

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

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package p4;

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;
    }
}
```

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    }

    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(6);
        dll.push(7);
        dll.push(1);
        dll.append(4);
        dll.InsertAfter(dll.head.next, 8);
        System.out.println("Created DLL is: ");
        dll.printlist(dll.head);
    }
}

```

