LAB ASSIGMENT-6

Q1. Write a menu driven program using class, methods and array to construct stack and implement operations : Push, pop, and display.

Ans.

```
import java.util.*;
public class Q1
{
   public static void push()
   {
      if (top == MAXSIZE-1)
      {
         System.out.println("Overflow !!");
      }
      else
      {
         Scanner sc=new Scanner(System.in);
         System.out.println("Enter element");
         int n= sc.nextInt();
         top=top+1;
         stack[top]=n;
      }
   }
```

```
public static void pop()
{
    if (top == -1)
    {
      System.out.println("Underflow");
    }
    else
    {
       int ele = stack[top];
       System.out.println("Deleted element
       is " + ele);
       top = top-1;
    }
}
public static void display()
{
    if (top == -1)
    {
      System.out.println("Stack is empty");
    }
    else
    {
      for (int i = top; i >= 0; i--)
      {
        System.out.println(stack[i]);
      }
    }
}
```

```
public static final int MAXSIZE = 5;
public static int stack[] = new int
                            [MAXSIZE];
public static int top = -1;
public static void main (String[] args)
{
    Scanner sc = new Scanner(System.in);
    while (true)
    {
        System.out.println("**MENU**");
        System.out.println("0: Exit");
        System.out.println("1: Push");
        System.out.println("2: Pop");
        System.out.println("3: Display");
        System.out.println("4: Insert from beg");
        System.out.println("5: Insert at from end");
        System.out.println("6: Insert at any pos");
        System.out.println("7: Delete from beg");
        System.out.println("8: Delete from end");
        System.out.println("9: Delete from any pos");
        System.out.println("Enter your choice");
        int choice = sc.nextInt();
```

```
switch (choice)
{
    case 0 :
        System.out.println
        System.exit(0);
        break;
    case 1:
        push();
        break;
    case 2 :
        pop();
        break;
    case 3 :
        display();
        break;
    default :
        System.out.println("Invalid");
        }
    }
  }
}
```

Q2. Write a menu ~~program~~ driven program using class, method and linked list to construct a stack and implements the above three operations.

Ans:

```
import java.util.*;
class node
{
   int info;
   node next;
}
public class Q2
{
   public static void push()
   {
      node p = new node();
      Scanner sc = new Scanner (System.in);
      System.out.println ("Enter info :");
      p.info = sc.nextInt();
      p.next = top;
      top = p;
   }
   public static void pop()
   {
      if (top == null)
      {
         System.out.println("UNDERFLOW");
      }
```

```
        else
        {
            node q = top;
            top = top.next;
            top.next = null;
            System.out.println("Deleted node is"+
            q.info);
        }
    }
    public static void display()
    {
        if (top == null)
        {
            System.out.println("Stack is empty");
        }
        else
        {
            node q = top;
            while (q != null)
            {
                System.out.println(q.info+"→");
                q = q.next;
            }
        }
    }
    public static void main(String[] args)
    {
```

```
static node top = null;
public static void main (String[] args)
{
  Scanner sc = new Scanner (System.in);
  while (true)
  {
    System.out.println("*** MENU ***");
    System.out.println("0: Exit");
    System.out.println("1: Push");
    System.out.println("2: Pop");
    System.out.println("3: Display");
    int choice = sc.nextInt();
    switch (choice)
    {
    case 0:
        System.exit(0);
        break;

    case 1:
        push();
        break;

    case 2:
        pop();
        break;

    case 3:
        display();
        break;
```

```
case 4:
default:
    System.out.println("Wrong choice");
    break;
        }
    }
}
```