Introduction to Data structures

- Data are simply values or set of values.

- A data item simply refers to a single unit of values.

- Data items are divided into subitems are called group items.

- Those that are not are called Elementary items.

- The logical or mathematical model of a particular organization of data is called a **Data Structure**

Classification of Data Structures

A) Primitive Data Structures: Integer, Real, Character,Boolean

B) Non-Primitive Data Structures: Linear(Arrays, Linked List,Stacks, Queues) and Non-Linear(Trees,Graphs)

Characteristics of Data Structure

- A data structure may contain data items that can be elementary item, group item or another data structure.

- A data structure describes the rules of how the data items are related to each other.

- A data structure organizes its elements such that the execution time of the operation of it is as small as possible.

- It organizes its elements such that the memory usage of a data is as little as possible.

Data Structure Operations

- Traversing

- Searching

- Inserting

- Deleting

- Sorting

- Merging

Abstract Data Type(ADT)

- ADT refers to a set of data values and associated operations that are specified accurately independent of any particular implementation.

- With an ADT we know what a specific data type can do but how it actually does is hidden.