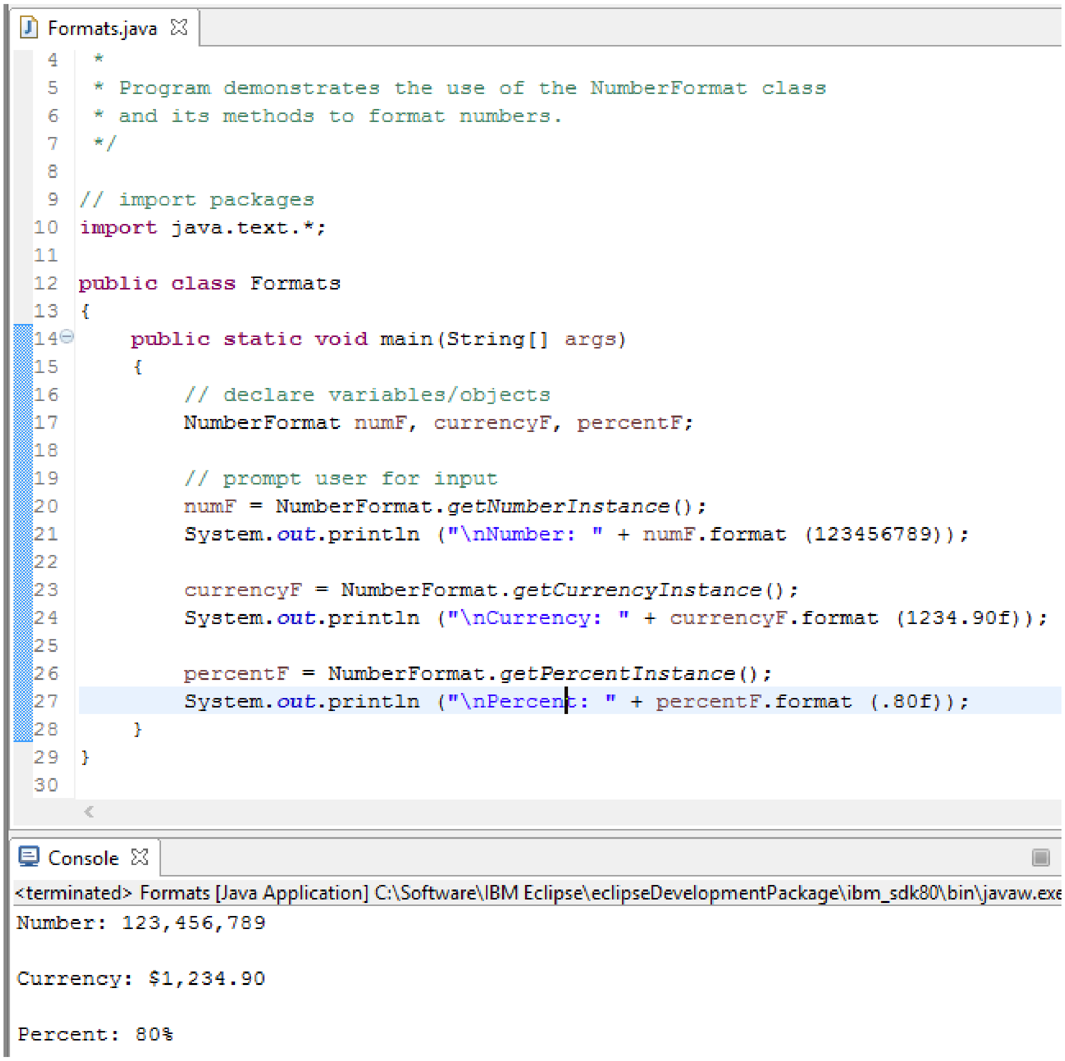
Devante Wilson
100554361

September 29th, 2015

1



```java
 *
 * Program demonstrates the use of the NumberFormat class
 * and its methods to format numbers.
 */

// import packages
import java.text.*;

public class Formats
{
    public static void main(String[] args)
    {
        // declare variables/objects
        NumberFormat numF, currencyF, percentF;

        // prompt user for input
        numF = NumberFormat.getNumberInstance();
        System.out.println ("\nNumber: " + numF.format (123456789));

        currencyF = NumberFormat.getCurrencyInstance();
        System.out.println ("\nCurrency: " + currencyF.format (1234.90f));

        percentF = NumberFormat.getPercentInstance();
        System.out.println ("\nPercent: " + percentF.format (.80f));
    }
}
```

```
<terminated> Formats [Java Application] C:\Software\IBM Eclipse\eclipseDevelopmentPackage\ibm_sdk80\bin\javaw.exe
Number: 123,456,789

Currency: $1,234.90

Percent: 80%
```

1.1 The getNumberInstance() method along with format() is used to format numF to comma separated format.

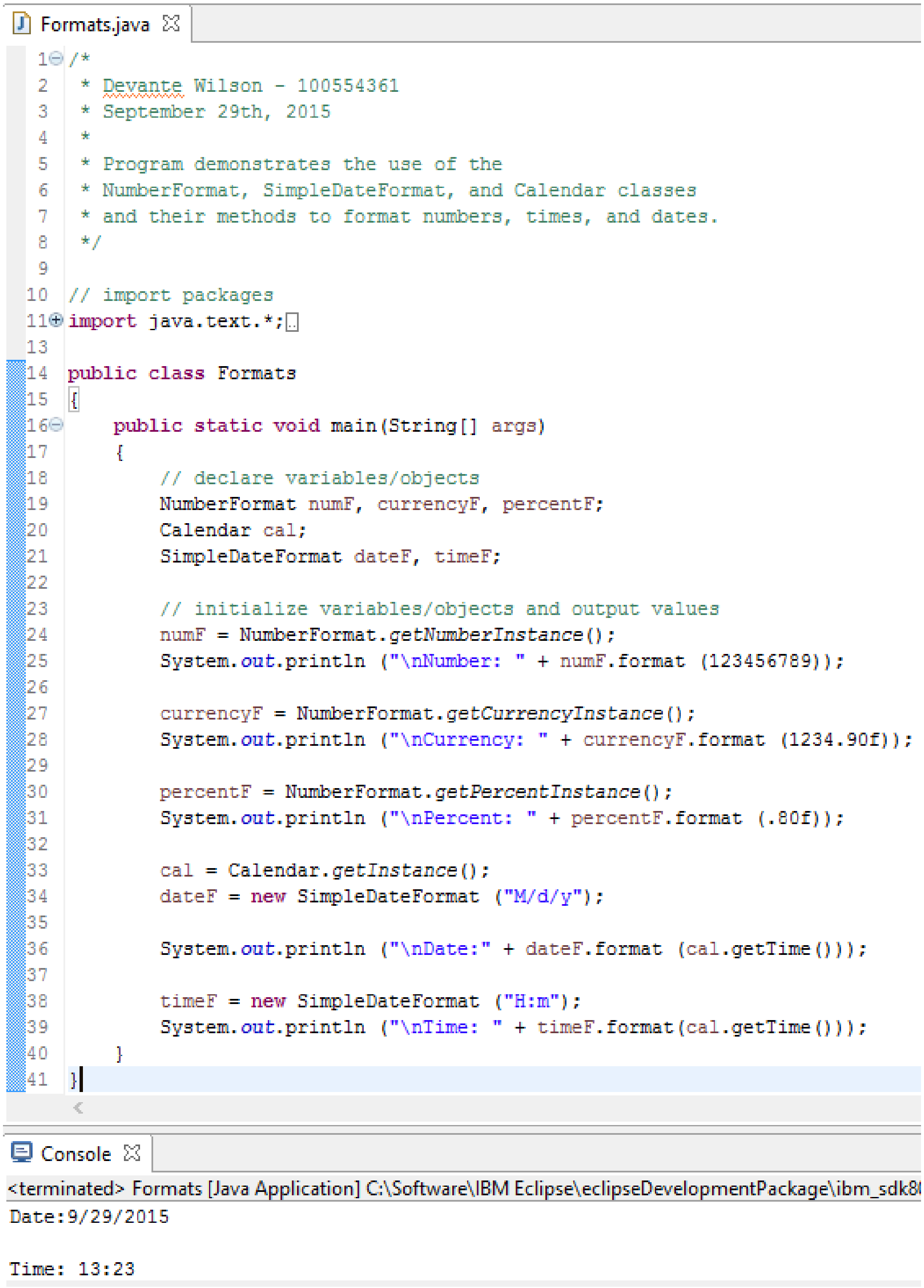
1.2 The getCurrencyInstance() method along with format() is used to format currencyF to a currency format.

1.3 The getPercentInstance() method along with format() is used to format percentF to a percentage format.

1.4 They are all objects of the NumberFormat class.

1.5 \n is an escape character/sequence that does the same thing as println() – to output onto the next line. Since they are used together in this case, the outputs will follow each other with two extra lines.

