

## ① Add last in Linked List

Hume ek partially written LinkedList class given hai.  
Hume ek addLast function likhna hai jiska kaam hai  
add element to the end of LinkedList.  
Hume Head, Tail, size ko update krty krty rakhna hai!

```
public static class Node {
    int data;
    Node next;
}

public static class LinkedList {
    Node Head;
    Node Tail;
    int size;

    void addLast (int val) {
        Node temp = new Node();
        temp.data = val;
        temp.next = null;

        if (size == 0) {
            head = tail = temp;
        } else {
            tail.next = temp;
            tail = temp;
        }

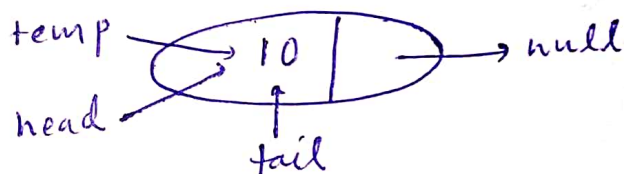
        size++;
    }
}
```

$\left\{ \begin{array}{l} \text{head} = \text{null} \\ \text{tail} = \text{null} \\ \text{size} = 0 \end{array} \right\}$  Empty Linked List initially

### ① addLast (10)

①.1 Create New Node. temp

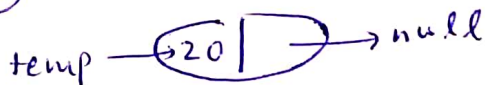
①.2 Since  $\boxed{\text{size} = 0}$ , make  $\boxed{\text{head} = \text{tail} = \text{temp}}$ .



①.3 Increment size by 1.  
size = 0 + 1

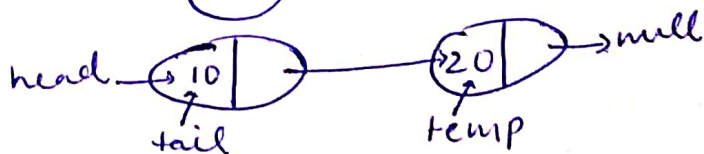
### ② addLast (20)

②.1 Create new node, temp

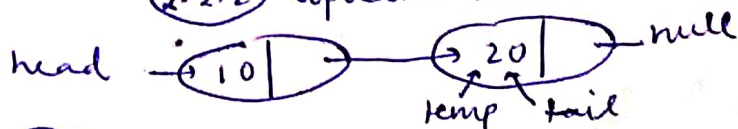


②.2 Size of linked list is not zero,

②.2.1 make tail.next = temp

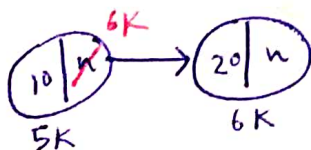
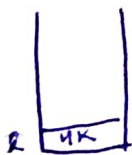


②.2.2 Update tail as temp



②.3 Increment size by 1  
size = 1 + 1

head: ~~5K~~  
tail: ~~5K~~ 6K  
size: ~~1~~ 2



$T(n) : O(1)$   
 $S(n) : O(1)$