**Linked List**

Linked List is a basic dynamic data structure which can be used to create and implements other data structure like queue and stack.

**What is a Singly Linked List in Java? (2-3 min)**

Singly Linked List is a data structure used for storing a collection of nodes.

**Properties-**

* Singly Linked List contains sequence of Nodes.
* A Node has data and reference to next node in a list.
* First Node is the head Node.
* Last Node has data and points to null.

**Implementation of a List Node in a Singly Linked List?**

//Generic type

Public class ListNode<T>

{

Private T data;

Private ListNode next<T>;

}

**Algorithm to create a Singly Linked List in java?**

* Create node
* Connect node

//head is instance variable

Head = new ListNode (10);

ListNode second = new ListNode (1); Create Node

ListNode third = new ListNode (8);

ListNode fourth = new ListNode (11);

head.next = second;

head.second = third; Connect Node

head.third = fourth;

**Traverse the LinkedList**

Traverse meanse access each data from data structure one by one from head to end.

ListNode current=head;

While(current != null){

System.out.print(current.data+”-> “);

Current=current.next; traverse node

}

System.out.print(“null”);

}

**Find the length of LinkedList?**

Int count=0;

ListNode current = head;

While(current != null){

count++;

current = current.next;

}

Return count;

**Add element at first-**

**At Last place-**

ListNode newNode = new ListNode(value);

If(head == null){

Head = newNode; return;

}

ListNode current = head;

While(current.next != null){

Current = current.next;

}

Current.next = newNode;

**How to delete the firstNode from LinkedNode?**

Public ListNode deleteFirst() {

If(head == null)

Return null;

ListNode temp = head;

head = head.next;

temp.next = null;

return temp;

}

**How to delete the LastNode form LinkdeList?**

public ListNode deleteLast()

    {

        if(head == null || head.next == null) { return head; }

        ListNode current  =  head;  // here current is pointing to head

        ListNode previous  =  null;

        while(current.next != null)

        {

            previous = current;

            current = current.next;

        }

        previous.next = null;  //disconnect the previous node from current

        return current;

    }

**How to add a new Node at a given position in a singly LinkedList?**

public void insert(int position, int value)  
{  
 ListNode node = new ListNode(value); // create a new node  
 if(position == 1)  
 {  
 node.next=head;  
 head = node;  
 }  
 else  
 {  
 ListNode previous = head; // create a reference node previous and pointing to head  
 int count=1;  
 while(count < position-1)  
 {  
 previous = previous.next;  
 count++;  
 }  
 ListNode current = previous.next;  
 previous.next = node;  
 node.next = current;

head = node;  
 }  
}