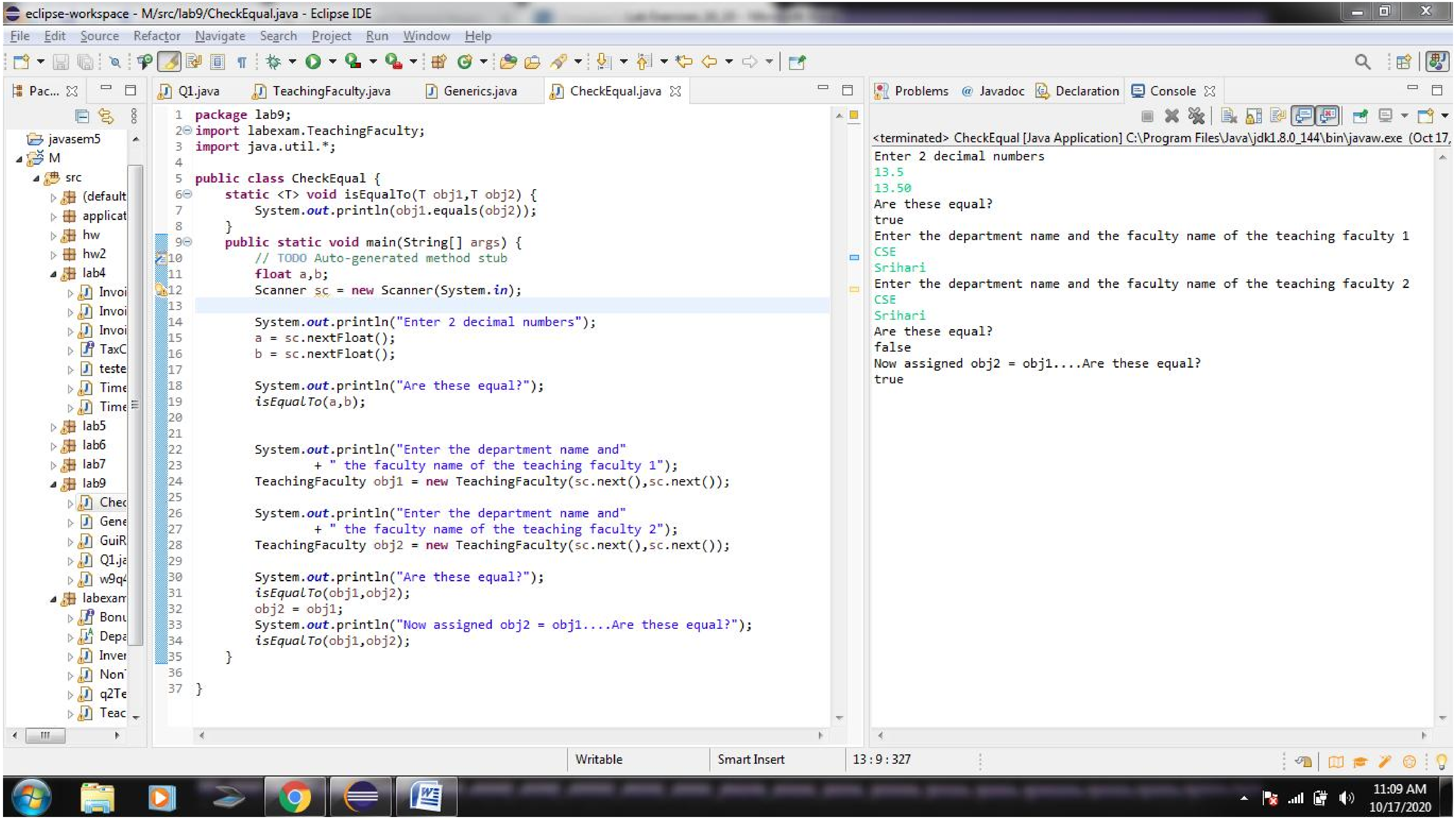
Q1. Checking if arguments are equal in generics

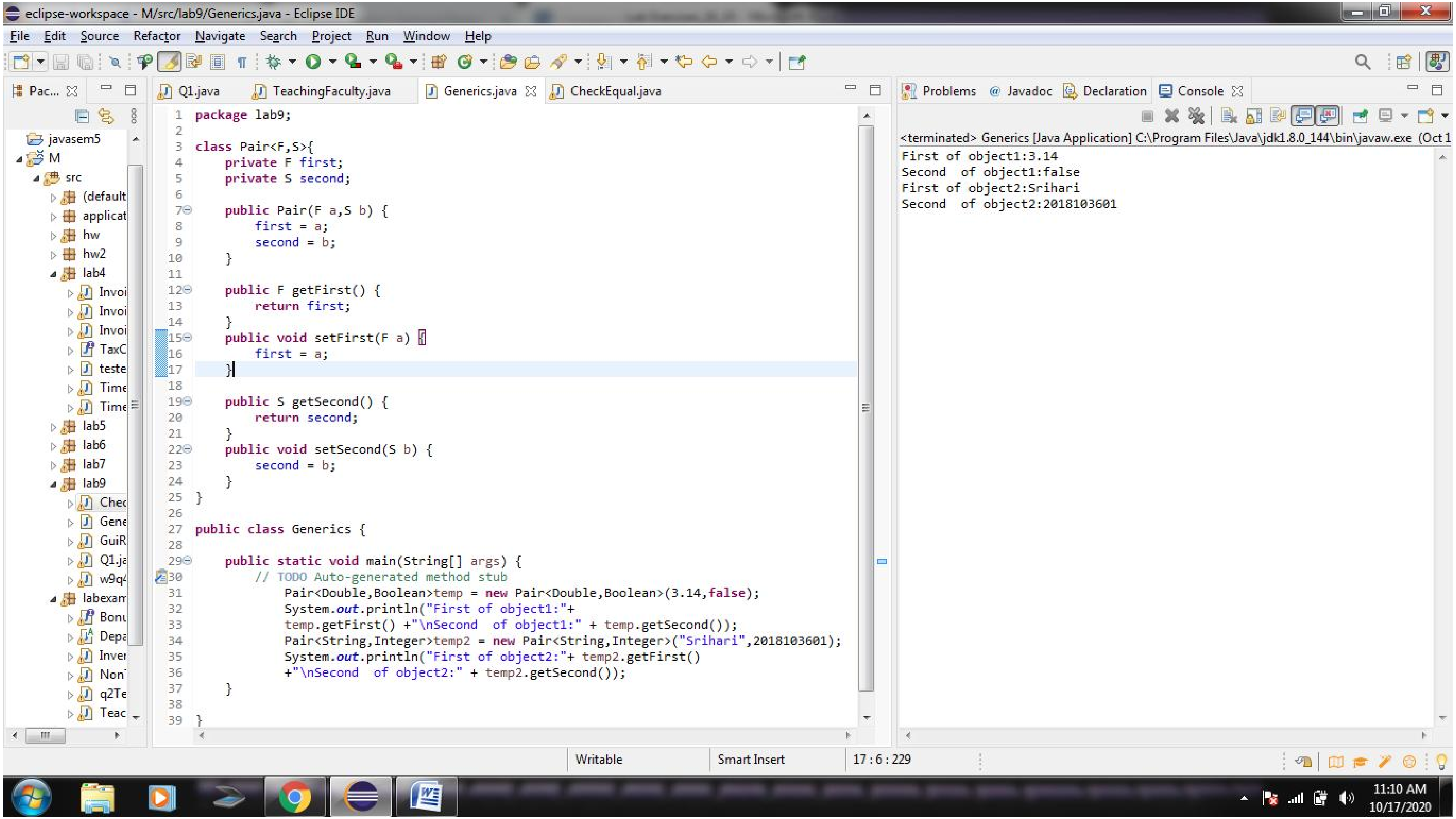
S.SRIHARI - 2018103601



```java
package lab9;
import labexam.TeachingFaculty;
import java.util.*;

public class CheckEqual {
    static <T> void isEqualTo(T obj1,T obj2) {
        System.out.println(obj1.equals(obj2));
    }
    public static void main(String[] args) {
        // TODO Auto-generated method stub
        float a,b;
        Scanner sc = new Scanner(System.in);

        System.out.println("Enter 2 decimal numbers");
        a = sc.nextFloat();
        b = sc.nextFloat();

        System.out.println("Are these equal?");
        isEqualTo(a,b);


        System.out.println("Enter the department name and"
                + " the faculty name of the teaching faculty 1");
        TeachingFaculty obj1 = new TeachingFaculty(sc.next(),sc.next());

        System.out.println("Enter the department name and"
                + " the faculty name of the teaching faculty 2");
        TeachingFaculty obj2 = new TeachingFaculty(sc.next(),sc.next());

        System.out.println("Are these equal?");
        isEqualTo(obj1,obj2);
        obj2 = obj1;
        System.out.println("Now assigned obj2 = obj1....Are these equal?");
        isEqualTo(obj1,obj2);
    }

}
```

```
<terminated> CheckEqual [Java Application] C:\Program Files\Java\jdk1.8.0_144\bin\javaw.exe (Oct 17,
Enter 2 decimal numbers
13.5
13.50
Are these equal?
true
Enter the department name and the faculty name of the teaching faculty 1
CSE
Srihari
Enter the department name and the faculty name of the teaching faculty 2
CSE
Srihari
Are these equal?
false
Now assigned obj2 = obj1....Are these equal?
true
```