1.5.3



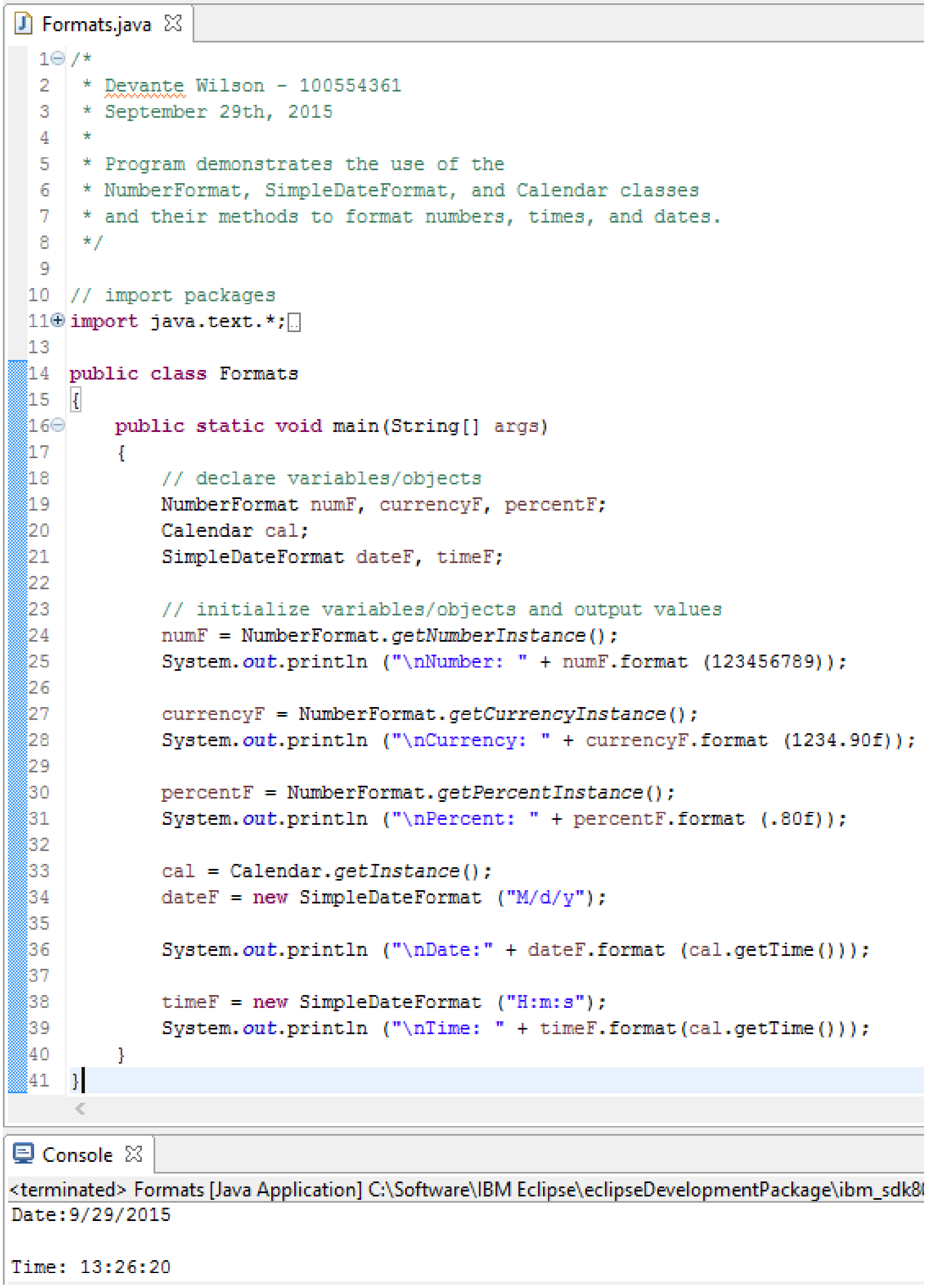
```java
/*
 * Devante Wilson - 100554361
 * September 29th, 2015
 *
 * Program demonstrates the use of the
 * NumberFormat, SimpleDateFormat, and Calendar classes
 * and their methods to format numbers, times, and dates.
 */

// import packages
import java.text.*;

public class Formats
{
    public static void main(String[] args)
    {
        // declare variables/objects
        NumberFormat numF, currencyF, percentF;
        Calendar cal;
        SimpleDateFormat dateF, timeF;

        // initialize variables/objects and output values
        numF = NumberFormat.getNumberInstance();
        System.out.println ("\nNumber: " + numF.format (123456789));

        currencyF = NumberFormat.getCurrencyInstance();
        System.out.println ("\nCurrency: " + currencyF.format (1234.90f));

        percentF = NumberFormat.getPercentInstance();
        System.out.println ("\nPercent: " + percentF.format (.80f));

        cal = Calendar.getInstance();
        dateF = new SimpleDateFormat ("M/d/y");

        System.out.println ("\nDate:" + dateF.format (cal.getTime()));

        timeF = new SimpleDateFormat ("H:m");
        System.out.println ("\nTime: " + timeF.format(cal.getTime()));
    }
}
```

```
<terminated> Formats [Java Application] C:\Software\IBM Eclipse\eclipseDevelopmentPackage\ibm_sdk8
Date:9/29/2015

Time: 13:23
```

Devante Wilson
100554361

September 29th, 2015

1.5.5

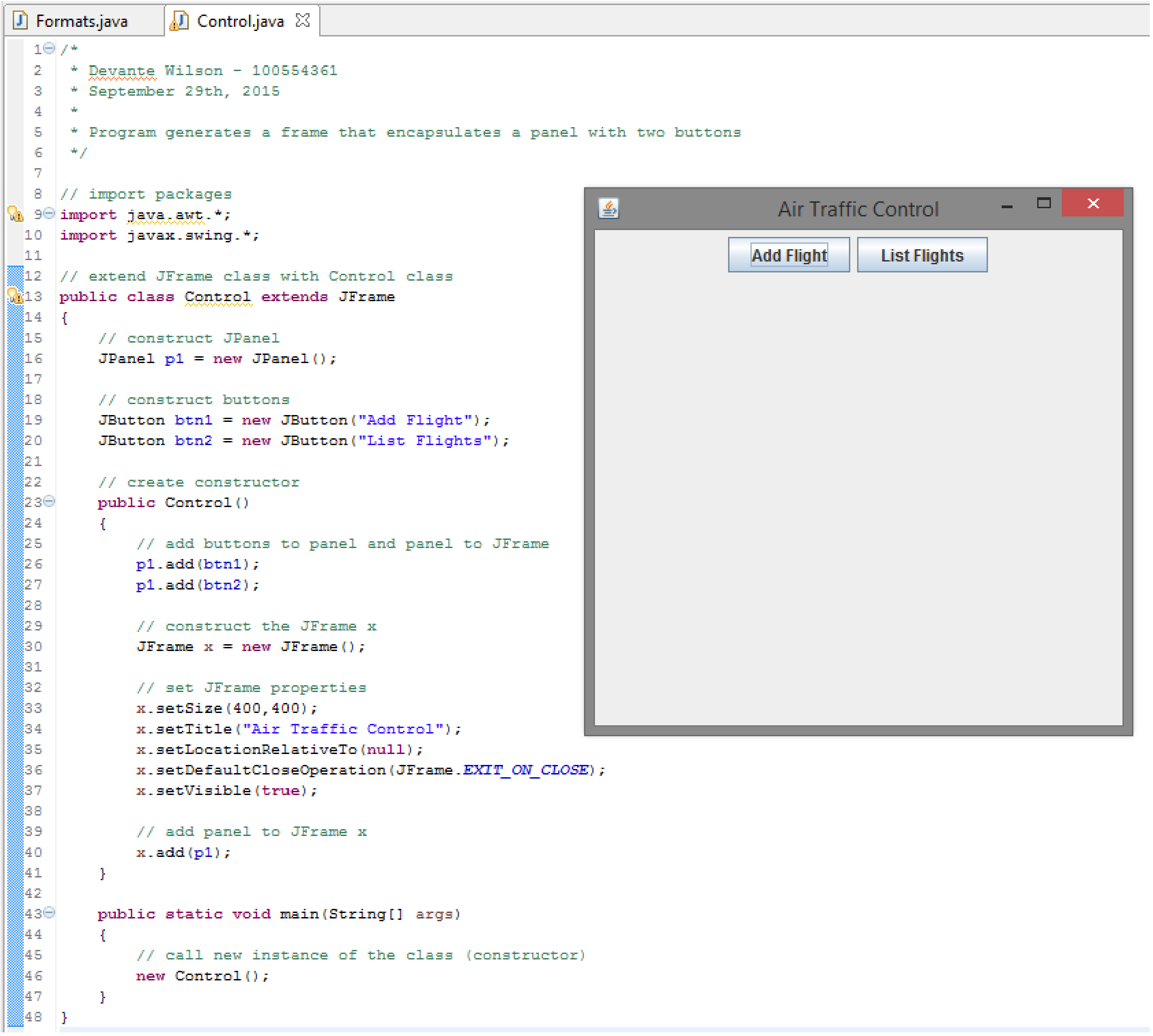


```java
/*
 * Devante Wilson - 100554361
 * September 29th, 2015
 *
 * Program demonstrates the use of the
 * NumberFormat, SimpleDateFormat, and Calendar classes
 * and their methods to format numbers, times, and dates.
 */

// import packages
import java.text.*;

public class Formats
{
    public static void main(String[] args)
    {
        // declare variables/objects
        NumberFormat numF, currencyF, percentF;
        Calendar cal;
        SimpleDateFormat dateF, timeF;

        // initialize variables/objects and output values
        numF = NumberFormat.getNumberInstance();
        System.out.println ("\nNumber: " + numF.format (123456789));

        currencyF = NumberFormat.getCurrencyInstance();
        System.out.println ("\nCurrency: " + currencyF.format (1234.90f));

        percentF = NumberFormat.getPercentInstance();
        System.out.println ("\nPercent: " + percentF.format (.80f));

        cal = Calendar.getInstance();
        dateF = new SimpleDateFormat ("M/d/y");

        System.out.println ("\nDate:" + dateF.format (cal.getTime()));

        timeF = new SimpleDateFormat ("H:m:s");
        System.out.println ("\nTime: " + timeF.format(cal.getTime()));
    }
}
```

```
<terminated> Formats [Java Application] C:\Software\IBM Eclipse\eclipseDevelopmentPackage\ibm_sdk8
Date:9/29/2015

Time: 13:26:20
```

Devante Wilson September 29th, 2015
100554361

2.1



```
1  /*
2   * Devante Wilson - 100554361
3   * September 29th, 2015
4   *
5   * Program generates a frame that encapsulates a panel with two buttons
6   */
7
8  // import packages
9  import java.awt.*;
10 import javax.swing.*;
11
12 // extend JFrame class with Control class
13 public class Control extends JFrame
14 {
15     // construct JPanel
16     JPanel p1 = new JPanel();
17
18     // construct buttons
19     JButton btn1 = new JButton("Add Flight");
20     JButton btn2 = new JButton("List Flights");
21
22     // create constructor
23     public Control()
24     {
25         // add buttons to panel and panel to JFrame
26         p1.add(btn1);
27         p1.add(btn2);
28
29         // construct the JFrame x
30         JFrame x = new JFrame();
31
32         // set JFrame properties
33         x.setSize(400,400);
34         x.setTitle("Air Traffic Control");
35         x.setLocationRelativeTo(null);
36         x.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
37         x.setVisible(true);
38
39         // add panel to JFrame x
40         x.add(p1);
41     }
42
43     public static void main(String[] args)
44     {
45         // call new instance of the class (constructor)
46         new Control();
47     }
48 }
```

2.2 The purpose of lines 6, 8, and 9 are to construct the JPanel to put inside the JFrame and to create two buttons.

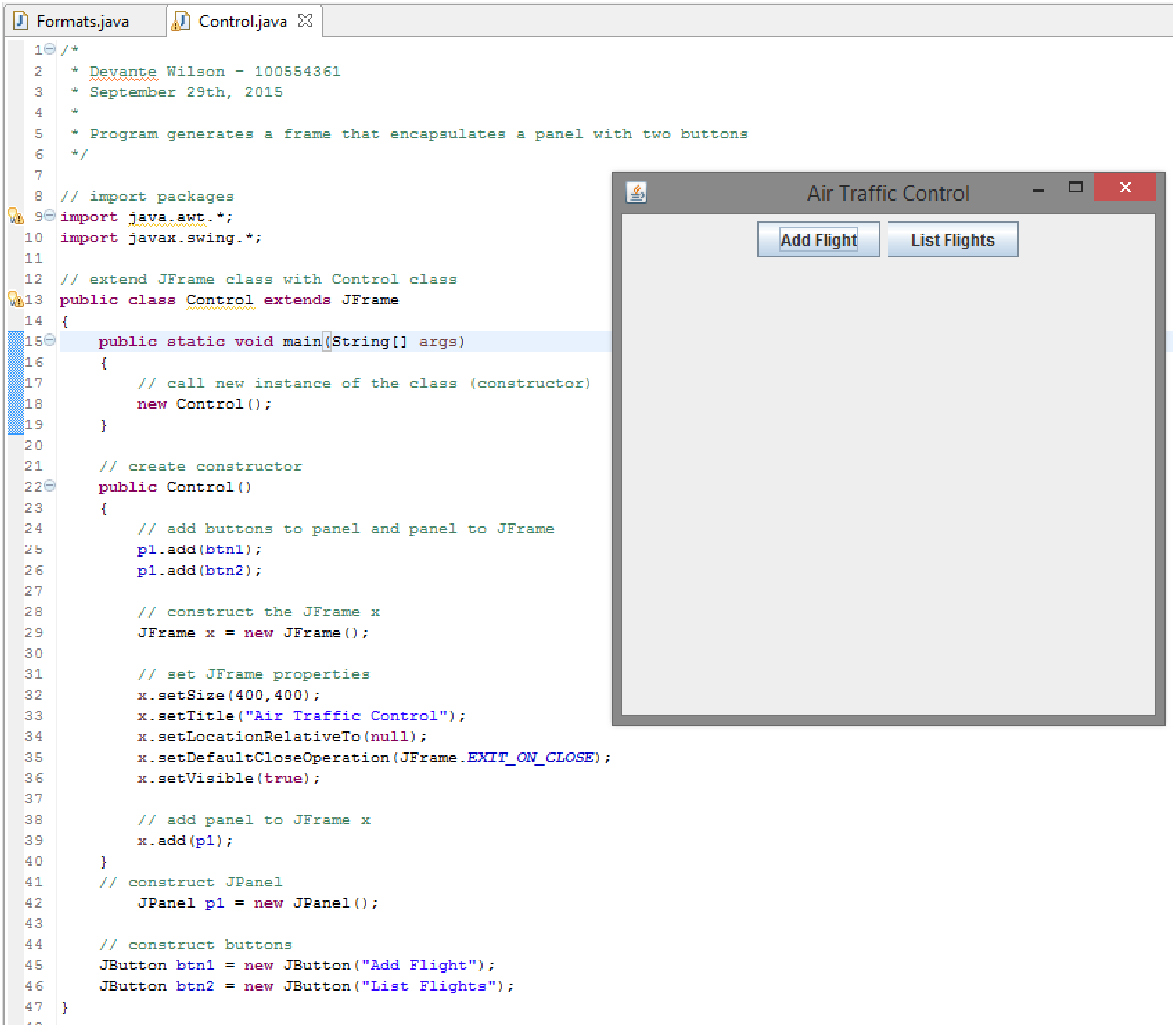
2.3 Line 33 calls a new instance of the Control class (in other words, it calls the constructor).

2.4 (Same as 2.1)

Devante Wilson
100554361

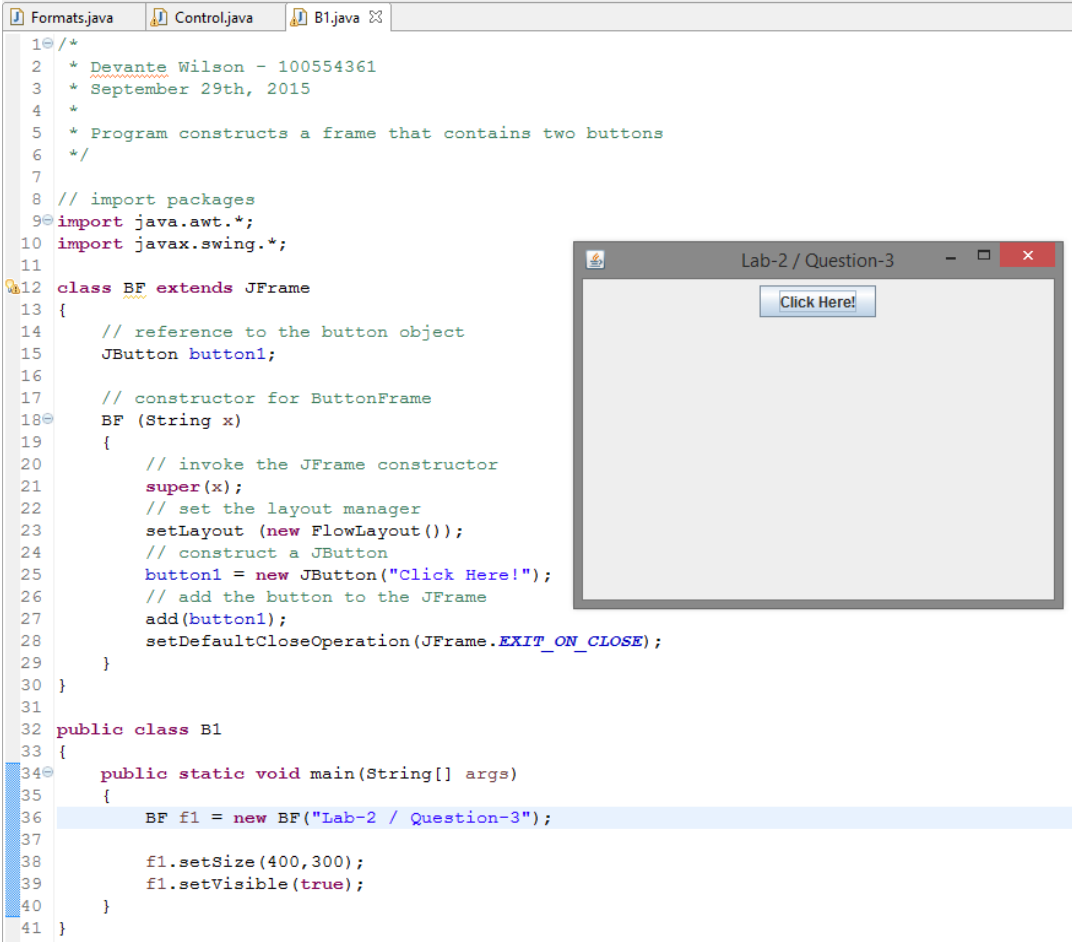
September 29th, 2015

2.5 Yes, the program runs successfully and the output does not differ. The order or the structures in the program does not matter; whether the variables/objects, main method, constructor, etc. are defined below/above one another, it makes no difference.



