equipment types to transfer information. The computers in a network can communicate with each other as well as work independently.

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Each computer in a network is called a Node. One of these nodes acts as a sender that transmits the information to other nodes in the network known as Receivers. These Computers are linked with each other through some medium such as cables, telephone lines, radio waves or infrared light beams.

There are 5 basic components that are used by a computer network as a data communication System:

1. Message: This is most useful asset of a data communication system. It is the information to be communicated. It can contain text, pictures, audio, video etc.

2. Sender: To transfer message from source to destination, someone must be there who will play role of a source. sender plays part of a source in data communication system. It is simple device that sends data message. The device could be in form of a computer, mobile, telephone, laptop, video camera, or a workstation, etc.

3. Receiver: It is destination where finally message sent by source has arrived. It is a device that receives message.

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same as sender, receiver can also be in form of a computer, telephone, mobile, workstation, etc.

4. Transmission Medium: In entire process of data communication there must be something which could act as a bridge between sender and receiver, Transmission medium plays that part. It is physical path by which data or message travels from sender to receiver.
Transmission medium could be guided with wires or unguided that is without wires. Example: twisted pair cable, fiber optic cable, radio waves, micro-waves etc.

5. Set of rules (Protocol): To govern data communications, various sets of rules had been already designed by the designers of the communication systems, which represent a kind of agreement between communicating devices. These as defined as protocol. In simple terms, the protocol is a set of rules that govern data communication. If two different devices are connected but there is no protocol among them,

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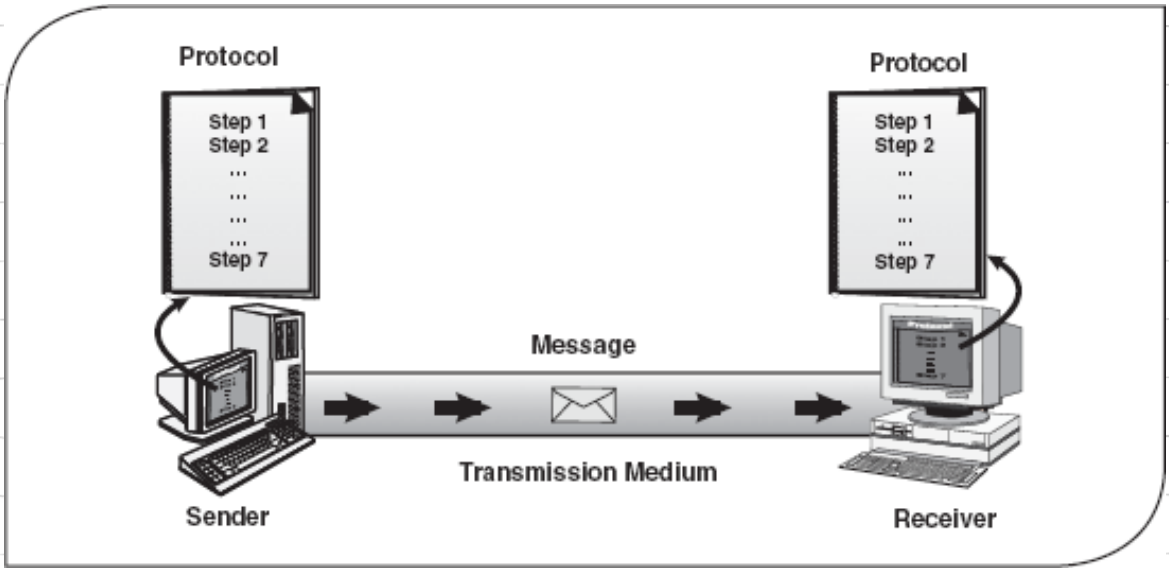
there would not be any communication between those two devices. Thus the protocol is necessary for data communication to take place.

Sending an e-mail is the typical example of data communication system.



Above figure show you all the five components that are used by computer network as a data communication system.

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Good Morning Students
Students, this lesson is of Class VIII, for the Subject of Computers. Topic is "Networks". Today we are going to cover Advantages of Networking

Advantages of Networking

Networking in computers brings efficiency, economy and effectiveness in an organisation.