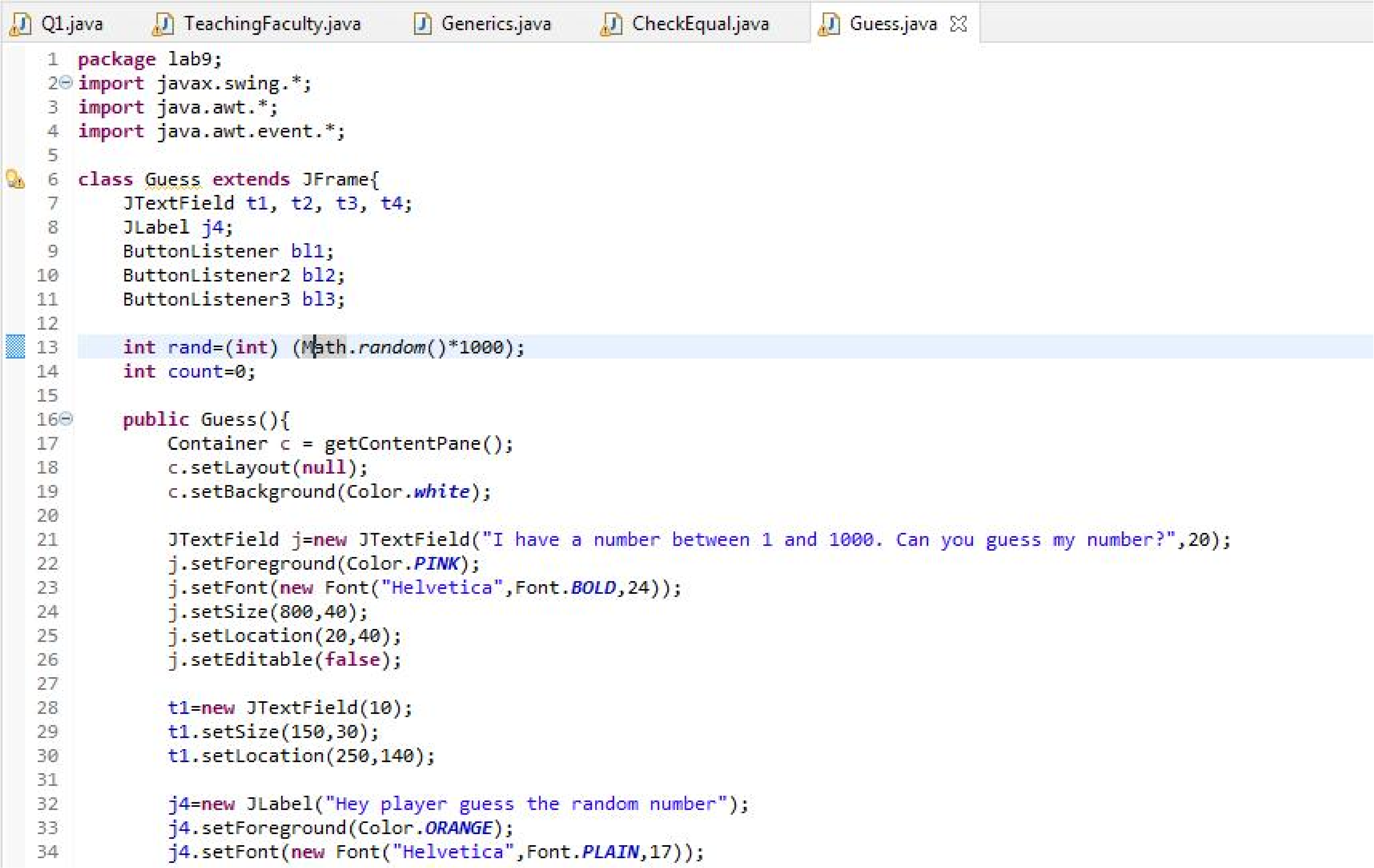
Q2. Generics in java for pairs



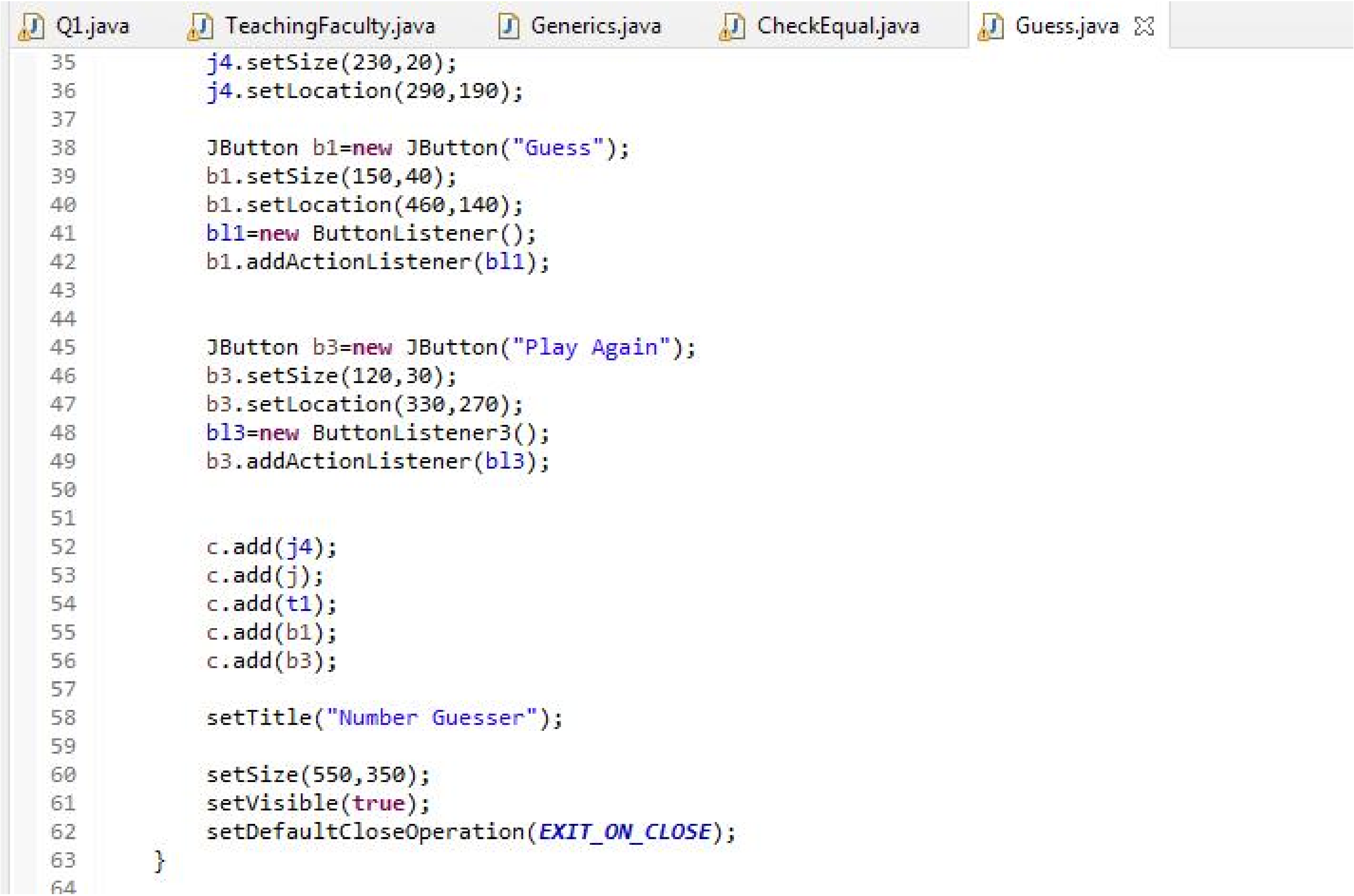
```java
package lab9;

class Pair<F,S>{
    private F first;
    private S second;

    public Pair(F a,S b) {
        first = a;
        second = b;
    }

    public F getFirst() {
        return first;
    }
    public void setFirst(F a) {
        first = a;
    }

    public S getSecond() {
        return second;
    }
    public void setSecond(S b) {
        second = b;
    }
}

public class Generics {

    public static void main(String[] args) {
        // TODO Auto-generated method stub
            Pair<Double,Boolean>temp = new Pair<Double,Boolean>(3.14,false);
            System.out.println("First of object1:"+
            temp.getFirst() +"\nSecond  of object1:" + temp.getSecond());
            Pair<String,Integer>temp2 = new Pair<String,Integer>("Srihari",2018103601);
            System.out.println("First of object2:"+ temp2.getFirst()
            +"\nSecond  of object2:" + temp2.getSecond());
    }

}
```

```
<terminated> Generics [Java Application] C:\Program Files\Java\jdk1.8.0_144\bin\javaw.exe (Oct 1
First of object1:3.14
Second  of object1:false
First of object2:Srihari
Second  of object2:2018103601
```

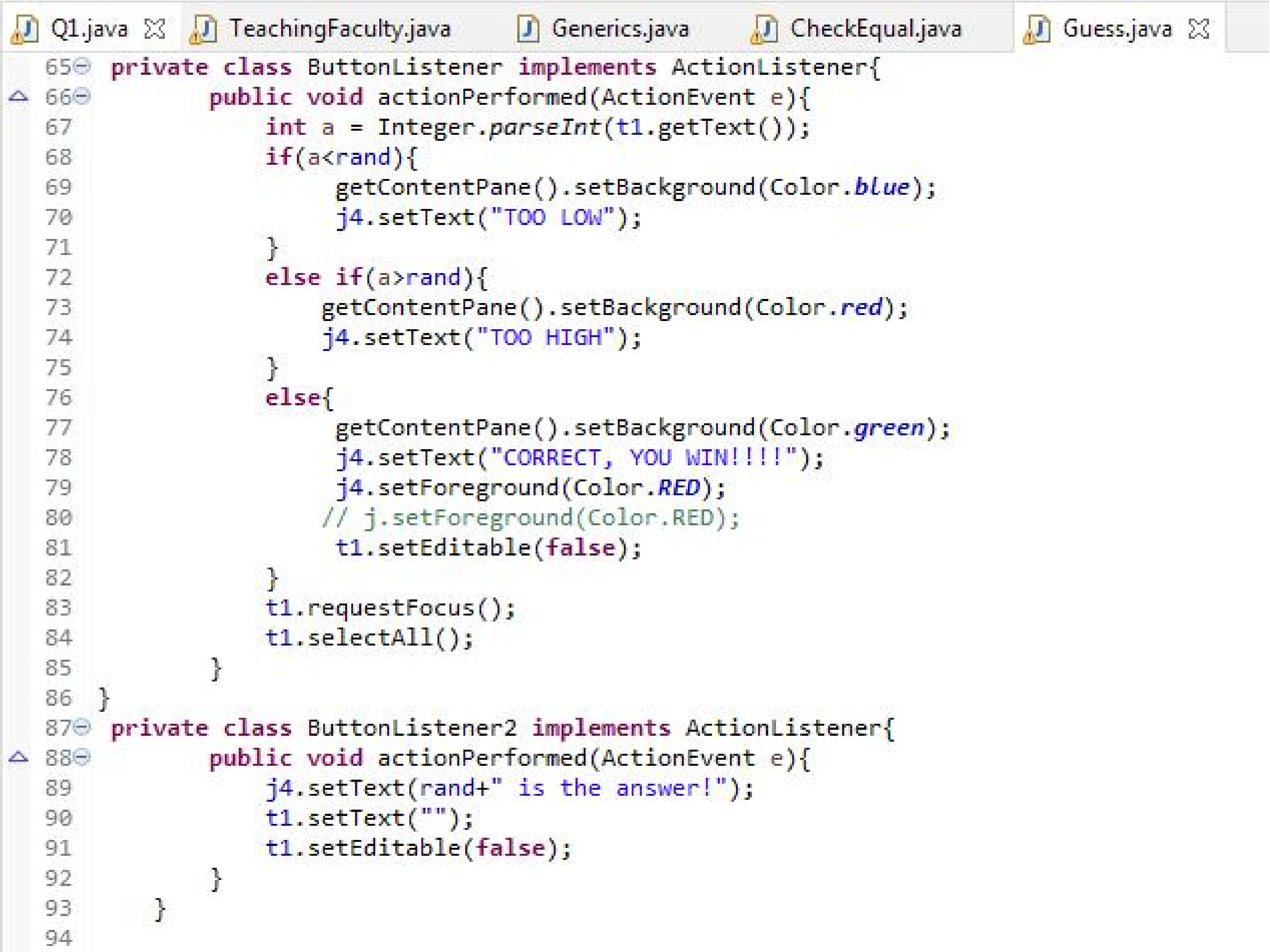
Q3. Guessing the random number



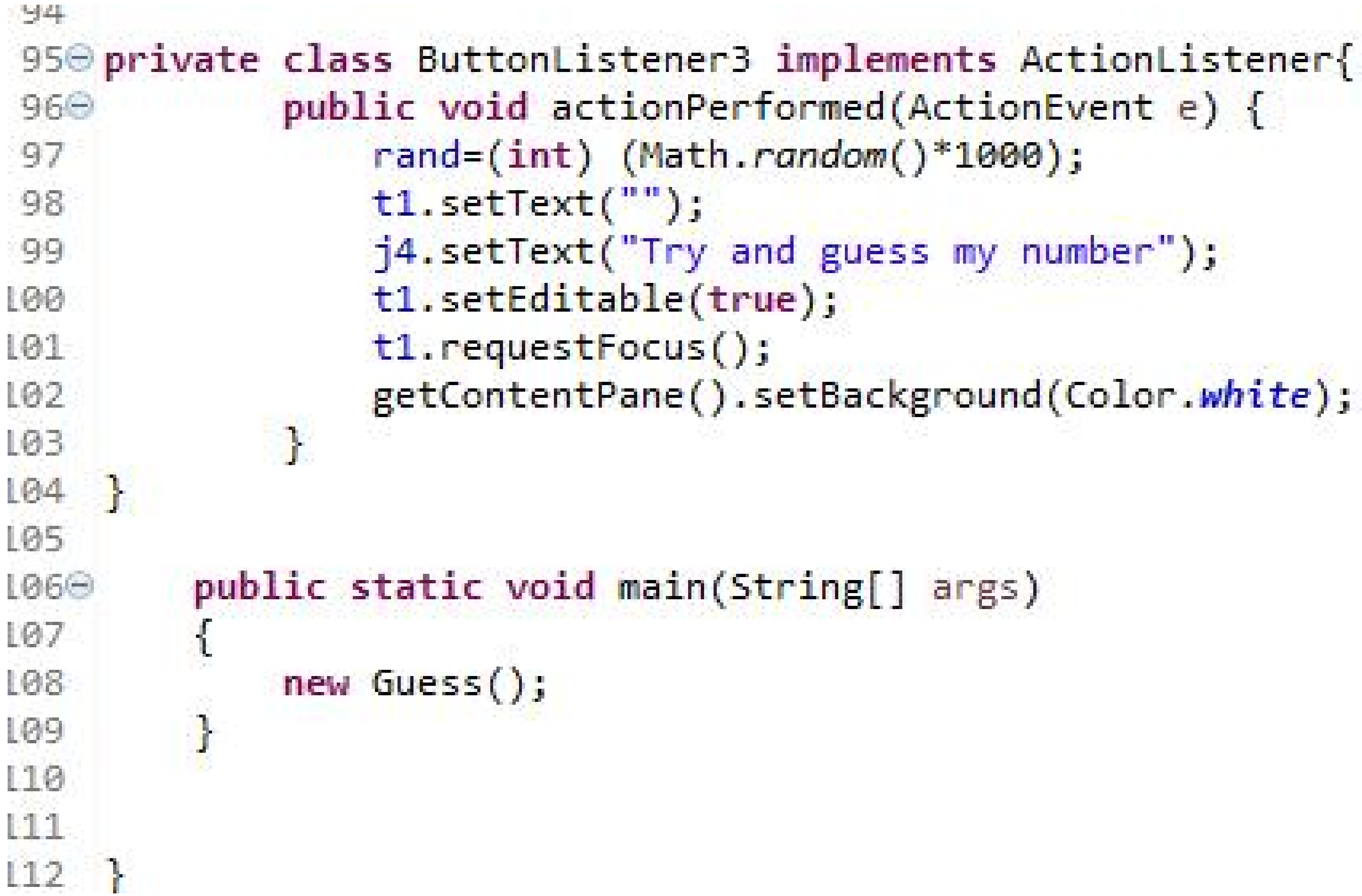
```java
package lab9;
import javax.swing.*;
import java.awt.*;
import java.awt.event.*;

class Guess extends JFrame{
    JTextField t1, t2, t3, t4;
    JLabel j4;
    ButtonListener bl1;
    ButtonListener2 bl2;
    ButtonListener3 bl3;

    int rand=(int) (Math.random()*1000);
    int count=0;

    public Guess(){
        Container c = getContentPane();
        c.setLayout(null);
        c.setBackground(Color.white);

        JTextField j=new JTextField("I have a number between 1 and 1000. Can you guess my number?",20);
        j.setForeground(Color.PINK);
        j.setFont(new Font("Helvetica",Font.BOLD,24));
        j.setSize(800,40);
        j.setLocation(20,40);
        j.setEditable(false);

        t1=new JTextField(10);
        t1.setSize(150,30);
        t1.setLocation(250,140);

        j4=new JLabel("Hey player guess the random number");
        j4.setForeground(Color.ORANGE);
        j4.setFont(new Font("Helvetica",Font.PLAIN,17));
```



```java
        j4.setSize(230,20);
        j4.setLocation(290,190);

        JButton b1=new JButton("Guess");
        b1.setSize(150,40);
        b1.setLocation(460,140);
        bl1=new ButtonListener();
        b1.addActionListener(bl1);


        JButton b3=new JButton("Play Again");
        b3.setSize(120,30);
        b3.setLocation(330,270);
        bl3=new ButtonListener3();
        b3.addActionListener(bl3);


        c.add(j4);
        c.add(j);
        c.add(t1);
        c.add(b1);
        c.add(b3);

        setTitle("Number Guesser");

        setSize(550,350);
        setVisible(true);
        setDefaultCloseOperation(EXIT_ON_CLOSE);
    }

