

# UNIT-4 :Web Applications and Security

## SESSION 1: WORKING WITH ACCESSIBILITY OPTIONS

Computer Accessibility 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 known as Assistive Technology.

### LAUNCHING ACCESSIBILITY OPTIONS

To launch accessibility options in Click Start >Control Panel > Accessibility Options.

### KEYBOARD TAB

**Sticky Keys:** StickyKeys is an accessibility feature to help computer users with physical disabilities, but it is also used by others as a means to reduce repetitive strain.

**FilterKeys:** FilterKeys is a feature of Microsoft Windows. It is an accessibility function that tells the keyboard to ignore brief or repeated keystrokes, making typing easier for people with hand tremors.

### **ToggleKeys**

ToggleKeys is also a feature of Microsoft Windows. It is an accessibility function which is designed for people who have vision impairment or cognitive disabilities. When ToggleKeys is turned on, computer emits sound cues when the locking keys (Caps Lock, Num Lock, or Scroll Lock) are pressed. A high sound is emitted when the keys are switched on and a low sound is emitted when they are switched off.

**Sound Tab:** Select the Sound Tab. A window with options to configure accessibility options for sound is displayed

**SoundSentry:** SoundSentry is designed to help users with auditory impairments.

SoundSentry generates visual warnings, such as a blinking title bar or a flashing border, whenever the computer generates a sound.

**ShowSounds:** ShowSounds instructs applications that convey information by sound, to

also provide information visually, through text captions or informative icons.

**Display Tab :**Select the Display Tab. A window with options to configure accessibility options for display is displayed.

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

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

## **MOUSE TAB**

**MouseKeys :**MouseKeys is an accessibility feature that assists people who have difficulty using a mouse. This option uses the keyboard (especially numeric keypad) as a pointing device instead of a mouse.

**General Tab:** This tab enables you to configure accessibility options for all users.

Select the General Tab, a window to configure additional accessibility options will be displayed

**SerialKeys:**SerialKeys is an accessibility feature that assists people that have difficulty using a keyboard or a mouse (or both).

## **SESSION 2 : NETWORKING FUNDAMENTALS**

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.

### **PEER-TO-PEER (P2P) ARCHITECTURE:**

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 ARCHITECTURE:**

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 NETWORKS**

There are two major types of network Local Area Network (LAN) and Wide Area Network (WAN).

### **LOCAL AREA NETWORK**

A local area network (LAN) is one which connects computers and devices in a limited geographical area such as home, school, computer laboratory, office building, or closely positioned group of buildings.

Usually local area networks offer very high speeds and are used for connecting computers and peripherals such as printers, scanners, etc.

### **WIDE AREA NETWORK**

A wide area network (WAN) is one which covers a broad area (i.e., any network that links across metropolitan, regional, or national boundaries). The Internet is the most popular WAN, and is used by businesses, governments, non-profit organizations, individual consumers, artists, entertainers, and many others.

## **INTERNET**

The 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. With a web browser, one can view web pages that may contain text, images, videos, and other multimedia, and navigate between them via hyperlinks.

### **Some of the advantages associated with networking are:**

- **Data Sharing:** One of the most important uses of networking is to allow the sharing of data.
- **Files transfer :** Users can send text files, spread sheets, documents, presentations, audio files, video files, etc. to other users.
- **Hardware Sharing:** Hardware components such as printers, scanners, etc. can also be shared.
- **Internet Access Sharing:** You can purchase a single Internet connection and share it among other computers in a network instead of purchasing multiple Internet connection for each computer
- **Usage of network based applications:** Such as web browsers, email clients, chat application, audio & video calling, etc. is another advantage.

## **GETTING ACCESS TO THE INTERNET**

To use the Internet, you need an Internet connection. Internet connections are provided by Internet Service Providers such as Bharat Sanchar Nigam Limited (BSNL), Airtel, Jio, Vodafone,

## **INTERNET SERVICE PROVIDER**

An Internet service provider (ISP) is an organization which provides you with access to the Internet via a dial-up (using modem) or direct (hard wired) or wireless connection.

## MODEM

A modem is a device that converts digital computer signals into a form (analog signals) that can travel over phone lines. It also re-converts the analog signals back into digital signals. The word modem is derived from its function MODulator/DEModulator.

## TYPES OF COMMON 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 an 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.

## 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 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 instant messaging software include the option for performing file transfers, audio chat, video calling and conferencing, sharing desktops, etc.

Key Features of an instant messaging are as follows:

- Text Messages can be sent to one or more person (Similar to SMS)
- Audio calling and conferencing.
- Video calling and conferencing.
- File transfers (Not limited to documents, spread sheets, audiofiles, video files, etc.)
- Message history (Save messages for future reference).

### **INSTANT MESSAGING SERVICES**

There are two kinds of instant messaging software - application based and Web based.

- 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.

## CREATING AN INSTANT MESSAGING ACCOUNT

In this exercise, you will learn to create an instant messaging account for using Google Talk.

Note: You need to download and install Google Talk application from [www.google.com/talk](http://www.google.com/talk) prior to this exercise.