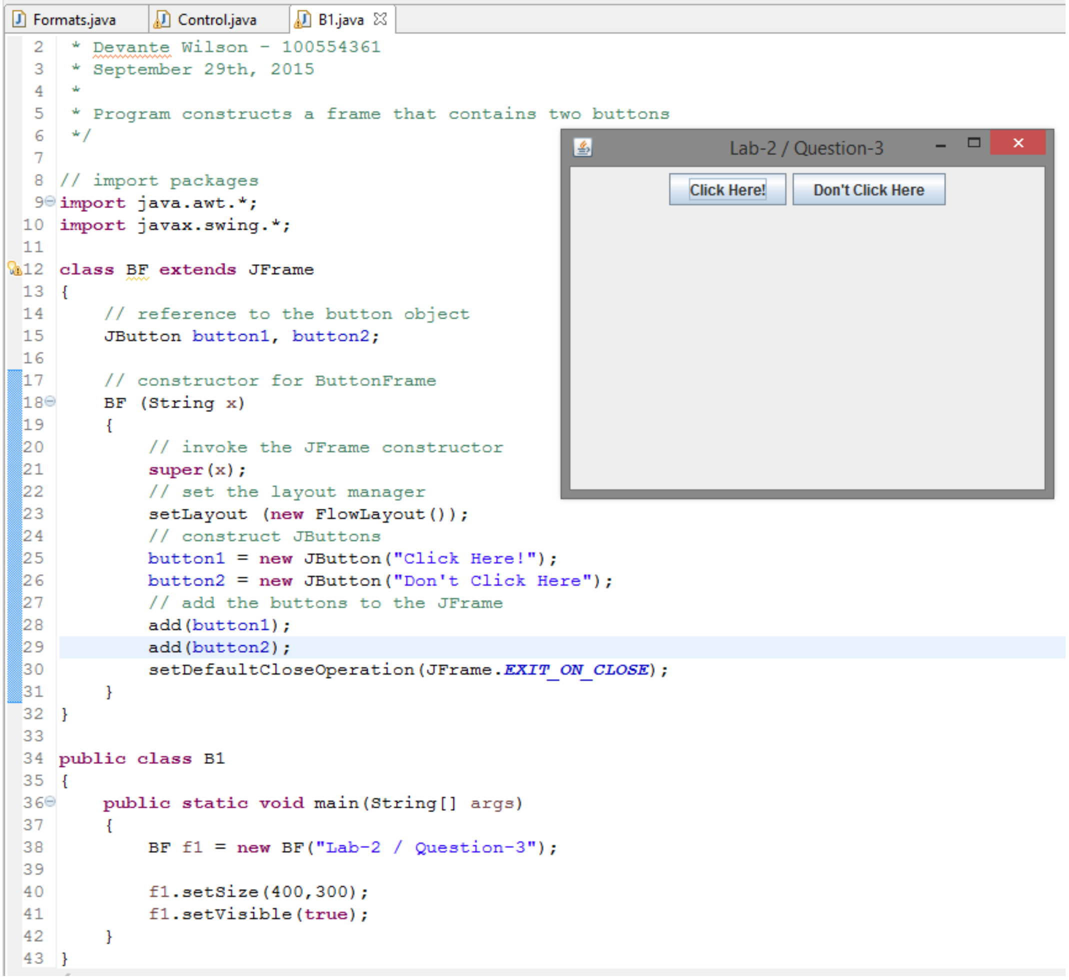
```java
/*
 * Devante Wilson - 100554361
 * September 29th, 2015
 *
 * Program generates a frame that encapsulates a panel with two buttons
 */

// import packages
import java.awt.*;
import javax.swing.*;

// extend JFrame class with Control class
public class Control extends JFrame
{
    public static void main(String[] args)
    {
        // call new instance of the class (constructor)
        new Control();
    }

    // create constructor
    public Control()
    {
        // add buttons to panel and panel to JFrame
        p1.add(btn1);
        p1.add(btn2);

        // construct the JFrame x
        JFrame x = new JFrame();

        // set JFrame properties
        x.setSize(400,400);
        x.setTitle("Air Traffic Control");
        x.setLocationRelativeTo(null);
        x.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        x.setVisible(true);

        // add panel to JFrame x
        x.add(p1);
    }
    // construct JPanel
        JPanel p1 = new JPanel();

    // construct buttons
    JButton btn1 = new JButton("Add Flight");
    JButton btn2 = new JButton("List Flights");
}
```

3.



```
/*
 * Devante Wilson - 100554361
 * September 29th, 2015
 *
 * Program constructs a frame that contains two buttons
 */

// import packages
import java.awt.*;
import javax.swing.*;

class BF extends JFrame
{
    // reference to the button object
    JButton button1;

    // constructor for ButtonFrame
    BF (String x)
    {
        // invoke the JFrame constructor
        super(x);
        // set the layout manager
        setLayout (new FlowLayout());
        // construct a JButton
        button1 = new JButton("Click Here!");
        // add the button to the JFrame
        add(button1);
        setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
    }
}

public class B1
{
    public static void main(String[] args)
    {
        BF f1 = new BF("Lab-2 / Question-3");

        f1.setSize(400,300);
        f1.setVisible(true);
    }
}
```

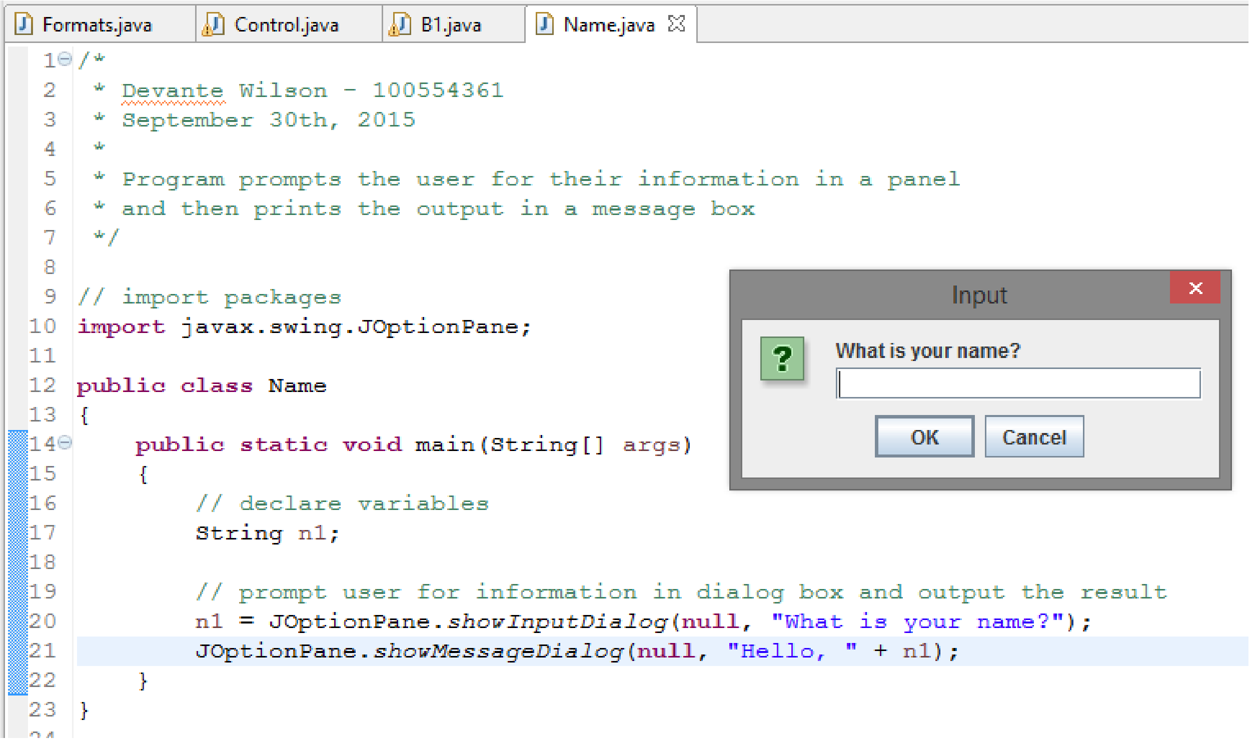
3.1



```
 * Devante Wilson - 100554361
 * September 29th, 2015
 *
 * Program constructs a frame that contains two buttons
 */

// import packages
import java.awt.*;
import javax.swing.*;

class BF extends JFrame
{
    // reference to the button object
    JButton button1, button2;

    // constructor for ButtonFrame
    BF (String x)
    {
        // invoke the JFrame constructor
        super(x);
        // set the layout manager
        setLayout (new FlowLayout());
        // construct JButtons
        button1 = new JButton("Click Here!");
        button2 = new JButton("Don't Click Here");
        // add the buttons to the JFrame
        add(button1);
        add(button2);
        setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
    }
}

public class B1
{
    public static void main(String[] args)
    {
        BF f1 = new BF("Lab-2 / Question-3");

        f1.setSize(400,300);
        f1.setVisible(true);
    }
}
```