```

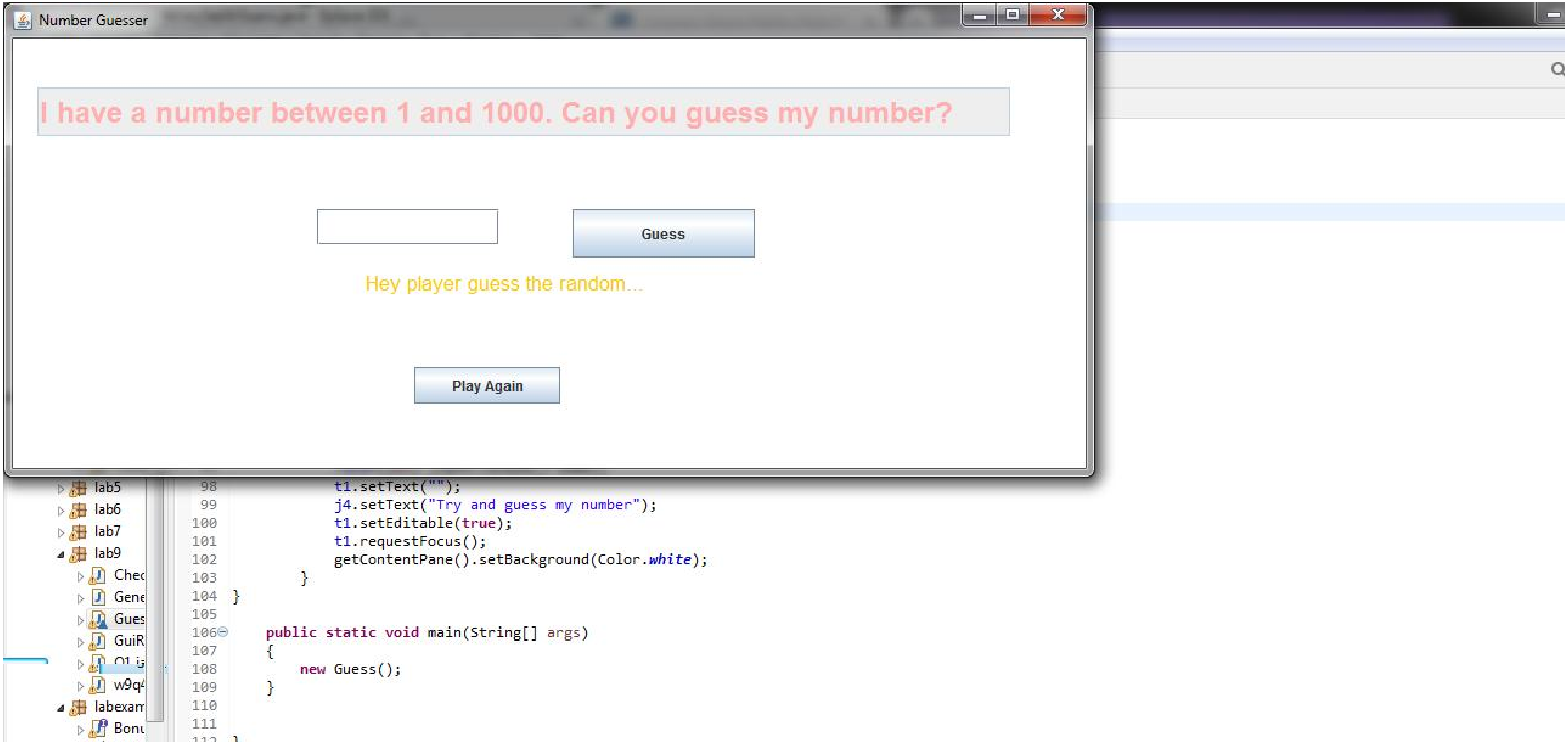


```java
 private class ButtonListener implements ActionListener{
        public void actionPerformed(ActionEvent e){
            int a = Integer.parseInt(t1.getText());
            if(a<rand){
                 getContentPane().setBackground(Color.blue);
                 j4.setText("TOO LOW");
            }
            else if(a>rand){
                getContentPane().setBackground(Color.red);
                j4.setText("TOO HIGH");
            }
            else{
                 getContentPane().setBackground(Color.green);
                 j4.setText("CORRECT, YOU WIN!!!!");
                 j4.setForeground(Color.RED);
                // j.setForeground(Color.RED);
                 t1.setEditable(false);
            }
            t1.requestFocus();
            t1.selectAll();
        }
}
 private class ButtonListener2 implements ActionListener{
        public void actionPerformed(ActionEvent e){
            j4.setText(rand+" is the answer!");
            t1.setText("");
            t1.setEditable(false);
        }
    }

```



```java
private class ButtonListener3 implements ActionListener{
        public void actionPerformed(ActionEvent e) {
            rand=(int) (Math.random()*1000);
            t1.setText("");
            j4.setText("Try and guess my number");
            t1.setEditable(true);
            t1.requestFocus();
            getContentPane().setBackground(Color.white);
        }
}

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


}
```

