PES University
Dept of CSE
Data Structures and its Applications Lab
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Lab 3b - Doubly Linked Lists

Write a program to implement a Doubly Linked List and perform the following operations:
1. Insert at the front of the list.
2. Delete at front of the list .
3. Count the number of nodes
4. Delete at a specified position.
5. Search for an element.
6. Reverse the list .
7. Display the list .

Input Format:
Every new line has one of the following operation code and any data needed for the operation (For ex: The element that needs to be inserted).
0 - Exit the program
1 x - Insert element 'x' at the front of the list
2 - Delete node at the front of the list
3 – Returns the number of nodes in the list.
4 p - Delete node at position p. If p is 0, delete the first element and if p is length-1, delete the last element. No deletion is required if p is out of this range.
5 x - Search for element 'x' and print its offset (offset starts with 0). Print -1 if element not found.
6 - Reverse the elements of the list. No operation if the list is empty.
7 - Display the entire list. Print the elements space-separated. Print “EMPTY” in case of the empty list.

Output Format:
If the operation code is 5 (search element), print the offset of the element in the list. Print -1 if the element is not found.
If the operation code is 7 (display list), print all the elements of the linked list in a space-separated manner. If the list is empty, just print “EMPTY”.