



Computer Science



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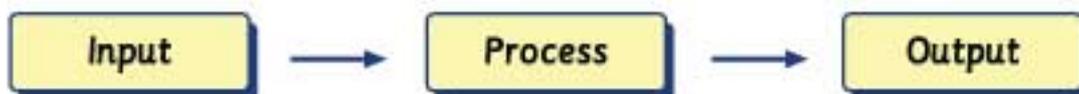
Elements of Computerised Data Processing

Student Learning Outcomes

To explain elements needed to perform computerised data processing; advantages and disadvantages of computerized data processing.

Data Processing

As you have studied earlier, the data we enter in a computer is called 'Input'. Work done on the given input is called 'Process' and the result we get after processing is called 'Output'. The process of changing data into information is called 'Data Processing'. It is shown with the help of the following diagram.

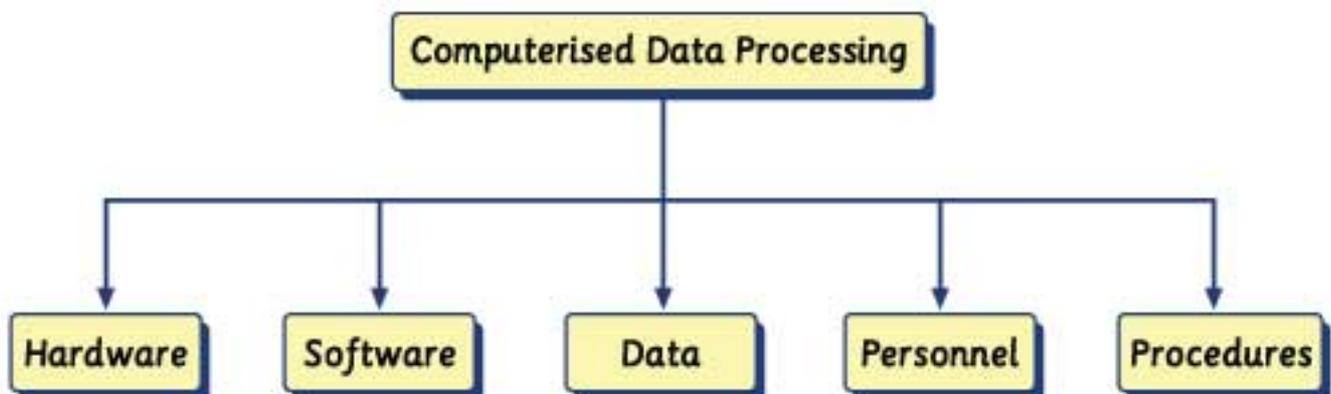


Computerised Data Processing

Computerised Data Processing, also called MIS (Management Information System), is the processing of data by a computer and its programs.

Elements of Computerised Data Processing

In order to carry out computerised data processing, the following things are needed.



Computerised Data Processing

Computerised data processing system is necessary for all organizations but it has certain advantages and disadvantages which are as follows:

Advantages

1. **Speed:** Computer can do the work extremely fast.
2. **Accuracy:** Computer always gives correct answers. It only makes mistakes when the data entered is incorrect.
3. **Storage:** Computer can store huge amount of data in a small space. It reduces the paper use to a great extent.
4. **Multitasking:** Computer can do many tasks at the same time. This is called multitasking. For example, while we are typing an essay, we can listen to a song and print another file.
5. **Networking:** A computer linked to other computers through the Internet makes it easier to communicate worldwide.
6. **Cost-effective:** Buying and maintaining computerized system is expensive initially, but when we compare its advantages with the manual system, this cost seems meaningless.
7. **No Tiredness:** Computer never gets tired or bored of doing the same task repeatedly although humans get bored and tired very easily.

Disadvantages

1. **High initial costs:** Although computers are quite important, their start-up costs are very high. Businesses also need to hire trained people to work on the computer.
2. **Too much dependency:** People's knowledge and skills are reduced due to the excessive use of computer.
3. **Unemployment:** People are losing their jobs because computers have taken over humans jobs.
4. **Electricity requirement:** The computer cannot operate without electricity.
5. **Health hazards:** Constant working on the computer affects the eyes, back, neck and wrists.



Chapter 3

Types of Personal Computer

Student Learning Outcomes

To explain various types of Personal Computer (PC).

