

In this detailed post, the Classification of computers is going to be our topic. Computers can be classified into many categories on a different basis. We are going to describe 4 types of classification of a computer. 3 are major classifications and 1 is minor.

And by the last of this post, you can easily differentiate any computer on the basis of their classification. You will also get to know about many types of computers which you may have not heard.

Let's get started.

Note: The computer can be classified into a number of types, they are not fixed, but these three are the main. The Fourth classification may be important in some ways.

What are Computers?

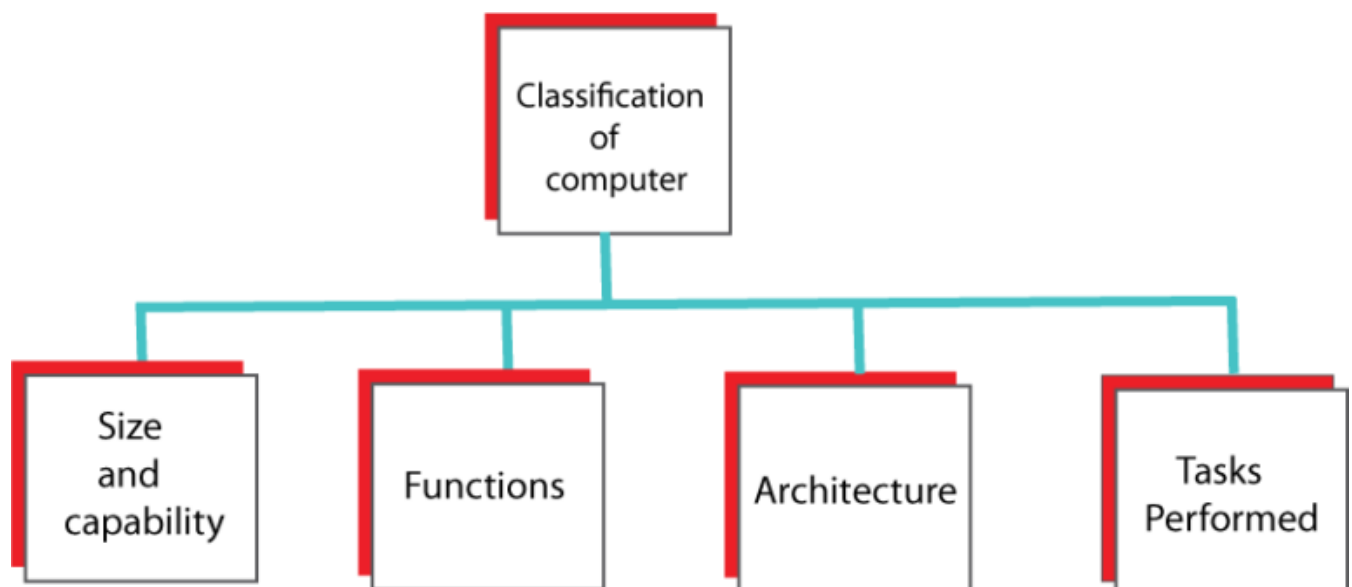
Since we are classifying the computers, we must know its definition.

"The computer is an electronic device which takes data as raw material, process it and provide a meaningful output to the user."

According to Wikipedia:

"A computer is a machine that can be instructed to carry out sequences of arithmetic or logical operations automatically via computer programming."

