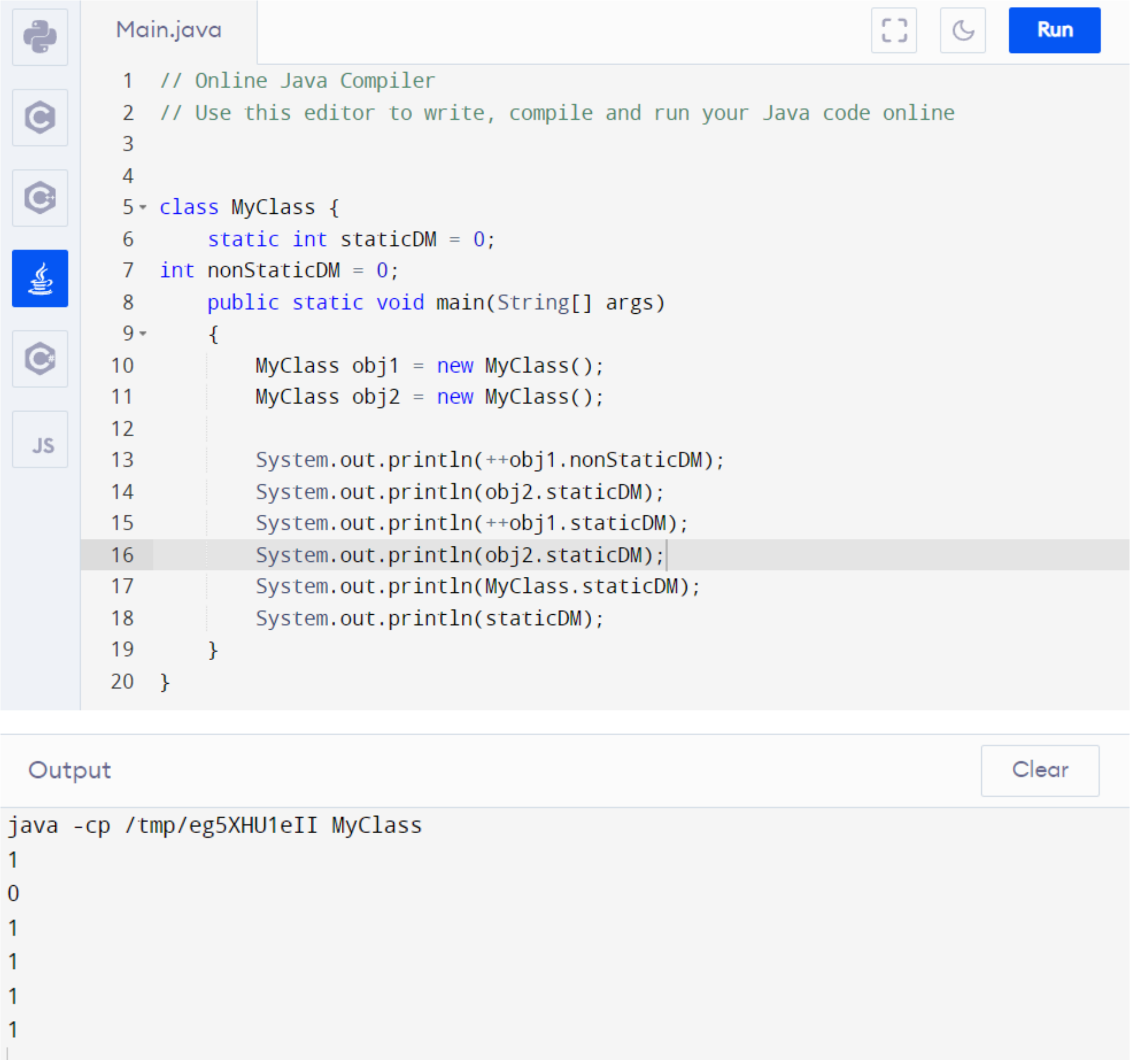
/* Priyanshu Jain */

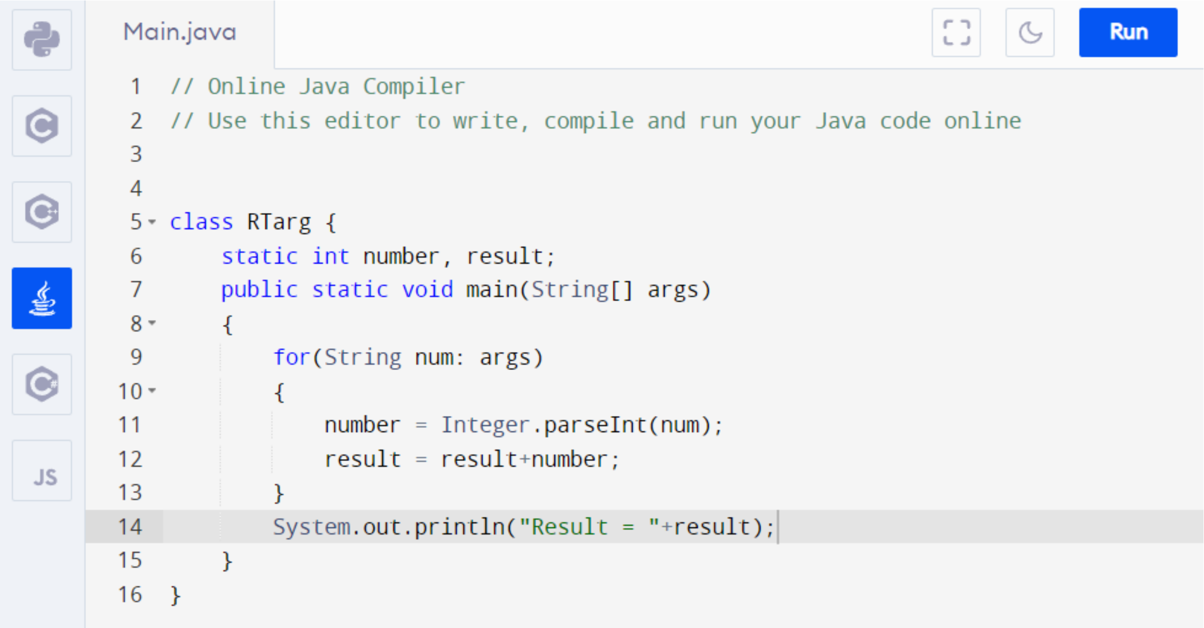
Q 1) WAP to show that there always exists single copy of static member of a class in memory:



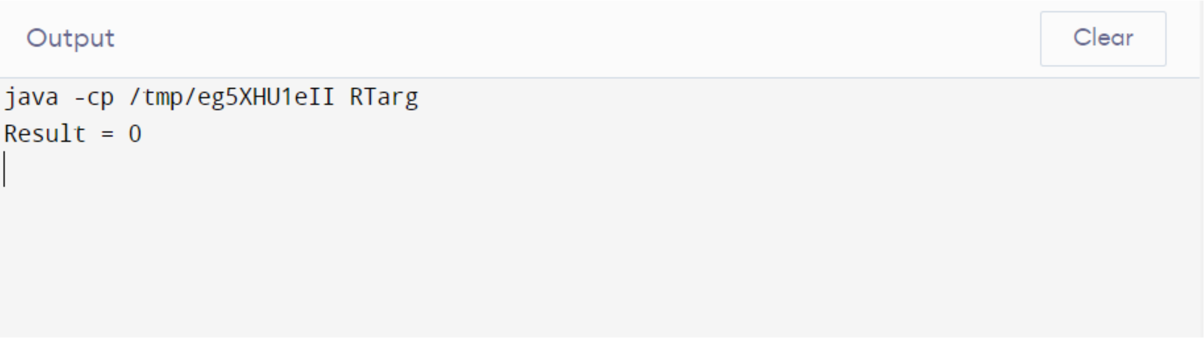
```java
// Online Java Compiler
// Use this editor to write, compile and run your Java code online


class MyClass {
    static int staticDM = 0;
int nonStaticDM = 0;
    public static void main(String[] args)
    {
        MyClass obj1 = new MyClass();
        MyClass obj2 = new MyClass();

        System.out.println(++obj1.nonStaticDM);
        System.out.println(obj2.staticDM);
        System.out.println(++obj1.staticDM);
        System.out.println(obj2.staticDM);
        System.out.println(MyClass.staticDM);
        System.out.println(staticDM);
    }
}
```

```
java -cp /tmp/eg5XHU1eII MyClass
1
0
1
1
1
1
```

Q 2) WAP using for each loop to add numbers passed as command line argument:

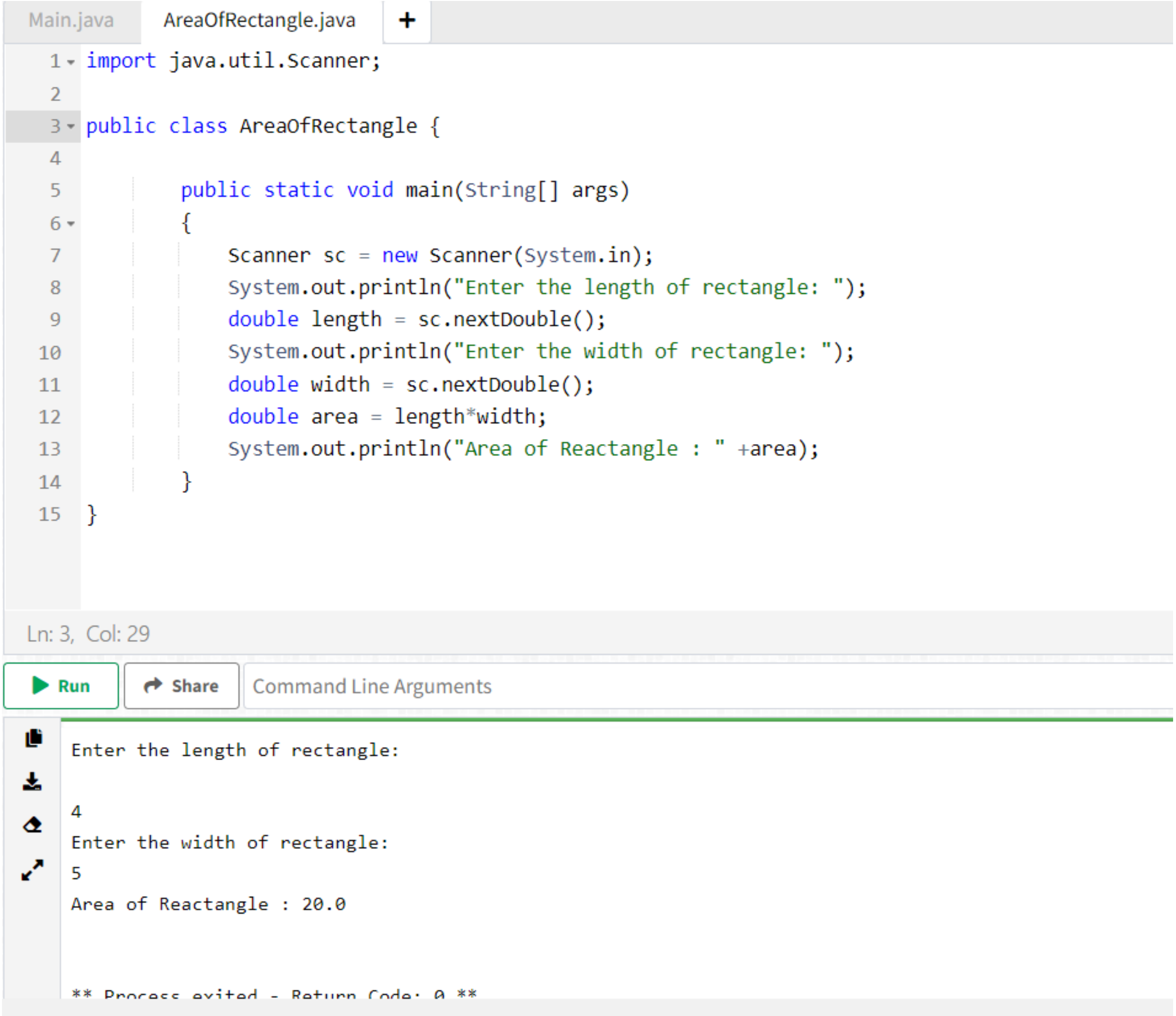


```java
// Online Java Compiler
// Use this editor to write, compile and run your Java code online


class RTarg {
    static int number, result;
    public static void main(String[] args)
    {
        for(String num: args)
        {
            number = Integer.parseInt(num);
            result = result+number;
        }
        System.out.println("Result = "+result);
    }
}
```



```
java -cp /tmp/eg5XHU1eII RTarg
Result = 0
```

