

# Web Applications and Security notes

## Class 10 IT (402)

**Network:** A computer network is a collection of computers and other hardware components interconnected by communication channels (cables or satellites) that allow sharing of resources and information.

**Networks are designed using the following architecture:**

**Peer to peer (P2P):** Networks in which all computers have an equal status are called peer to peer networks. Generally in such a network each terminal has an equally competent CPU.

**Client-Server:** Networks, in which certain computers have special dedicated tasks, providing services to other computers (in the network) are called client server networks. The computer(s) which provide services are called servers and the ones that use these services are called clients.

**Types of Network:**

There are 2 major types of network:-

**1) LAN:-** LAN is Local Area Network. It is used to connect computers and devices within a small geographical area such as home, school etc.

**2) WAN:-** WAN is Wide Area Network. It is used to connect computers in a broad area such as national and international boundaries.  
Eg. Internet.

**Internet:** Internet is a global system of interconnected computer networks that use the standard Internet protocol suite to serve billions of users worldwide. It is a network of networks that consists of millions of private, public, academic, business, and government networks.

**World Wide Web:** World Wide Web (abbreviated as WWW or W3, commonly known as the Web), is a system of interlinked hypertext documents accessed via the Internet.

**Web Browser:** A Web Browser is software used to view Web sites and acts as an interface between the user and the World Wide Web.

**Web Server:** A Web server is a computer that stores web sites and their related files for viewing on the Internet.

### **Uses of Network:-**

- 1) Data Sharing:** We can share data like text files, documents, audio and video files to other users with the help of Networking.
- 2) Hardware Sharing:** Hardware components like printers, scanners etc. can also be shared with the help of networking.
- 3) Internet Access Sharing:** Through networking we can access a single internet connection on multiple computers within a network.
- 4) Usage of Network Based Applications:** Applications like chat applications, audio and video calling is an another advantage.

### **Getting Access to the Internet:-**

To use Internet we need the following:-

- 1) ISP:-** ISP is Internet Service Provider. It is an organization which provides us with the access of Internet. For eg. BSNL, Airtel, MTNL etc.
- 2) Modem:-** The word modem is derived from its function Modulator/DEModulator. It is a device which is used to convert digital computer signals into analog signals and vice-versa.

### **Types of Internet Connectivity**

Types of Internet Connectivity can be broadly categorized into Wired Technology and Wireless Technology.

#### **Wired Technology:-**

- 1) Dial-up:-** It uses the facilities of the Public Switched Telephone Network (PSTN) to establish a internet connection via telephone lines using a device called MODEM. Users dial a number and get access to internet. Dial-up connections are extremely slow.
- 2) DSL:-** DSL is Digital Subscriber Line provides internet connectivity by transmitting digital data over wires of a local telephone network. It enables the use of Telephone

and Data Transmission on a single telephone line. For using DSL Connection, we need a DSL modem and a subscription.

**3) Cable Internet Access:-** It is a form of broadband Internet access that uses the cable TV infrastructure. It is provided through existing cable TV networks and it is similar to DSL.

### **Wireless Technology:-**

**1) 3G:-** 3G, is short for 3<sup>rd</sup> Generation. It is a set of standards used for Mobile devices and mobile telecommunication services and networks. If the phone supports 3G, then high speed internet connectivity can be accessed through its subscription.

**High-Speed Downlink Packet Access (HSDPA)** is a 3G protocol (standard) that allows higher data transfer speeds and capacity.

**2) WiMAX:-** WiMAX is Worldwide Interoperability for Microwave Access is a wireless communications standard designed to provide mobile broadband connectivity across cities and countries through variety of devices. It is a long range system. It is beneficial where there is a difficulty in laying out cables and wires.

**3) Wi-Fi:-** It is a popular technology used to transfer data wirelessly over a network. Wi-Fi stands for Wireless Fidelity. The wireless network is formed through a device called Wireless Access Point (WAP). It is beneficial as there is no need of laying out wires for transferring data.