Devante Wilson September 29th, 2015
100554361

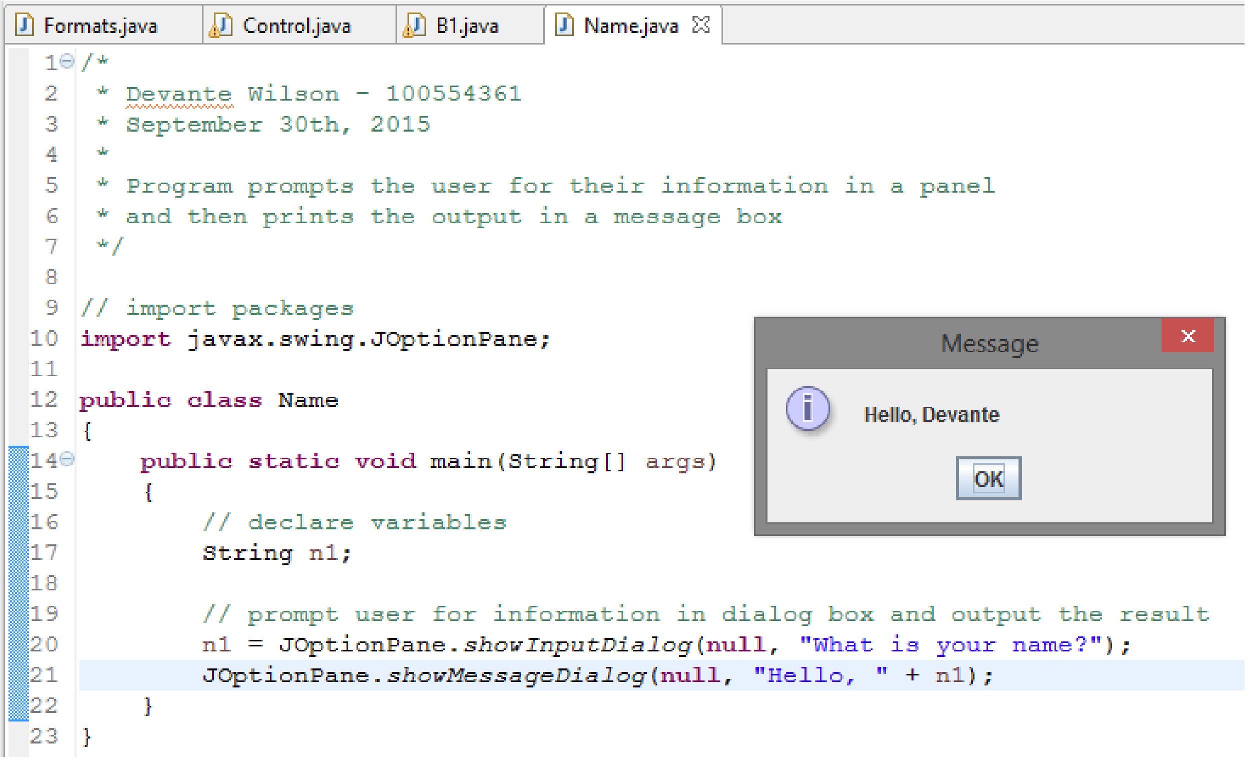
4.



Input

What is your name?

```java
/*
 * Devante Wilson - 100554361
 * September 30th, 2015
 *
 * Program prompts the user for their information in a panel
 * and then prints the output in a message box
 */

// import packages
import javax.swing.JOptionPane;

public class Name
{
    public static void main(String[] args)
    {
        // declare variables
        String n1;

        // prompt user for information in dialog box and output the result
        n1 = JOptionPane.showInputDialog(null, "What is your name?");
        JOptionPane.showMessageDialog(null, "Hello, " + n1);
    }
}
```



Message

Hello, Devante

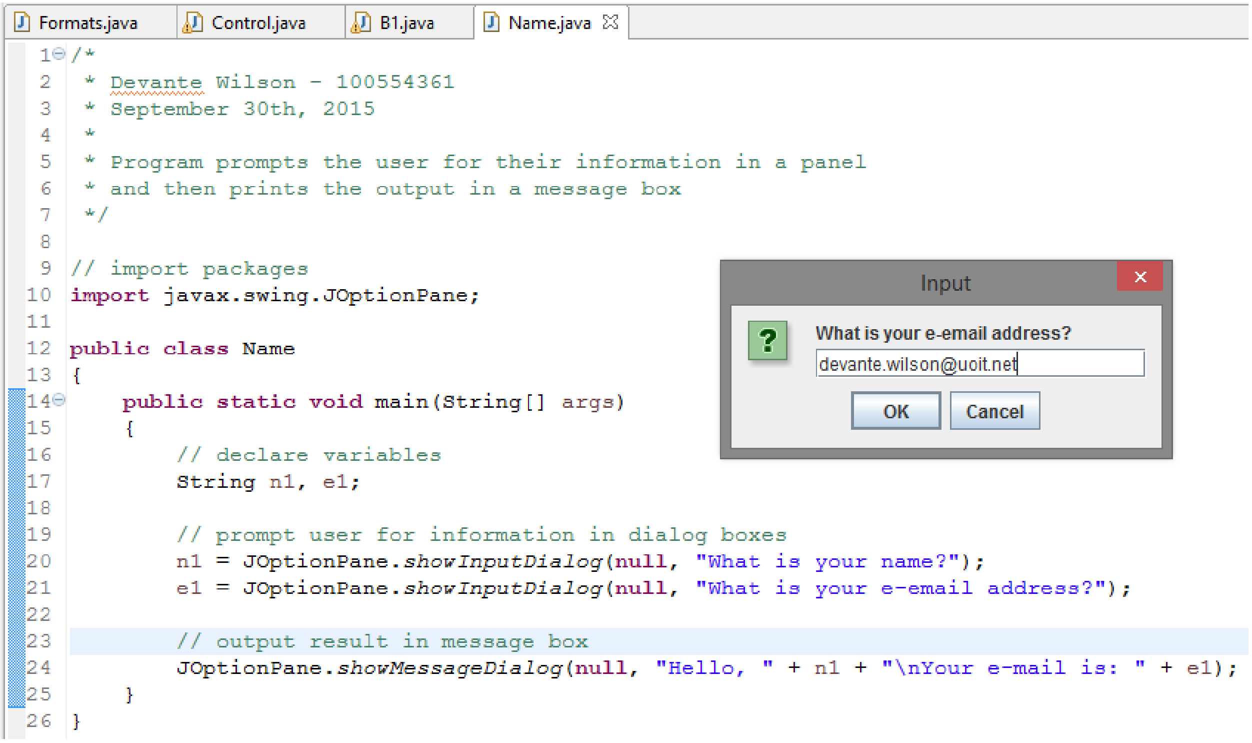
```java
/*
 * Devante Wilson - 100554361
 * September 30th, 2015
 *
 * Program prompts the user for their information in a panel
 * and then prints the output in a message box
 */

// import packages
import javax.swing.JOptionPane;

public class Name
{
    public static void main(String[] args)
    {
        // declare variables
        String n1;

        // prompt user for information in dialog box and output the result
        n1 = JOptionPane.showInputDialog(null, "What is your name?");
        JOptionPane.showMessageDialog(null, "Hello, " + n1);
    }
}
```