1. Central Storage of Data: Files can be stored on a central node that can be shared and made available to each and every user in an organization.
2. Anyone can Connect to a computer network: There is a negligible range of abilities required to connect to a modern computer network. The effortlessness of joining makes it workable for even youthful kids to start exploiting the data.
3. Faster Problem-solving - Since an extensive procedure is disintegrated into a few littler procedures and each is taken care of by all the associated gadgets, an explicit issue can be settled in lesser time.
4. Reliability: Reliability implies backing up information. Due to some reason equipment crashes, and so on, the information gets undermined or inaccessible on another workstation for future use, which prompts smooth working and further handling without interruption.
5. It is highly flexible: This innovation is known to be truly adopted adaptable, as it offers clients the chance

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to investigate everything about fundamental things, Example, Programming without influencing their usefulness.

6. Security through Authorization: Security and protection of information are additionally settled through the System. As Just the system clients are approved to get to specific records or applications, no other individual can crack the protection or security of information.

7. It boosts storage capacity: Since you will share data, records, and assets with other individuals, you need to guarantee all information and substance are legitimately put away in the framework. with this systems administration innovation you can do the majority of this with no issue, while having all the space you require for capacity.

8. Reduction in Hardware costs: In a network, the hardware devices that are not used very often, like modems, printers scanners, CD-writers etc can be shared. This reduces the cost of the hardware.

9. Efficiency: In a network, the deletion, modification or upgradation of the Software/data is to be done at a single point only. This brings more efficiency and effectiveness into the working system.

10. Redundancy: A network reduces the need for hard copies of all documents. By sharing the soft copy of a file over the network, the need to share paper copies of reports or any other information can be eliminated or greatly reduced.

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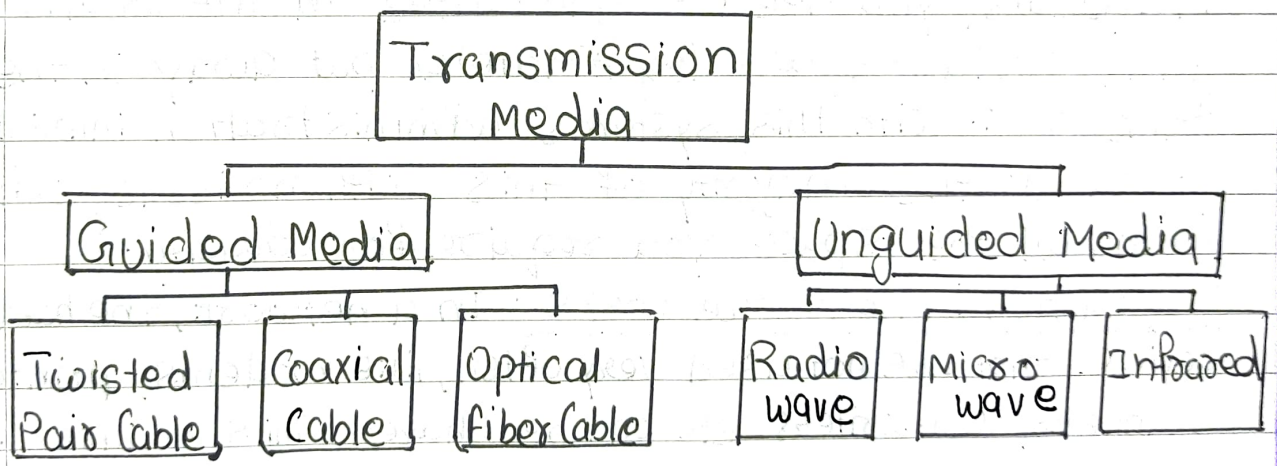
Networking Media

Network media refers to the communication channels used to interconnect nodes on a computer network. We can also say Network media is the actual path over which an electrical signal travel as it moves from one component to another. Common types of network media are:



Guided Media: Guided media, which are those that provide a conduit from one device to another, include twisted pair cable, coaxial cable, fibre optic cable. A signal travelling along any of these media is directed and contained by the physical limits of the medium. Guided Media is also known as Bounded Media Transmission.