Guessing the random number - output initially

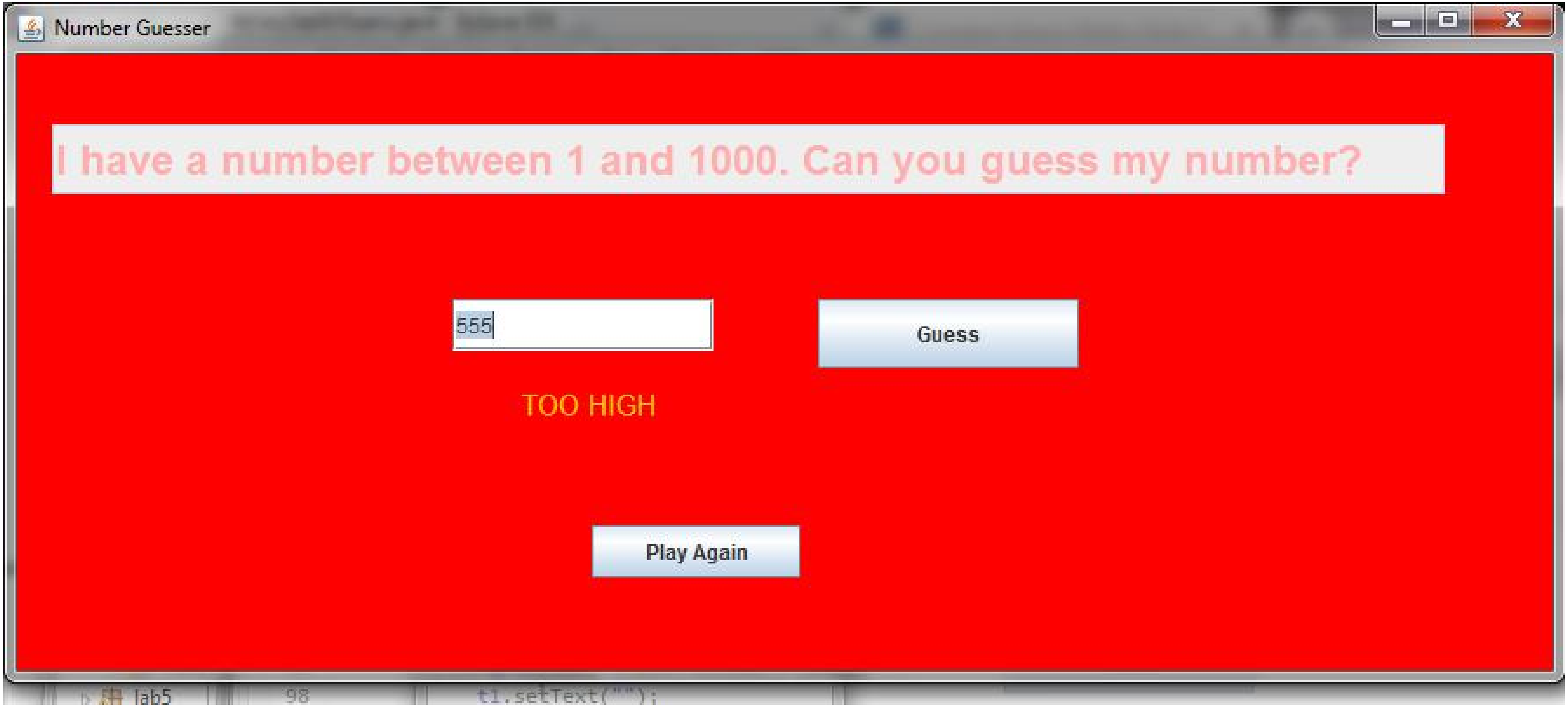


I have a number between 1 and 1000. Can you guess my number?

Hey player guess the random...

```
            t1.setText("");
            j4.setText("Try and guess my number");
            t1.setEditable(true);
            t1.requestFocus();
            getContentPane().setBackground(Color.white);
        }
}

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


}
```

Guessing the random number entering higher value



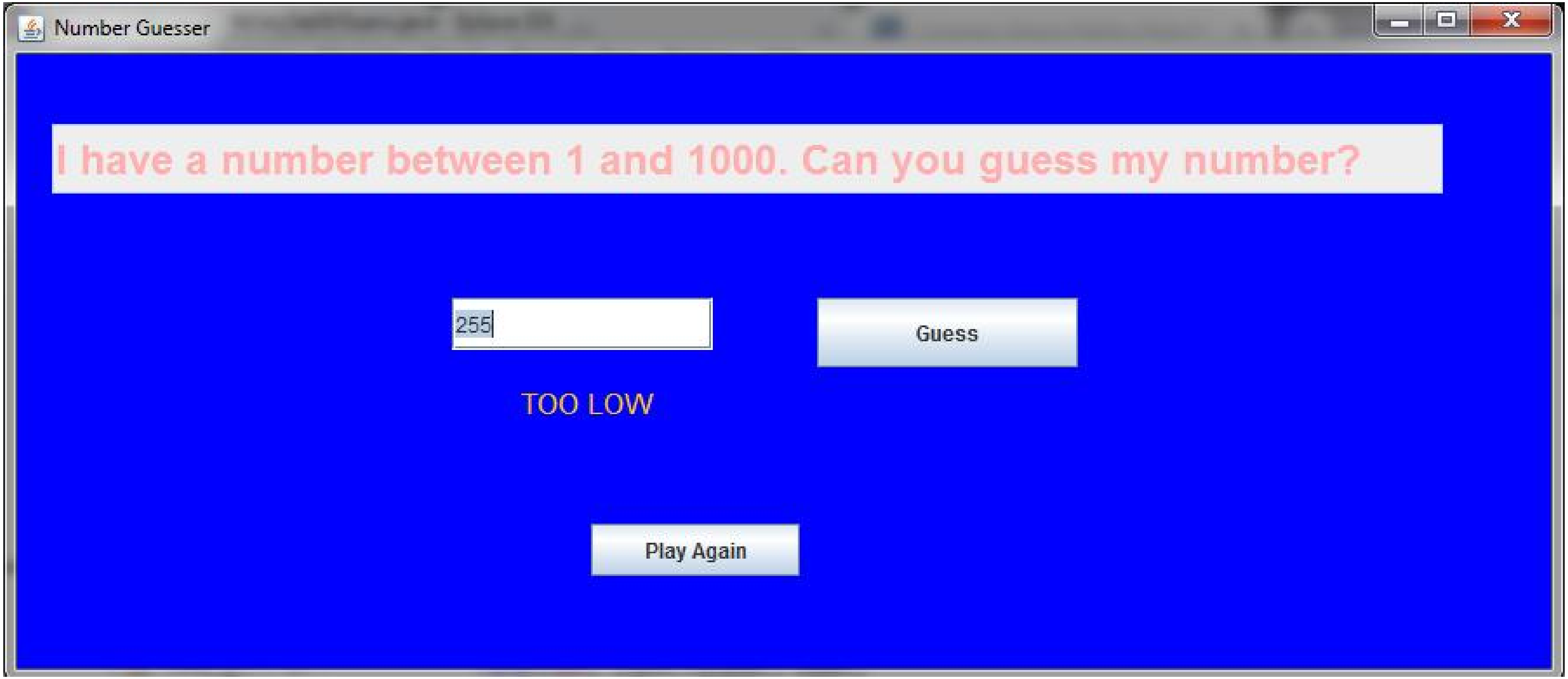
Number Guesser

I have a number between 1 and 1000. Can you guess my number?

555

TOO HIGH

Guessing the random number entering a lower number



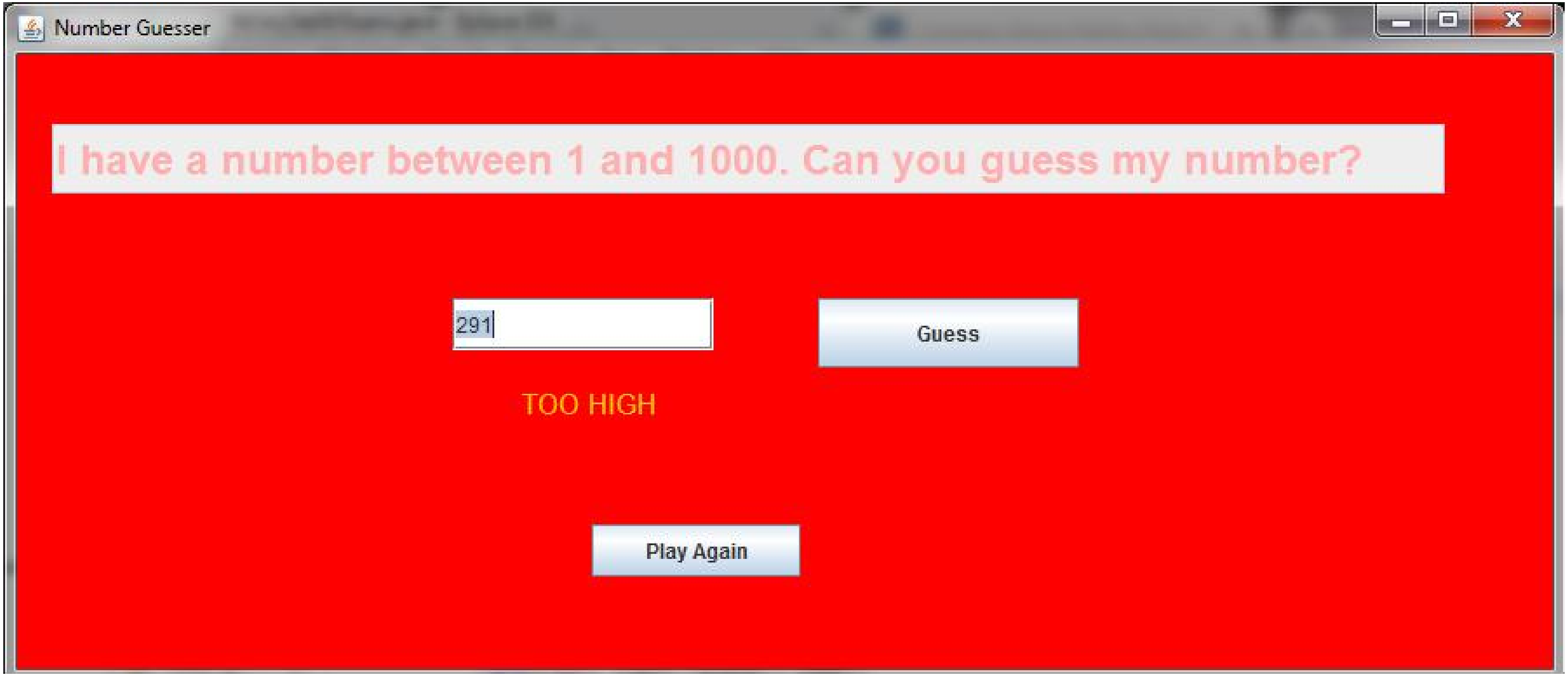
Number Guesser

I have a number between 1 and 1000. Can you guess my number?