4.1 An input dialog box was used to capture the user’s name.

Devante Wilson
100554361

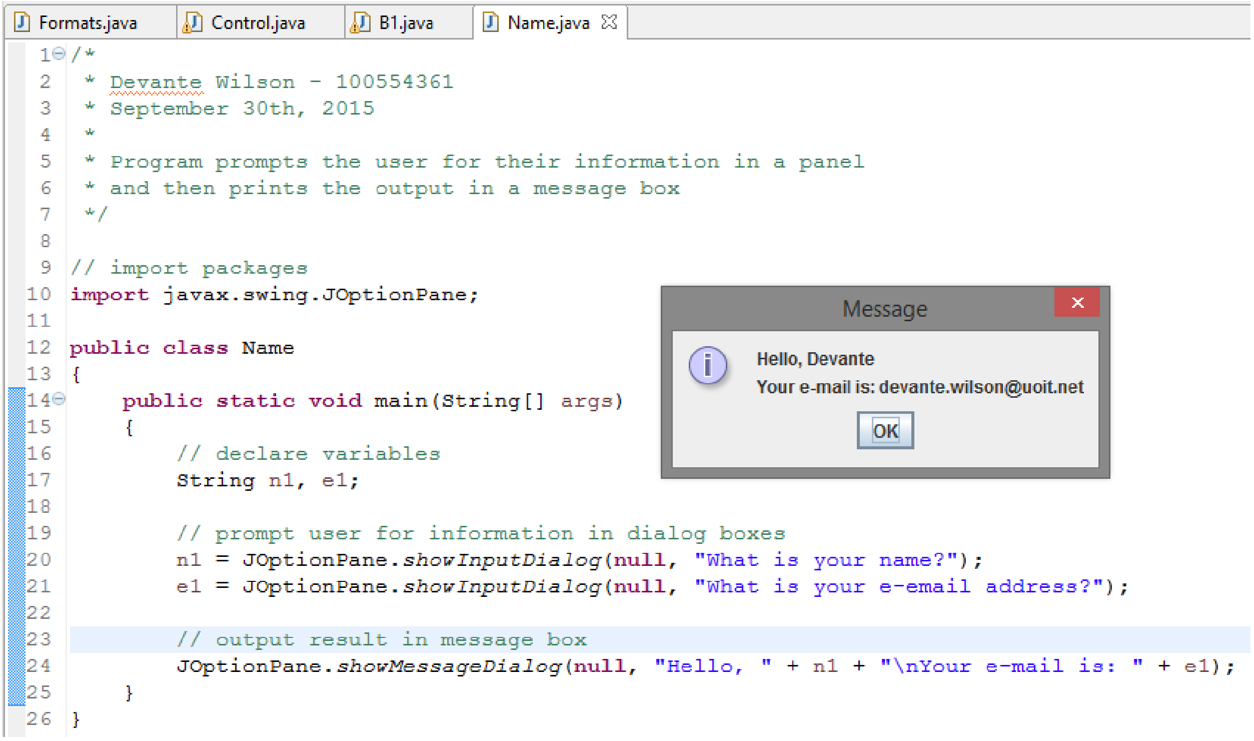
September 29th, 2015

4.2 (With e-mail address)



```java
/*
 * Devante Wilson - 100554361
 * September 30th, 2015
 *
 * Program prompts the user for their information in a panel
 * and then prints the output in a message box
 */

// import packages
import javax.swing.JOptionPane;

public class Name
{
    public static void main(String[] args)
    {
        // declare variables
        String n1, e1;

        // prompt user for information in dialog boxes
        n1 = JOptionPane.showInputDialog(null, "What is your name?");
        e1 = JOptionPane.showInputDialog(null, "What is your e-email address?");

        // output result in message box
        JOptionPane.showMessageDialog(null, "Hello, " + n1 + "\nYour e-mail is: " + e1);
    }
}
```

What is your e-email address?
devante.wilson@uoit.net



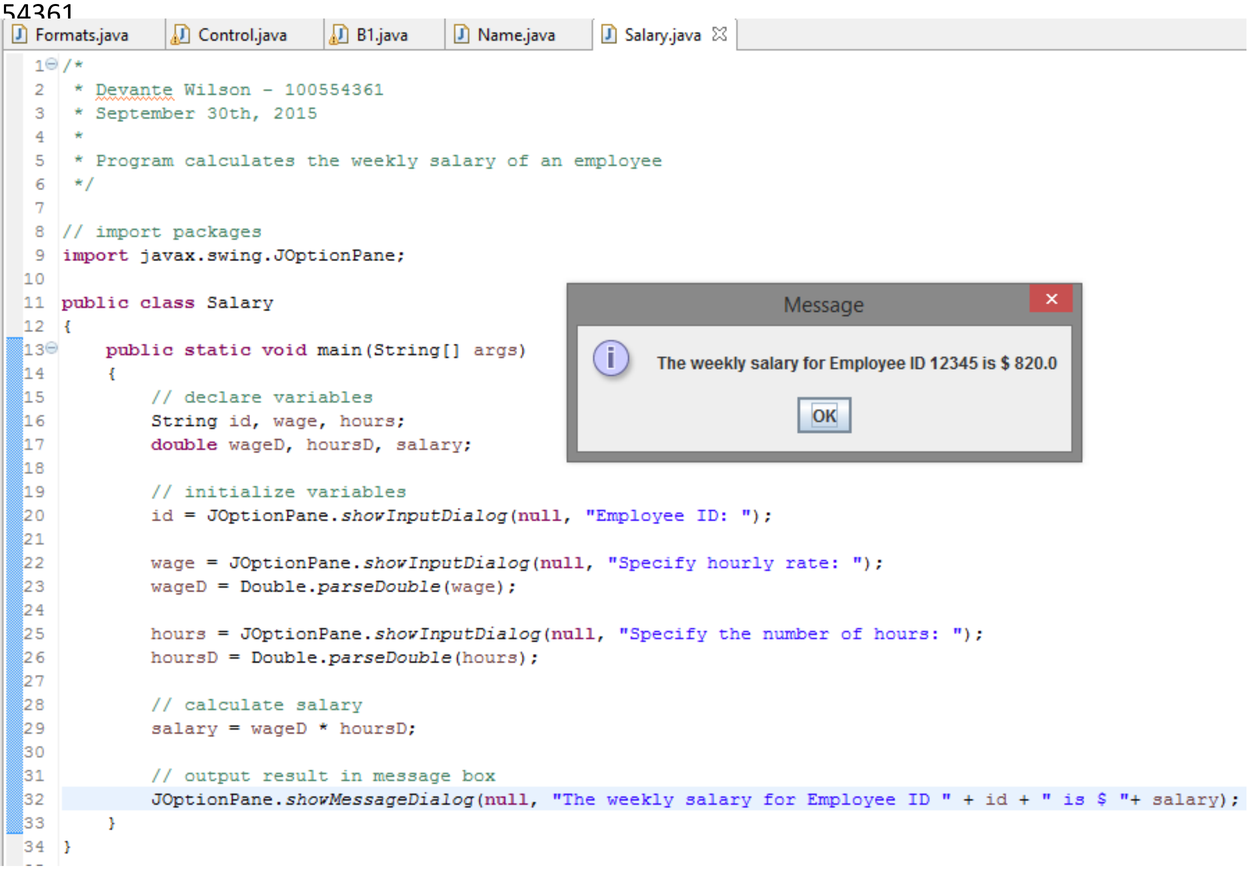
```java
/*
 * Devante Wilson - 100554361
 * September 30th, 2015
 *
 * Program prompts the user for their information in a panel
 * and then prints the output in a message box
 */

// import packages
import javax.swing.JOptionPane;

public class Name
{
    public static void main(String[] args)
    {
        // declare variables
        String n1, e1;

        // prompt user for information in dialog boxes
        n1 = JOptionPane.showInputDialog(null, "What is your name?");
        e1 = JOptionPane.showInputDialog(null, "What is your e-email address?");

        // output result in message box
        JOptionPane.showMessageDialog(null, "Hello, " + n1 + "\nYour e-mail is: " + e1);
    }
}
```

```
Hello, Devante
Your e-mail is: devante.wilson@uoit.net
```

