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CS-Summer2022

LAB EXERCISE NO 4

```
import java.util.Scanner;
class UnderAge extends Exception{
    int age;
    UnderAge(int age){
        this.age=age;
    }
    public String toString(){
        String temp="Under Age: "+age;
        return temp;
    }
}
public class UnderAgeDemo{
    static void test(int age){
        try {
            if (age<18){
                    throw new UnderAge(age);
                }
            else{
                System.out.println("age is above 18");
            }
        }
        catch (UnderAge a){
                System.out.println(a.toString());
        }
        }
    public static void main(String []args ){
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter the age: ");
        int age=sc.nextInt();
        test(age);
    }
}
```

```
PS D:\ANDC\Sem-2> cd "d:\ANDC\Sem-2\Java\Lab7\" ; if ($?) { javac UnderAgeDemo.java } ;
 if ($?) { java UnderAgeDemo }
Enter the age:
14
Under Age: 14
PS D:\ANDC\Sem-2\Java\Lab7> cd "d:\ANDC\Sem-2\Java\Lab7\" ; if ($?) { javac UnderAgeDem
o.java } ; if ($?) { java UnderAgeDemo }
Enter the age:
18
age is above 18
```

LAB EXERCISE NO 5

```
import java.util.Scanner;
import java.lang.Exception;

class stackException extends Exception{
    public String overflow()
    {
        return ("Stack Overflow:Could not add more");
    }
    public String empty()
    {
        return ("Stack Underflow:No element in stack");
    }
}

class StackD{
    int arr[];
    int t=-1;
    int size;
    Scanner sc=new Scanner(System.in);
    public StackD(int size){
        this.size=size;
        arr=new int[size];
    }

    public void push(int x) throws stackException{
        if(t==size-1){
            throw new stackException();
        }
        else
        {
```

```
            t++;
            arr[t]=x;
        }
    }

    public int pop() throws stackException{
        if(t==-1)
        {
            throw new stackException();
        }
        else
        {
            return t--;
        }
    }
    public void Display(){
        int i;
        if(t==-1)
            System.out.println("Stack is Empty");
        for(i=t;i>=0;i--){
            System.out.println("Stack [" +i+"] = "+arr[i]+" ");
        }
    }
}
public class StackExample{
    public static void main(String[] args){
        Scanner sc=new Scanner(System.in);
        int e, size;
        System.out.print("Enter the size of the Stack : ");
        size=sc.nextInt();
        StackD s=new StackD(size);
        int opt;
        do{
            System.out.print("\n1.Push\t2.Pop\t3.Display\nEnter The
Choice : ");
            opt=sc.nextInt();
            switch(opt){
                case 1:
                    try{
                        System.out.print("\nEnter the Elements : ");
                        e=sc.nextInt();
                        s.push(e);
```

```
                    }
                    catch(stackException x){
                        System.out.println(x.overflow());
                    }
                    break;
                case 2:
                    try{
                        s.pop();
                    }
                    catch(stackException x){
                        System.out.println(x.empty());
                    }
                    break;
                case 3:
                    s.Display();
                    break;
                default:
                    System.out.print("Wrong Choice");
                    break;
            }

        }while(true );
    }
}
```

OUTPUT

```
Enter the size of the Stack : 2

1.Push  2.Pop   3.Display
Enter The Choice : 1

Enter the Elements : 10

1.Push  2.Pop   3.Display
Enter The Choice : 1

Enter the Elements : 20

1.Push  2.Pop   3.Display
Enter The Choice : 1

Enter the Elements : 30
Stack Overflow:Could not add more

1.Push  2.Pop   3.Display
Enter The Choice : 3
Stack [1] = 20
Stack [0] = 10

1.Push  2.Pop   3.Display
Enter The Choice : 2

1.Push  2.Pop   3.Display
Enter The Choice : 2

1.Push  2.Pop   3.Display
Enter The Choice : 2
Stack Underflow:No element in stack

1.Push  2.Pop   3.Display
Enter The Choice :
```