255

TOO LOW

Further guesses

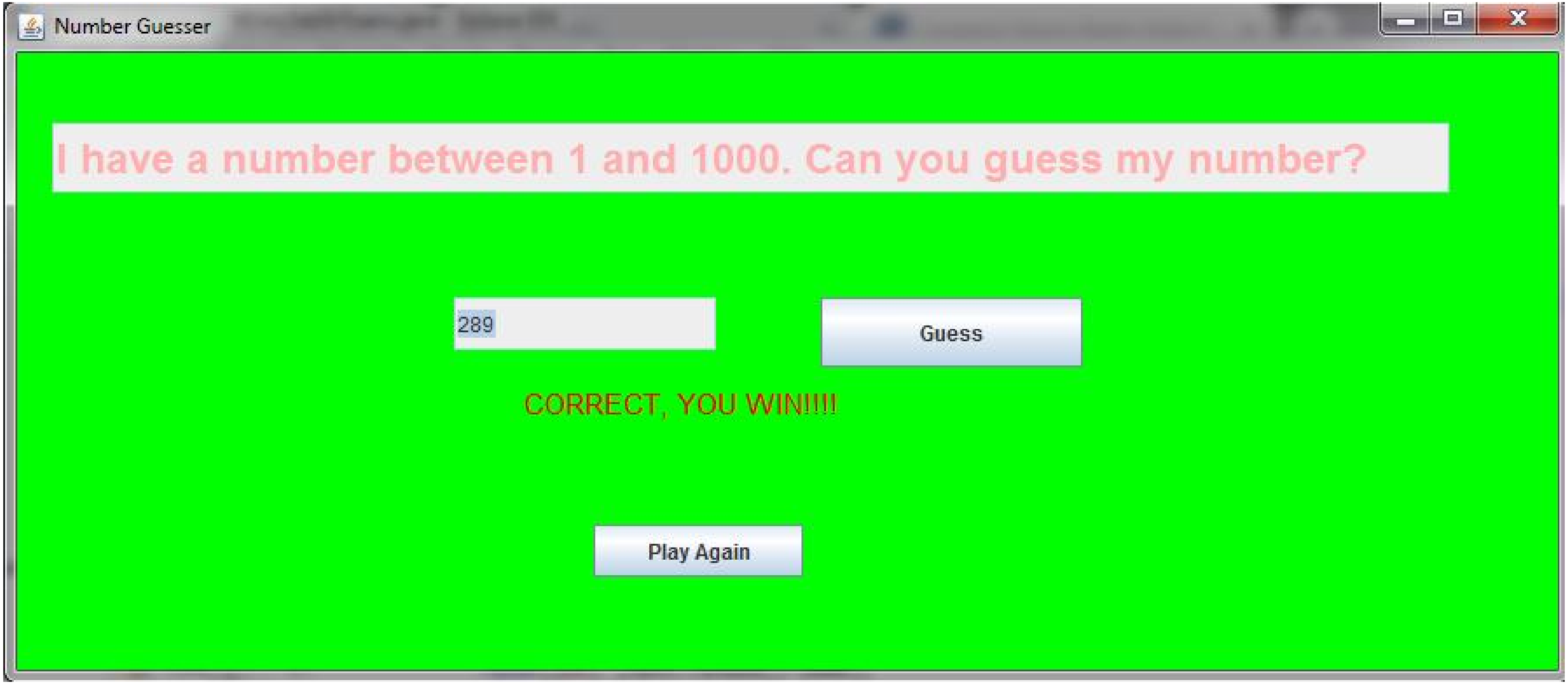


I have a number between 1 and 1000. Can you guess my number?

291

TOO HIGH

Correct answer

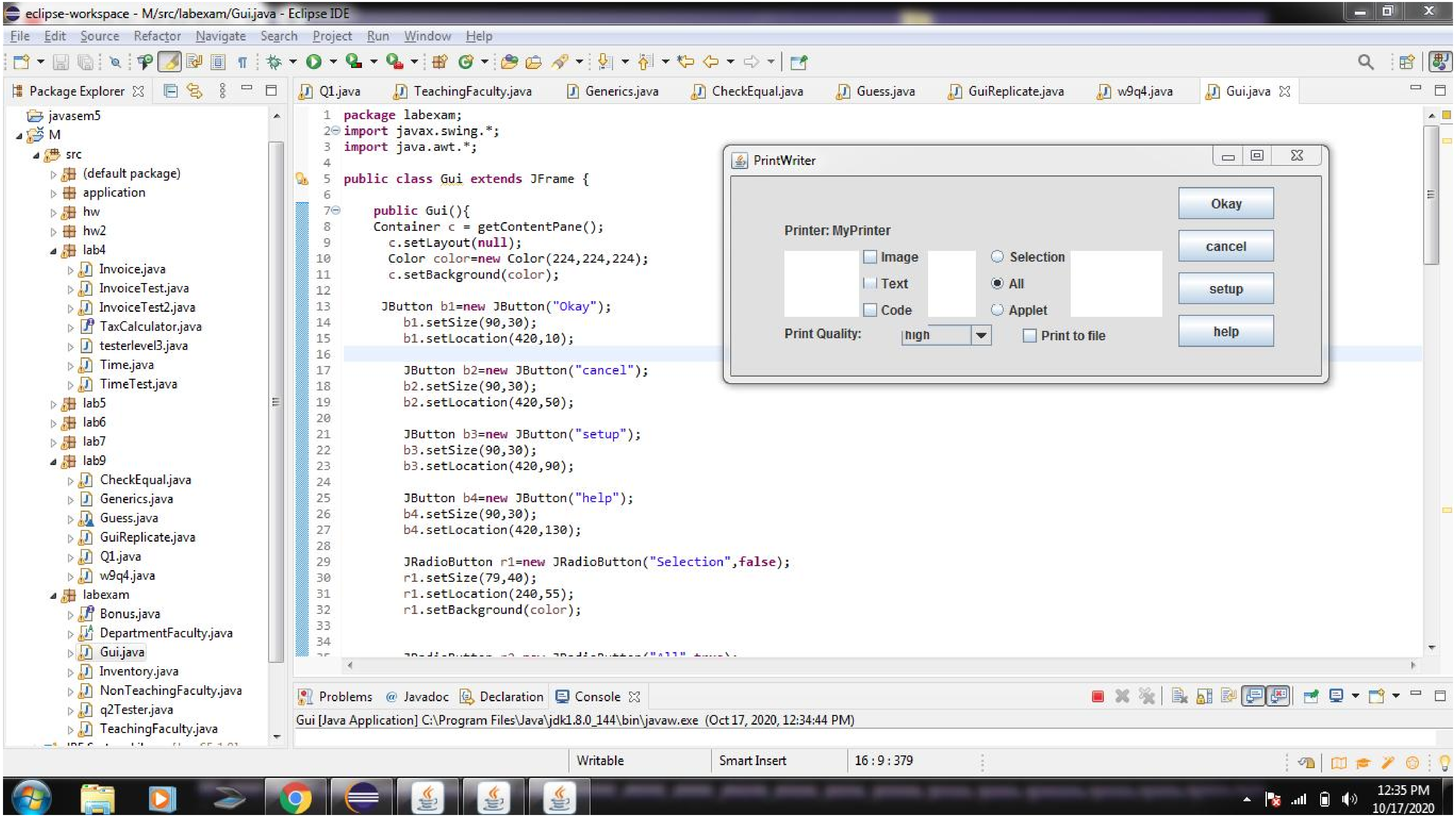


I have a number between 1 and 1000. Can you guess my number?