1. Twisted Pair Cable: is often used for telephone communications and most modern Ethernet networks. It is a kind of wiring in which two conductors of a

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single circuit are twisted together. But nowa days we are using Ethernet cable for wired networks. This cable resembles like twisted pair cable but is Is larger than the phone cable (twisted pair) and has eight wires. The advantage of these cables is that they have less power consumption but the drawback with these cables is that the computer requires an Ethernet adapter card on the motherboard to Connect the Ethernet Cable. There are mainly two types of Ethernet cable

Crossover cable: It is basically designed for connecting two computers without a hub or router.

Straight-through cable: This type of cable has got both its ends identical to each other. It is used to connect computer to a router or a switch

2. Coaxial cables: Coax, short for coaxial is a type of cable used to transmit data, the internet, video and voice communications. A coax cable is made up of an aluminium and copper shield with an outer plastic Jacket with the dielectric insulator helping to minimize signal loss because of its good structure it has high bandwidth and greater transmission capacity. It is relatively inexpensive and can transmit data at higher rates. It also provides better immunity against electromagnetic disturbances. The only disadvantage with coaxial cable is its installation and maintenance costs. The two types of coaxial cable are:

I. Baseband: mainly used for LAN and has quick transmission.
II. Broadband: used for longer distances and transmits multiple signals at a time.

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3. Optical fibre Cable: A fibre-optic cable is composed of very thin strands of glass or plastic known as optical fibers. The optical fibre cables carry information in the form of data between two places using optical or light based technology. A fible optic cable is highly resistant to signal inteference and provide better data transmission by providing high bandwidth. Fiber offers many advantages, the prime ones being higher bandwidth and reach. And the disadvantage of fibre optic cable is that it is fragile and the maintenance cost is high.

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"Transmission Media"

Unguided Media / Wireless Networking Technology

1. **Radio Wave:** Radio waves are the electromagnetic waves that are transmitted in all the directions of free space. Radio waves are omnidirectional that is the signals are propagated in all the directions.

2. **Microwave Transmission:** Micro waves are the electro-magnetic waves having the range from 1GHz to 1000 GHz. Microwaves are unidirectional as the sending and receiving antenna is to be aligned, that is the waves sent by the sending antenna are narrowly focussed.

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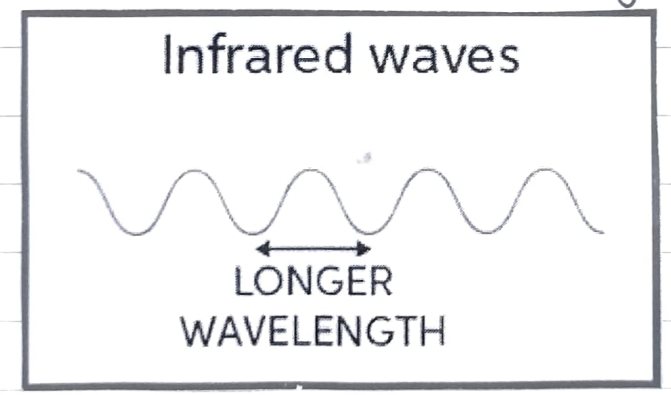
Infrared Transmission: Infrared is used for short range communication such as data transfer between two cell phones, Tv remote operation, data transfer between a computer and cell phone resides in the same closed area. Technology covers approximately 5 meters of distance. Infrared network signals cannot penetrate walls or other obstructions and work only in a direct line of sight.



4. Bluetooth: It is a communication technology that uses low power radio waves to connect electronic devices wirelessly. It establishes short-range communication between phones, computers and other network devices. It is mainly used for personal area networks with a maximum transmission range upto 240 meters depending on the bluetooth version in use.

