**Data Structures in JAVA 🡪**

Data Structure is a way of storing and organizing data in a computer so that it can be used efficiently.

Data Structures are classified as Linear and Hierarchical data structure.

Linear data structures means there is only one previous and next element. No element will have more than one previous and next elements.

Linear data structures are Stack, Queue and Linked list.

Stack 🡪

* It is a data structure that works on LIFO (last in first out) principle.
* Insertion and deletion is done at only one end i.e. from the top.
* It supports two methods namely Push and Pop.

Queue 🡪

* It works on FIFO (first in last out) principle.

**Linked List**

* Linked List is a Data Structure like other data Array, Stacks and Queue.
* Linked List has three major parts Head, Nodes and Tail.
* Every node in Linked List is interconnected with next node using address of the next node.
* Unlike arrays, Linked list do not work with completely reserved sequential collection of memory, instead they choose random block from the heap and store data into them
* Once the use of Linked List is done we can actually dump the memory blocks back into memory heap which makes them reusable.
* Each block has memory address of next node and space for data to be stored. So the last node will replace the memory address with Null value which indicates the end of Linkedlist.
* Using the interconnection between the nodes, linked list behaves like an array.
* Types of Linked list 🡪
  + Singly Linked List
  + Doubly Linked List
  + Circular Linked List
* Singly linked list consist of two fields, address of next node and data assigned to it.
* We can traverse in one single direction in Singly linked list.
* Doubly linked list consist of three fields, address of previous node, data and address of next node. This makes the doubly linked list traverse in both the directions.
* Circular linked list is singly linked list with final address block points to the address of Head node.

**Features of Linked list 🡪**

* Linked list implements Que and Deque interface. So it can also be used as Que, deque or a stack.
* It can contains all the elements including null and duplicate.
* It maintains the insertion order of elements.
* Linked lists are Synchronized.
* Linked list do not implement random access interface. So we can access elements in sequential order only.
* We can use list iterator to iterate the elements through list.

**Methods of Linked list 🡪**