Devante Wilson 100554361

September 29th, 2015

5.1

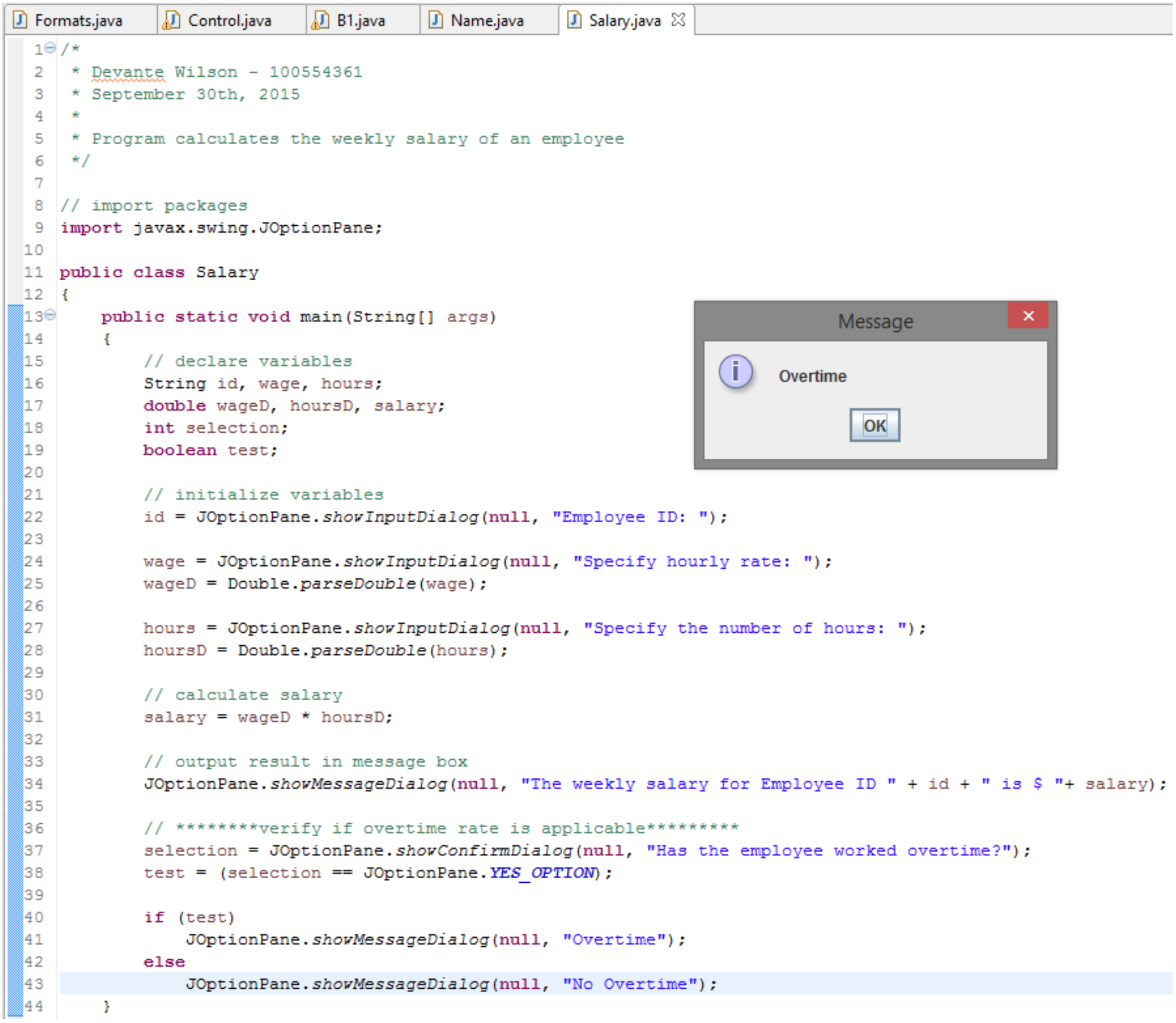


```
/*
 * Devante Wilson - 100554361
 * September 30th, 2015
 *
 * Program calculates the weekly salary of an employee
 */

// import packages
import javax.swing.JOptionPane;

public class Salary
{
    public static void main(String[] args)
    {
        // declare variables
        String id, wage, hours;
        double wageD, hoursD, salary;

        // initialize variables
        id = JOptionPane.showInputDialog(null, "Employee ID: ");

        wage = JOptionPane.showInputDialog(null, "Specify hourly rate: ");
        wageD = Double.parseDouble(wage);

        hours = JOptionPane.showInputDialog(null, "Specify the number of hours: ");
        hoursD = Double.parseDouble(hours);

        // calculate salary
        salary = wageD * hoursD;

        // output result in message box
        JOptionPane.showMessageDialog(null, "The weekly salary for Employee ID " + id + " is $ "+ salary);
    }
}
```

Message

The weekly salary for Employee ID 12345 is $ 820.0

5.2



```
/*
 * Devante Wilson - 100554361
 * September 30th, 2015
 *
 * Program calculates the weekly salary of an employee
 */

// import packages
import javax.swing.JOptionPane;

public class Salary
{
    public static void main(String[] args)
    {
        // declare variables
        String id, wage, hours;
        double wageD, hoursD, salary;
        int selection;
        boolean test;

        // initialize variables
        id = JOptionPane.showInputDialog(null, "Employee ID: ");

        wage = JOptionPane.showInputDialog(null, "Specify hourly rate: ");
        wageD = Double.parseDouble(wage);

        hours = JOptionPane.showInputDialog(null, "Specify the number of hours: ");
        hoursD = Double.parseDouble(hours);

        // calculate salary
        salary = wageD * hoursD;

        // output result in message box
        JOptionPane.showMessageDialog(null, "The weekly salary for Employee ID " + id + " is $ "+ salary);

        // ********verify if overtime rate is applicable*********
        selection = JOptionPane.showConfirmDialog(null, "Has the employee worked overtime?");
        test = (selection == JOptionPane.YES_OPTION);

        if (test)
            JOptionPane.showMessageDialog(null, "Overtime");
        else
            JOptionPane.showMessageDialog(null, "No Overtime");
    }
```

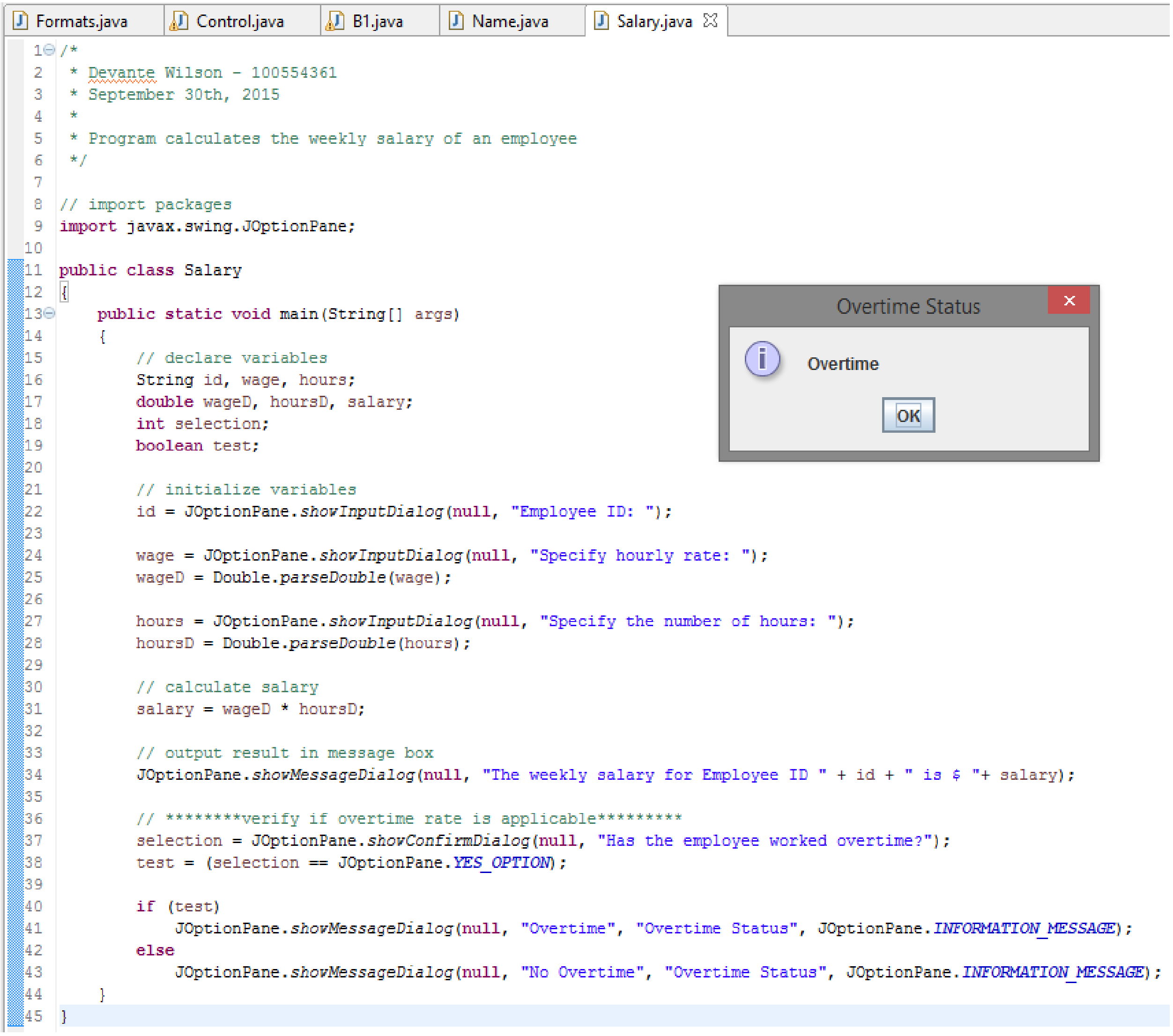
Message

Overtime

Devante Wilson
100554361

September 29th, 2015

5.3 (Shows Overtime Status as the message box title)