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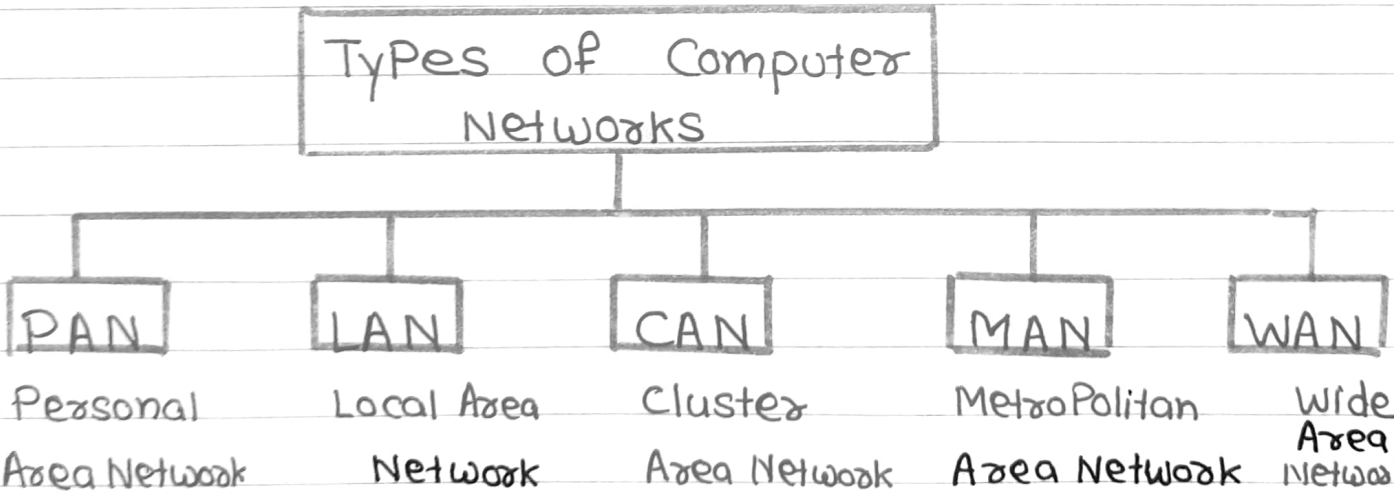
5. Wi-Fi: Wi-Fi Stands for Wireless Fidelity. It creates a wireless Local Area Networks that uses radio waves to send the information. A secure, reliable, and fast wireless connection is established between the electronic devices and the internet by using this technology.

TYPES OF NETWORKS



1 PAN: A personal area network is a computer network for interconnecting electronic devices within an individual person's workspace. A PAN provides data transmission among devices such as computers, smartphones, tablets and personal digital assistants. Personal area networks can either be wired or wireless.

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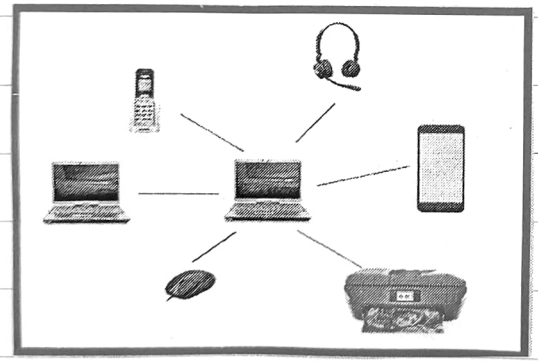
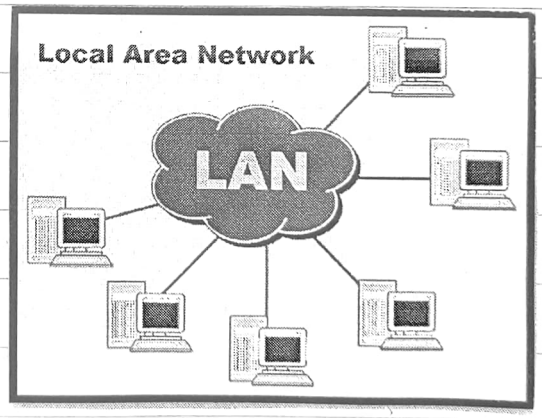
2. LAN: A local area network is a computer network that interconnects computers within a limited area such as a residence, school, laboratory, university capus or office building. The data transmission speed is slow as compared to WAN. Since LAN is operated in a small area, it can be controlled and administered by a single person or an organisation.





3. CAN: A Campus area network is a computer network that spans a limited geographic area. CANs interconnect multiple local area networks within an educational or corporate campus. Most CANs connect to the public internet. This network covers an area smaller than MAN.