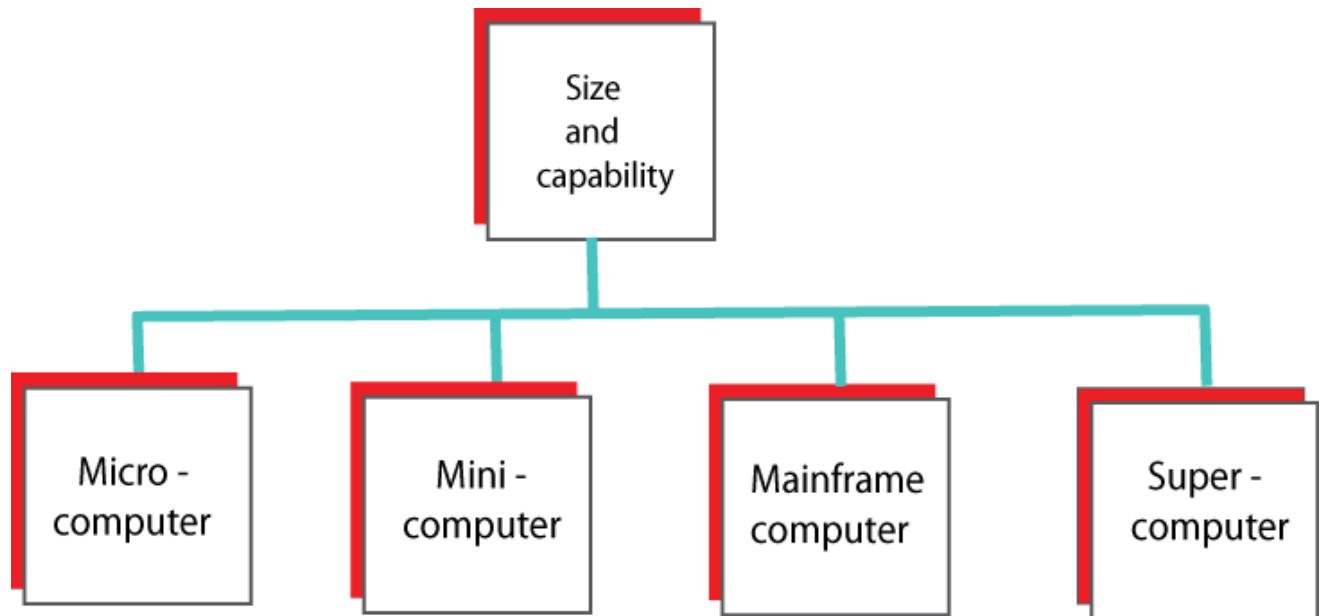
Classification of computer



A computer can be classified into 3 major categories on the basis of:

1. Size and Capability
2. Function
3. Architecture
4. Tasks Performed*

Classification on the Basis of Size and Capability



Computer on the basis of Size can be classified into 4 major types:

1. Microcomputer
2. Minicomputer
3. Mainframe computer
4. Supercomputer

Note: There are some other types also, you can always search for them on the internet, but these are the main types.

Microcomputer

A microcomputer is a type of computer which is relatively small, inexpensive. The main reason why it is called a microcomputer is that it has a very small processor or microprocessor as its central processing unit.

Microcomputers became more popular during the 1970s - 1980s because mainframe computers and minicomputers were very large and expensive. The microcomputer becomes a personal computer when attached with a keyboard and a screen to display input and output results.

These computers are designed to be used by one person at a time.

Minicomputer

Literally, it can be defined as, a computer which has all the features and capabilities of a large computer but on a small computer.

These computers were made during the mid-1960. These mini-computers were designed for control, instrumentation, human interaction, and communication switching as distinct from calculation and record keeping.

What most people use today are mini-computers like a laptop, tablets, smartphones and many more.

Mainframe Computer

These computers are very large computers used by large organizations for complex applications like bulk data processing, statistical data processing.

In short, it can perform such complex functions which can not be performed by other computers like workstations, minicomputers.

It has high reliability and security than other types of computers.

Mainframe computers use virtualization techniques that allow applications to run as if they were on different computers. This feature enables it to handle a very high volume of input and output data.

Supercomputer

As the name suggests. these are not only computers but super also.

