



Computer Science



Sadaf Yousuf

5

Student Learning Outcomes

To familiarize the students with the different generations of the computer.

Introduction

The history of computer is divided into many stages based on the technology being used. All these stages are called **generations**. Initially, the term was used to distinguish between changing hardware technologies. But nowadays, it includes both hardware and software, which together make up an entire computer system.

Generations of Computer

There are totally five computer generations known till date. Each of these generations is characterised by a major technological development that changed the way computers operate. Most developments resulted in increasingly smaller, cheaper, more powerful and more efficient computing devices.

First Generation Computers (1940-1956)

The first generation computers were used during 1940-1956. They were based on **vacuum tubes**. The examples of the first generation computers are ENIAC and UNIVAC 1.



Advantages

- Vacuum tubes were the only available electronic component available.
- These computers could calculate data.

Disadvantages

- The computers were very large in size.
- Consumed a lot of energy.
- Became hot very quickly so needed air conditioning.

- Cheapest among all generations.
- Use high level languages.

Disadvantage

- The latest technology is required for the manufacturing of microprocessors.

Fifth Generation Computers (Present & Beyond)

Scientists are working hard on the fifth generation computers based on **Artificial Intelligence (AI)**. Computers can understand spoken words and imitate human intelligence. Scientists are constantly working to increase the processing power of the computers. They are trying to create a computer with real IQ with the help of advanced programming and technologies. IBM Watson computer is one example.



What have we learnt?

- ✓ The history of computer is divided into many stages based on the technology being used called generations. There are five generations of computers.
- ✓ The first generation computers were based on vacuum tubes.
- ✓ The advantages of the first generation computers are: vacuum tubes were the only available electronic component, could calculate data.
- ✓ The disadvantages of the first generation computers are: they were very large, consumed a lot of energy, heated very quickly, not very reliable, constant maintenance was required, non-portable, very slow speed, had limited programming capabilities.
- ✓ The second generation computers used transistors.
- ✓ The advantages of the second generation computers are: they were smaller in size, more reliable and accurate, used less energy and were not heated, more portable, better speed and could calculate data faster, used peripherals like tape drives, magnetic disks, printer etc., used assembly language instead of machine language.

- 9) The _____ generation computer is based on Artificial Intelligence.
- 10) In the _____ generation, computers can understand spoken words and imitate human intelligence.

Q3: Mark the correct sentences with (✓) and wrong sentences with (✗).

- 1) The history of computer is divided into many stages called generations.
- 2) There are six generations of computer.
- 3) The first generation computers were small in size.
- 4) The second generation computers were used during 1940-1956.
- 5) Transistors were used in the first generation computers.
- 6) The third generation computers used assembly language.
- 7) The third generation computers used mouse and keyboard for input.
- 8) The fourth generation computers are very large in size.
- 9) The fourth generation computers use high level languages.
- 10) The fifth generation computers are based on AI.

Q4: Match the generations in Column A with the technologies in Column B.

Column A

First

Second

Third

Fourth

Fifth

Column B

Integrated circuits

Microprocessor

Vacuum tubes

Artificial Intelligence

Transistors

Q5: Write the full form of the following.

- 1) PC _____
- 2) IBM _____
- 3) IQ _____
- 4) AI _____
- 5) IC _____

Q6: Answer the following questions.

- 1) What is a computer generation?

- 2) What are the features of the first generation computers? List any four.

- i) _____
- ii) _____
- iii) _____
- iv) _____

- 3) What are the features of the second generation computers? List any four.

- i) _____
- ii) _____
- iii) _____
- iv) _____

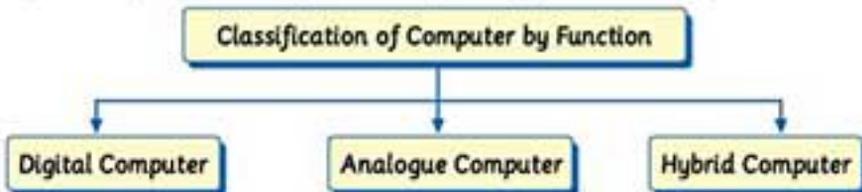
Student Learning Outcomes

To understand the classification of the computer by function and purpose and their applications.

You have already learnt the classification of computer by size i.e. super computer, mainframe computer, mini computer and micro computer.

Classification of Computer by Function

The advancement in technology especially in the 21st century resulted in the emergence of different types of computer systems. Each type of computer is designed to serve a purpose. Computers are classified into the following based on their function.



Let us now learn each one separately.

1. Digital Computer

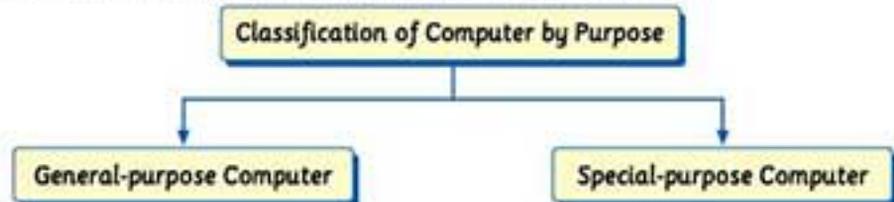
Digital computer deals with digital data and counts things. It uses binary number system, a system with only two numbers, 0 and 1. This has to do with the handling of numbers and letters which are represented by the binary digits (bits). In other words text and graphics are treated numerically.

The major advantage of digital computer is accuracy. Processed data can be stored and retrieved easily when needed.



Classification of Computer by Purpose

Computers are classified into the following based on their purpose



Let us now learn each one separately.

1. General-purpose Computer

A **general-purpose computer** performs a wide variety of tasks because it can store and run different programs. It has the ability of dealing with different problems. Most computers in use today are general-purpose computers. Simply by using a general-purpose computer and different software, various tasks can be performed, including writing and editing (word processing), storing data in a database, performing scientific calculations, controlling the security system, print sales report and so on.



Although general-purpose computer can perform multi-tasking, its drawback is that it does not perform these tasks quickly and efficiently.

Examples are PCs, iPads, iPhones etc.

2. Special-purpose Computer

A **special-purpose computer** is designed to do one specific task. It is also known as a dedicated computer, because it is dedicated to perform a single task repeatedly. The instructions needed to perform a particular task are permanently stored in its internal memory. It, therefore, does not possess unnecessary options and is less expensive.



About the Series

Computer Science series for primary and secondary grades is being prepared to familiarize the students with the development of latest technologies and information. Demonstrative illustrations and easy to understand language make the learning experience fun for children. Activities are prepared so appropriately that students' understanding can be evaluated easily. It promotes technical competencies within the children.



Helpline

+923363-008-008

For your suggestions and feedback,
write us at: info@bookmark.com.pk

Follow us on:

-  /BookmarkPublishing
-  /bookmarkpublishingpk
-  /infobookmark
-  /bookmarkpublishing
-  /bookmarkpublishing
-  www.bookmark.com.pk