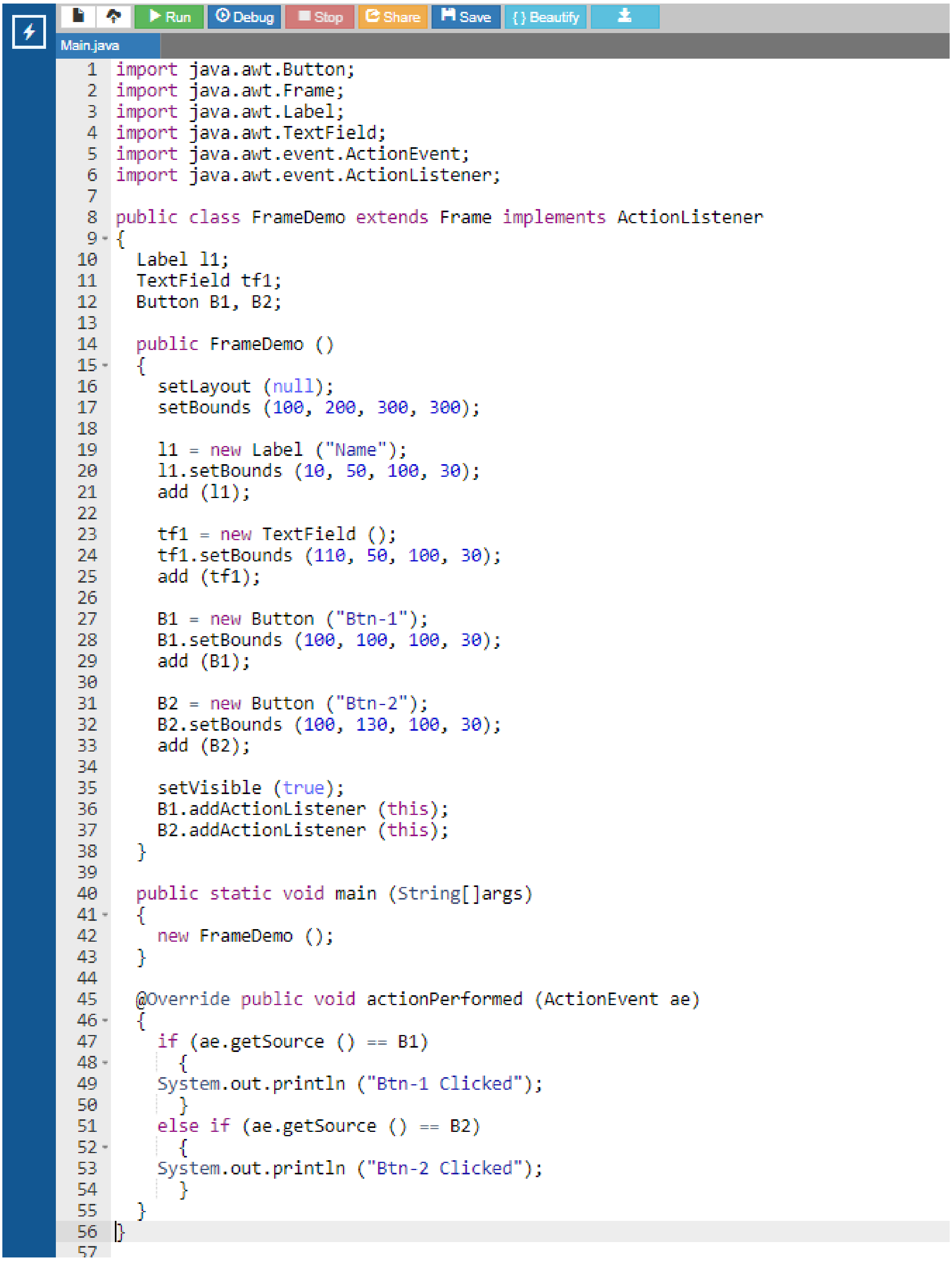
Q 3) WAP that accepts length and width of a triangle using scanner class and calculate its area:



```java
import java.util.Scanner;

public class AreaOfRectangle {

	public static void main(String[] args)
	{
		Scanner sc = new Scanner(System.in);
		System.out.println("Enter the length of rectangle: ");
		double length = sc.nextDouble();
		System.out.println("Enter the width of rectangle: ");
		double width = sc.nextDouble();
		double area = length*width;
		System.out.println("Area of Reactangle : " +area);
	}
}
```

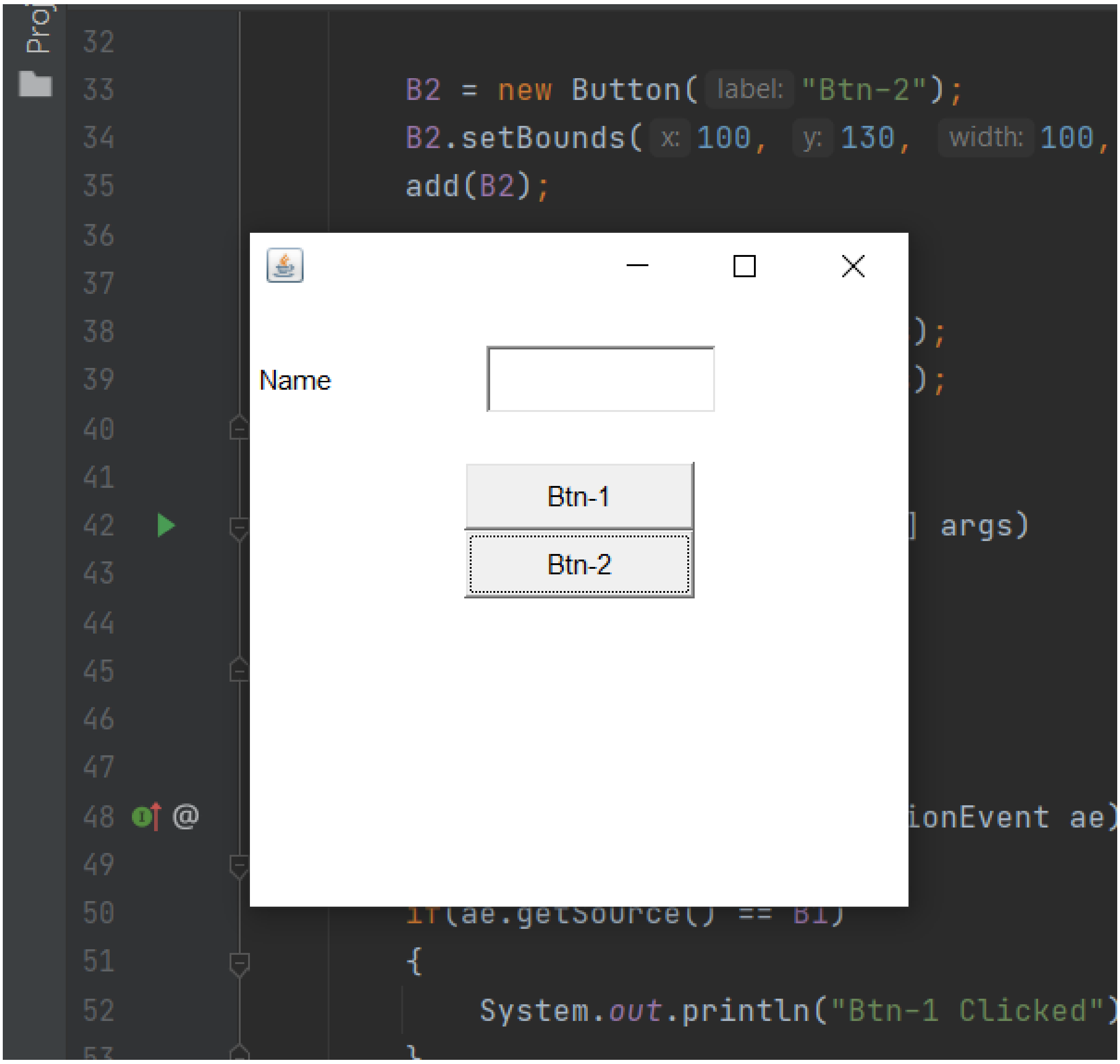
```
Enter the length of rectangle:

4
Enter the width of rectangle:
5
Area of Reactangle : 20.0


** Process exited - Return Code: 0 **
```

Q 5) Create a frame , add two buttons into it, and identify the buttons when they are clicked:



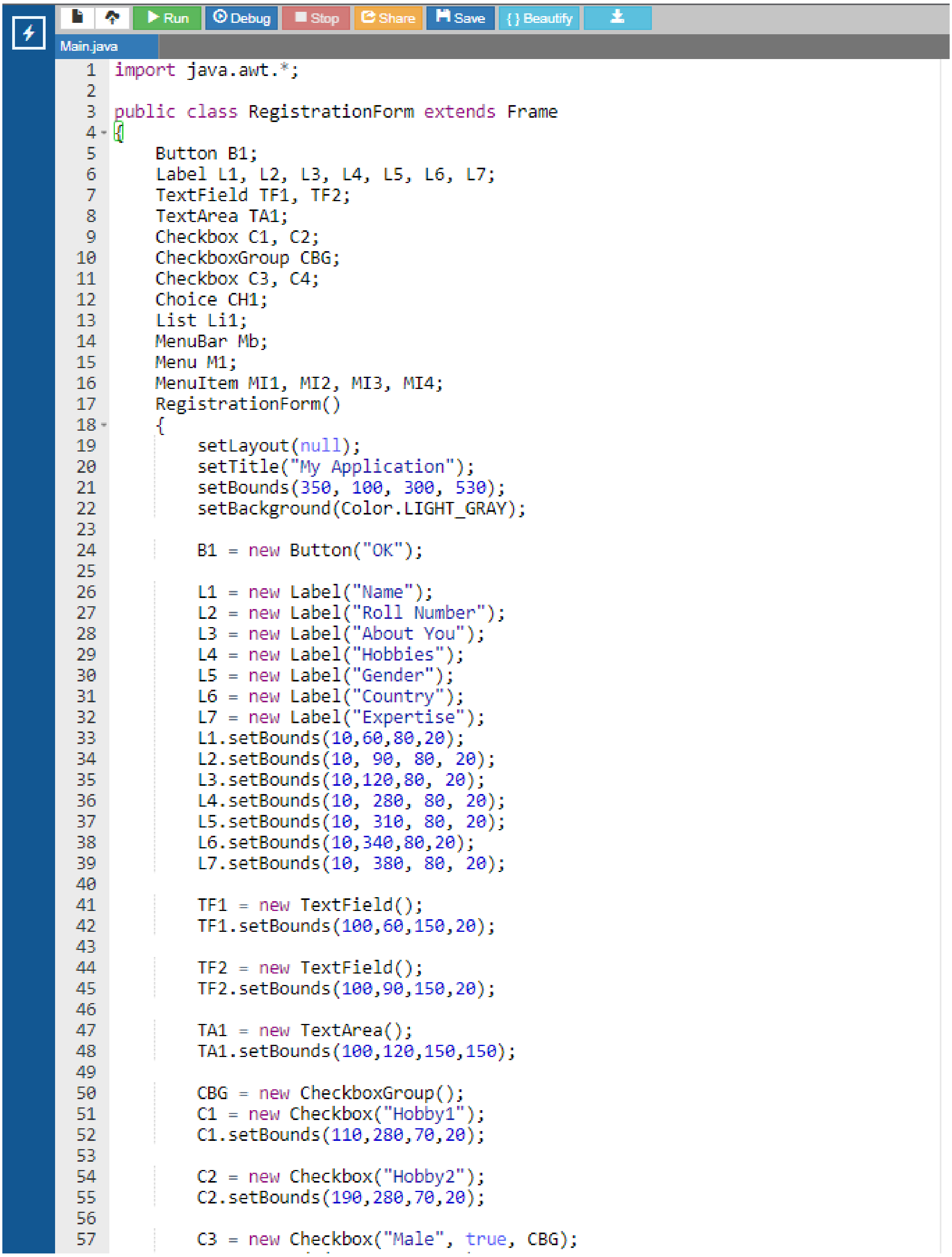
```java
import java.awt.Button;
import java.awt.Frame;
import java.awt.Label;
import java.awt.TextField;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;

public class FrameDemo extends Frame implements ActionListener
{
  Label l1;
  TextField tf1;
  Button B1, B2;

  public FrameDemo ()
  {
    setLayout (null);
    setBounds (100, 200, 300, 300);

    l1 = new Label ("Name");
    l1.setBounds (10, 50, 100, 30);
    add (l1);

    tf1 = new TextField ();
    tf1.setBounds (110, 50, 100, 30);
    add (tf1);

    B1 = new Button ("Btn-1");
    B1.setBounds (100, 100, 100, 30);
    add (B1);

    B2 = new Button ("Btn-2");
    B2.setBounds (100, 130, 100, 30);
    add (B2);

    setVisible (true);
    B1.addActionListener (this);
    B2.addActionListener (this);
  }

  public static void main (String[]args)
  {
    new FrameDemo ();
  }

  @Override public void actionPerformed (ActionEvent ae)
  {
    if (ae.getSource () == B1)
      {
    System.out.println ("Btn-1 Clicked");
      }
    else if (ae.getSource () == B2)
      {
    System.out.println ("Btn-2 Clicked");
      }
  }
}
```

Output :-

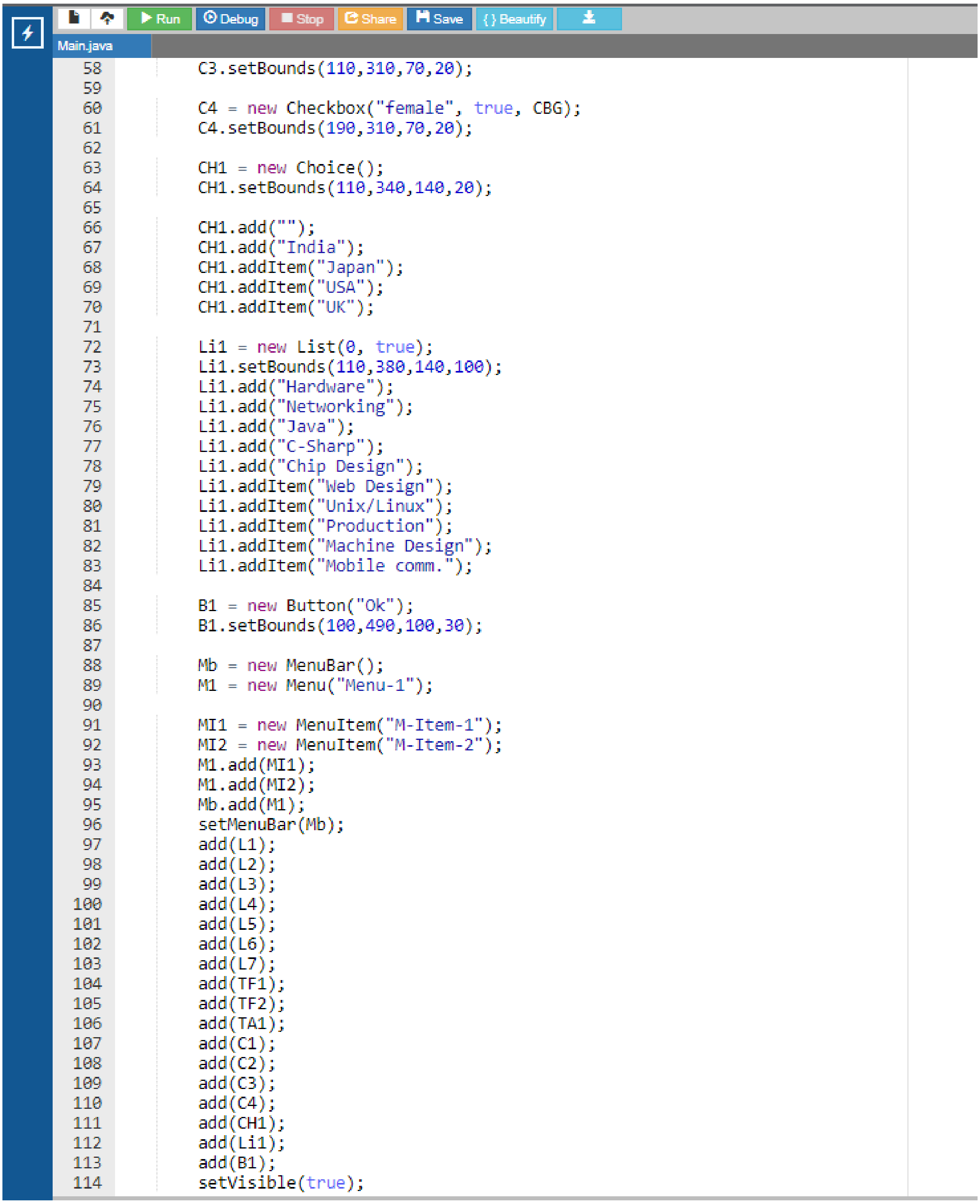


```
        B2 = new Button( label: "Btn-2");
        B2.setBounds( x: 100, y: 130, width: 100,
        add(B2);



                                                    );
                                                    );



                                                    ] args)





                                                    ionEvent ae)

        if(ae.getSource() == B1)
        {
            System.out.println("Btn-1 Clicked")
        }
```

Q 6) Design complete GUI using AWT package for registering a new user:



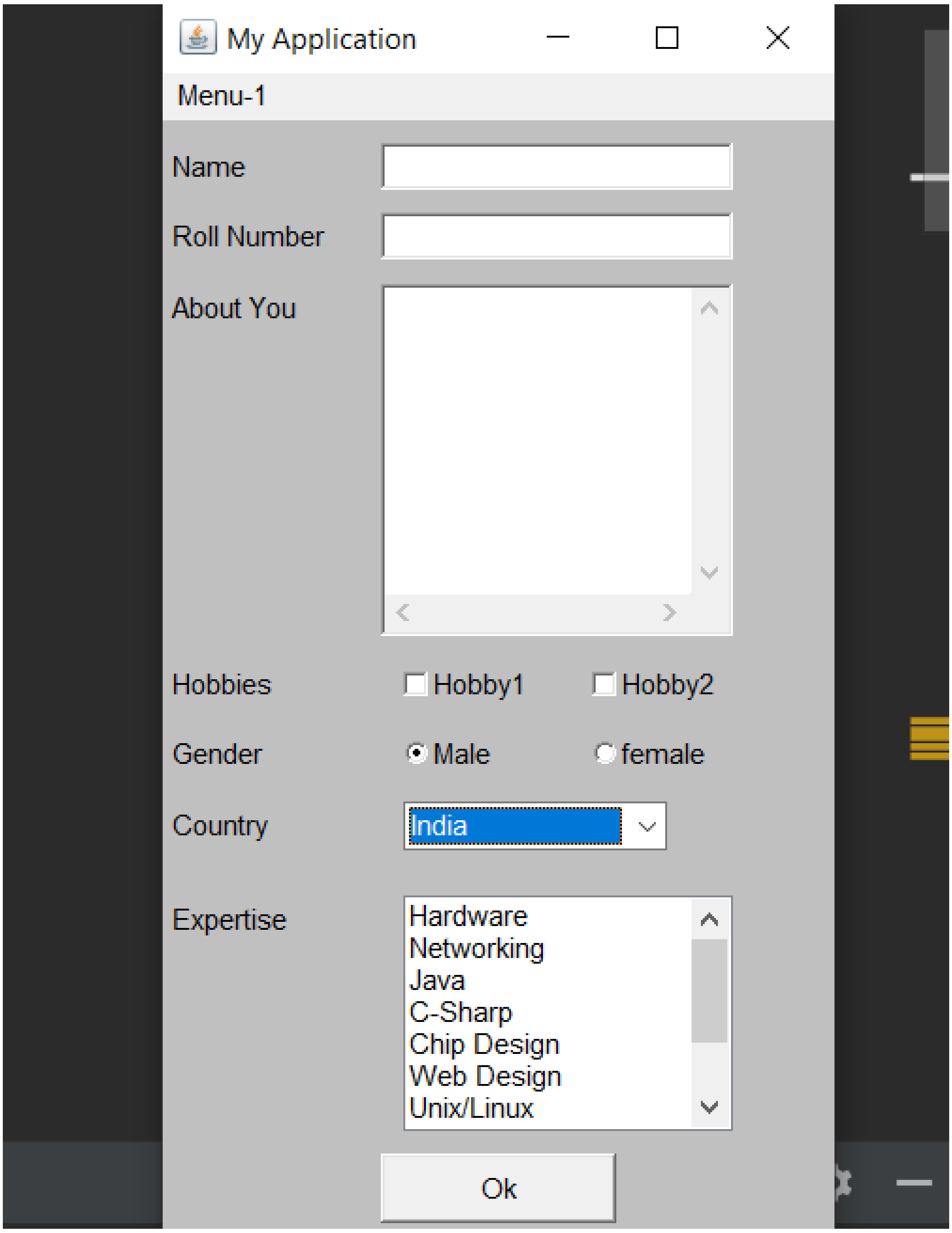
```java
import java.awt.*;

public class RegistrationForm extends Frame
{
    Button B1;
    Label L1, L2, L3, L4, L5, L6, L7;
    TextField TF1, TF2;
    TextArea TA1;
    Checkbox C1, C2;
    CheckboxGroup CBG;
    Checkbox C3, C4;
    Choice CH1;
    List Li1;
    MenuBar Mb;
    Menu M1;
    MenuItem MI1, MI2, MI3, MI4;
    RegistrationForm()
    {
        setLayout(null);
        setTitle("My Application");
        setBounds(350, 100, 300, 530);
        setBackground(Color.LIGHT_GRAY);

        B1 = new Button("OK");

        L1 = new Label("Name");
        L2 = new Label("Roll Number");
        L3 = new Label("About You");
        L4 = new Label("Hobbies");
        L5 = new Label("Gender");
        L6 = new Label("Country");
        L7 = new Label("Expertise");
        L1.setBounds(10,60,80,20);
        L2.setBounds(10, 90, 80, 20);
        L3.setBounds(10,120,80, 20);
        L4.setBounds(10, 280, 80, 20);
        L5.setBounds(10, 310, 80, 20);
        L6.setBounds(10,340,80,20);
        L7.setBounds(10, 380, 80, 20);

        TF1 = new TextField();
        TF1.setBounds(100,60,150,20);

        TF2 = new TextField();