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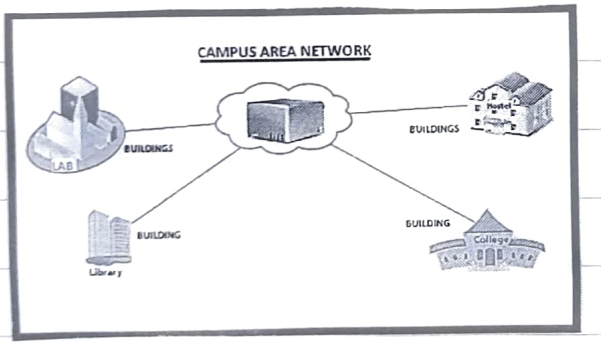
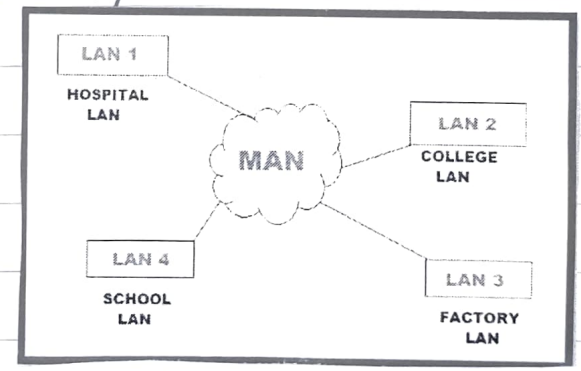
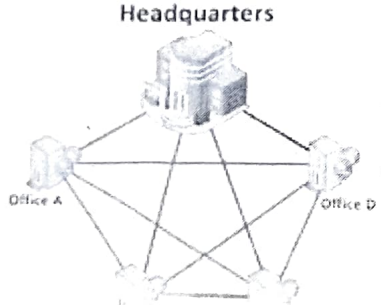
4. MAN: A metropolitan area network is a computer network that interconnects users with computer resources in a geographic region of the size of a metropolitan area. The most common example of MAN type network is the cable television branches of a local bank in a city.





5. WAN: A wide area network is a telecommunications network that extends over a large geographic area. wide area networks are often established with leased telecommunication circuits. The usage of WAN is limited to very large organisations and government agencies. The main characteristics of WAN is that it requires a public telecommunication media to transfer data. The best example of WAN is ATM facility and National and Multinational bank Customer Services



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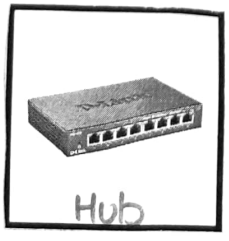
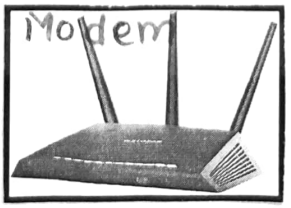
"Networking Devices"

Networking Equipment or computer networking devices which are required for communication and interaction between devices on a computer network. These devices work at different segments of a computer network, performing different tasks.

1. Network Hub : A hub is the most basic networking device that connects multiple computers or other network devices together. Each connection is called a port. A computer which intends to be connected to the network is plugged in to one of these ports. When the hub receives data at one of its ports, it distributes the data to the other ports in the networks. A hub sends all the data it receives to all the connected ports.

2. Modem : Modem is a device that enables a computer to send or receive data over telephone or cable lines. The data stored on the computer is digital whereas a telephone line or cable wire can transmit only analog data. The main function of the modem is to convert digital signal into analog and analog to digital. Modem stands for Modulator and Demodulator Modems are available in two categories : Internal Modem and External Modem.





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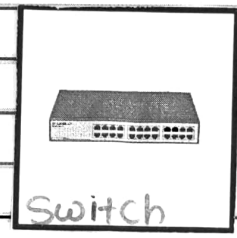
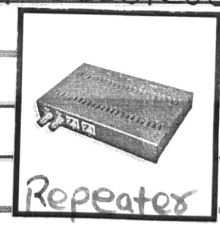
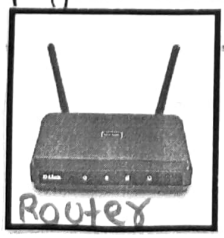
3. Switch: Switches are networking devices operating at layer 2 or a data link layer of the OSI model (open systems interconnection). They connect devices in a network and use packet switching to send, receive or forward data packets or data frames over the network. A switch has many ports, to which computers are plugged in.



4. Repeater: Repeaters are network devices operating at physical layer of the OSI model that regenerate an incoming signal before retransmitting it. They are incorporated in networks to expand its coverage area. They are also known as signal boosters.



