

Name: Yash Daga

Registration Number: 20BCE7323

Write a program to create a single linked list with 'n' nodes and perform following.

- i) Find max element from list
- ii) Find min element from list
- iii) display list of items in list

Code

```
import java.util.*;
public class MaxMin {
    class Node{
        int data;
        Node next;

        public Node(int data) {
            this.data = data;
            this.next = null;
        }
    }

    public Node addNode(int data, Node head) {
        Node newNode = new Node(data);
        Node temp = head;
        if(head == null) {
            head = newNode;
            return head;
        }
        while(temp.next != null) {
            temp = temp.next;
        }
        temp.next = newNode;
        return head;
    }

    public void display(Node head) {
        Node current = head;
        if(head == null) {
            System.out.println("List is empty");
            return;
        }
        System.out.println("Nodes of singly linked list: ");
```

```

while(current != null) {
    System.out.print(current.data + " ");
    current = current.next;
}
System.out.println();
}

public static int LargestElement(Node head)
{
    int max = Integer.MIN_VALUE;
    Node current = head;
    if(head == null) {
        return -1;
    }
    while (current != null)
    {
        if (max < current.data)
            max = current.data;
        current = current.next;
    }
    return max;
}

public static int SmallestElement(Node head)
{
    int min = Integer.MAX_VALUE;
    Node current = head;
    if(head == null) {
        return -1;
    }
    while (current != null)
    {
        if (min > current.data)
            min = current.data;
        current = current.next;
    }
    return min;
}

public static void main(String[] args) {

    MaxMin sList = new MaxMin();

```

```
Scanner sc = new Scanner(System.in);
    System.out.println("Enter the number of nodes");
    int n= sc.nextInt();
    Node head = null;
    for(int i=1;i<=n;i++)
    {
        head = sList.addNode(i, head);
    }

    sList.display(head);
    System.out.print("Maximum element in linked list: ");
    System.out.println(LargestElement(head));
    System.out.println( "Smallest element in linked list:" +
SmallestElement(head));
    }
}
```

The image displays a Java program in Notepad++ and its execution in a Command Prompt. The program, `MaxMin.java`, creates a singly linked list and finds the maximum and minimum values.

**Notepad++ Editor:**

```
D:\20BCE7323\MaxMin.java - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
concalenateI.java CountNodes.java Concalenate.java MaxMin.java
31 System.out.println("Nodes of singly linked list: ");
32 while(current != null) {
33     System.out.print(current.data + " ");
34     current = current.next;
35 }
36 System.out.println();
37
38 public static int LargestElement(Node head)
39 {
40     int max = Integer.MIN_VALUE;
41     Node current = head;
42     if(head == null) {
43         return -1;
44     }
45     while (current != null)
46     {
47         if (max < current.data)
48             max = current.data;
49         current = current.next;
50     }
51     return max;
52 }
53
54 public static int SmallestElement(Node head)
55 {
56     int min = Integer.MAX_VALUE;
57     Node current = head;
58     if(head == null) {
59         return -1;
60     }
61     while (current != null)
62     {
63         if (min > current.data)
64             min = current.data;
65         current = current.next;
66     }
67     return min;
68 }
69
70 public static void main(String[] args) {
71     MaxMin sList = new MaxMin();
72     Scanner sc = new Scanner(System.in);
```

**Command Prompt (Top):**

```
D:\20BCE7323>javac MaxMin.java
D:\20BCE7323>java MaxMin
Enter the number of nodes
10
Nodes of singly linked list:
1 2 3 4 5 6 7 8 9 10
Maximum element in linked list: 10
Smallest element in linked list: 1
D:\20BCE7323>
```

**Command Prompt (Bottom):**

```
D:\20BCE7323>javac MaxMin.java
D:\20BCE7323>java MaxMin
Enter the number of nodes
10
Nodes of singly linked list:
1 2 3 4 5 6 7 8 9 10
Maximum element in linked list: 10
Smallest element in linked list: 1
D:\20BCE7323>
```