STACK

```
import java.util.Arrays;
class StackDemo2{
   int tos, maxsize;
   int[] arr;

   StackDemo2(int maxsize) {
      this.maxsize = maxsize;
      arr = new int[maxsize];
      tos = -1;
   }

   boolean isEmpty() {
      return tos == -1;
   }
   boolean isFull() {
      return tos == maxsize - 1;
   }
   void push(int item) {
      if (isFull()) {
         System.out.println("Stack is full");
      } else {
         tos = tos + 1;
         arr[tos] = item;
         System.out.println(item + "  is pushed ");
      }
```

```
int pop() {
   if (isEmpty()) {
      System.out.println("Stack Underflow");
      return -1; // or throw an exception
   }
   int poppedItem = arr[tos];
   tos = tos - 1;
   return poppedItem;

}

public void peek() {
   if (isEmpty()) {
      System.out.println("Stack is empty");
   } else {
      System.out.println("The top of the element is : " + arr[tos]);
   }
}

void display() {
   for (int i = tos; i >= 0; i--) {
      System.out.print(arr[i] + "\t");
   }
}}
```

```
public class St2{
    public static void main(String[] args) {
        StackDemo2 s1 = new StackDemo2(4);

        System.out.println("Array is empty : " +s1.isEmpty());
        s1.push(1);
        s1.push(2);

        System.out.println("Array is empty : " +s1.isEmpty());
        s1.push(4);
        s1.push(7);
        s1.push(9);

        s1.peek();
        System.out.println("popped : " +s1.pop());
        s1.peek();
        System.out.println("popped : " +s1.pop());

        s1.display();
    }
}
```

```
class InnerMystckprctce{
   int top,i,max;
   int[] arr;
   InnerMystckprctce(int max)
   {
      this.max=max;
      arr=new int[max];
      top=-1;
   }
   boolean isEmpty()
   {
      return top==-1;
   }
   boolean isFull()
   {
      return top==max-1;
   }
   public void push(int number)
   {
      if(top == max-1)
      {
         System.out.println("Stack is Full");
      }
      else{
         top=top+1;
         arr[top]=number;
      } }
```

```
public void pop()
   {
      if(top==-1)
      {
         System.out.println("Stack is empty");
      }
      else{
         int value=arr[top];
         top=top-1;
         System.out.println("The popped element value is :" +value);
      }
   }
   public void peek()
   {
      System.out.println(arr[top]);
   }
   public void display()
   {
      if (top == -1) {
         System.out.println("Stack is empty");
       } else {
         System.out.print("Stack elements: ");
         for (int i = top; i >= 0; i--) {
           System.out.print(arr[i] + " ");
         }
         System.out.println();
       }
```

```
    }
}
public class Mystckprctce {
    public static void main(String[] args) {

        InnerMystckprctce in =new InnerMystckprctce(4);
        System.out.println(in.isEmpty());
        System.out.println(in.isFull());

        in.push(4);
        in.push(5);
        in.peek();
        in.push(3);
        in.push(7);
        in.push(1);
        System.out.println("\nElements after push operation:");
        in.display();
        System.out.println();
        in.pop();

        System.out.println();
        in.display();

    }
}
```

```
import java.util.Scanner;
public class Stack{
   int top;
   int maxSize;
   char stackArray[];
   String word;

   public Stack(int s){
      top=-1;
      maxSize=s;
      stackArray=new char[maxSize];
   }
   public boolean isFull(){
      return top==maxSize-1;
   }
   public boolean isEmpty(){
      return top==-1;
   }
```

```
public void push(char x){
   if(isFull()){
      System.out.println("Stack is OverFlow, Stack is Full");
   }
   else{
      top=top+1;
      stackArray[top]=x;
   }
   System.out.println(x+" is pushed");
}
public char pop(){
   char removeItem=0;
   if(isEmpty()){
      System.out.println("Stack is UnderFlow, Stack is Empty");
   }
   else{
      removeItem = stackArray[top];
      top=top-1;
   }
   return removeItem;
}
```

```
public void insert(){
        System.out.println("Enter the Word :");
        Scanner sc=new Scanner(System.in);
        word = sc.nextLine();

        for(int i=0;i<word.length();i++){
            push(word.charAt(i));
        }
    }
    public void revString(){
        System.out.println("The Reverse String is :");
        while(!isEmpty()){
            System.out.print(pop());
        }
    }

    public static void main(String[] args){
        Stack ss = new Stack(10);
        ss.insert();
        ss.revString();
    }}
```