

TEC 407: COMPUTER LITERACY

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The Computer System

- ▶ The computer system is made up of the following components;
- ▶ Hardware
- ▶ Software
- ▶ Liveware (Orgware)
- ▶ Hardware – this refers to the physical tangible components of the computer. Hardware can be classified into
 - i. Input devices – refers to the devices used to feed data into the computer. E.g. Keyboard, mouse, joystick, light pen, digital cameras etc.



Fundamentals of Computing

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INTRODUCTION TO COMPUTERS AND OPERATING SYSTEMS



The Computer System

- ii. Output devices – refers to the devices used to give feedback or information from the computer e.g. monitor, projector, printer, speakers, etc.



NB: TFT - Short for Thin Film Transistor, a type of LCD flat-panel display screen, in which each pixel is controlled by one to four transistors. The TFT technology provides the best resolution of all the flat-panel techniques, but it is also the most expensive. TFT screens are sometimes called active-matrix LCDs.

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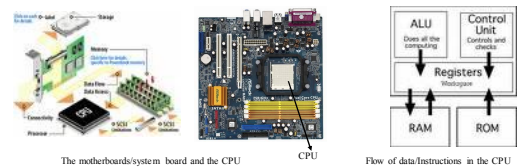
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Definition of terms

- ▶ **Computer** – refers to an electronic device capable of accepting data as input and processes it under the influence of a set of instructions referred to as software/programs to produce information as output.
- ▶ **Data** – refers to the raw facts fed into the computer for processing. Data does not have any meaning to the user e.g. raw students marks fed into the computers.
- ▶ **Information** – refers to the already processed data summarized in the form that the user wants. Information makes sense to the user e.g. computed average marks.
- ▶ **Computer system** – combination of different components or elements of the computer which each performs its own tasks but work together to process data into information.

The Computer System

- iii. Processing hardware – responsible for the processing of data into information. This is normally the CPU (Central Processing Unit). It is the "Brain" of the computer. The processing speed of a computer depends on the processor speed (clock speed) measured in number of instructions processed per time (Hertz) e.g. 1.65 GH



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The Computer System

iii. **Storage Hardware** – devices that provide storage of data/information in the computer either temporary or permanently. Are divided into two:

- ▶ **Primary storage** – Holds data/information temporary only when the computer is on. Data/information gets lost when the computer goes off. E.g. Registers and RAM (Random Access Memory)
- ▶ **Secondary storage**– Holds data/information permanently even when the computer is off. Examples: Hard disk, flash disks, CDs, DVD, VCDs etc



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2) Software

b) Application software – type of software that solve specific problems or perform specific tasks. Classified according to;

- a) Method of acquisition
- b) Purpose

When classified to method of acquisition we have;

- i. **Off – the – shelf application software** – programs developed by software engineers and made available in the market for sale. Normally sold in bundles called program suites e.g. the Microsoft Office programs suite.
- ii. **In – house – developed packages** –also referred to as tailor –made – application software. Designed or tailored to solve problems specific to an organisation.
- iii. **Outsource software As A Service (SAAS)**

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The Computer System

- **Smallest unit of data storage is a bit (0 or 1)**
- **Other units are bytes, kilobyte, megabyte, gigabyte,, terabyte, etc**

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2) Software

Application software can also be classified according to the purpose;

- General – purpose
- Special – purpose

3) **Liveware (orgware/people)** – refers the computer professionals e.g. network administrators, programmers and computer end–users.

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2) Software

Software (programs) refers a set of instructions that directs a computer what to do. The two main types of computer software are:

- a) **System software**
- b) **Application software**

a) **System software** – type of software that enables the computer to manage its resource. It is further divided into;

- i. **Firmware** – system software fixed into hardware components e.g. BIOS.
- ii. **Network** – type of computer software that enable computers to communicate over a network
- iii. **Utility**– used to manage computer files, diagnose and repair computer problems e.g. antivirus, compilers, diagnostic tools etc
- iv. **Operating systems** – provides the interface between the user, the hardware and the application software.

Operating Systems

- ▶ **Definition:** An operating system refers to the computer software that provides the interface between the hardware, the user and the application software.
- ▶ The functions of the operating system are;
 - a) **Job scheduling** – includes preparing, scheduling and monitoring jobs for continuous processing by the computer.
 - b) **Resource control** – includes controlling the use of computer resources by other system software and application programs being executed.
 - c) **Input/output handling** – it controls the allocation of i/o devices and resolves an conflicts that may occur if more than one application program or users request the same device at the same time.

