

Practice assisted project phase 1

7. Write a program in Java to traverse a doubly linked list in the forward and backward directions

```
package main;

public class DLL {
    Node head;
    class Node
    {
        int data;
        Node prev;
        Node next;
        Node(int d)
        {
            data = d;
        }
    }
    public void push(int new_data)
    {
        Node new_Node = new Node(new_data);
        new_Node.next = head;
        new_Node.prev = null;
        if (head != null)
            head.prev = new_Node;
        head = new_Node;
    }
    public void InsertAfter(Node prev_Node, int new_data)
    {
        if (prev_Node == null)
        {
            System.out.println("The given previous node cannot be
NULL ");
            return;
        }
        Node new_node = new Node(new_data);
        new_node.next = prev_Node.next;
        prev_Node.next = new_node;
        new_node.prev = prev_Node;
        if (new_node.next != null)
            new_node.next.prev = new_node;
    }
    void append(int new_data)
    {
        Node new_node = new Node(new_data);
        Node last = head;
        new_node.next = null;
        if (head == null)
        {
            new_node.prev = null;
            head = new_node;
            return;
        }
        while (last.next != null)
            last = last.next;
        last.next = new_node;
        new_node.prev = last;
    }
}
```

```

public void printlist(Node node)
{
    Node last = null;
    System.out.println("Traversal in forward Direction");
    while (node != null)
    {
        System.out.print(node.data + " ");
        last = node;
        node = node.next;
    }
    System.out.println();
    System.out.println("Traversal in reverse direction");
    while (last != null)
    {
        System.out.print(last.data + " ");
        last = last.prev;
    }
}

public static void main(String[] args)
{
    DLL dll = new DLL();
    dll.append(12);
    dll.push(24);
    dll.push(10);
    dll.append(44);
    dll.InsertAfter(dll.head.next, 11);
    System.out.println("Created DLL is: ");
    dll.printlist(dll.head);
}
}

```

OUTPUT-

```

Console ×
<terminated> DLL [Java Application] C:\Program Files\Java\jdk-20\bin\javaw.exe (16-May-2023, 10:51:32 am – 10:51:32 am) [pid: 6544]
Created DLL is:
Traversal in forward Direction
10 24 11 12 44
Traversal in reverse direction
44 12 11 24 10

```