        TF2.setBounds(100,90,150,20);

        TA1 = new TextArea();
        TA1.setBounds(100,120,150,150);

        CBG = new CheckboxGroup();
        C1 = new Checkbox("Hobby1");
        C1.setBounds(110,280,70,20);

        C2 = new Checkbox("Hobby2");
        C2.setBounds(190,280,70,20);

        C3 = new Checkbox("Male", true, CBG);
```



```
        C3.setBounds(110,310,70,20);

        C4 = new Checkbox("female", true, CBG);
        C4.setBounds(190,310,70,20);

        CH1 = new Choice();
        CH1.setBounds(110,340,140,20);

        CH1.add("");
        CH1.add("India");
        CH1.addItem("Japan");
        CH1.addItem("USA");
        CH1.addItem("UK");

        Li1 = new List(0, true);
        Li1.setBounds(110,380,140,100);
        Li1.add("Hardware");
        Li1.add("Networking");
        Li1.add("Java");
        Li1.add("C-Sharp");
        Li1.add("Chip Design");
        Li1.addItem("Web Design");
        Li1.addItem("Unix/Linux");
        Li1.addItem("Production");
        Li1.addItem("Machine Design");
        Li1.addItem("Mobile comm.");

        B1 = new Button("Ok");
        B1.setBounds(100,490,100,30);

        Mb = new MenuBar();
        M1 = new Menu("Menu-1");

        MI1 = new MenuItem("M-Item-1");
        MI2 = new MenuItem("M-Item-2");
        M1.add(MI1);
        M1.add(MI2);
        Mb.add(M1);
        setMenuBar(Mb);
        add(L1);
        add(L2);
        add(L3);
        add(L4);
        add(L5);
        add(L6);
        add(L7);
        add(TF1);
        add(TF2);
        add(TA1);
        add(C1);
        add(C2);
        add(C3);
        add(C4);
        add(CH1);
        add(Li1);
        add(B1);
        setVisible(true);
```

```
    }

    public static void main(String[] args)
    {
        new RegistrationForm();
    }
}
```