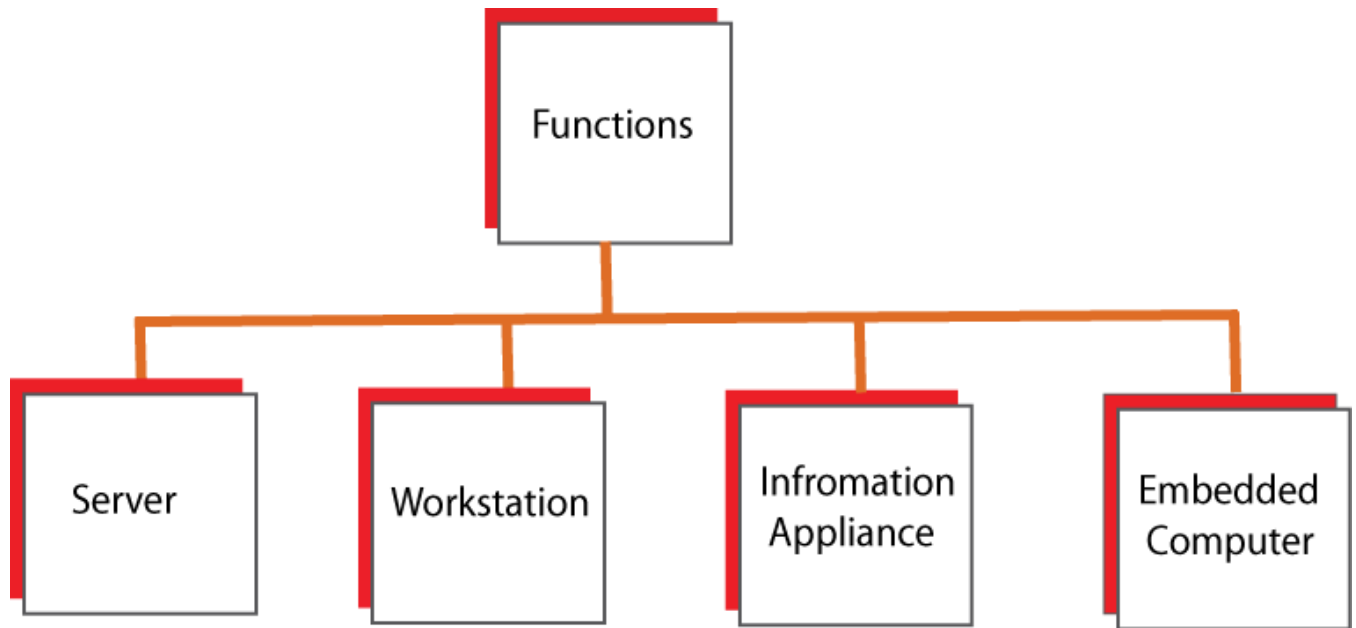
Supercomputers have high-level performance compared to other computers, These computers are also large in size.

What makes these computers different from others is the manner in which they process data. Generally, a computer's performance is measured in million instructions per second (MIPS), but not in the case of supercomputers. The performance of a supercomputer is measured in Floating-point operations per second (FLOPS).

It makes them insanely fast and accurate. They are the future of computers.

It is used in a variety of fields like computational science, quantum research, weather forecasting, climate change, molecular modeling and a dozen more.

Classification Of Computer On the basis of Function



Computers can be classified into four types on the basis of their functionality:

1. Server
2. Workstation
3. Information appliance
4. Embedded computer

Server

Let's start with an example. Our websites have some data like these posts, images, videos and many more. We have saved all that data on a server that can be accessed by users like you. When you clicked on our website's link, you requested our server for the data, in return, our server showed you the post.

So,

"A server can be defined as a computer or system that provides resources, data, services, or programs to other computers, called clients, over a network."

In theory, whenever computers share resources with client machines they are considered servers. There are many types of servers, including web servers, mail servers, and virtual servers.

Workstation

A workstation is a special computer that is designed for technical or scientific purposes. A workstation is intended primarily to be used by one person at a time, they are commonly connected to a local area network and run multi-user operating systems.

Workstation is not in trend now. But newer and modern versions of the workstation are coming in the market now like apple mac pro, HP Z series.

Information appliance

Have you ever captured an image with your camera? Do you know? a camera is also an information appliance.

The definition of Information appliance may be:

"Information appliances are the devices which are designed to perform an electronic task easily such as playing music, clicking a photo, editing texts."

Do you know even a toaster is also an Information appliance?