### **Data Transfer On the Internet :-**

- The data is broken up into bits of same sized pieces called packets.
- A header is added to each packet explaining where the data has come from, where it should end up and where it fits in with the rest of the packets.
- Each packet is sent from computer to computer until it finds its destination. All packets may not take the same route.
- At the destination, the packets are examined. If any packets are missing or damaged, a message is sent asking for them to be resent. This continues until all packets have been received intact.
- The packets are now reassembled into their original form. All this done in seconds!

## **Session 3 : INTRODUCTION TO THE INSTANT MESSAGING**

### **INSTANT MESSAGING**

Instant Messaging (IM) is a form of communication over the internet that offers an instantaneous transmission of text-based messages from sender to receiver. Most IM software includes the option to transfer files, audio chat, video, images etc.

**Key Features of IM are :-**

- 1) Text message can be sent from one person to another(similar to SMS)
- 2) Audio calling and conferencing
- 3) Video calling and conferencing
- 4) File Transfers
- 5) Message History (Save messages for future reference)

**Types of Instant Messaging Software**

There are two kinds of IM Software:-

- 1) **Application Based:-** These software are downloaded and installed on user's computer. Eg. Google Talk , Yahoo! Messenger , Skype , Window Live Messenger , Rediff Bol etc.
- 2) **Web Based:-** They are accessed using browsers such as Internet Explorer etc. Eg. MSN Web Messenger , Yahoo! Messenger for the Web , Meebo , IMO etc.

**BLOG**

A blog is a discussion style site used by non-technical users for creating personal web pages. Blog is similar to an online personal diary and similar to use. A blog is used to convey messages, events, news, announcements etc.

Blogs are usually managed through web browser which needs an internet connection. A blog can also be created through Offline Blog Software and later publish the content when the internet connection is available.

Examples of Websites that offer blog services:-

**ONLINE TRANSACTIONS**

The transactions over the internet are called Online Transactions

Like purchasing of goods, selling of goods, booking a ticket, payment of fees etc. all comes under the category of Online transactions.

**Examples of Online Transaction websites:-**

- 1) **For Buying Goods :-** amazon, jabong, myntra, flipkart , ebay etc.
- 2) **For Booking of Tickets :-** IRCTC , Redbus etc.
- 3) **For Payment of School Fee :-** [epay.unionbankofindia.co.in/kvfee](http://epay.unionbankofindia.co.in/kvfee)

#### **Payment Tools to use Online Transactions:-**

For completing an online transaction we must need:-

- 1) Valid Debit Card
- 2) Valid Credit Card
- 3) Net Banking Subscription

### **INTERNET SECURITY**

It is a branch of computer security specifically related to the internet, involving browser security and also network security.

#### **Objectives of Internet Security:-**

The main objective of internet security is to establish rules and measures to use against attacks over the internet.

#### **Online Threats**

The threats / vulnerabilities that uses World Wide Web (Internet) to facilitate crimes are called Online Threats.

Like:-

- 1) **Phishing :-** The act of acquiring personal / private and sensitive data from personal computers for use in fraudulent activities. For eg. Mails from unknown persons that ask for your credit / debit card details.
- 2) **Email spoofing :-** It is the creation of email messages with a forged sender address. For eg. Sending an email with a forged email address which appears to be original. These mails are infected mails which contain worms.
- 3) **Chat Spoofing:-** Spoofing means hoax, trick, or deceive which contains false information. Hiding / Faking the identity of another person over the internet is called chat spoofing.

### **BEST PRACTICES FOR SECURITY OVER INTERNET**

1. **Use strong passwords:** A combination of alphanumeric and special characters could be used for creating a password that is not so easy to crack or guessed by other users.

#### **General guidelines for strong password**

- a) Keep the length of the password at least 12-14 characters if permitted.
- b) Avoid keeping passwords based on repetition words, dictionary words, usernames, pet names etc.
- c) Include numbers and symbols in passwords.
- d) Use Capital and lowercase letters.
- e) Avoid using same password for multiple sites or purposes.
- f) Avoid using something that the public or workmates know you strongly like or dislikes.