Operating Systems

- d) Memory management –it determines how much memory is allocated to user programs.
- e) Error handling – it deals with errors which are produced during program execution and keep the computer running when errors do occur.

Example of operating system:

Ms DOS, PC DOS, UNIX, Linux, Windows etc.

Booting a Computer

Shut Down Procedure

- ▶ Click on the start button from task bar
- ▶ Click on shut down or turn off computer from the pull up menu
- ▶ Click on shut down or turn off from the dialog box that appears
- ▶ Wait as the computer goes off or prompts you to safely turn it off. This depends on the type of the computer's processor.

Booting a Computer

Booting refers to the process on starting up a computer.

There are two ways of booting up a computer;

- a) Cold booting – done using the power button on the computer's system unit. Normally done when the computer is initially off.
- b) Warm booting – this is done when the computer hangs (it temporarily stops to receive instructions). It is done by use of the reset/restart button on system unit or by a combination of the following keys from the keyboard; CTRL + ALT +DEL.

Keyboard layout

- ▶ A standard QWERTY keyboard has a about 102 keys grouped into six categories:
 - a) **Numeric keys** –used for keying numbers and some symbols
 - b) **Function keys** – labelled as F1 to F12. They perform different tasks depending on the application e.g. F1 is used to get help in Ms - Word.
 - c) **Alphabetic keys** – labelled in letters of alphabet. Used for typing letters and words
 - d) **Special keys** – perform special task just as the function keys. Normally work in combination with other keys. E.g. CTRL + ENTER for inserting a new page in MS- Word.
 - e) **Movement keys** – also known as arrow keys. Used for navigating within documents.

Booting a Computer

Starting up the computer (cold booting)

- ▶ Check all the power connections from the mains through the back up to the system unit to ascertain proper connections
- ▶ Switch on power from the mains and then the back up
- ▶ Switch on power from the monitor and then the system unit
- ▶ Wait as the computer performs POST (Power On Self Test) and as it loads the OS

Shut Down Procedure

- ▶ When one is through with working with the computer, it is advisable to safely turn off the computer by following the shut down procedure. This is important in order to prevent the computer from crashing or losing unsaved document.

Keyboard layout

- 0 **Numeric key pad** – bundle of numeric keys used for quickly keying in numbers.

Typing Tutors

- ▶ **Typing Tutor** – computer program that enables oe to learn typing skills. Example are Mavis Typing tutor, Kirans Typing tutor, Keyboard master etc



The keyboard

The Windows Operating System

- ▶ This is an operating system software developed and marketed by Microsoft Inc. It a Graphic User Interface (GUI) OS and has the WIMP (Window Icon Menu and Pointing device) features that make it more user friendly.
- ▶ There are different versions of MS – windows e.g. Windows 95, 98, 2000, NT, ME, 2003, XP, and Vista

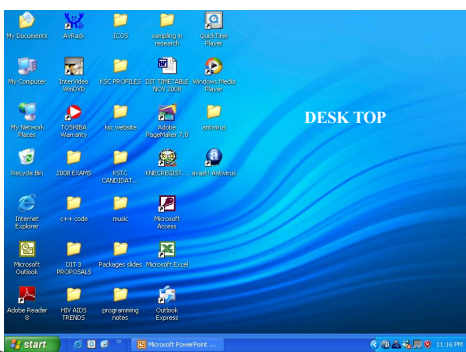
Terms used in Windows OS

- ▶ **Desktop** – work area on the computer's screen. It is analogous to the ordinary table top where one can place different objects.
- ▶ **Window** – area on the desktop covered by an opened program.

Window Elements

- a) **Title bar** – shows the name of window opened
- b) **Menu bar** – shows various menu options which provide a list of different commands.
- c) **Address bar** – shows the path of the location of the opened window
- d) **Window control toolbars** – provide command buttons for changing the display of the window e.g. maximized to cover the whole screen.
- e) **Works area** – space where one can place different objects like files or folders
- f) **Status bar** – shows the activity going on in the current program e.g. saving progress

