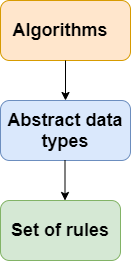
***Section #1***

**What is Data Structure?**

* The data structure name indicates itself that organizing the data in memory.
* The data structure is not any programming language like C, C++, java, etc. It is a set of algorithms that we can use in any programming language to structure the data in the memory.
* To structure the data in memory, 'n' number of algorithms were proposed, and all these algorithms are known as Abstract data types. These abstract data types are the set of rules.



**Types of Data Structures:**

* **Primitive data structure**: The primitive data structures are primitive data types. The int, char, float, double, and pointer are the primitive data structures that can hold a single value.
* **Non-Primitive Data structure**:
  + **Linear Data Structure**: the arrangement of data in a sequential manner is known as a linear data structure. The data structures used for this purpose are Arrays, Linked list, Stacks, and Queues. In these data structures, one element is connected to only one another element in a linear form.
  + **Non-linear data structure: When one element is connected to the 'n' number of elements known as a non-linear data structure. The best example is trees and graphs. In this case, the elements are arranged in a random manner.**

**Data structures can also be classified as:**

* **Static data structure:**  It is a type of data structure where the size is allocated at the compile time. Therefore, the maximum size is fixed.
* **Dynamic data structure:** It is a type of data structure where the size is allocated at the run time. Therefore, the maximum size is flexible.

### Major Operations

* **Searching:** We can search for any element in a data structure.
* **Sorting:** We can sort the elements of a data structure either in an ascending or descending order.
* **Insertion:** We can also insert the new element in a data structure.
* **Updation:** We can also update the element, i.e., we can replace the element with another element.
* **Deletion:** We can also perform the delete operation to remove the element from the data structure.

### DS Introduction