TOPIC ONE: **SUBSDIARY ICT PAPER ONE**

INTRODUCTION TO COMPUTING

Chapter contents

- Introduction to computers
- World of ICTs
- Implication of using ICTs
- Chapter questions

Introduction to computers

- *Definition: A computer is a programmable electronic device that accepts data, processes it to present the results(information), and stores the results as needed.*

- The fact that a computer is programmable means that a computer will do whatever the instructions-called the program-tell it to do.

- The programs used with a computer determine the tasks the computer is able to perform.

- The four operations described in this definition are more technically referred to as **input**, **processing, output and storage**(information processing cycle).

- These four primary operations of a computer can be defined as follows;

- **Input:** entering data into the computer.

- **Processing:** performing operations on the data.

- **Output:** presenting the results.

- **Storage:** saving data, programs, or output for future use.

- A basic computer consists of 4 components: an input device, a CPU, output devices, and memory.

MAJOR PARTS THAT MAKE A WORKING COMPUTER

- VDU (Monitor)

- Mouse

- System unit and its components

- Keyboard

FUNCTIONS OF A COMPUTER

- They accept user data (input)

- They transform the data into information (process)

- They keep data/ information (storage)

- They retrieve and send data /information (communication)

Data and information

- In our definition, we said the computer accepts data. Data consists of facts and numbers suitable for communication or interpretation. When people or computer acts on data, we call it processing.

- **Data is defined as raw facts and figures that are entered into a computer for processing.**

Or

- **Data is a collection of raw unprocessed facts, figures, and symbols.**

- **Information is data that is organized, meaningful, and useful.** To process data into information, a computer uses hardware and software.

- In brief; **information is processed data which is meaningful to the end user.**

Data Processing.

- **Data processing refers to the converting of data into information.** This processing includes refining, summarizing, categorizing, and otherwise manipulating data into a useful form.

Information processing cycle

All computers work the same way. Data is input into the computer; it analyses or processes the data and when the work is complete, outputs the results. The cycle continues thousands and millions of times a second. Therefore the Information processing cycle has the following stages.

i.   Input

ii.   Processing

iii. Output

iv.   Storage

Illustration of the Information processing cycle
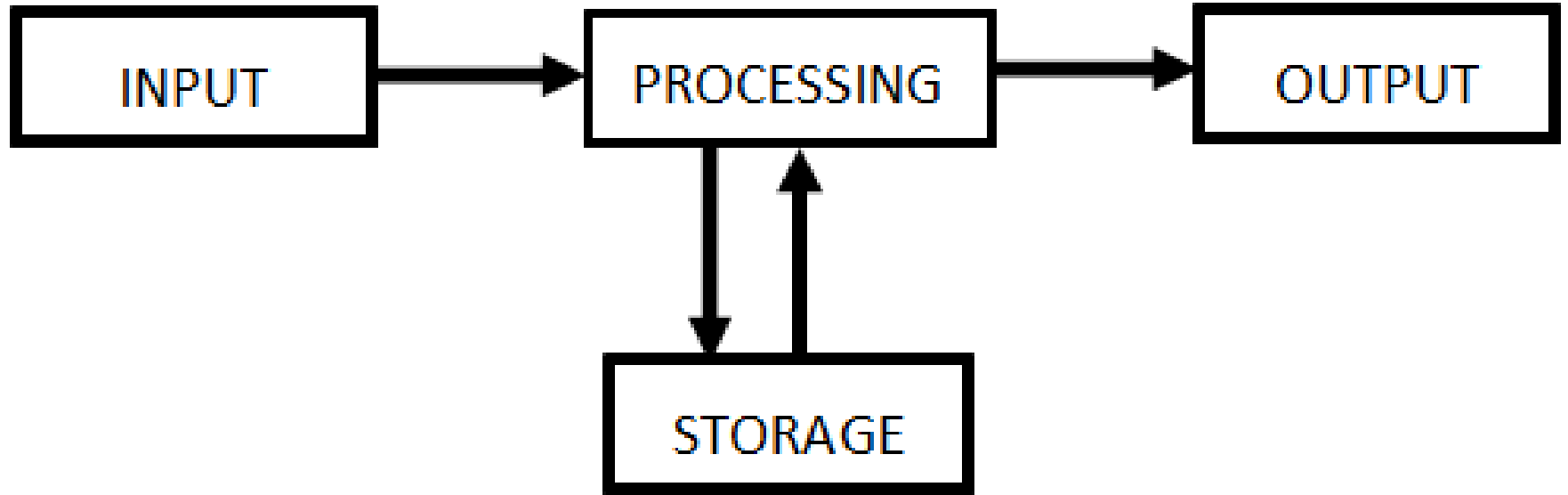
Input:

- Data must first be gathered together and then input to the computer system. An example of raw data for input would be unorganized sales figures for different musical instruments sold by different sales people in different states. Input means data is converted to a form that can be processed by the computer.

- Data is input into the computer with the help of keyboard, scanner, mouse, networks and modems.

Processing:

- In processing, data is manipulated in various ways to convert it into information. Processing consists of classifying, sorting, and summarizing the input data. Processing also consists of performing calculations and other logical activities, such as comparing sales figure to see which musical instruments or which salespeople have higher sales.

- Software programs and data are processed by the central processing unit (CPU)

Storage

- Once displayed on the screen, the information will vanish when you turn the computer off. Thus, in order to use the information in the future, you need to store it. Storage is saving information in a computer usable form.

- Software and data are stored on hard disks, compact discs, digital versatile discs and magnetic tapes

Output

- Results of processing are produced using devices like printers, monitors, sound cards etc.

Computer System

- The way to think about a computer is as a system. The system is made up of five parts and the purpose of the system is to process data into information. This processing proceeds through four phases of activity.

- A computer system is a set of independent parts/device that work together to manage and process data and information.

- A **computer system** is mainly a combination of five elements

- ***Computer hardware. (***These are tangible parts of a computer*)*

- ***Computer software. (***These are step by step instructions that tell the hardware how to perform a task*)*

- ***Procedures (*** These are the guidelines to follow when using hardware, software, or data*)*

- ***Data (***It is raw, unevaluated facts and figures, concepts, or instructions.*)*

- ***Human ware/ people*** (*who need no definition, of course) are the most important component of a computer system. People operate the hardware, create the software, put data into the system, and use the information that comes out of it*)

Characteristics of modern computers

❖ Speed

Computers are quite fast in their operation in that their speed is measured in millions of instructions per second. It is capable of doing work assigned to it within a short time.

❖ Accuracy

Computers are very accurate machines and they hardly make any mistake. But mistakes depend on the user. A computer is capable of detecting and correcting the mistakes made by user. Therefore this applies if wrong data is entered into a computer, wrong results are expected i.e. *Garbage in garbage out.*

❖ Storage

For a computer to be able to work, it must have some form of work space where data is stored before being output to particular devices like hard disk/drive, floppy diskette, and flash disks etc. A computer can store data temporally during processing and permanently in its secondary storage devices for future   reference.

❖ Computers are diligent

Computers have the capacity to perform the same task "over and over" for a long period of time without getting bored. This is evidenced in industrial robots like in car assembling company.

❖ Versatile

Computer is versatile i.e. it has capabilities of performing tasks in many different ways. All modern computers can perform different kind of tasks simultaneously.

❖ Automation

Computer is an automatic electronic device which can perform several programmed routines without supervision e.g. booting (is the process of powering on and starting the operating system of the computer)

❖ Artificial intelligence

Computers have artificial intelligence i.e. they can be programmed to assume human capabilities, e.g speaking, listening etc. They are capable of doing so by use of programs to make decisions and functions accordingly

UNEB 2016 Qn.11 Explain the following attributes of computers which makes them dependable and reliable tools

(i) *Diligence*

- *Computers have the ability to perform the same task over and over again without getting bored. Being a machine, a computer does not suffer from human traits of tiredness and lack of concentration.*

(ii) *Versatile*

- *Computers are capable of doing very many tasks competently. They can carry out a number of different tasks at the time and in different ways.*

(iii) *Accuracy*

- *Computers are capable of detecting and correcting any mistakes made. They are capable of performing calculations to the extent of 24 decimal accuracy.*

UNEB 2013 Qn 18 State five characteristics of a modern computer   (05 marks)

- *Computers are diligent.*
- *Computers are accurate*
- *Computers are Versatile*
- *Computers have artificial intelligence*
- *Automation. Computers work automatically*
- *Computers are capable of storing large volumes of data and information*
- *A computer has a fast speed*

WORLD OF ICT

- What is the meaning of ICTs.
- The use of ICTs in society.
- The implications of using ICTs.

Information and Communications Technology (ICT)

Definition: ICT refers to an umbrella term used to describe all technological tools used to create, manage and transmit information.

It is a technology used to create, store, transmit, share or exchange information for communication.

Examples of ICTs include:

i. Television(TV)
ii. Radios
iii. Telephones
iv. Computers e.g. desktops, Laptops, etc
v. Portable media players eg ipod
vi. Fax machines
vii. Microphones
viii. Digital cameras,
ix. internet, etc

UNEB 2014 Qn

1 (a) *Explain the term information and communication technology .* (2 marks)

(b) *State three ways in which information and communication technology has improved communication.* (03 marks)

- IT has enabled faster delivery of messages through E-mails.

- It has enabled instant delivery of error notifications incase a message has not been delivered.

- IT has enabled voice communication through phone technology.

- Instant data communication e.g. instant messengers, chat rooms

Reasons why ICT is taught in secondary schools of Uganda

- To prepare a foundation for further studies in the field of education, for example computer engineering, software engineering, etc.

- To equip learners with skills that will enable them to learn on their own using ICT tools like internet.

- To be well versed with the changing trends in the technology in order to comfortably survive in the modern era.

UNEB 2013 Qn 2 *(a) Explain how computers can professionally be used by:*
(i) Teachers (02 marks)
(ii) Doctors (02 Marks)

- ***(i) Teachers***
  Computers can be used by teachers to search more knowledge concerning the subject they teach.

- *They can be used in preparing presentations to be displayed in class.*

- *Computers can be used by teachers to keep students record.*

(ii) Doctors

- *Computers can be used by doctors to perform surgery with the help of online support from more experienced doctors*

- *Computers can be used by doctors to store medical records of patients in a hospital.*

Positive Implications of ICT

❖Ease of access to education through conduct of online classes.

❖Enhancement of personal security through use of automatic controlled gates, CCTV cameras etc.

❖Ease of communication through mobile phones, tv set, internet.

❖ICT has influenced ways of entertainment where users can watch directly online.

❖It has led to growth of labour productivity which is a result of a computerization.

❖ICTs such as internet has led to integration of markets in the world.

❖ ICT has led to enhancement of advertisement of goods and services e.g. using TV, Website and face-book pages.

❖ It has led to development of new sectors e.g. telecom companies, internet service provider which have to creation of employment opportunities

Negative Implications of ICT

❖ **Forgery**: computers are misused by some people to create or make fake money, certificates, report cards, passports, etc. using sophisticated printers.

❖ ICT has led to fraud i.e. online theft.

❖ Computer crime has become rampant which includes software privacy.

❖ **Unemployment**: Computers are mainly used by literate people hence cannot be used by illiterate people hence causing unemployment amongst people in a society.

❖ Has reduced social interaction with peers due to internet based communication.

❖ ICT has led to invasion of individual and cooperate privacy e.g. through hacking.

❖ Moral Decay: The internet has websites with content such as pornography have a bad impact young children

COMPUTER MANAGEMENT

Prerequisites

This topic is designed for students to follow when they have already got an introduction to computing. You should be having a theory background concerning powering on of a computer.

BOOTING

Booting is the process of starting a computer which involves loading an operating system into memory.

Types of booting

There are two types of booting;

    i.   Cold booting /Hard boot

    ii.   Warm booting / soft boot

Cold booting

It is the process of starting a computer which has been previously off. OR

It can also refer to the process of starting a computer from rest.

Warm booting

It is the process of restarting a computer that is already turned on.

In the windows environment, it is normally performed by pressing Ctrl+Alt+Del keys on the Keyboard.

Ways to restarting a computer

- By pressing Ctrl + Alt +Delete.
- By pressing the reset button.
- By clicking start – shutdown – reset.

Application of booting

- Booting is done in the following cases;
- **Cold booting** is done always when one is starting up the computer which has been totally off.

Warm booting is done (circumstances/conditions for restarting a computer)

❖After installing software.

❖After uninstalling software.

❖When a computer freezes. (when peripheral devices such as keyboard and mouse stop responding).

❖When the computer becomes very slow.

❖After installing a hardware e.g. hard disk.

❖In order to load another operating system.

❖After changing CMOS or BIOS setup.

Reasons for restating a computer

- To refreshes the system.
- To flush RAM and removes other files that could be causing computer freezing Clears memory off any malware.
- To increase the processing speed and system performance. Reboots are known to keep computers running quickly.
- To stop Memory Leaks which occur when programs don't close properly.
- Completing the installations by allowing the system to configure or initiate a new software or hardware
- Fixes Internet/network Connection. *Sometimes computers lose their connection to the Internet or network and need restart to re-establish the connection*

Booting Process

These are steps that a computer undergoes when it is starting.

1. The power supply sends an electrical signal to the motherboard and other devices located in the system unit.

2. The CPU resets itself and looks for the ROM that contains the BIOS.

3. The BIOS executes the Power on Self-Test (POST) to ensure that all the computer hardware is connected properly and operating properly.

4. The results of the POST are compared with the data in the CMOS chip on the motherboard.

5. If the POST is completed successfully, the BIOS looks for the boot program that loads the Operating system.

6. Once located, the boot program is loaded into memory and executed, which then loads the kernel of the operating system into RAM.

UNEB 2013 Qn (a) Write the initial procedure of booting a computer system. (03 marks)
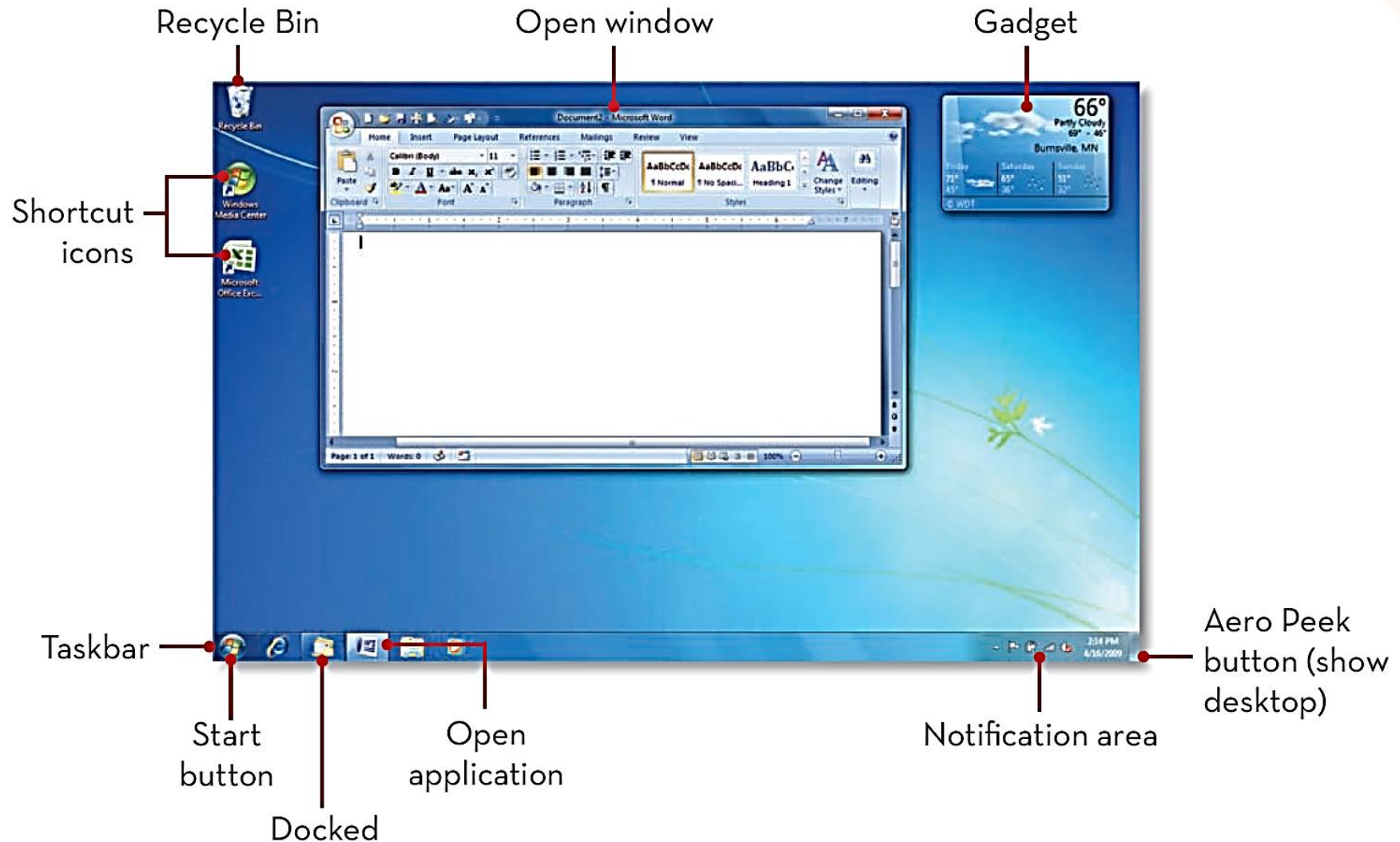
Desktop

- The desktop is the main screen area that you see after you turn on your computer and log on to Windows or other operating system with a GUI.

- Like the top of an actual desk, it serves as a surface for your work. When you open programs or folders, they appear on the desktop.

- You can also put things on the desktop, such as files and folders, and arrange them however you want.

2.2.3 Desktop

Major features of a windows desktop.

