

2. Write a program to check if given linked list has a loop or not.

```
package prog11;
public class LinkedList{

    private Node head;

    private static class Node {
        private int value;
        private Node next;

        Node(int value) {
            this.value = value;
        }
    }

    public void addToTheLast(Node node) {

        if (head == null) {
            head = node;
        } else {
            Node temp = head;
            while (temp.next != null)
                temp = temp.next;

            temp.next = node;
        }
    }

    public void printList() {
        Node temp = head;
        while (temp != null) {
            System.out.format("%d ", temp.value);
            temp = temp.next;
        }
        System.out.println();
    }

    public boolean ifLoopExists() {
        Node fastPtr = head;
        Node slowPtr = head;
        while (fastPtr != null && fastPtr.next != null) {
            fastPtr = fastPtr.next.next;
            slowPtr = slowPtr.next;
            if (slowPtr == fastPtr)
                return true;
        }
        return false;
    }

    public static void main(String[] args) {
        LinkedList list = new LinkedList();

        list.addToTheLast(new Node(5));
        list.addToTheLast(new Node(6));
    }
}
```

```

        list.addToTheLast(new Node(7));
        list.addToTheLast(new Node(1));
        list.addToTheLast(new Node(2));

        list.printList();

        System.out.println("Loop existed-->" + list.ifLoopExists());

    }
}

```

Output:

