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:**