Recycle Bin

Open window

Gadget

Shortcut icons

Taskbar

Aero Peek button (show desktop)

Start button

Open application

Notification area

Docked

Sub-topic Questions

1(a) Define the term computer booting   (01 mark)

(b) State two ways of booting a computer (02 marks)

(c) Describe the process of cold booting a computer (02 marks)

2(a) Distinguish between a cold boot and a warm boot (02 marks)

(b) State three ways of performing a warm boot (03 marks)

3(a) State two ways of booting a computer loaded with DOS or windows OS (02 marks)

(b) State three possible dangers of shutting down a computer improperly (03 marks)

4(a) Describe the computer booting process (05 marks)

Major features of windows desktop

❖Notification area

❖System tray

❖Start button

❖Task bark

❖File and program Short cuts

❖Desktop background

FILE MANAGEMENT

File management

- File management is a system that an operating system uses to organize and keep track of files.

FOLDERS

- A **folder** is a storage location for files and sub-folders. It's also known as a directory

- Folders help in storing and organizing files and data in the computer. The term is most commonly used with graphical user interface operating systems.
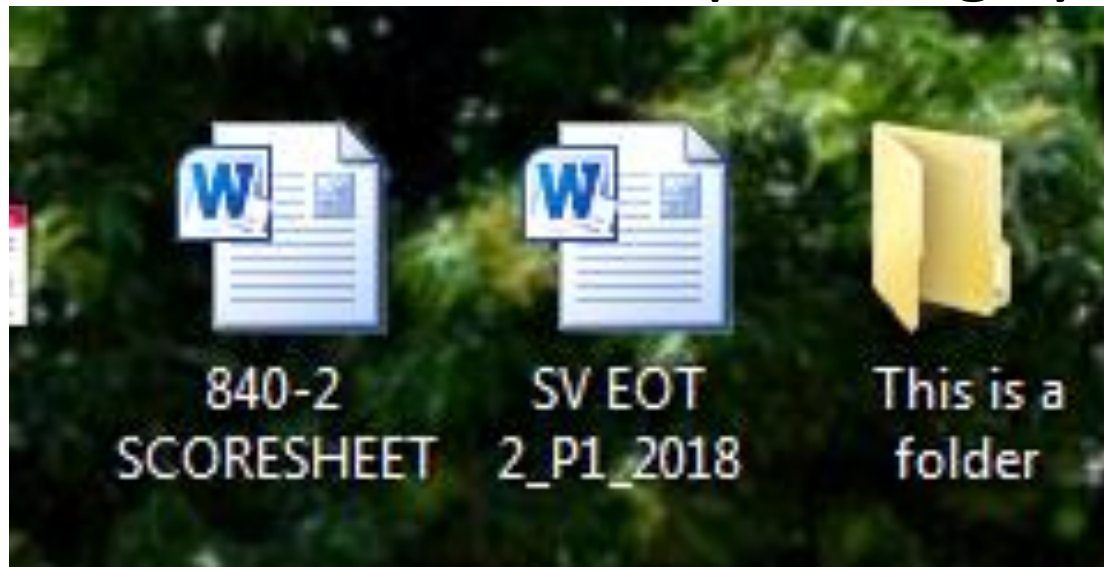
Common operations in relation to files & folders

Creating a folder

i. Right click in any empty or free part of the desktop

ii. From the drop down menu, select new.

iii. Then choose folder.

iv. Give the folder an appropriate name.

Renaming a file/folder

i. Right click the file/folder

ii. Select the rename option

iii. Give the file/ folder a new name

Other operations you need to know are

❖ How to move a file or folder
❖ How to delete a file or folder
❖ How to restore a file from recycle bin (deleted file)
❖ How to bypass recycle bin

File operations (activity)

❖ Moving/cutting a file

❖ Copying a file

❖ Renaming a file

❖ Printing

❖ Deleting a file

❖ Restoring a file from a recycle bin

❖ Compressing a file

❖ Zipping a file

NB: **perform all the above operations on multiple files**

Advantages of keeping files in folders

- Files in folders can easily be compressed and sent via e-mail.
- Files can easily be protected by providing security on a folder.
- Files can easily be shared on a network.
- Files in a folder can easily be copied from one location to another.
- Folders allows better organization of files. Eg according to type.

COMPUTER FILE

- A file is a collection of data stored in one unit, identified by a filename.

- A file can be a document, picture, audio or video stream, executable file (software), or other collection of data.

Categories of computer files

❖ Data files: is a file which stores data to be used by a computer application or system.

❖ Program files: are files relating to applications that are not part of the operating system. They are **found in the Program Files directory/folder,** in Microsoft Windows operating systems

❖ System file is a critical computer file normally come as part of the operating system, without which a computer system may not operate correctly.

❖ Multimedia file is a file that combines multiple media such as video, audio, graphics and text data.

❖ Document file is a user file created by the use of an application program such as MS. Word

FILE NAME

- A **file name** is the complete title of a file and file extension. For example, "readme.txt" is a complete or full file name.

- Each file has a file name

- Each file name has two parts: That is **filename.extension**

- By default the computer allocates a name to a file which you can change.

- A file name may also only describe the first portion of the file, for example, "readme" is the name of the file and ".txt" is the file name extension of the file.

Tips for file naming

- Try not to make file names too long, since long file names do not work well with all types of software.

- Special characters such as **/ \ < > ? :** and **|** should be avoided.

- Do not use spaces. Some software will not recognize file names with spaces, and file names with spaces must be enclosed in quotes when using the command line. Other options include:
  - Underscores, e.g. file_name.xxx
  - Dashes, e.g. file-name.xxx
  - No separation, e.g. filename.xxx
  - Camel case, where the first letter of each section of text is capitalized, e.g. FileName.xxx

FILE EXTENSIONS

- A file extension is the last part of a file name after the dot, containing characters based on the program used to create the file.

- Most file extensions are three characters long, but they can be shorter or longer as well.

USES OF FILE EXTENSIONS

- The file extension helps to identify the file type.

- The file extension is used by the operating system to select the best application to open the file.

- It helps to easily locate files.

Some Common file extensions

.EXE   Executable Files

.SYS   Various types of system files (usually drivers to control devices)

.DOC or .DOCX: Document files created by e.g. Microsoft Word

.AVI   Microsoft Windows Movie file

.BMP Graphical Bit Mapped File used in Windows Paint.

.HTML Web page files containing HTML or other information found on the Internet

.GIF   Graphics Interchange Format, a digital image file format

.TXT   Text files associated with the Notepad program

.XLS   A spreadsheet file created by Microsoft Excel

.JPG or .JPEG: A graphics file commonly used for photos and illustrations

.PDF   Portable Document Format – a file type that displays finished text and graphics in application such as Adobe Acrobat.

A file short cut

SV EOT 2_P1_2018

CLASSROOM FURNITURE AUDIT - Shortcut

- What is a file short cut? A file **shortcut** is a link on the user interface that points to a file located in a different directory or folder from where the shortcut is located.

- Shortcuts are very commonly placed on a desktop.

Advantages of file short cuts.

1. Helps to launch/open a file very fast.

2. Can be used to avoid accidentally deleting files, since the real files are kept in other directories(folders)
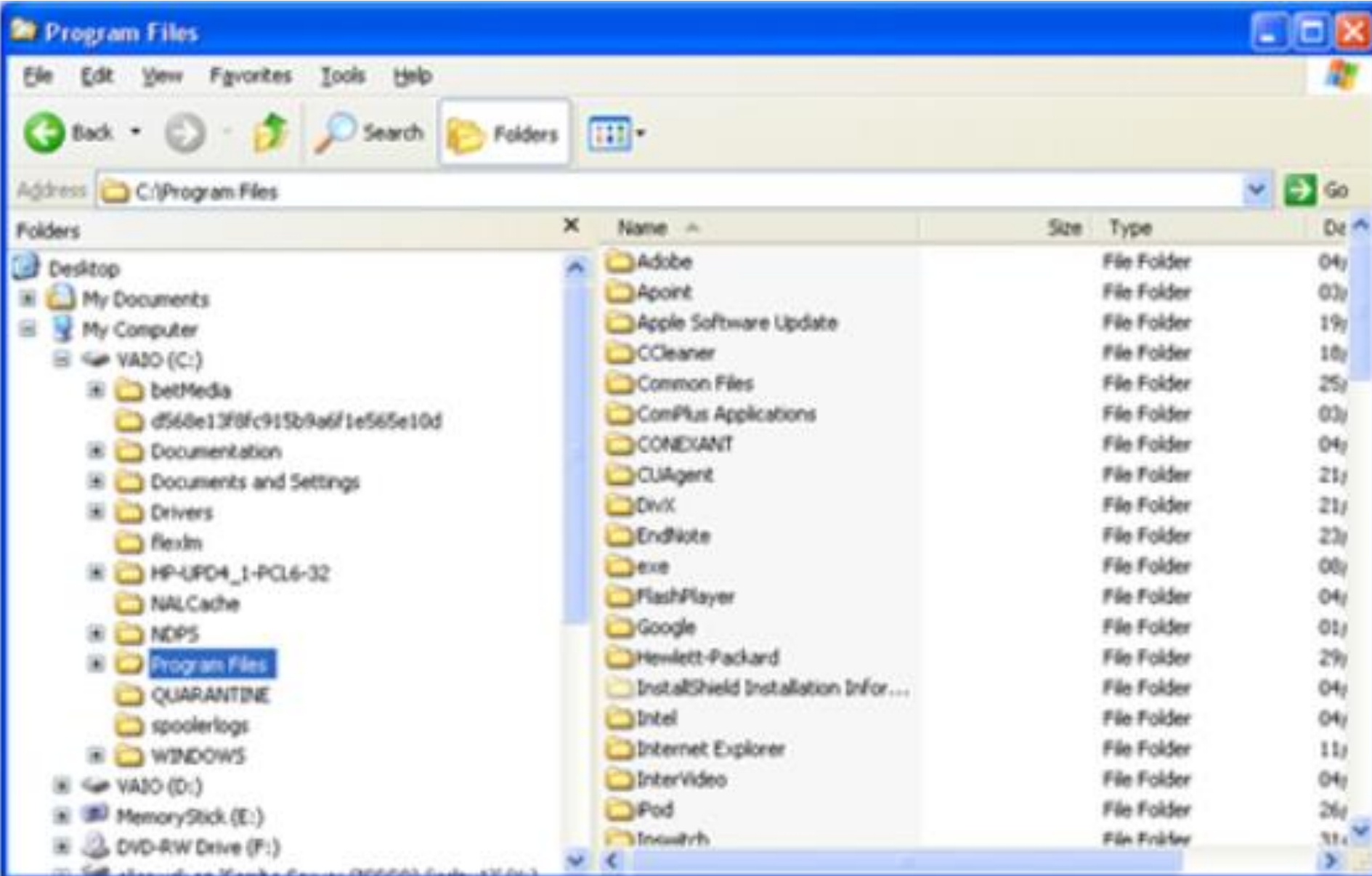
File hierarchy

