**Types of computer storage**

1. Primary storage devices: primary storage is also referred to as internal memory. This is a component that is present inside the CPU which is used to store the temporary files and process them to get immediate results. The best examples for primary storage devices are RAM (Random access memory) and ROM (Read-only memory).
2. Secondary storage devices: From the name itself this can be known that this is a type of secondary storage which is external to the computer system. It is not as primary storage as here the data is being stored for the long term or we can say it’s permanent storage.

**Storage devices in a computer**

Let’s discuss the different types of storage devices that are available in the market:

**Primary storage devices**

**RAM**

RAM means random access memory which is used to access any temporary data and to get intermediate results for the usage of that information. It is also known as temporary memory because the data will be stored only till the computer system is on, if it’s turned off the data will be lost.

**Hard disk**

It’s a hard disc drive (HDD) that uses magnetic storage to store and retrieve data. It’s a non-volatile device that stores data that could be changed or deleted an infinite number of times.

**SSD**

It refers to Solid State Drive, a type of mass storage technology similar to hard disc drives. It is much more resilient than hard drives as it does not require visual discs.

**Difference between RAM and HDD**

All the important differences between RAM and HDD are highlighted in the following table −

|  |  |  |
| --- | --- | --- |
| **Key** | **RAM** | **HDD** |
| **Definition** | RAM stands for Random Access Memory. | HDD stands for Hard Disk Drive. |
| **Memory** | RAM is also called Primary Memory or Main Memory. | HDD is also called Secondary Memory. |
| **Component** | RAM has no moving mechanical parts and consists of transistors etc. | HDD contains moving mechanical parts like arm, pin etc. |
| **R/W Time** | RAM has small read/write or R/W time. | HDD has higher read/write time. |
| **Access** | Every memory area of RAM is accessible at same speed. | Different area of HDD may take different time to access. |
| **CPU Access** | CPU can access data stored on RAM. | Data to be copied from ROM to RAM so that CPU can access its data. |
| **Capacity** | RAM memory is generally smaller than HDD. Now−a−days it ranges from 1GB to 8 GB in desktops. | HDD memory is very high. It ranges from 500GB to 4TB in desktops. |
| **Noise** | RAM don't produces any noise. | HDD produces noise due to mechanical movements. |
| **Cost** | RAM is costly per unit storage. | HDD is cheap per unit storage. |
| **Impact on Speed** | If RAM is low, computer will become slow. | HDD has not much impact on computer's speed. |

## Decimal Number System

The number system that represents a number in terms of 0 to 9 digits is a **decimal number system**. A decimal number system has ten digits, i.e., 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9. The base of a number in this system is 10. In the decimal number system, a number is expressed in terms of powers of 10, i.e., the positions of successive digits to the left of the decimal point represent units, tens, hundreds, thousands, and so on. Some examples of numbers in the decimal number system are (23)10,(123)10, (5547)10, (6531)10, and so on. In everyday life, we most frequently represent numbers using the decimal number system.

For example, (123)10 in powers of 10 is expressed as 1 × 102 + 2 × 101 + 3 × 100. 1 is in the hundreds place, 2 is in the tens place and 3 is in the units place.

## Binary Number System

 A number system that expresses a number in terms of 0 and 1 digits is a [**binary number system**.](https://www.geeksforgeeks.org/binary-number-system-definition-conversion-examples/) A binary system has only two digits, i.e., 0 and 1. The base of a number in this system is 2. In a binary number system, a number is expressed in terms of powers of 2.  For example, a decimal number 26 is expressed as (11010)2 in a binary system. The binary digits 0 and 1 are used in all computer coding and languages like C, C++, Java, etc., to write a program and encode any digital data.

Pinary 10 0101

Pinary 3 11

Pinary 65 1000001

**Types of Comments**

There are two ways to add comments in C:

1. // - Single Line Comment
2. /\*...\*/ - Multi-line Comment

## Single-line Comments in C

In C, a single line comment starts with //. It starts and ends in the same line

## 2. Multi-line Comments in C

In C programming, there is another type of comment that allows us to comment on multiple lines at once, they are multi-line comments.

Definition

## What is a data type?

In software programming, data type refers to the type of value a variable has and what type of mathematical, relational or logical operations can be applied without causing an error

In the programming world, Data Type is the set of quantities that belongs together and are of a similar category. Data type is used so that the compiler or interpreter of a programming language can be told about the data which is to be used. The compiler also allocates the required amount of memory storage as per the data type defined thus saving space. Let us dive deep into the article to understand more about the concept of Data Type.

*Data Types or Types are attributes that are predefined or can be created by the user so that the program can easily detect the different types of information.* This is useful because Computers can understand only Binary Language i.e. 0’s and 1’s. To perform other basic and complex math operations, you need Data Types that will be understandable in computer language.

Data Types tells the Memory Management Unit (MMU) how much memory is required to store the data before the program compiles.

|  |  |  |
| --- | --- | --- |
| **Parameter** | **Bit** | **Byte** |
| **Definition** | A bit is the most basic unit of information in computing and digital communication, represented as 0 and 1. | A byte consists of eight bits. |
| **Symbol** | b | B |
| **Size** | The smallest unit of data holds only one binary value (either 0 or 1) | Larger than a bit (consists of 8 bits), and can represent 256 different values. |
| **Representation** | Represents only binary value. | Represents a number, a letter, a symbol etc., depending on the encoding schema. |
| **Conversion** | 8 Bit = 1 Byte | 1 Byte = 8 Bit |
| **Use Cases** | Used to measure data transfer (internet speed). | Often used when discussing data storage or file size. |

 ith 5 bits, the range for unsigned numbers is from 0 to 2\*5

2\*5−1=31.

 Therefore, the minimum value is 0, and the maximum value is 31

1 baytes1 =8bits

The range for unsigned numbers is from 0 to2^8-1 =255

Therefore, the minimum value is 0, and the maximum value is 255