Computer is one of the greatest inventions and it has seen many changes in functions, memory space, size and portability. What makes the computer extraordinary is its ability to store and process a large amount of data, which is used to perform various tasks.

As technology continues to grow, the computer has been modified into different shapes, with many features and purposes.

Classification of Computer by size

The classification of computer by size is as follows.

1. Super Computer
2. Mainframe Computer
3. Mini Computer
4. Micro Computer or Personal Computer (PC)

We have learnt about them earlier. Now we will study the Personal Computer (PC) in detail.

Personal Computer

A Personal Computer (PC) is a computer that is used by someone for his personal use. It is a complete system in itself and its size, price and simple functions make it easy for the users to work on it.

A PC can be defined as a small, relatively inexpensive computer designed for a single user. PCs are based on the microprocessor technology that puts the CPU on one chip. Businesses use personal computers for word processing, accounting, spreadsheet etc. At home, its most popular uses are playing games, entertainment and surfing the Internet. Although personal computers are designed as single-user systems, these are linked together to form a network.

v) **Server**

Server is a powerful computer and its main purpose is to provide services to other computers in a network. It is much larger than any average computer. It has powerful processors, additional memory and bigger capacity hard drives.



vi) **Tablet**

A **tablet** is a wireless, portable personal computer with a touch screen. It is smaller than a notebook but larger than a smartphone.



vii) **Smartphone**

A **smartphone** is a cell phone that allows you to do more than just make phone calls and send text messages. Users can access the Internet and run basic programs like on a desktop computer. The users often interact with the smartphone using their finger on the touch screen. In future, smartphones will replace all other forms of personal computers.



viii) **Wearable Computer**

A **wearable computer** is worn on the body like a watch and is often used by military professionals or doctors to track human actions when their hands are used in other activities. Smart watches are examples of wearable computers.



All these types of computers serve a different purpose but there are a few things common in all of them, that is, they help us save time and help in achieving accuracy in our work. From occupying a whole room to fitting in our pocket, the computer has come a long way.



More on Operating System

Student Learning Outcomes

To explain user interface and its types.

Operating System

An **operating system**, the most important software running on a computer, manages the computer's software and hardware. It is the first program loaded into the computer and remains in the memory at all times.

Functions of an operating system

The basic functions of an operating system are:

1. Boots the computer.
2. Manages the hardware e.g. mouse, keyboard, printer etc.
3. Handles system resources such as computer's memory.
4. Performs more than one task at the same time i.e. multitasking.
5. Provides file management i.e. the way the operating system stores, retrieves and saves data.
6. Provides a user interface, i.e. Command Line Interface (CLI), Graphical User Interface (GUI).

User Interface

A user interacts with the computer through the user interface. The two main types of user interface are:

1. Command Line Interface (CLI)
2. Graphical User Interface (GUI)

1. Command Line Interface (CLI)

The features of CLI are:

- i. Command Line Interface (CLI) is a text based interface.
- ii. The user interacts by typing commands to perform specific tasks.
- iii. Keyboard is the main input device.
- iv. The user must learn the commands.
- v. The task will not be performed if a spelling or punctuation mistake is made.
- vi. An example of Command Line Interface is DOS (Disk Operating System).

2. Graphical User Interface (GUI)

The features of GUI are:

- i. Graphical User Interface (GUI) interacts by clicking graphical images (icons) in addition to the text.
- ii. Mouse and keyboard are used to give instructions to the computer.
- iii. It works by pointing to an area on the screen and clicking on icons to perform the tasks.
- iv. It is user-friendly i.e. used by anyone very easily.
- v. The user interacts by using a mouse to access windows, icons and menus.
- vi. An example of Graphical User Interface is Windows.

Terms used while working with Operating System

- A folder is a "container" in which you can store documents, like a file folder in a filing cabinet.
- A file is a collection of computer data stored on the computer.
- A file has the following features:
 - It has a name called a file name which can be up to 260 characters.
 - The following characters cannot be a part of a file name : \ / ? : * " > < |
 - It is saved on hard disks, CDs etc.
- A file extension (or simply extension) is at the end of a file name that indicates the type of the file.
- Root directory is the main folder/directory which contains subdirectories/subfolders and files. It is also called a 'drive'.
- Subfolder is another folder inside the main or parent folder.

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.

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