###  Web Applications (Basics)

**Chapter-01**

**Accessibility Options on Computer**

Computer Accessibility refers to the user friendliness of a computer system for all, regardless of their disability. This is mainly a software issue. However, when a combination of hardware and software, it enables a person with a disability or impairment to use a computer. It is known as Assistive Technology.

In this session, you will learn about the basic accessibility options available on your computer. There are numerous types of impairment that impact computer usage. These include:

* + Deficit-hyperactivity disorder (ADHD) or autism.
	+ Visual impairment such as low-vision, complete or partial blindness, and color blindness.
	+ Hearing impairment including deafness.
	+ Motor or dexterity impairment such as paralysis, cerebral palsy, or carpal tunnel syndrome and repetitive strain injury.

Accessibility Options in Control Panel are used to customize the way your keyboard, display, or mouse function. Many of these features are useful for people with disabilities as discussed earlier. In this session, you will learn to use accessibility options in Windows.

### Keyboard Tab

### StickyKeys

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. StickyKeys allows the user to press and release a modifier key, such as Shift, Ctrl, Alt, or the Windows key, and have it remain active until any other key is pressed.

**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.

**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.

**Keyboard Shortcuts for Accessibility Options in Windows OS**

|  |  |
| --- | --- |
| **Press this deys**  | **To do This** |
| **Right Shift for eight seconds** | **Turn Filter Keys on and Off** |
| **Left Alt+Left Shift+Print Screen** | **Turn High Contrast on or off** |
| **Left Alt+Left Shift+Num Lock** | **Turn Mouse Keys on or off** |
| **Shift five times** | **Turn Sticky keys on or off** |
| **Num lock for five seconds** |  **Turn Toggle keys on or off** |
| **Window logo keys+U** | **Open the Ease of Access Centre** |

**Magnifier Keyboard Shortcuts**

|  |  |
| --- | --- |
| **Window logo key+plus(+)or minus(-)** | **Zoom in or out** |
| **Ctrl+Alt+spacebar** | **Preview the desktop in full screen** |
| **Ctrl+Alt+D** | **Switch to docked mode** |
| **Ctrl+Alt+F** | **Switch to Full screen Mode** |
| **Ctrl+Alt+I** | **invert colours** |
| **Ctrl+Alt+L** | **Switch to Lens Mode** |
| **Ctrl+Alt+R** | **Resize the lens** |
| **Ctrl+Alt+arrow keys** | **Pan in the direction of the arrow keys** |
| **Window Logo key+Esc** | **Exit Magnifier** |

 **Chapter-02**

### 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. This session introduces you to the basic fundamental concepts of networking and Internet and using different types of Internet connection.

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 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. 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. For example, instead of purchasing 10 printers for each user, one printer can be purchased and shared among multiple users thus saving cost.
* 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. This is very commonly found in Internet café (browsing centres), schools, colleges, companies, etc.
* Usage of network based applications such as web browsers, email clients, chat application, audio & video calling, etc is another advantage.

### 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

Á 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

There are different types of Internet Connectivity available today; it can be widely categorized into wired and wireless access. Following table is a summary of different types of Internet connectivity categorized into wired and wireless:



### Data transfer on the Internet

Having talked of data transfer and the Internet, have you ever wondered how sitting in one corner of the world, you get information from another distant area in a few seconds? In very simple language, let’s see what happens to a piece of data, say a Web page, when it is transferred over 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. Each computer on the way decides where next to send the packet. 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 re-sent. This continues until all packets have been received intact.
* The packets are now reassembled into their original form. All this done in seconds.

**Network Devices**

1. **Hub-** A hub is a device that connects a number of computers to make a LAN.

A Hub is a ‘dumb’ device: if it receives a, message it sends it to the every computer of the network.

1. **Switch-** A Switch, like a hub, is a device that connects a number of computers together to make a LAN..A switch is more ‘intelligent’ device than a hub : If It receives a message ,it checks who it is addressed to, and only sends to specific destination computer.
2. **Repeater**-A Repeater is a device that amplifies a signal being transmitted on the network.
3. **Router-** A Router is a network device that connects together two or more networks. A common use of a router is to join a home or business network (LAN) to the Internet(WAN).
4. **Bridge-**A Bridge is a network device that typically links together two different parts of a LAN.

**Network Topology**

**Topology-Topology refers to the pattern of interconnection of nodes in a network.**

**Bus Topology-In this topology, all devices on network is connected to a single continuous cable called a bus. Transmission from any station travels the length of the bus in both directions and can be received by all other station.**

**Ring Topology- The Transmission of data packets transmitted, circulate along the ring. The destination station copies the packet content on recognizing its address on the packet. After a packet travels a full circle, it is removed at the source station.**

**Star Topology-In this topology each workstation is directly linked to a central node. The devices can be easily plugged or unplugged to the central node, as need dictates.**

**TreeToplogy – In Tree topology, the shape of the network is that of an inverted tree with the central root branching and sub-branching to the extremities of the network.**