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Bangladesh Open University

B.Sc. in Computer Science & Engineering

Lab Assignment No.01

Submitted By :	Submitted To :
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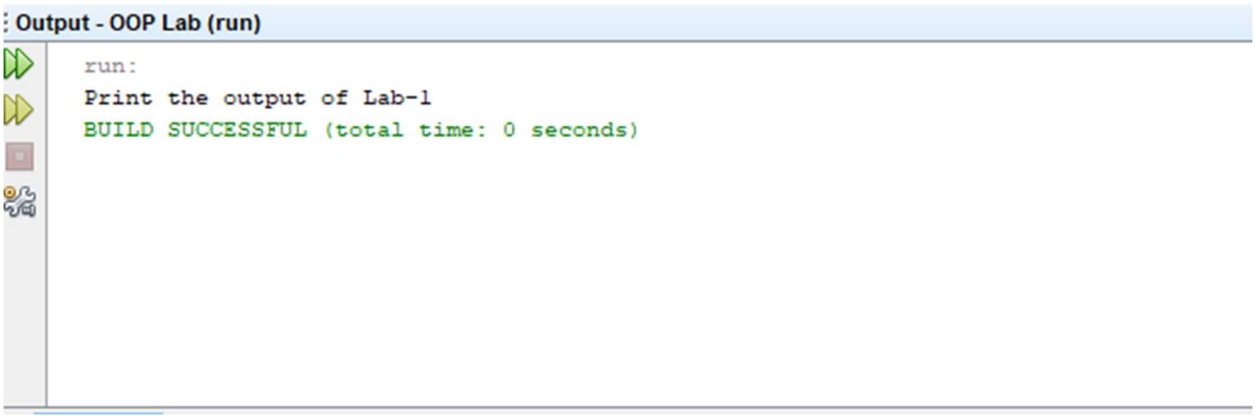
Experiment No 1: Editing, compiling and executing a Java Program using jdk

Code:

```
package Lab01;
public class Lab01 {
   public static void main(String[] args) {
      System.out.println("Print the output of Lab-1 ");
   }
}
```

Output:



Experiment No 2: Java classes and objects

Code:

```
package Lab02;

public class Lab02 {
   public static void main(String[] args) {
   //call class LabObject and create object
   LabObject lo= new LabObject (); //lo is a object from LabObject class
   lo.print ();
         }
}
//Create Class
class LabObject{
   void print(){
      System.out.println("Print the output of Lab 2 object and class.");
   }
}
```

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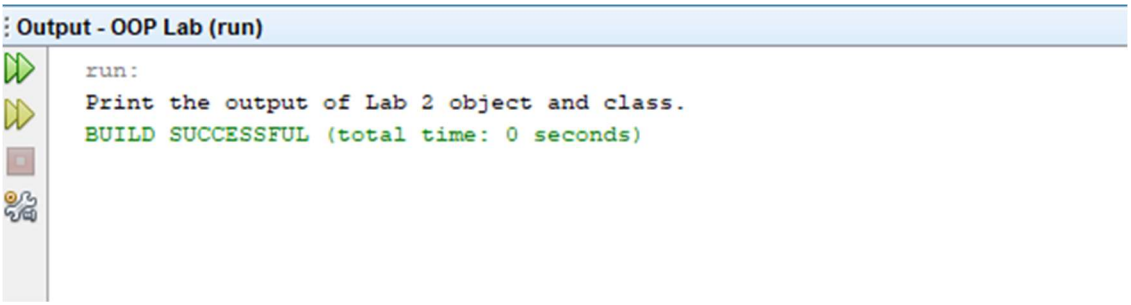
Output:



Experiment No 4: I/O handling

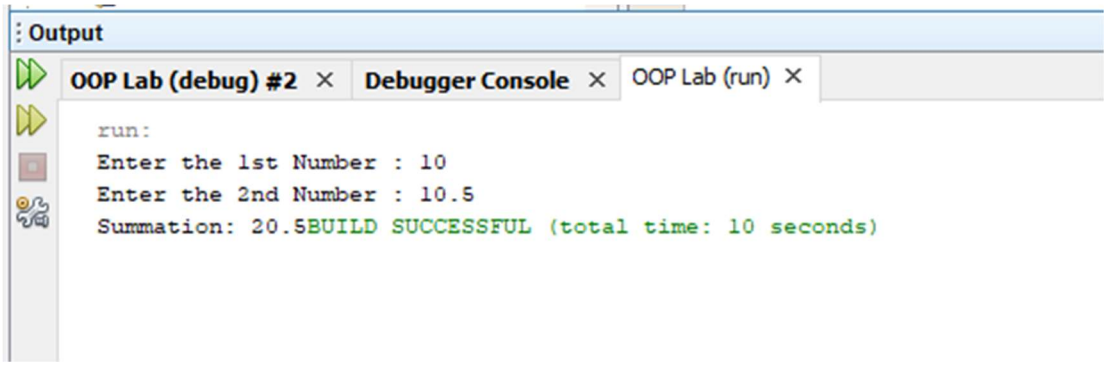
Code:

```
package Lab04;
import java.util.Scanner;


public class Lab04 {
      public static void main(String[] args) {

      Scanner s = new Scanner(System.in)
      System.out.print("Enter the 1st Number : ");
      int num1= s.nextInt();
      System.out.print("Enter the 2nd Number : ");
      double num2= s.nextDouble();
      System.out.print("Summation: " + (num1 + num2));
   }
}
```

