Assignment – 3

Perform the following on a **singly** linked list. Initially assume there is no linked list and the data part of the linked list is an integer.

1. Insert a node at the beginning.
2. Insert a node at the end.
3. Take an element from the user (say x) and insert a node after the node with content x.
4. Delete the middle node. Let there be n number of nodes in the linked list. When n is odd, delete $(n+1)/2^{th}$ node. When n is even $n/2^{th}$ node.
5. Delete the last node.
6. Print the nodes which are at an even number position.
7. Print the sum of the content of the nodes which are at an odd number position.
8. Reverse the linked list in constant space.
9. Delete the alternate nodes from the linked list. For example, if the nodes are numbered 1,2,3,4,5,6,7,8 then after the deletion of alternate nodes, we should get 2,4,6,8.

Use separate functions to perform the different functionalities. The name of the program should be **assign31_<ROLL_NO>.c**.

Perform the same operation for **doubly** linked list as well.

Use separate functions to perform the different functionalities. The name of the program should be **assign32_<ROLL_NO>.c**.