## LAUNCHING GOOGLE TALK

To launch Google Talk, Click Start >Programs >Google Talk>Google Talk.

- You can also double-click on the Google icon on the desktop if available.

You need to have a list of contacts that are available for chat. If you don't have any contacts, you can add their Gmail account to your contact list by sending an invite.



Figure 12

If you don't have a Gmail account already you can create a new Gmail account.

## SESSION 4: CHATTING WITH A CONTACT - GOOGLE TALK

- Whenever your friend in the contact list is online you can see the person along with a green dot.
- You can start sending text chat message instantly by double-clicking on a contact. There are some general rules and etiquettes to be followed while chatting.

- Messages should be short and to the point.
- Always introduce yourself by name if your screen name doesn't reflect it.
- Always ask if the other person has time to chat first - regardless of how important you think what you have to say is, it's not going to be well received if the recipient is busy.
- Give people time to respond - Multiple questions sent to a recipient before they've had a chance to answer can seem more like an interrogation rather than a conversation.

## **WEB PAGES - 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:-

[www.blogger.com](http://www.blogger.com) [www.wordpress.com](http://www.wordpress.com)  
[www.weebly.com](http://www.weebly.com) [www.blog.com](http://www.blog.com)

## **SESSION 6: USING OFFLINE BLOG EDITORS**

If you do not have an active internet connection, you can create blogs using a blog application and publish the blog whenever internet connectivity is available.

There are several free offline blog editors available that can be downloaded and installed on the local computer such as:

- **Qumana**
- **Windows Live Writer**
- **Blogdesk**



## **SESSION 7: 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

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

### **Payments tools to use Online transaction**

For completing an online transaction we must need:-

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

## **SESSION 8: 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 addressbar.
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 logon details could not be tracked by unauthorized users

## **SESSION 9 : Maintain workplace safety**

### **Maintain workplace safety**

- Basic safety rules to follow at workplace - Fire safety, Falls and slips, Electrical safety, Use of first aid.

### **Basic Fire safety rules in an organization are :**

- Fire escape plans must be installed at proper levels
- Conduct regular drills
- Maintenance of safety equipment must be taken care of regularly

### **Falls and Slips Safety rules**

- Workplace must be properly ventilated
- Floors must be clean and dry
- Oil spills, dust must be immediately cleaned.

### **Electrical safety rules:**

- Electrical equipment approved by a recognized organization.
- Take care that the outlets/ circuits should not be overloaded

## **Session 10 : Prevent Accidents and Emergencies**

**Accident:** an accident is an unplanned event that may happen all of a sudden and may lead to unwanted or unprecedented results/outcomes.

### **Handling accidents:**

- Safety measures must be placed to prevent workplace accidents
- Immediately call the medical team for any injury
- Stay alert
- Pay attention to and follow emergency drills

## **Session 11: Protect Health and Safety at work**

Checklist for Workstations :

### **The workstation should:**

- provide sufficient space for the user to alter position comfortably
- provide adequate lighting
- have windows fitted with adjustable coverings to alter the sunlight level

- be spacious enough when a workstation is shared by more than one person

#### **The display screen should:**

- display well-defined characters of adequate size and spacing
- have easily adjustable brightness and contrast
- tilt and swivel easily to suit the user

#### **The keyboard should:**

- be able to tilt easily and should be able to separate from the screen to allow the user to adopt a comfortable working position

#### **The work surface should:**

- provide adequate space for the user
- be of an adequate size to allow the screen, keyboard and other peripherals to be flexibly arranged

### **Workplace Evacuation**

In case of emergency there should be provision for evacuation. Evacuation is the process of emptying a place in case of an emergency, disaster.

Every company must ensure following points for evacuation in case of any emergency:

- **An evacuation policy** : Every organization must have an evacuation policy. All the Team Leaders are responsible for informing about the policy to their employees about it. Proper attention must be paid when the Team Leader is informing you about these details. Negligence at this time may cost lives.
- Organization must have a designated assembly point for emergencies. Ensure that every employee/ worker must know where it is.
- A 'buddy system' for individuals with special needs or disabilities must be designated. This system ensures that differently-abled are assisted and guided out of the premises or the impacted area properly. If you are a buddy to someone, ensure that your buddy is safe at the assembly point with you.

- Floor plans with evacuation routes in work areas. Ensure that you understand these so you can use it in time of need.
- Assembly areas, where you are required to assemble after evacuation, must be properly taken care of.
- Periodic evacuation drills should be conducted. Ensure that you pay attention during these drills. You need to save your life and you can be helpful in saving someone else's life too.

### Healthy Living

**'A healthy body has a healthy mind'** - a very popular saying is true

'Healthy Lifestyle leads to a healthy being. A healthy living has a lasting impact on an individual which ultimately yields a healthy environment at home as well as at work place. a happy and healthy worker will always perform best to his ability.

A healthy lifestyle helps to keep and improve people's health and well being.

a healthy lifestyle includes :

- healthy eating habits
  - physical activities
  - stress management
  - healthy mind
  - sound sleep