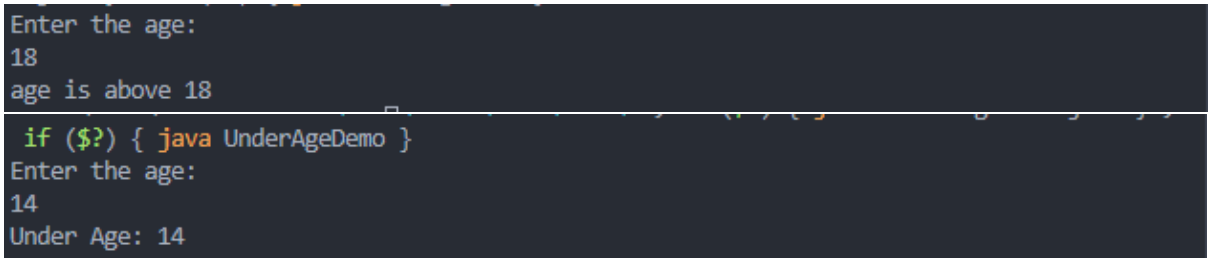
```
//LAB Exercise 4
 import java.lang.Exception;
import java.util.Scanner;
class UnderAge extends Exception{
   int age;
   UnderAge(int age){
      this.age=age;
   }
   public String toString(){
      String temp="Under Age: "+age;
      return temp;
   }
}
public class Demo{
        static void test(int 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);
        }
}
```

OUTPUT



//Lab Exercise 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();
		}
		if(t==-1)
			t=0;
		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 is "+arr[i]+"\t");
		}
	}
}
class StackLabs{
	public static void main(String[] args){
		Scanner sc=new Scanner(System.in);
		char ch='y';
		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.println("\n1.Push\n2.Pop\n3.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;
                        }
                        System.out.print("Do you Wish to Continue(y/n)?");
                        ch=sc.next().charAt(0);
                }while(ch=='y'||ch=='Y');
        }
}
```

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 :
```