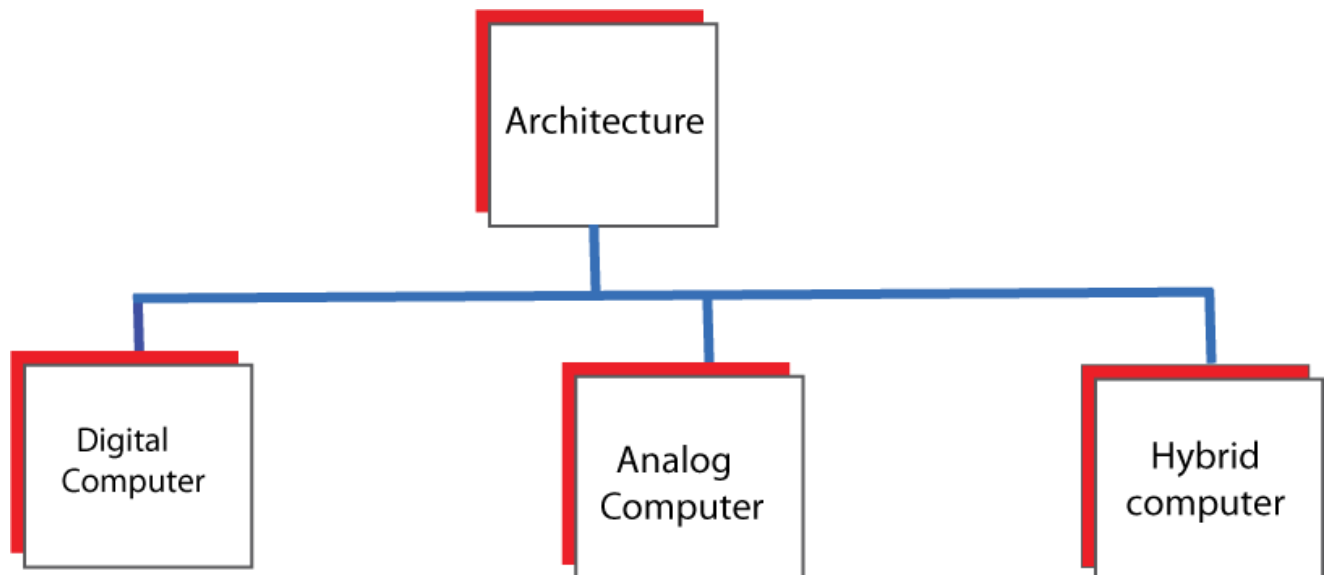
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Embedded computer

Embedded means implant. So, embedded computers are part of a larger machine or system. These computers are designed from scratch for a specific purpose and then embedded in a larger machine to perform its function.

Let's understand it with an example. You may have used a microwave. You give different inputs according to which microwave works. The computer inside it converts those inputs to make microwave work according to you. That computer is also an embedded computer.

Classification On The Basis of Architecture



Classification of a computer on the basis of architecture can be classified into three parts:

1. Digital computer
2. Analog computer
3. Hybrid computer

Digital Computer

In a digital computer, all data is collected, organized, manipulated and processed in binary codes which consists of different combinations of two digits i.e, 0 and 1. It is the language of digital computers. They can not understand our language.

That's why there are compilers that convert human language into computer and vice versa.

It takes data digitally and gives output digitally.

Analog Computer

Unlike digital computers, analog computers can be made with electrical, mechanical, hydraulic parts. These computers are designed for special purposes.

And unlike digital computers, it takes physical data as input like temperature, pressure, vibrations, and many more physical quantities and gives data in physical units.

Have you ever heard about seismographs? Yes, you are right, It measures the scale on which an earthquake occurs. You will also be surprised to know that it is also an analog computer.

Is it really a computer, but how?

It is a computer because it is taking data and giving us a meaningful output after processing.

Even speedometer which you can see on your bike or in a car is also a computer. These computers are mainly designed for scientific purposes.