5. Router: A router is a networking device that forwards data packets between computer networks. Routers perform the traffic directing functions on the Internet, such as a web page or email, is in the form of data packets.



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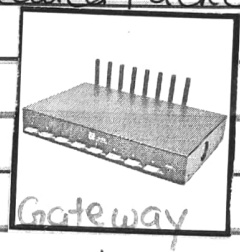
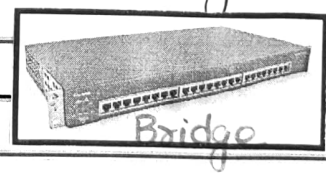
6. Gateway: A gateway is a network node that forms a passage between two networks operating with different transmission protocols. It acts as the entry – exit point for a network. It allows us to carry out various online activities. It basically works as the messenger agent that takes data from one system, interprets it, and transfers it to another system. It is also called packet converter.



Gateway

7. Bridge: A network bridge is a computer networking device that creates a single, aggregate network from multiple communication network segments. A bridge is basically a repeater with add-on functionality of filtering content. It also prevents unnecessary traffic from entering the network and reduces congestion.



Bridge

1. Internet :- The Internet is the biggest world-wide communication network of computers. It provides a variety of information and communication facilities.
2. Intranet :- The term Intranet is a private network of computers for communication. Intranet is basically used by an organization and within an organization to share files and resources of the organization securely.
3. Bandwidth :- The amount of data that can be transmitted in a fixed time is known as Bandwidth. The bandwidth is expressed in bits per second or bytes per second or in Kbps and Mbps.

4. Internet Service Provider (ISP) :- Students, there are various Internet service providers like BSNL, Airtel, Connect etc. These companies or organizations provides Internet connection to users and charge fee for the facility.

5. Website :- A website is a collection of webpages that contains images, videos or other digital media. These webpages can be accessed through internet. Each website is owned and managed by an individual or by an organization.

6. Web Portal :- Students, web portal is a specially designed website that brings information from diverse sources, like emails, search engines etc. Web portal does not contain information on any topic like websites do; but web portals suggests web pages to the user to find the desired information.

7. Web Page :- The digital pages that contains text, images, audios, videos etc. are called webpages. collection of webpages create a website.

8. Homepage :- The first page of a website is called Homepage

9. Link :- A link is a channel that connects two devices for data communication.

10. Hyperlink :- It is an image, audio, video or text that connects one web page to another web page.

11. Hypertext :- It is a text with a special feature of linking to other documents or web pages.

12. Hypermedia :- It is a hypertext that includes text, graphics, sound or video.

13. Uniform Resource Locator (URL) :- It is the unique address of a webpage or a website. For eg. http://www.google.com is the URL of google.

14. IP Address (Internet Protocol Address) :- An IP Address is a combination of unique set of numbers, which is pre-provided to each computer. It is difficult to remember IP addresses that is why domain names are used.

15. Domain Name :- The unique name given to each website or resource connected to the Internet is known as Domain Name. It is easier to remember domain names than the IP addresses. For eg. google.co.in is the domain name of Google search engine. A domain name contains two parts, one is the domain name and other is the web extension. The name of domain comes before dot (.). In the above given example name of domain is google and web extension is co.in.

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Protocols :- The set of rules are known as protocols. These rules consists of various terms like how data should be transferred over networks, compressed, presented on the screen. There are various protocols used to standardize the processes and ways of communicating over a computer network. Let us discuss various protocols.

1. TCP/IP :- The Transmission Control Protocol is one of the main protocols of the Internet protocol suite. The Internet protocol suite is the conceptual model and set of communications protocols used in the Internet and similar computer networks. TCP/IP is a combination of two separate protocols, TCP and IP. TCP is used for a reliable data transmission over the network. and IP provides a sequence number to each of these packets so that they might reach their destination in correct order.

Class - VIII Subject - Computers

2. HTTP :- Hyper Text Transfer Protocol is a communications protocol. It is used to send and receive webpages and files on the internet. A more secure version of HTTP is called Hypertext Transfer Protocol Secure.

3. FTP :- The File Transfer Protocol is a standard network protocol used for the transfer of computer files between a client and server on a computer network. FTP users may authenticate themselves with a clear-text sign-in protocol, normally in the form of a username and password.