A file hierarchy defines directories (also called folders), which can contain files and other directories.

The top-most (highest) directory in any file system is called the root directory.

The root directory contains all other folders in the drive or folder.

A directory that is below another directory is called a subdirectory.

A directory above a subdirectory is called the parent directory.

Left pane: hierarchical tree showing drives and folders on your computer

Right pane: content of selected folder

FILE PATH

This is the sequence followed to access or locate a stored file on the computer.

- You need to know the following;

    - The location: refers to the place where the file is located. Eg local drive(drive C or drive D), desktop (This is found on local disk C)

    - Profile: This is the account privilege (level) at which a user can use and manage computer resources. Eg administrator, user, guest, etc

    - Folder: is an electronic directory where files are stored.

    - Sub folder: electronic directory created within a folder where files are stored.

For example of a file path,

C:\
 Users
  asweigart
   Documents
    project.docx
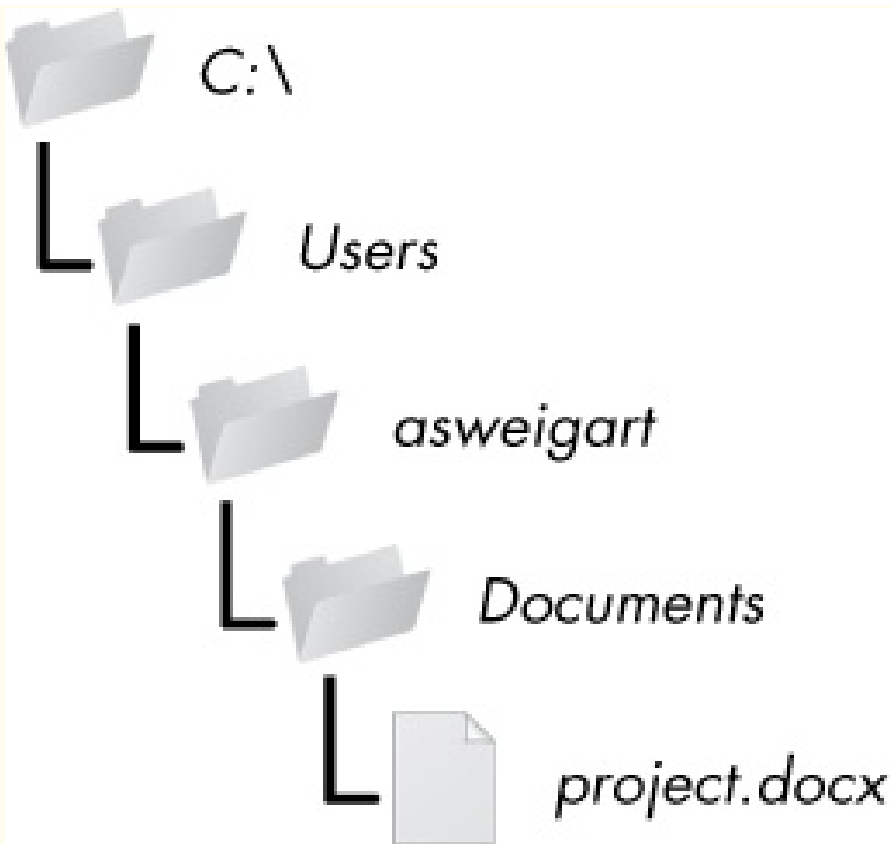
C:\ is the Root directory