Hybrid Computers

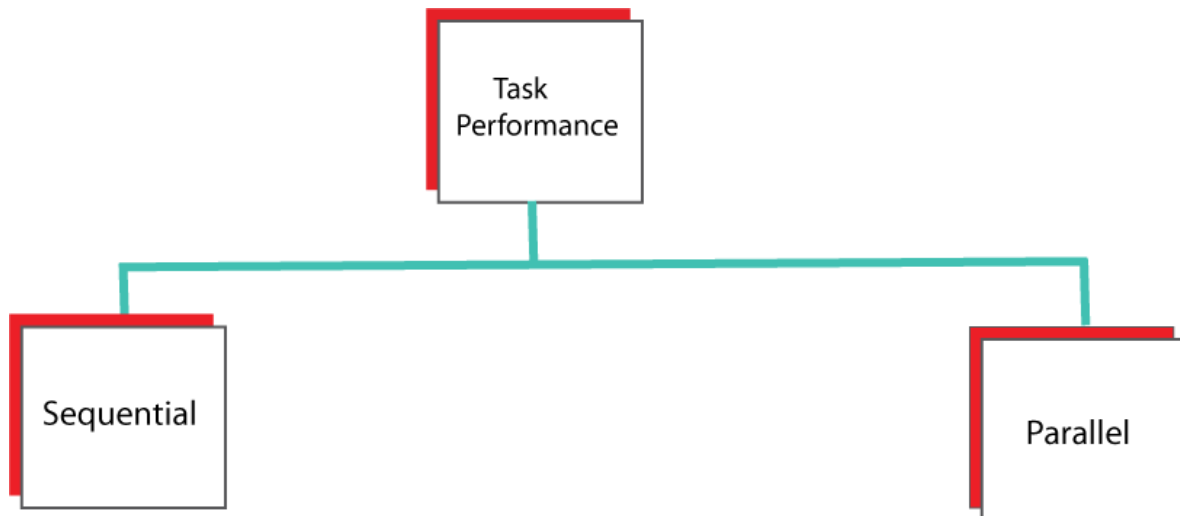
It is clear by the name that it is hybrid by nature. Hybrid computers are the mixture or combination of analog and digital computers. Therefore, It exhibits the features of both computers.

But what is the need for mixing analog and digital computers?

Analog computers are insanely fast. But these are precise to 3-4 digits only. Digital computers can be precise up to unlimited digits but these are slow.

So, combining digital computers and analog computers gives us speed as well as precision.

On the basis of the Tasks Performed



These can be classified into two types:

1. Sequential Computer
2. Parallel computer

Sequential microprocessor

These types of computers have only one microprocessor. Therefore all the tasks are performed in a sequence.

In sequence? what does it mean exactly?

In sequence means, when a user gives multiple commands to a computer, the computer performs the tasks in the same order in which these tasks were assigned. Thus, everything is to be done in a sequence.

The tasks assigned later have to wait until previous tasks are performed. Therefore it **increases the total time taken for performing tasks**.

Normally most of the people have this type of computer. But, the **total time increased may be unnoticeable** in our day-to-day life. These computers are still super fast. So, there is no need to worry about speed.

Parallel computer

Since these computers have multiple microprocessors. It enables the computer to perform tasks side by side.

Unlike sequential computers, these computers can perform several tasks at the same time. Tasks are performed independently. It makes the overall performance better and fast.

These types of computers are costlier. Although a normal user does not need such a type of computer.

People Also Ask?

Q.1) What are the types of computers? How is it different from the classification of a computer?

Ans. They are nearly the same thing but have little difference. Under classification, you have several categories like on the basis of size function and many more but under types, you can list all the computers in one place.

Q.2) What is the classification of a computer on the basis of purpose?

Ans. It is the same as on the basis of function. The type of function a computer has is the main purpose for them. For example, if a computer is very fast then its purpose is to give fast results.

Q.3) What is the need to classify computers?

Ans. It is always good to classify everything into several categories. It makes everything easy to understand and manage.

Conclusion

Since computers play a vital role in our daily life we must know about them properly to use them efficiently. Classification of a computer can be in many ways. They are not fixed. We can even classify them on the basis of the time period, speed, even on the basis of prices. It only means that we are creating a new category and sorting out the existing computers in those categories.