***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();

    }}