289

CORRECT, YOU WIN!!!!

Q4. Displaying the output - GUI Shown



```
package labexam;
import javax.swing.*;
import java.awt.*;

public class Gui extends JFrame {

    public Gui(){
    Container c = getContentPane();
      c.setLayout(null);
      Color color=new Color(224,224,224);
      c.setBackground(color);

     JButton b1=new JButton("Okay");
        b1.setSize(90,30);
        b1.setLocation(420,10);

        JButton b2=new JButton("cancel");
        b2.setSize(90,30);
        b2.setLocation(420,50);

        JButton b3=new JButton("setup");
        b3.setSize(90,30);
        b3.setLocation(420,90);

        JButton b4=new JButton("help");
        b4.setSize(90,30);
        b4.setLocation(420,130);

        JRadioButton r1=new JRadioButton("Selection",false);
        r1.setSize(79,40);
        r1.setLocation(240,55);
        r1.setBackground(color);


        JRadioButton r2=new JRadioButton("All",true);
```

PrintWriter

Printer: MyPrinter

□ Image
□ Text
□ Code

○ Selection
● All
○ Applet

Print Quality: high

□ Print to file

Okay

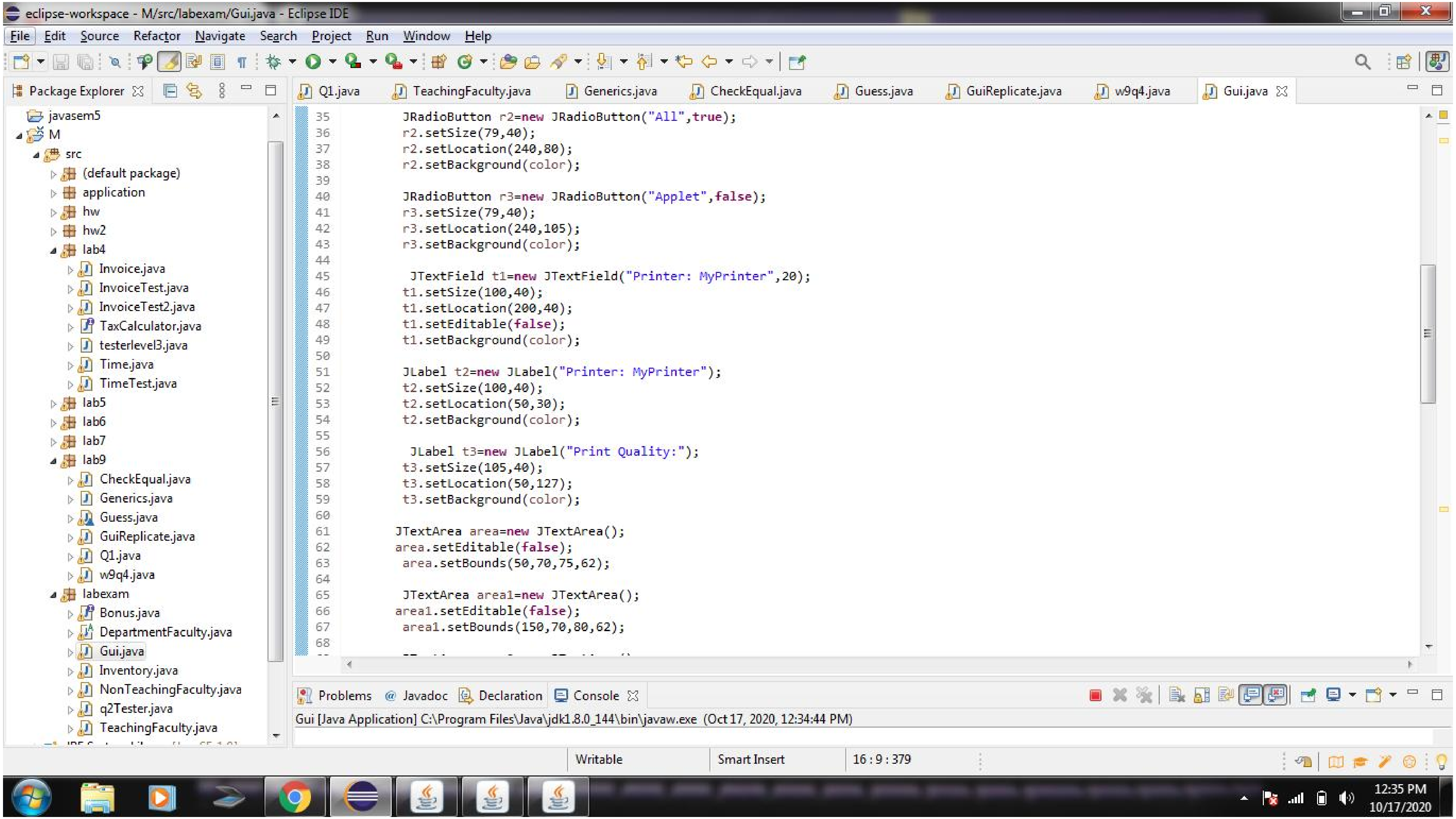
cancel

setup

help

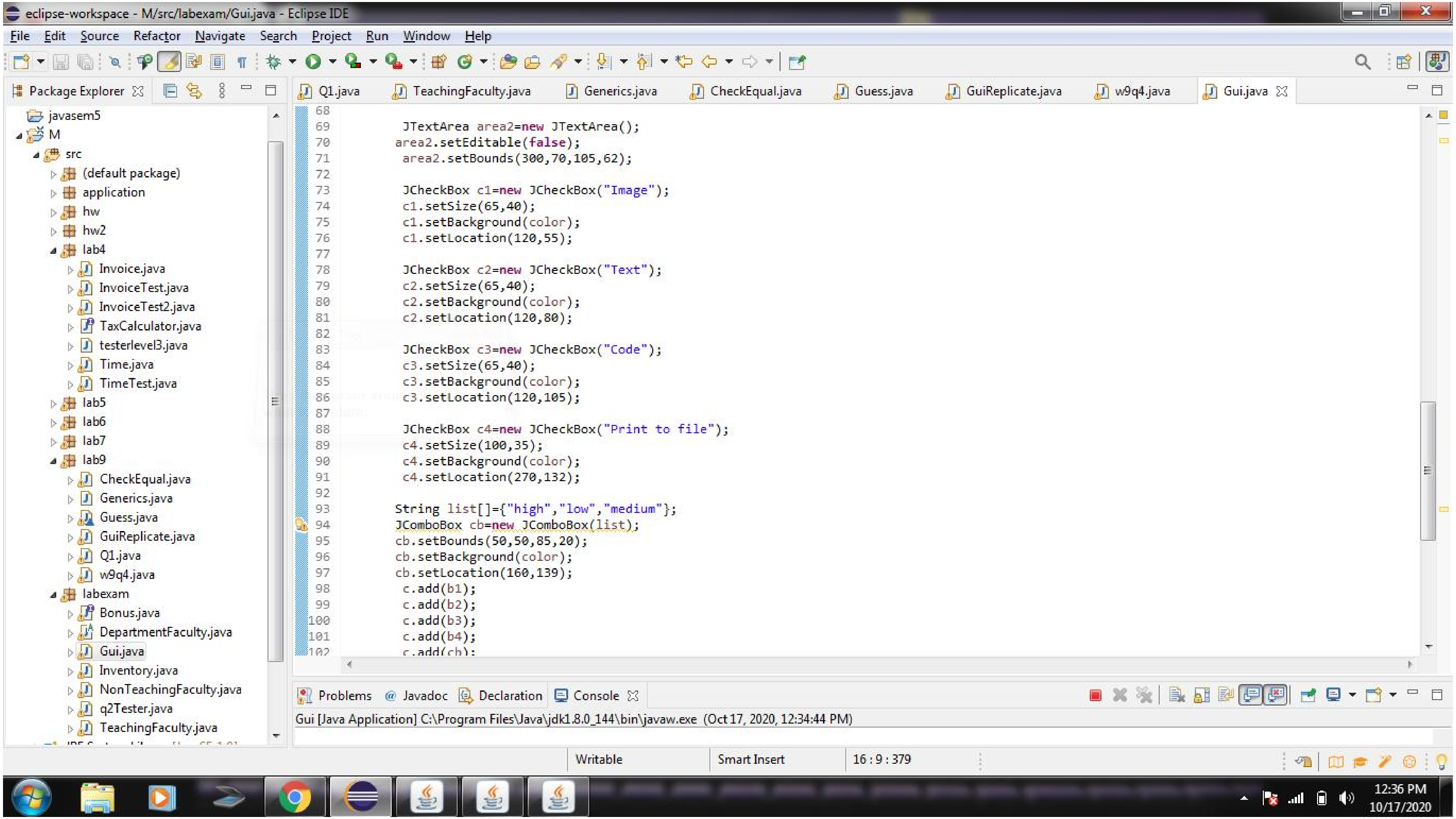
```
Gui [Java Application] C:\Program Files\Java\jdk1.8.0_144\bin\javaw.exe (Oct 17, 2020, 12:34:44 PM)
```