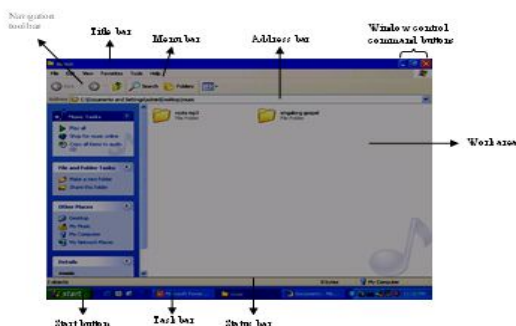
The Desktop Features



Window Elements

- g) **Task bar** – shows the programs currently running in the computer.
- h) **Start button** – clicked to start any program in the computer.
- i) **Navigation toolbar** – contains commands that one can use to move between windows e.g. either back, forward etc

Window Elements



Files and Folders Management

Definition of terms

- a) **File** – any collection of related information that is given a name and stored on a disk so that it can be retrieved when needed. Can be a data file, system file or application program file
- b) **Folder** – a 'container' or storage location that contains files and other folders.
- c) **Drive** – refers to secondary storage locations in the computer normally labelled by letters of alphabet e.g. C:/ for hard disk, A:/ for floppy disk etc. store information organised in files and folders.

Creating files and folders

Creating a file or folder on the desktop

- a) Right click an empty location on the desktop
- b) Point at **New** from the pop – up menu
- c) To create a file, select the **name of the program** to create the file by e.g. Microsoft Word. To create a folder, click on **folder** from the side kick menu
- d) **Type the name** of the file or the folder
- e) Press **enter**

Renaming files and folders

- ▶ File and folder names can be changed

Steps

- a) **Select** the file/folder to rename
- b) Click on the **file** menu
- c) Click on **rename** from the pull down menu
- d) **Type** the new name and then press **enter** from the keyboard

Or

Right click the file or the folder to rename

Click on **rename** from the pop up menu

Type the name then press enter key from the keyboard

Creating files and folders

Creating a file or folder in another folder window

- a) Click on the file menu
- b) Point at **New** from the pop – up menu
- c) To create a file, select the **name of the program** to create the file by e.g. Microsoft Word. To create a folder, click on **folder** from the side kick menu
- d) **Type the name** of the file or the folder
- e) Press **enter**

NB: A folder in another folder is called a subfolder.

Copying files and folders

- ▶ Duplicating the file or the folder in the same storage location or another.

steps

- a) **Select** the file/folder to copy
- b) Click on the **edit** menu
- c) Click on **copy** from the pull down menu
- d) **Open the new** location to copy the folder to
- e) Click on **edit** menu again
- f) Click on **paste** from the pull down menu

Assignment

- ▶ Locate the shortcut commands from the standard toolbar used for copying and pasting files and folders.

Deleting files and folders

- ▶ Folders stored in drive c:/ are temporary send to the recycle bin when deleted and can be later deleted permanently or restored to their original locations.

- ▶ Those stored in removable media like floppy disks and flash disks are not sent to the recycle bin and may not be recovered.

steps

- a) Select the file/folder to delete
- b) Click on the file menu
- c) Click on delete and confirm deletion

OR

- ▶ Select the file/folder, press delete key from keyboard the confirm deletion

Moving files and folders

- ▶ relocating the file or the folder to same storage location or another location.

steps

- a) **Select** the file/folder to move
- b) Click on the **edit** menu
- c) Click on **cut** from the pull down menu
- d) **Open the new** location to move the folder to
- e) Click on **edit** menu again
- f) Click on **paste** from the pull down menu

Assignment

- ▶ Locate the shortcut commands from the standard toolbar used for moving and pasting files and folders.

Drive/file/folder properties

- ▶ relocating the file or the folder to same storage location or another location.

steps

- a) **Select** the drive/file/folder to view its properties
- b) Click on the **file** menu
- c) Click on **properties** from the pull down menu. The properties dialog box appears.
- d) Properties window appears. Using the properties you be able to ascertain the size and attributes of the drive/file/folder etc

See the properties window in the next slide.

.....END.....

Drive/file/folder properties



Assignment

- ▶ Using the folder properties on the left, determine the:
 - a) Name of the opened folder
 - b) Path to the location of the folder
 - c) Folder size
 - d) Number of files and folders in it
 - e) The purpose of the attributes assigned to the file

File security and protection

- ▶ There are different methods used to ensure that files and folders are free from unauthorized access. This may include
 - a) Assigning passwords to open and write files
 - b) Assigning log-in user names and password for the computers containing the files
 - c) Applying the read-only attributes to ensure that new data can not be accidentally written in the file
 - d) Write protecting storage media like the floppy disks
 - e) Applying hide attributes to ensure that the files are not visible to the unauthorised access
 - f) Encrypting data/information in the file