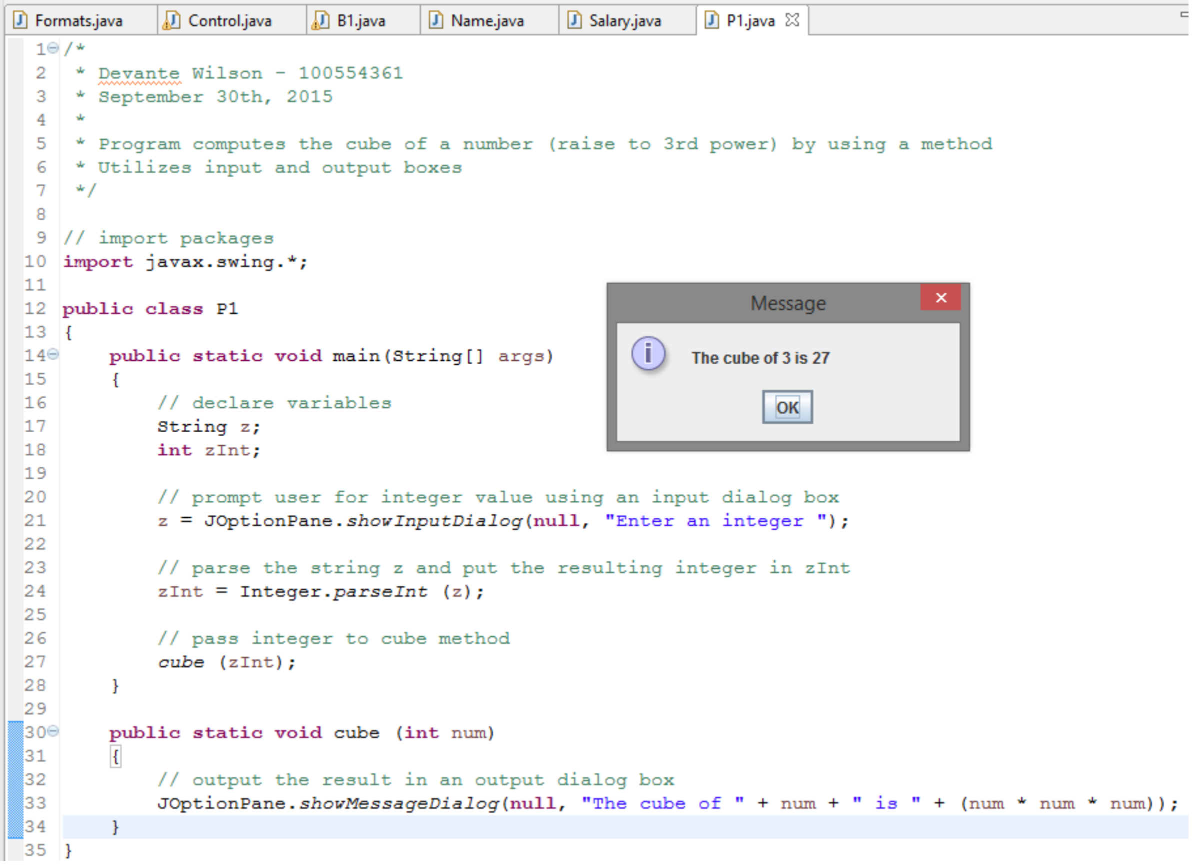
```
/*
 * Devante Wilson - 100554361
 * September 30th, 2015
 *
 * Program calculates the weekly salary of an employee
 */

// import packages
import javax.swing.JOptionPane;

public class Salary
{
    public static void main(String[] args)
    {
        // declare variables
        String id, wage, hours;
        double wageD, hoursD, salary;
        int selection;
        boolean test;

        // initialize variables
        id = JOptionPane.showInputDialog(null, "Employee ID: ");

        wage = JOptionPane.showInputDialog(null, "Specify hourly rate: ");
        wageD = Double.parseDouble(wage);

        hours = JOptionPane.showInputDialog(null, "Specify the number of hours: ");
        hoursD = Double.parseDouble(hours);

        // calculate salary
        salary = wageD * hoursD;

        // output result in message box
        JOptionPane.showMessageDialog(null, "The weekly salary for Employee ID " + id + " is $ "+ salary);

        // ********verify if overtime rate is applicable*********
        selection = JOptionPane.showConfirmDialog(null, "Has the employee worked overtime?");
        test = (selection == JOptionPane.YES_OPTION);

        if (test)
            JOptionPane.showMessageDialog(null, "Overtime", "Overtime Status", JOptionPane.INFORMATION_MESSAGE);
        else
            JOptionPane.showMessageDialog(null, "No Overtime", "Overtime Status", JOptionPane.INFORMATION_MESSAGE);
    }
}
```

Overtime Status

Overtime

Devante Wilson September 29th, 2015
100554361

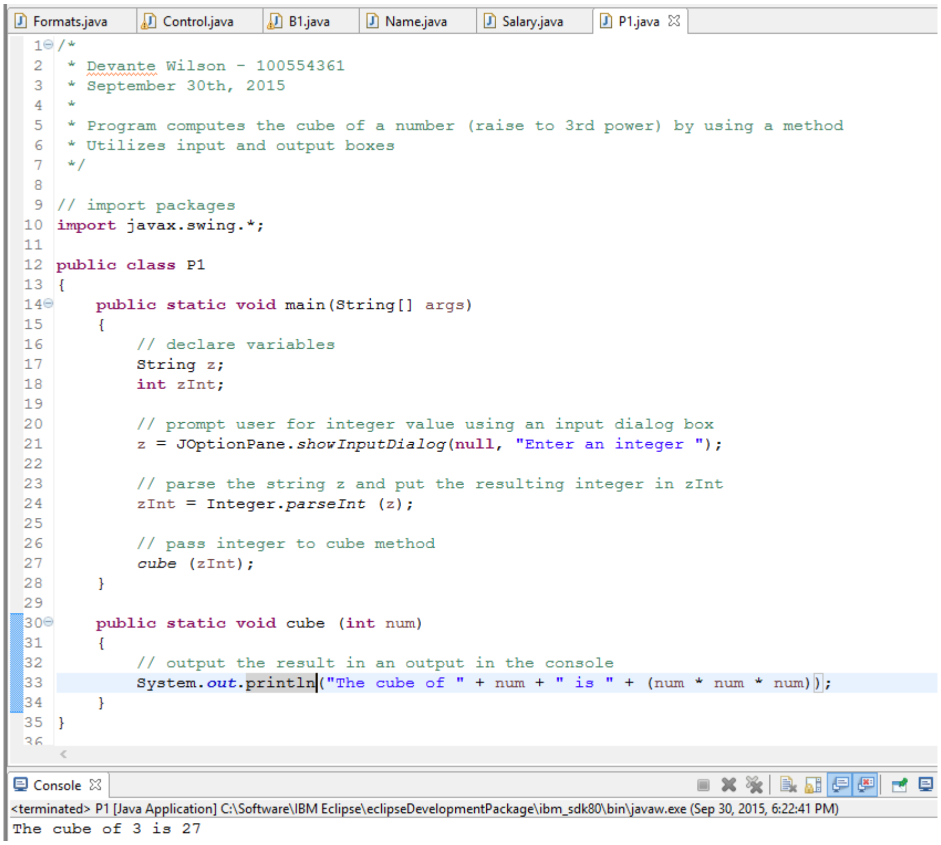
6.1



```
/*
 * Devante Wilson - 100554361
 * September 30th, 2015
 *
 * Program computes the cube of a number (raise to 3rd power) by using a method
 * Utilizes input and output boxes
 */

// import packages
import javax.swing.*;

public class P1
{
    public static void main(String[] args)
    {
        // declare variables
        String z;
        int zInt;

        // prompt user for integer value using an input dialog box
        z = JOptionPane.showInputDialog(null, "Enter an integer ");

        // parse the string z and put the resulting integer in zInt
        zInt = Integer.parseInt (z);

        // pass integer to cube method
        cube (zInt);
    }

    public static void cube (int num)
    {
        // output the result in an output dialog box
        JOptionPane.showMessageDialog(null, "The cube of " + num + " is " + (num * num * num));
    }
}
```

```
The cube of 3 is 27
```

6.2 (Show output in console rather than output dialog box)



```
/*
 * Devante Wilson - 100554361
 * September 30th, 2015
 *
 * Program computes the cube of a number (raise to 3rd power) by using a method
 * Utilizes input and output boxes
 */

// import packages
import javax.swing.*;

public class P1
{
    public static void main(String[] args)
    {
        // declare variables
        String z;
        int zInt;

        // prompt user for integer value using an input dialog box
        z = JOptionPane.showInputDialog(null, "Enter an integer ");

        // parse the string z and put the resulting integer in zInt
        zInt = Integer.parseInt (z);

        // pass integer to cube method
        cube (zInt);
    }

    public static void cube (int num)
    {
        // output the result in an output in the console
        System.out.println("The cube of " + num + " is " + (num * num * num));
    }
}
```

```
<terminated> P1 [Java Application] C:\Software\IBM Eclipse\eclipseDevelopmentPackage\ibm_sdk80\bin\javaw.exe (Sep 30, 2015, 6:22:41 PM)
The cube of 3 is 27
```