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**Section:** 3A-BSSE

**Assignment #:** 8

**LAB TASK:**

**Code: “**singly\_linked\_list**”:-**

**Explain:**

**LinkedList Class**:

This class represents a linked list of Node objects. It has a pointer head that points to the first node of the linked list initialized to NULL. Methods in this class:

**insertLast(int data):** Adds a new node with the given data at the end of the linked list. If the list is empty it sets the head to the new node. Otherwise, it traverses the list until it finds the last node and links the new node to the last nodes next.

**printList():** Prints all the data in the linked list from the head to the last node. It traverses the list node by node, printing the data of each node.

**MergeList(linkedlist &list2):** Merge the linked list list2 with the current linked list. If the current list is empty it simply makes the head point to list 2.head. Otherwise, it traverses the current list to find the last node and then sets its next pointer to the head of list2 effectively merging the two lists.

**Code: “**doubly\_linked\_list**”:-**

**Explain:**

**LinkedList Class**:

This class represents the entire doubly linked list. It has two pointers: head: Points to the first node of the list initialized to NULL. tail: Points to the last node of the list is initialized to NULL. Methods of the class:

**insertLast():** This method inserts a new node with the given data at the end of the linked list. If the list is empty the new node becomes both the head and tail. Otherwise, it sets the next pointer of the current tail to the new node, and the prev pointer of the new node to the current tail. Finally, it updates the tail to point to the new node.

**printList():** This method prints the data of all nodes in the list by traversing from the head to the tail.

**mergeList(linkedList &list2):** This method merges the second linked list into the current linked list. If the current list ‘head==NULL’ it simply makes the head and tail of the current list point to the head and tail of list2. If list2 is not empty, it links the current list’s tail to the head of list2, and sets the prev pointer of list2. head to the current tail. It then updates the current list’s tail to list2.tail.

**Note:** I did not add the screenshots because my laptop few buttons are not working.