Writable   Smart Insert   16 : 9 : 379



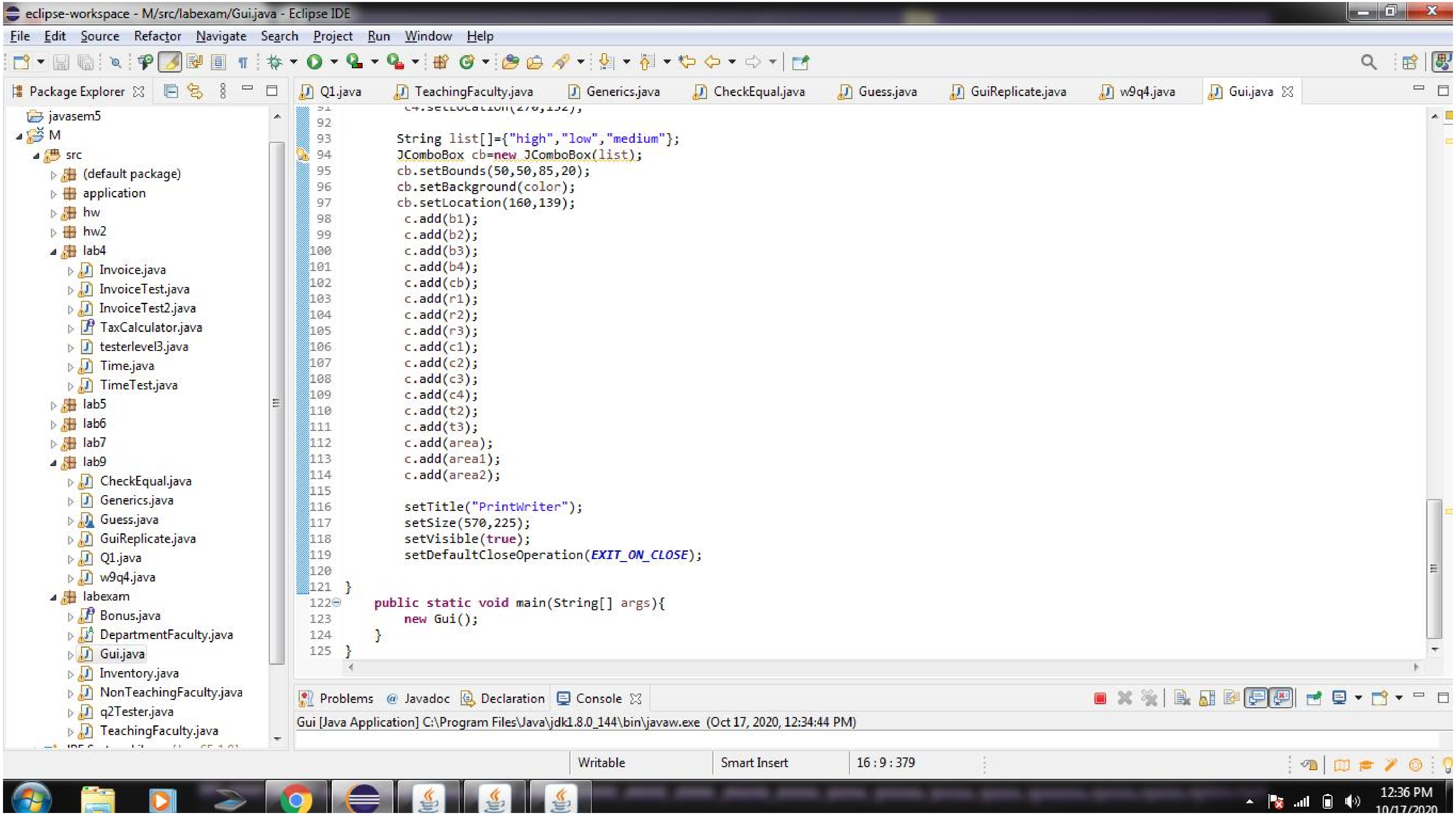
```java
         JRadioButton r2=new JRadioButton("All",true);
         r2.setSize(79,40);
         r2.setLocation(240,80);
         r2.setBackground(color);

         JRadioButton r3=new JRadioButton("Applet",false);
         r3.setSize(79,40);
         r3.setLocation(240,105);
         r3.setBackground(color);

          JTextField t1=new JTextField("Printer: MyPrinter",20);
         t1.setSize(100,40);
         t1.setLocation(200,40);
         t1.setEditable(false);
         t1.setBackground(color);

         JLabel t2=new JLabel("Printer: MyPrinter");
         t2.setSize(100,40);
         t2.setLocation(50,30);
         t2.setBackground(color);

          JLabel t3=new JLabel("Print Quality:");
         t3.setSize(105,40);
         t3.setLocation(50,127);
         t3.setBackground(color);

        JTextArea area=new JTextArea();
        area.setEditable(false);
         area.setBounds(50,70,75,62);

         JTextArea area1=new JTextArea();
        area1.setEditable(false);
         area1.setBounds(150,70,80,62);

```

```
Gui [Java Application] C:\Program Files\Java\jdk1.8.0_144\bin\javaw.exe (Oct 17, 2020, 12:34:44 PM)
```



```java

         JTextArea area2=new JTextArea();
        area2.setEditable(false);
         area2.setBounds(300,70,105,62);

         JCheckBox c1=new JCheckBox("Image");
         c1.setSize(65,40);
         c1.setBackground(color);
         c1.setLocation(120,55);

         JCheckBox c2=new JCheckBox("Text");
         c2.setSize(65,40);
         c2.setBackground(color);
         c2.setLocation(120,80);

         JCheckBox c3=new JCheckBox("Code");
         c3.setSize(65,40);
         c3.setBackground(color);
         c3.setLocation(120,105);

         JCheckBox c4=new JCheckBox("Print to file");
         c4.setSize(100,35);
         c4.setBackground(color);
         c4.setLocation(270,132);

        String list[]={"high","low","medium"};
        JComboBox cb=new JComboBox(list);
        cb.setBounds(50,50,85,20);
        cb.setBackground(color);
        cb.setLocation(160,139);
         c.add(b1);
         c.add(b2);
         c.add(b3);
         c.add(b4);
         c.add(cb);
```

Gui [Java Application] C:\Program Files\Java\jdk1.8.0_144\bin\javaw.exe (Oct 17, 2020, 12:34:44 PM)



- javasem5
- M
  - src
    - (default package)
    - application
    - hw
    - hw2
    - lab4
      - Invoice.java
      - InvoiceTest.java
      - InvoiceTest2.java
      - TaxCalculator.java
      - testerlevel3.java
      - Time.java
      - TimeTest.java
    - lab5
    - lab6
    - lab7
    - lab9
      - CheckEqual.java
      - Generics.java
      - Guess.java
      - GuiReplicate.java
      - Q1.java
      - w9q4.java
    - labexam
      - Bonus.java
      - DepartmentFaculty.java
      - Gui.java
      - Inventory.java
      - NonTeachingFaculty.java
      - q2Tester.java
      - TeachingFaculty.java

```
        c4.setLocation(270,152);

       String list[]={"high","low","medium"};
       JComboBox cb=new JComboBox(list);
       cb.setBounds(50,50,85,20);
       cb.setBackground(color);
       cb.setLocation(160,139);
        c.add(b1);
        c.add(b2);
        c.add(b3);
        c.add(b4);
        c.add(cb);
        c.add(r1);
        c.add(r2);
        c.add(r3);
        c.add(c1);
        c.add(c2);
        c.add(c3);
        c.add(c4);
        c.add(t2);
        c.add(t3);
        c.add(area);
        c.add(area1);
        c.add(area2);

        setTitle("PrintWriter");
        setSize(570,225);
        setVisible(true);
        setDefaultCloseOperation(EXIT_ON_CLOSE);

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

```
Gui [Java Application] C:\Program Files\Java\jdk1.8.0_144\bin\javaw.exe (Oct 17, 2020, 12:34:44 PM)
```