



Dept. Medical physics sciences

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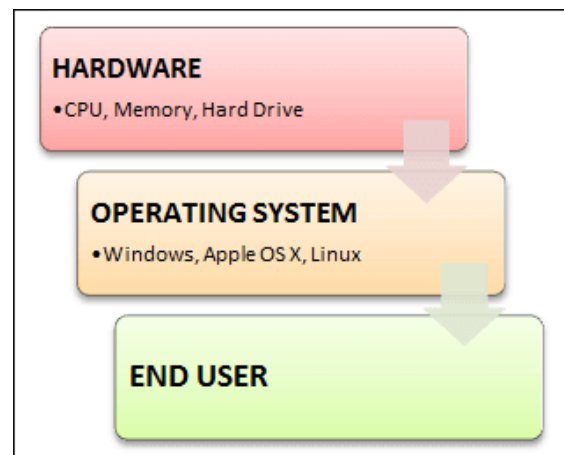
Fundamental of Computer Science

Definition of computer:

It is an electronic device that has a great ability to receive (input) data, process it, store it, and give (output) information by what is called (program). Three important elements must be combined in order for there to be a computer that performs the tasks required of it.

These elements are:

- 1- Hardware components.
- 2- Software components.
- 3- Computer user.





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Classification of computers:

The most commonly used types of computers in homes and offices is known as (personal computer). However, not all computers used by people are considered personal computers. Different types of computers are used to perform and accomplish a specific task.



First: According to the purpose of use:

1- General purpose computers: This type is used for general purposes, whether scientific, commercial, or administrative, including (banking systems, salary calculations, and budgets). It is also used to solve mathematical equations and engineering designs. It can be said that the uses and uses of this type of computer cannot be limited because it has complete flexibility to use it anywhere.



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2- Special purpose computers: This type of computers is used for only one purpose for which it was designed, which is to control currencies, early warning devices, spacecraft control, medical devices, etc.

Second: According to the type of data it processes:

1- Analog computers: This type of computers processes data that changes continuously, such as temperatures and atmospheric pressure. This type is also used to solve scientific and engineering problems and is used in designing models of aircraft, missiles, and spacecraft.





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2- Digital computers: This type of computers uses discrete information and variables represented by numbers and is considered suitable for commercial and scientific uses. It is one of the most flexible computers in implementing operations.

3- Hybrid computers: It is a combination of the digital and analog types. It contains analog inputs and outputs, and the processing in it is digital. This type of computer combines the best capabilities of both previous types. It takes the ability to store data and high accuracy from digital computers, while it takes from analog computers the quick response to changing inputs and the real-time system.

Third: According to size and performance:

1- Microcomputers: The smallest type of general purpose computers and is used for administrative and scientific purposes and depends on the microprocessor and this type is called the personal computer.



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2- Minicomputers: This type appeared in the early 1900s and was initially used as specialized devices for specific purposes. Over time, these computers have acquired the flexibility that has led them to general uses, including administrative, commercial and scientific uses, in addition to their use for special purposes such as controlling industrial processes, directing vehicles, alarm devices and other uses.

3- Mainframe computers: This type of computers has high costs and has great capabilities and is used by most large companies and can be used as central computers within a small computer company.





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4- Supercomputers: What distinguishes this type of computer is that it is large in size, has very high costs, has high speeds, and possesses superior computational capacity. An example of this type of computer is (SYBER), which was produced by (CDC) and used by the US Department of Defense in the field of secret strategic weapons and complex calculations for the federal government.

