Year 9 Notes Chapter 7 (Operating System)

Operating system: is a program that manages, and controls all resources and operations of a computer.
Examples of operating systems:

- **All MS windows**, such as Windows ME, Windows 98, Windows XP, Windows 2000, Windows 95 Windows NT etc.. used by all IBM compatible computers.
- **Unix operating system**: It is primary used to be a server rather than a workstation. It can be difficult to learn
- **Linux:** Similar to Unix, but it is free.
- **Apple MacIntosh**: Easy to learn. One drawback to this system is that it can only be run on Apple produced hardware.

Functions of a computer's operating system:

1. Controlling the use of peripherals such as disc units, and printers.
2. Controlling the running and loading of programs
3. Dealing with execution errors, and keep the computer running while they happen.
4. Displaying message about errors and problems with peripherals such as printer out of paper message.

For larger computers and networks (e.g. Mainframes and servers):

1. Producing log: Such as. a record of programs as they run, and who used them.
2. Maintaining security: such as checking for user names and passwords, and privileges.
3. Organising the use of storage: such as keeping more than one user and more than one program running at the same time. The computer resources are shared among all.

Human Computer Interface: (HCI): is the way in which the operating system interacts with the user.

There are two main types of HCI: Command Line Interface and Graphical User Interface.

1- Command Line Interface (CLI): Means that the user has to communicate with the computer using typed command.
Examples of a CLI Operating system: DOS, and UNIX.
Examples of a CLI commands : **C:\MyDocuments Copy exercise.doc a**:
$\qquad$ **C:\ copy a*.* C:\Pictures**
The **disadvantage** of using CLI is that the user has to remember all the commands.
The **main advantage** is that the user can have great deal of control over the actions to be performed.

Graphical user Interface: (GUI): Interacts with the computer by using a WIMP. Which is the combination of using Windows, Icons, Menus, and Pointers.

A window: is a rectangular area of the screen selected for a particular display.
A menu: is a list of choices presented to the user by an interactive program. The user can select from the list. Menu can be a bar menu or a pull down menu.
Icons: a small symbol on the screen, the shape of the icon indicates the action being selected.

Advantages of using GUI:
1. You can perform operations on windows, files and blocks of data which can be very complicated using the keyboard.
2. Many operations are intuitive so that you do not have to remember complicated commands.

Directory: The area of a disc where files are stored**.** The main directory on a disk is called the root directory. In this example **C:\MyDocuments Copy exercise.doc a**:
C is the root directory, and MyDocuments is called a sub directory.

Subdirectory: is part of the main directory and can be divided into further subdirectories

System Utility Program: is a system program which performs one, usually simple task. Utility programs are usually supplied with the operating system.
Examples of utility programs:
- Formatting floppy disk
- Sorting a database file
- Merging two files into one large file
- Checking of bad sectors in a disk
- Copying a disk to another

Other kinds of operating systems: A more complicated operating system is needed to run computers which are shared. Such systems should be able to put data to be printed in a print queue. It will put on the concept of first in first out principle (FIFO). It should also be able to handle multi-users: It does that by making sure that each user is getting a fair share of processor time, the processor can execute millions of instructions per second so it will move between users' instructions so fast that each user will think he is the only one using the computer.

Multi-User system: is a system where many users are using the same processor at the same time.

Multi-Programming system: is when the operating system is running more than one program using one processor at the same time. It does that by keeping each program in a separate area of the memory.