Output :-



Name

Roll Number

About You

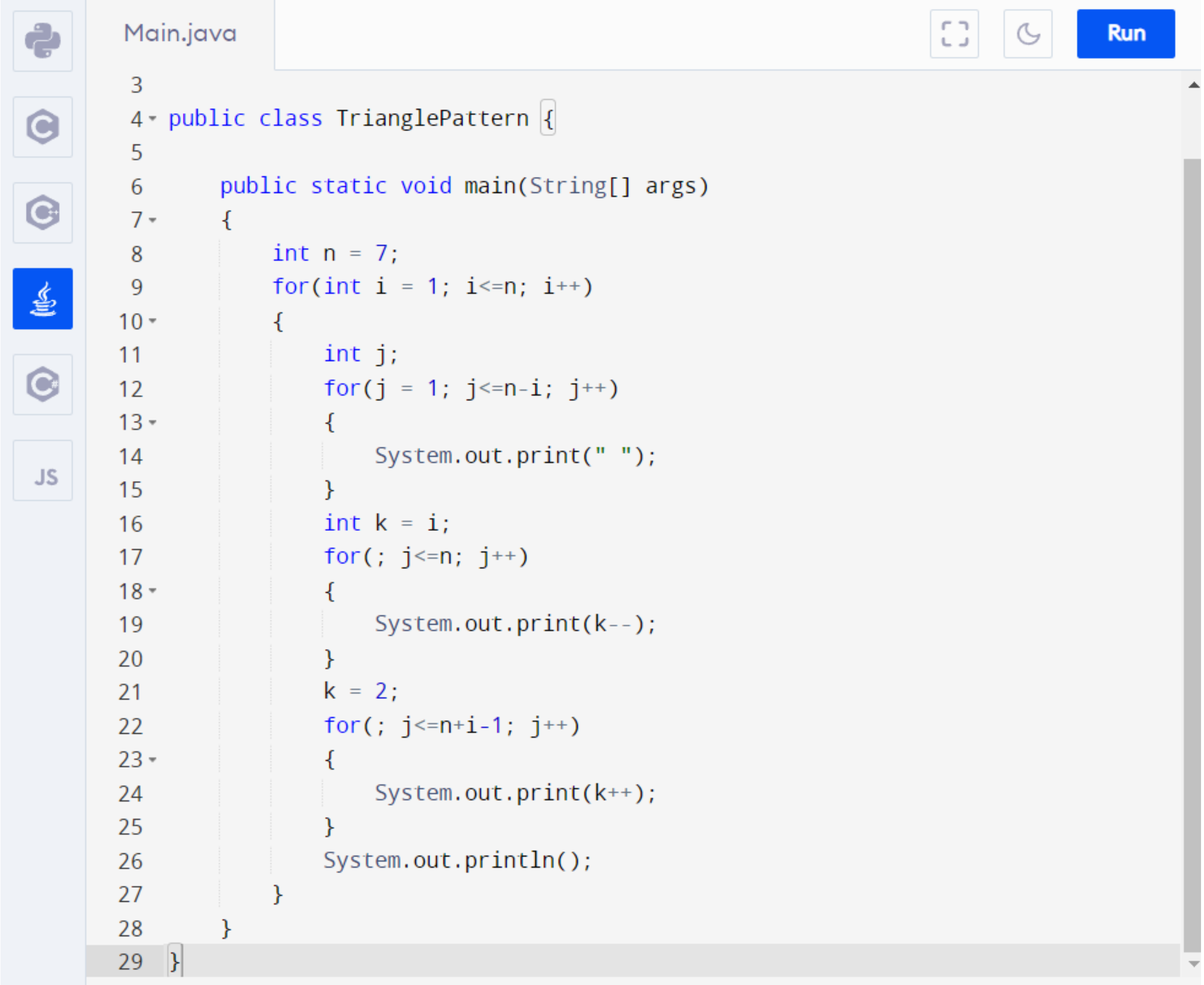
Hobbies ☐ Hobby1 ☐ Hobby2

Gender ● Male ○ female

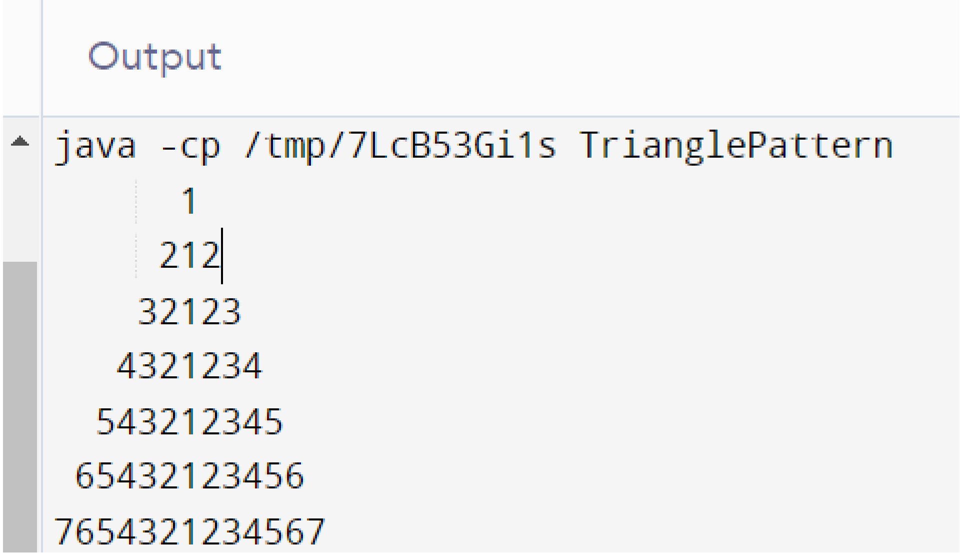
Country India

Expertise
Hardware
Networking
Java
C-Sharp
Chip Design
Web Design
Unix/Linux

Q 7) WAP that accepts value of n ranging from 2 to 9 and generates the following pattern:

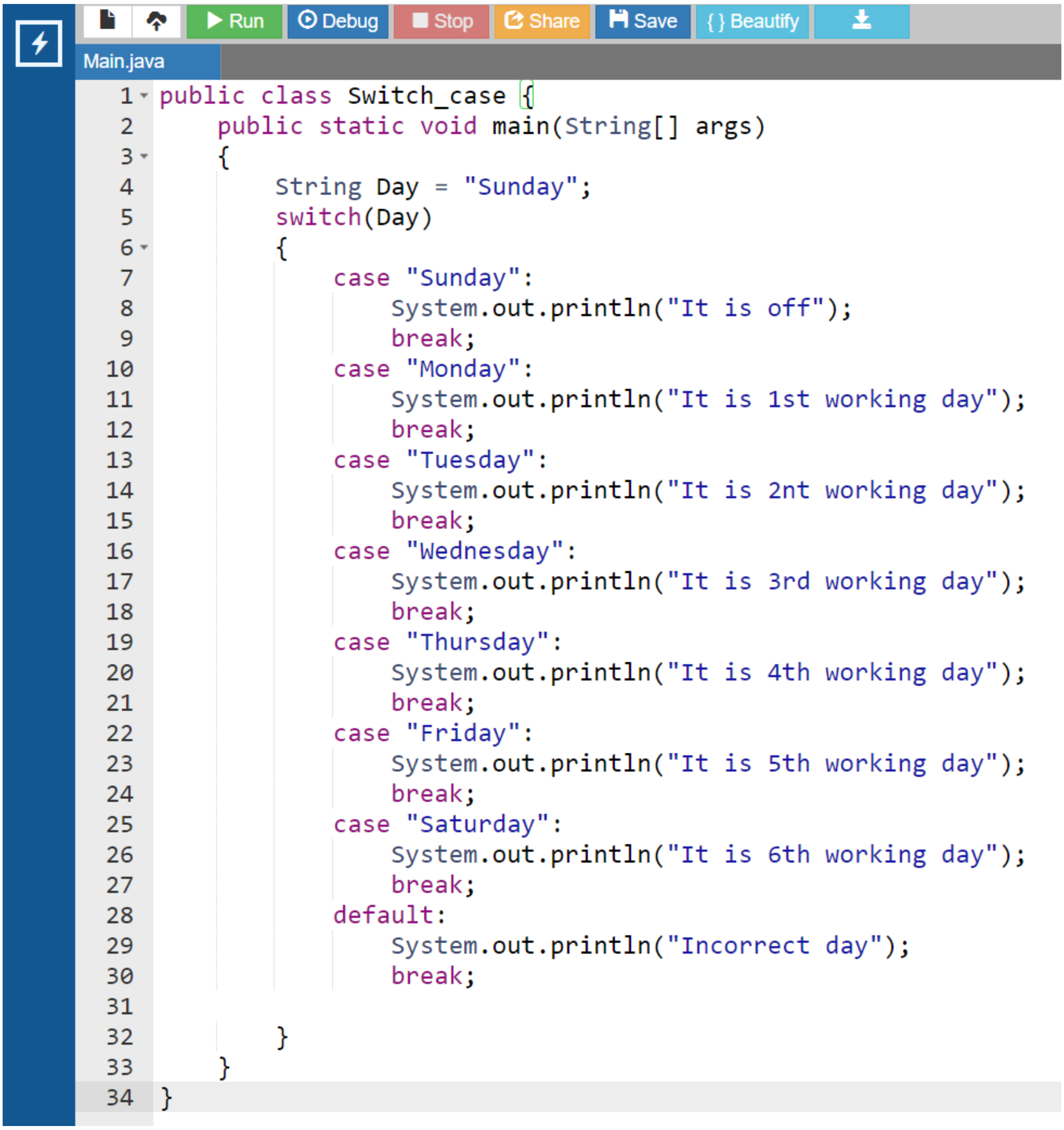


```java

public class TrianglePattern {

    public static void main(String[] args)
    {
        int n = 7;
        for(int i = 1; i<=n; i++)
        {
            int j;
            for(j = 1; j<=n-i; j++)
            {
                System.out.print(" ");
            }
            int k = i;
            for(; j<=n; j++)
            {
                System.out.print(k--);
            }
            k = 2;
            for(; j<=n+i-1; j++)
            {
                System.out.print(k++);
            }
            System.out.println();
        }
    }
}
```