4. SMTP :- It is also called as Simple Mail Transfer Protocol. It is the most common protocol used for sending e-mails between two or more servers.

5. IMAP and POP :- The full form of IMAP is Internet Message Access Protocol and full form of POP is Post office Protocol. These are the two most popular Internet standard protocols for retrieving e-mails.

Students, I am ending the lesson here. Kindly read the assignment carefully and also read the side boxes given on page no. 113.

Tender Heart High School, Sector 33 B, Chandigarh

Class VIII Computers

Topic - Teacher - Prabhdeep Kaur

Cloud Computing

Children, today we will learn about cloud Computing. As you know that we use to store our data or information in our computer or we use external hardware devices to store our work so that we can access our data whenever required or can share with others. But nowdays most of the users uses the cloud for storing and sharing data. The cloud is not a physical entity or thing but instead is a vast network of remote servers around the globe. Applications, such as e-mails, web-conferencing all run in cloud. Let us take an example of our social media accounts. We use to upload the photos and maintain our album and if we will delete those photos from our device they will remain stored in our social media account with the help of cloud. Children, cloud computing is made of two words cloud and Computing. It is internet based computing.

Characteristics of cloud Computing :- Students cloud computing is having five defining characteristics given as below :-

1. On-demand Self-Service :- You can use it whenever you need it and pay per use. Think of it as electricity as you have to pay bill at the end of the month only for what you used. In cloud computing, multiple clients can share resources and applications at the same time.
2. Broad Network Access :- You must be able to access from across the web using any device with internet connectivity.
3. Resource Pooling :- Multiple users can use or share the same resources like network connections bandwidth etc. You can be anywhere in the world and still have equal access as everyone else, provided you have internet access.
4. Rapid Elasticity :- Cloud can grow and shrink as much as possible without affecting any of its users. This allows consumers to increase or decrease the resources according to their computing needs.
5. Measured Services :- You can monitor how often people are using the cloud. Cloud-Computing is based on pay-for-what-you-use model to ensure that their clients are getting what they pay for.

Students our next topic is 'Types of cloud'. There are four different types of cloud based on their ownership, size and access.

1. Public cloud :- This type of cloud can be used or accessed by anyone, anywhere over the internet. It is provisioned for open use for the public by a particular organization.
2. Private cloud :- These type of cloud do not share their digital space with anyone else. A private cloud is owned and used by a single organization over a private network.
3. Hybrid cloud :- This type of cloud is used to control an internal database and use the public cloud when needed as it is the combination of both public and private cloud.
4. Community cloud :- This special cloud is used by a group of consumers from different organizations who share same concerns. It may be owned or managed by one organization but used by a particular community.

Students, our next topic is 'Advantages of Cloud Computing'.

1. Cost Savings :- As we read earlier that we can pool the resources using cloud computing. So with cloud Computing based on pay-per-use model, businesses or consumers can significantly lower the company's IT expenses and requirements.
2. Reliability :- It is easy to take backup of your data and recover data in case of any failure with cloud computing which makes it more reliable.
3. Unlimited Storage :- Cloud provides unlimited storage space to store large amounts of information.
4. Accessibility :- It is easy to access the cloud computing services by using Internet based devices

Children next topic is Disadvantages of Cloud Computing

1. Technical Issues :- As cloud computing works on internet, so if any technical issue appears, you cannot access services provided by cloud computing.
2. Security :- It is not 100% secure to save sensitive data on third party cloud providers.
3. Limited Control :- As the cloud is owned by the service providers, so users have little control over services.
4. Vendor lock-IN :- It is not easy to switch or port from one cloud service to another due to support issues.

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Class VIII **Computer**

Teacher: Prabhdeep Kaur

Children, in previous topic we discussed various advantages and disadvantages of cloud computing. Today we will discuss One Drive which is a online storage facility of cloud computing offered by Microsoft. One Drive is used as a personal storage drive, where we can store all our documents, photos, videos etc. in an organised manner. Microsoft offers free storage space upto 5 GB to all its One Drive users. It is a safe storage space on cloud as it is password protected. Let us learn how to access One Drive:

1. Open Onedrive.com and click on 'Sign up for free' tab.
2. A new webpage will open.
3. Now click on the 'Create a Microsoft account' tab.
4. Enter a valid e-mail id and password and click on 'Next' button.
5. After following the instructions appearing on your screen the One Drive home page will appear on your screen.

