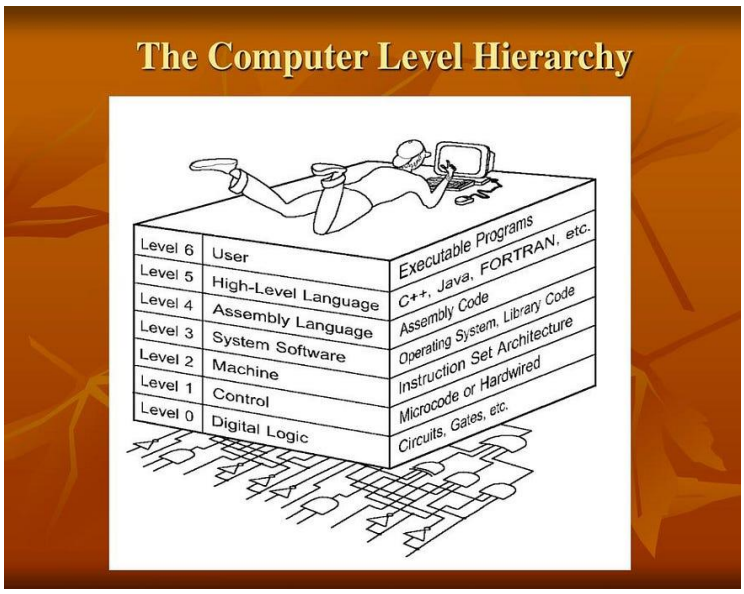
Computer Hierarchy

The traditional way of comparing classes of computers is by their processing power. This section presents each class of computers beginning with
most powerful and ending with least powerful. We describe the computers and their respective roles in modern organizations.



1- Super computers

• Are the computer with the most processing power.
• The primary application of it's has been in scientific and military work.
• Are used for image creation and processing.
• Are used to model the weather for better weather prediction
• To test weapons nondestructively
• To design aircraft (e.g. the Boeing 777) for more efficient and less costly production**.**
• To make many sequences in motion pictures (e.g. star wars and Jurassic park).
• Super computers generally operate 4 to 10 times faster than the next most powerful computer class.

2- Mainframe Computers

•Are less powerful and generally less expensive than super computers.
• Are used for centralized data processing and maintain large databases.
• Examples of mainframe applications include airline Reservation systems, student's grade calculations and reporting.
• A mainframe system may have anywhere from 50MB several gigabytes of primary storage, secondary storage may use high capacity magnetic and optical storage media with capacities in the gigabyte rang.

Minicomputers

- Are called midrange computers
- Are relatively small, inexpensive that perform the same functions as mainframe computers but to a limited extent.
- Are used to accomplish specific tasks, such as process control, scientific research, and engineering applications.

4- Workstations

- Are also called desktop engineering workstations
- Are developed to provide the high levels of performance demanded by engineers
- Provide very high-speed calculations and high-resolution graphic
- These computers have found a widespread acceptance within the scientific community and with the business community.

5- Microcomputers

- Also called micros or personal computers (PCs) Are smallest and least expensive category of general purpose computers
- They can be subdivided into three classifications
- based on their size **a**) desktops **b**) laptops and notebooks **c**) palmtops **Input Technologies**

3-Input Technologies a) keyboards

Is the most common input device the keyboard is designed like a typewriter but with additional function keys.

b) Mice and track balls:

A mouse is hand held device used to point a cursor at a desired place on screen, such as an icon, cell in a table. A variant of the mouse is the trackball, which is often used in graphic design, the user holds an object much like a mouse but rather than moving the entire device to move the cursor.

c) Touch screen

Is a technology that divides the computer screen into different areas. Users simply touch the desired.

d) a stylus

Is a pen style device that allow the user either to touch parts of predetermined menu of options.

e) Joysticks

Is used primarily at workstations that can display dynamic graphics, they can also used to play video games.

Many games require a joystick for the proper playing of the game. There are many different types, the more sophisticated respond to movement in 3 axis directions, as well as having a number of configurable buttons. Like most things
in life you get what you pay for with joysticks and it is worth investing in a good, strongly constructed model, especially bearing in mind that children will hammer these devices whilst playing games.

f) Voice input for PCs (microphones)

Early voice recognition systems offered very poor results, due to the limitations of the software combined with hardware limitations. It takes an awful lot of CPU processing power to convert the spoken word into text which appears on the screen. Things are changing rapidly however and recent systems allow you to talk to a PC and see text appear on the screen. Most of these systems require an initial training period, where you train the software to respond to your particular voice. Whilst still not perfect this is a key technology of the future.

g) Web Cams

Ever since it was invented, the Web has become increasingly interactive. You can now use a small digital movie camera (a Web cam) mounted on the PC monitor to allow two-way communication involving not just text Communication but sound and video communication as well.

h) Scanners

A scanner allows you to scan printed material and convert it into a file format which may be used within the PC. You can scan pictures and then manipulate these inside the PC using a graphics application of your choice. In addition, you can scan printed text and convert this not just to a picture of the text but also to, actual text which can be manipulated and edited as text within your word-processor. There are a number of specialist programs, generically called OCR (Optical Character Recognition) programs which are specifically designed for converting printed text into editable text within your applications.

i) Light Pens

A light pen is used to allow users to point to areas on a screen and is often used to select menu choices.

j) Digital Cameras

A digital camera can be used in the same way a traditional camera can, but instead of storing images on rolls of film which require developing, the images are stored digitally in memory housed within the camera. These pictures can easily be transferred to your computer and then manipulated within any graphics programs which you have installed on your computer.
Currently they are limited by the quality of the image recorded and the number of pictures which you may store within the camera.

4- Output Technologies

- **Monitors**

Are the video screens used with most computers that display input as well as output like television sets, monitors come in a variety of sizes and color/resolution quality .and like television sets, the common desktop monitor uses cathode ray tube (CRT) technology to shoot beams of
electrons to the screen. The points on the screen known as pixels, the more pixels on the screen, the better resolution.
Here are some other useful facts about monitors:
1- portable computers use a flat screen that uses liquid crystal display (LCD) technology not (CRT)
2- LCDs use less power than CRT monitors but cost six to eight times what an equivalent CRT.

- **Printers**

There are three types of printers:
1- impact printers:
Work like typewriters, using some kind of striking action, raised metal character strikes an inked ribbon that makes a printed impression of the character on the paper ,these devices cannot produce high-resolution graphics, and they are relatively slow,noisy,and subject to mechanical failure, although inexpensive, they are becoming less popular.
2- Nona pact printers
Come in two styles **laser printers**. Are higher speed, high _quality devices that uses laser beams to write information on photosensitive drums, laser printers
produce very high quality resolution text and graphics.
Inject printers: work differently, by shooting fine streams of colored ink onto the paper. These are less expensive than laser printers, but offer less resolution quality.

- **Plotters**

A printing devices that use computer-directed pens for creating maps and architectural drawings.

- **Voice output**

A voice output system constructs the sonic equivalent to textual words, which can then be played through speakers.