**2. Backup your data:** Always keep copies of data in CD, pendrives etc, so it could be helpful in situation when there is a loss of data.

**3. Use Encryption software:** Use encrypted software available within the operating software to protect data from unauthorized users.

**4. Keep username and password private:** Never save passwords or usernames on computers that are used in shared environments like net café.

**5. Registering with website:** Read privacy policy whenever you register with a website, the policy will include information about how the website use personal data.

**6. Do not share personal information:** Be cautious when filling out forms on internet. Because your personal information or emails could be used by unauthorized users to send fake or unwanted emails. So, first research and verify if it's a trusted website or not before providing personal information to any website.

**7. Secure transactions:** It is always recommended to use only secure websites for online shopping or transactions, because these websites store your credit card or online banking personal information. Verify if the website uses secure transaction, usually it is indicated through a digital certificate represented as a golden lock in the web browser's address bar.

**8. Use Antivirus and antispyware software:** These softwares protect your computer from any changes by malwares/threats. Keep these softwares up to date.

**9. Do not immediately respond to mails from unknown users:** Some mails, that promise you jobs or announce lottery results, may contain virus or scripts or they can try to gather your personal information. Never open the attachments from unknown persons.

**10. Install firewalls:** Firewalls keep your system and network secure. They could be software or hardware. So, Install and configure your firewall.

**11.** Regularly update your operating system and software applications.

**12.** When you visit websites, cookies are created on your system that may contain your personal or logon details. Clear browser cookies frequently so that your

login details could not be tracked by unauthorized users.

## **SESSION 1:-WORKING WITH ACCESSIBILITY OPTIONS**

**Computer Accessibility :-** It refers to the user friendliness of a computer system for all, regardless of their disability. It enables a person with a disability or impairment to use a computer. It is also known as Assistive Technology.

There are numerous types of impairment that impact computer usage. These includes:-

- 1) Cognitive impairments and learning disabilities, such as dyslexia, autism, and attention deficit-hyperactivity disorder (ADHD).
- 2) Visual impairment, such as low-vision, complete or partial blindness, and color blindness.
- 3) Hearing impairment including deafness.
- 4) Motor or dexterity impairment, such as paralysis, cerebral palsy, or carpal tunnel syndrome and repetitive strain injury.

These accessibility options are used to customize the way your keyboard, display, or mouse function.

### **Various Accessibility Options**

**1) Sticky Keys:-** It is an accessibility feature to help computer users with physical disabilities. It allows the user to press and release a modifier key, such as Ctrl, Alt, Shift etc. and have it remain active until any other key is pressed.

**2) Filter Keys:-** It is an accessibility feature that tells the keyboard to ignore repeated key strokes, making typing easier for people with hand tremors.

**3) Toggle Keys:-** It is an accessibility feature which is designed for people who have vision impairment or cognitive disabilities. When toggle keys are turned on, the computer emits a high sound when the locking keys, such as Caps Lock, Num Lock, Scroll Lock are switched on and a low sound when they are switched off.

**4) Sound Sentry:-** It is designed for the users with auditory impairments. It generates warnings, such as blinking title bar or a flashing border, whenever the computer generates a sound.

**5) Show Sounds:-** It instructs applications that convey information by sound, to also provide information visually, through text captions or informative icons.

**6) High Contrast:-** It is an accessibility feature to assist people with vision impairment. It can change the size and color of fonts and the background for ease of viewing.

**7) Cursor Options:**- It is an accessibility feature that assists people with vision impairment by changing the blink rate and width of the cursor.

**8) Mouse Keys:**- It is an accessibility feature that assists people who have difficulty using a mouse. This option uses the keyboard as a pointing device instead of a mouse.

**9) Serial keys:**- It is an accessibility feature that assists people that have difficulty in using a keyboard or a mouse or both. They can use special devices such as Sip, Puff and Breath Switches to provide input to the computer through serial ports.