Users is the profile

asweigart is the user account

Documents is the file location

Project.docx is the file

Example Two

C:\Administrator\desktop\Matovu\exam\ICT.doc

Description:

- ❖ C:\   root directory(local disk drive c)
- ❖ Administrator   profile
- ❖ Desktop   location
- ❖ Matovu   folder
- ❖ Exam   sub folder
- ❖ ICT   file name
- ❖ .doc   file extension

Example three

C:\My Documents\assignments\English\nouns.doc

Root directory: **C:**

Directory(folder): **\assignments**

Subdirectory(subfolder): **\English**

file: **\nouns.doc**

Example four

D:\Joel\exercise\results.xls

D:\	disk drive D(location)
Joel	folder name
Results	file name
.xls	file extension

NB: If the file is not stored in the local disk C or desktop, then, the file path shall not have locations C, Desktop and profile as in the examples above.

Exercise

Given a file path as follows,

C:\ My Documents\BOT\SubICT\term1.doc

Name the parts given

a) C:\...

b) My documents...

c) BOT...

d) Term1.doc..

e) .doc..

Exercise II

UNEB 2015 Qn13

(a) Differentiate between copy a file and move file. (02 marks)

b) Study the file path below and answer questions that follow: F: \ accounts\bursar \ fees.xls

i. Identify the file name. (01 mark)

ii. On what drive is the file located? (01 mark)

iii. In which sub-folder is the file located? (01 mark)

UNEB 2015 Qn13

(a) Differentiate between copy a file and move a file. (02 marks)

Copy a file is where a file is duplicated to get two or more copies leaving the original behind While *Move a file is where a file is completely transferred from one position to another without leaving the original behind.*

b) Study the file path below and answer questions that follow: F: \ accounts\bursar \ fees.xls

- **Identify the file name.   (01 mark)**

Fees or fees.xls

- **On what drive is the file located? (01 mark)**

F

- **In which sub-folder is the file located? (01 mark)**

Bursar

Exercise III

(a). Ethan has been given instructions by his boss to access the file

D:\Project Works\Outreach Progs\Masindi A\Safe water.jpeg

and be sent it to him by e-mail:

(i) What special term is used to refer to the set of underlined words? **(1 mark)**

…………………………………………………………………………………

(b) Identify the **2 sub-folders** which Ethan must open before he accesses the file he is meant to e-mail. **(2 marks)**

………………………………………………………………………………………………

………………………………………………………(c) State the **primary directory** or the **root folder**. **(1 mark)**

………………………………………………………………(d) Mention the file type of the file to be opened by Ethan.

…………………………………………………………………………………

Definitions

i. Define the following;

ii. Compressing a file

iii. Saving a file

iv. Moving a file

v. Deleting a file

vi. Copying a file

vii. Editing a file

viii. Renaming a file

TAKING CARE OF FILES

a. Constantly keep saving your file you are working with on a computer.

b. Install antivirus programs to guard files against viruses.

c. Make backup copies of files to prevent total data losses.

d. Delete all corrupt and unnecessary files on your computer.

e. Store files in a more safer format such as PDF, RTF to prevent corruption and virus infection.

f. Always defragment disks to enable proper arrangement of files on the disk

How to Manage and organize computer files

i.   Use of folders:- create a folder with descriptive names for easy identification to store your files.

ii.   Creating backups:- this helps to restore files in case of disaster or failure.

iii. Creating passwords:- this will block un authorised users from accessing your files.

iv.   Separate your files:- avoid keeping unrelated files together. Videos, images and programs files should be kept separately

v.   Compress your files:- this creates more storage space on your hard disk or for easy transmission

Ways of keeping files secure on a computer

- Installing an updated antivirus software

- By putting passwords files.

- By limiting physical access or usage of computer by unauthorized users.

- By encrypting the files

- By avoiding usage of old storage devices

- By using the audit log mechanism to monitor each activity by users.

Causes of data/file loss in computers

- **Accidental deletion.** This is when files, folders or content in a file is deleted/erased unaware, which causes data loss.

- **Power fluctuation.** Power fluctuations cause system failure and data/information loss.

- **Computer viruses.** Computer viruses refer to computer programs that cause/alter the normal functioning of the computer. These also corrupt the files hence data loss.

- System failure caused by aging hardware.

- Natural disasters Eg floods that destroy hardware