

## [Create] Doubly Linked List

```
public class MainClass {
    public static void main(String[] args) {
        DoublyLinkedList list = new DoublyLinkedList();
        list.addNode(0);
        list.addNode(1);
        list.addNode(2);
        list.addNode(3);
        list.addNode(4);
        list.addNode(5);

        list.printNodesFromHead();
        list.printNodesFromTail();

        list.removeNode(2);
        list.addLast(7);
        list.removeLast();
        list.printNodesFromHead();
    }
}

class Node {
    public Node nextNode;
    public Node previousNode;
    public int value;

    public Node(int value) {
        this.value = value;
        this.nextNode = null;
        this.previousNode = null;
    }
}

class DoublyLinkedList {
    Node head;
    Node tail;

    public void addNode(int value) {
        Node node = new Node(value);
        if (head == null) {
```

```

        head = node;
        tail = node;
    } else {
        node.previousNode = tail;
        tail.nextNode = node;
        tail = node;
    }
}

public boolean removeNode(int value) {
    Node temp = head;
    Node prev = null;
    if (temp == null) {
        return false;
    }
    // If the value is head.
    if (temp.value == value) {
        head = head.nextNode;
        return true;
    }
    // Search node.
    while (temp != null && temp.value != value) {
        prev = temp;
        temp = temp.nextNode;
    }
    // No item is available.
    if (temp == null) {
        return false;
    }
    prev.nextNode = temp.nextNode;
    if (temp.nextNode != null) {
        Node afterTempNode = temp.nextNode;
        afterTempNode.previousNode = prev;
    }
    return true;
}

public void printNodesFromHead() {
    Node temp = head;
    System.out.print("Head: [");

    // No item available.
    if (head == null) {

```

```

        return;
    }

    while (temp != null) {
        if (temp.nextNode != null) {
            System.out.print(temp.value + ", ");
        } else {
            System.out.print(temp.value);
        }
        temp = temp.nextNode;
    }
    System.out.print("]");
    System.out.println();
}

public void printNodesFromTail() {
    Node temp = tail;
    System.out.print("Tail: [");

    // No item available.
    if (tail == null) {
        return;
    }

    while (temp != null) {
        if (temp.previousNode != null) {
            System.out.print(temp.value + ", ");
        } else {
            System.out.print(temp.value);
        }
        temp = temp.previousNode;
    }
    System.out.print("]");
    System.out.println();
}

public void addFirst(int value) {
    Node node = new Node(value);
    if (head == null) {
        head = node;
        tail = node;
    } else {
        head.previousNode = node;
    }
}

```

```

        node.nextNode = head;
        head = node;
    }
}

public void addLast(int value) {
    Node node = new Node(value);
    if (head == null) {
        head = node;
        tail = node;
    } else {
        node.previousNode = tail;
        tail.nextNode = node;
        tail = node;
    }
}

public void removeFirst() {
    if (head == null) {
        return;
    }
    head = head.nextNode;
}

public void removeLast() {
    if (head == null) {
        return;
    }
    Node temp = head;
    Node prev = null;
    while (temp.nextNode != null) {
        prev = temp;
        temp = temp.nextNode;
    }
    prev.nextNode = null;
}
}

```