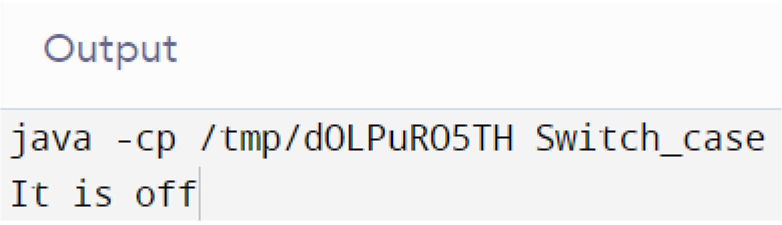


```
java -cp /tmp/7LcB53Gi1s TrianglePattern
      1
     212
    32123
   4321234
  543212345
 65432123456
7654321234567
```

Q 8) WAP using switch-case construct that accepts name of a day and tells whether it is a working day or a holiday:

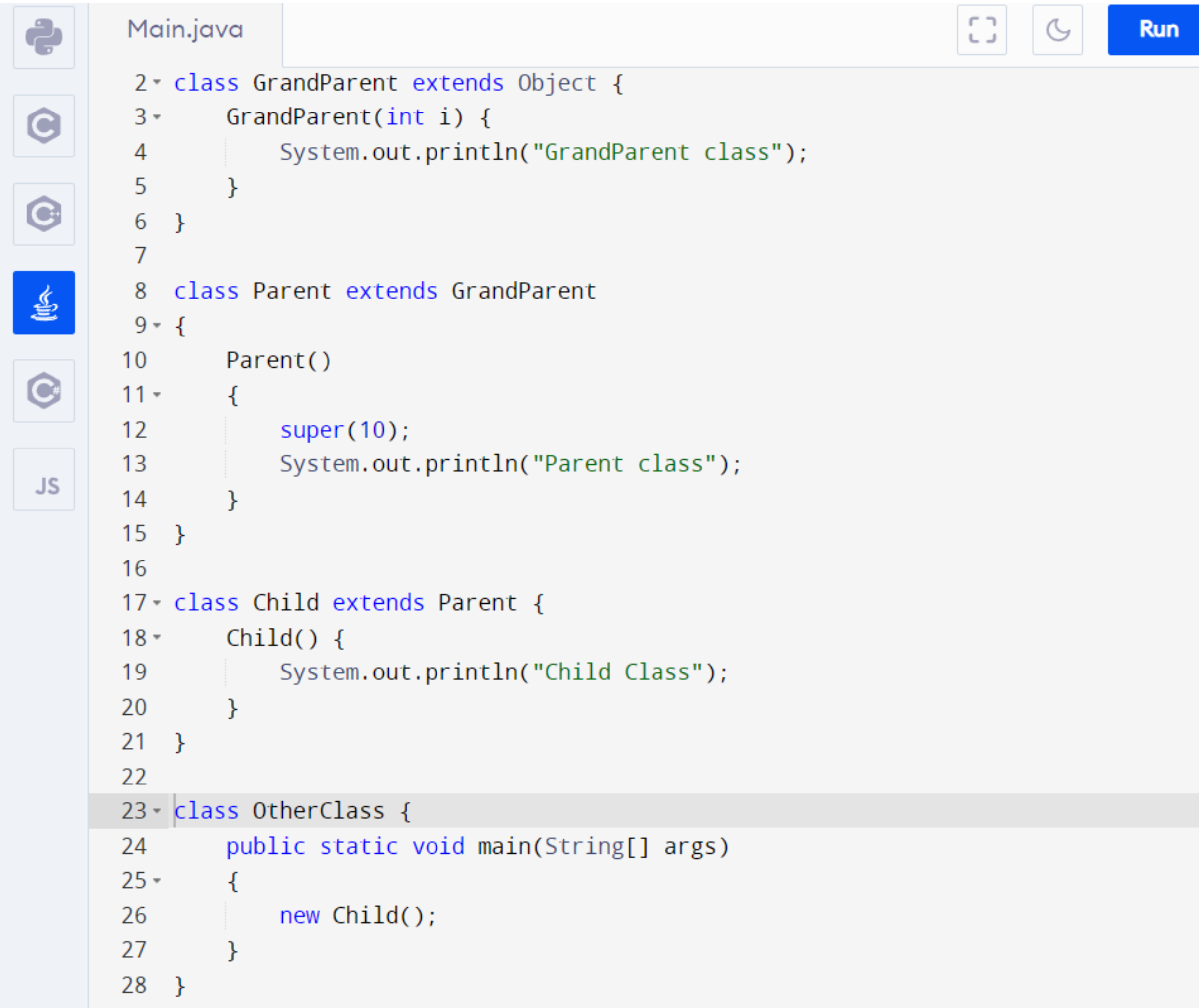


```java
public class Switch_case {
    public static void main(String[] args)
    {
        String Day = "Sunday";
        switch(Day)
        {
            case "Sunday":
                System.out.println("It is off");
                break;
            case "Monday":
                System.out.println("It is 1st working day");
                break;
            case "Tuesday":
                System.out.println("It is 2nt working day");
                break;
            case "Wednesday":
                System.out.println("It is 3rd working day");
                break;
            case "Thursday":
                System.out.println("It is 4th working day");
                break;
            case "Friday":
                System.out.println("It is 5th working day");
                break;
            case "Saturday":
                System.out.println("It is 6th working day");
                break;
            default:
                System.out.println("Incorrect day");
                break;

        }
    }
}
```

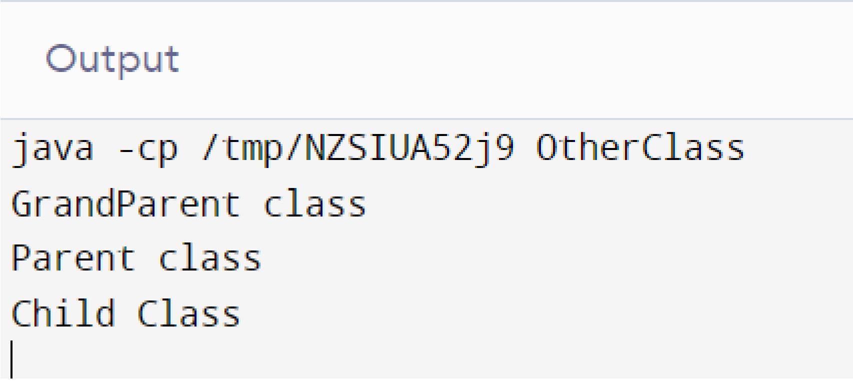


```
java -cp /tmp/dOLPuRO5TH Switch_case
It is off
```

Q 9) WAP, which proves that the first statement of any constructor always calls the superclass constructor:



```java
class GrandParent extends Object {
    GrandParent(int i) {
        System.out.println("GrandParent class");
    }
}

class Parent extends GrandParent
{
    Parent()
    {
        super(10);
        System.out.println("Parent class");
    }
}

class Child extends Parent {
    Child() {
        System.out.println("Child Class");
    }
}

class OtherClass {
    public static void main(String[] args)
    {
        new Child();
    }
}
```



```
java -cp /tmp/NZSIUA52j9 OtherClass
GrandParent class
Parent class
Child Class
```