Students, you can upload your files or folders to your One Drive by dragging and dropping the files onto this page.

Children, kindly observe the interface of One Drive given on page no. 123 in figure 9.3. As one Drive possesses various features on the Home page. These features are discussed below :-

1. Skype :- The skype icon is present at the top bar adjacent to the bell icon. Skype is integrated in One Drive as it enables us to make video and voice calls to anyone on our skype contact list.
2. Notifications :- The bell icon represents the notifications. It displays notifications about our files, folders and edited documents.
3. One Drive settings :- Using this feature we can view Options, Upgrade our storage plans and change the language in the Setting menu.
4. Help :- This feature allows us to conduct search on various topics and features associated with One Drive.
5. Sort :- Using this feature we can sort our files and folders on the basis of their Name, Size etc.
6. View :- The feature allows us to change the view of our files either to the List View or Photo View. By default files are listed in the form of tiles.
7. Search bar :- It is used to search any file on One Drive. It is present on the top left side of the home page of One Drive.
8. The Left Pane :- Through this pane we can view our files and access the folders such as Recent, Photos, Shared etc.

Students our next topic is uploading files and folders on OneDrive. You can store or upload files by following steps

1. Click on the upload button as given in fig. 9.4.
2. Select the Files or Folder option from the list given.
3. Browse and select the file or folder you want to upload.
4. Click on Open button.
5. The uploaded file now appears in the Files pane

Students how to create Files or Folders in One Drive.

First of all you should have an account in One Drive for using the features and facilities provided by One Drive. After signing in your account select the option 'New'. As you can see different types of document's list ~~will~~ appears shown in figure 9.5 on page no. 125. Select the type of document that you want to create. Now using the various tools and options, you can easily create your document.

Children let us now learn how to share files online through One Drive. We need to attach files when we use to share data through e-mails, but when we use One Drive to share data there is no need to attach files. There are different methods to share a file. You can either send it through e-mail or you can create a link of file and can share that link with your friends or other related person.

Date- 09.10.2023

In previous topic we learnt how to upload Files or Folders on One Drive. Today we will discuss how to create Files or Folders in One Drive. First of all you should have an account in One Drive for using the features and facilities provided by One Drive. After signing in your account select the option 'New'. As you can see different types of document's list ~~will~~ appears shown in figure 9.5 on page no. 125. Select the type of document that you want to create. Now using the various tools and options, you can easily create your document.

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Tender Heart High School, Sector 33 B, Chandigarh

Class VIII **Computer**

Teacher: Prabhdeep Kaur

Follow the given steps to share your files with others.

1. Move your mouse over the file that you want to share and then click on the check box that appears on the top right corner.
2. Select the 'Share' option ⇪.
3. Choose one option from the given options in the pop-up window.
4. Now click on the 'Get a link' option to generate a link or click 'Email' to send the file through e-mail.
5. If you choose E-mail, enter the e-mail address of the recipients
6. Click on the 'Share button'.

Children after sharing File, do not forget to log out or Sign out from your One Drive account by clicking on 'My accounts' button and selecting 'Sign Out' option.

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Picasa :- Students, Picasa is a free program or software used to edit, organize and share the digitaly saved photographs. It provides 1 GB of free online storage space to store photos. There are various features of Picasa as it provides variety of special effects for your photos. Picasa allows to create a Slide show, photos collage and videos with your photos. It can also be used to store and upload your digital photos.

How to use Picasa :- Follow the given steps to use Picasa

1. Down load Picasa software on your device.
2. Open the Picasa application by double - clicking on its icon.
3. It will automatically scans your hard drive for photos and will move them in the main library view.
4. Now for editing double click on the photo.
5. The Editing window will appear as shown in fig. 9.10
6. Apply the desired effects.
7. Now click on the 'Upload to Google Photos' for uploading the pictures.
8. If you want to send photos to friends, click on e-mail button.
9. You can print the pictures by using the 'Print' option.

Children, I am ending the lesson here. Kindly read the assignment carefully.