Output:



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Experiment No 5: Complex Number Manipulation

Code:

```
package Lab05;

public class Lab05 {
   public static void main(String[] args) {

      Complex c1 = new Complex(10, 17);
      c1.show();
      Complex c2 = new Complex(4, 12);
      c2.show();
      Complex c3 = new Complex();
      c3 = c3.addComp(c1, c2);
      c3.show();
   }
}
class Complex {

   int real, img;
   public Complex (){}
   public Complex(int r,int i) {
      real=r;
      img=i;
   }
   public void show () {
      System.out.println("The numbers are: "+real+"+"+img+"i");
   }

Complex addComp(Complex c1, Complex c2) {
      Complex add = new Complex();
      add.real = c1.real + c2.real;
      add.img = c1.img + c2.img;
      return add;
   }
}
```

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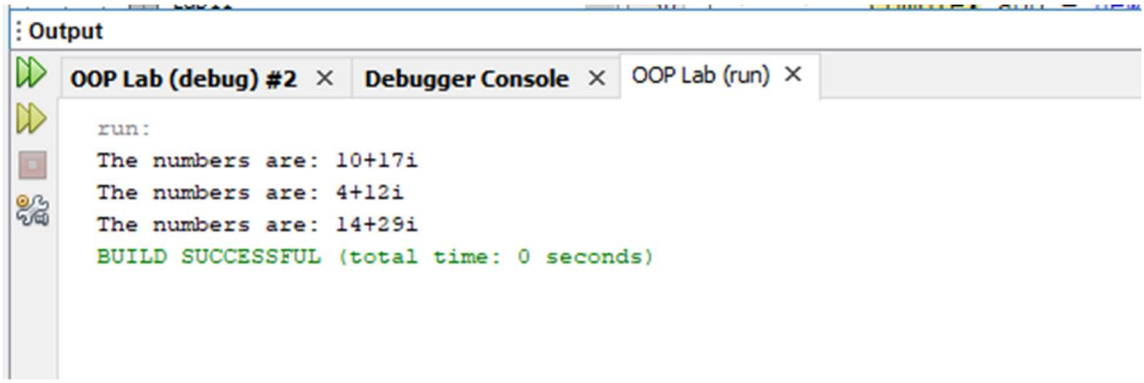
Output:



Experiment No 6: Date Class Similar To Java. Util Package

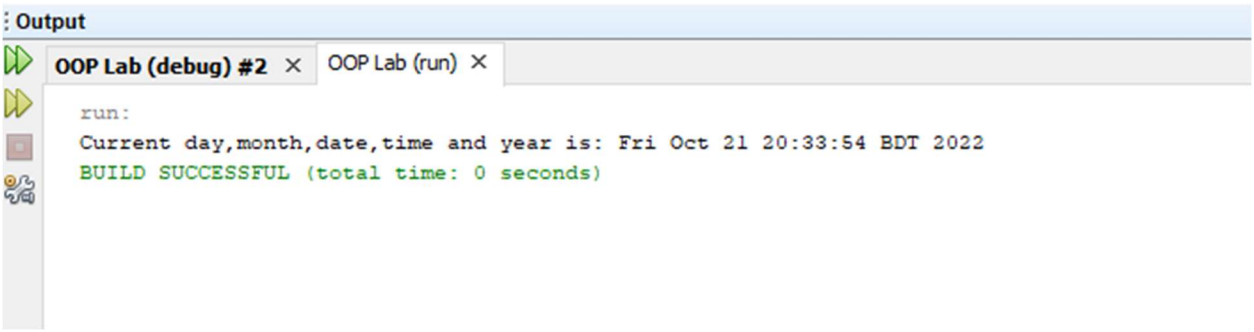
Code:

```
package Lab06;

import java.util.Date;


public class Lab06 {
    public static void main(String[] args)
   {
      Date sc = new Date();
      System.out.println("Current day,month,date,time and year is: " + sc);
   }
}
```

Output:



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Experiment No 7: Inheritance, Polymorphism

Code:

```
package Lab07;

public class Lab07 {
   public static void main(String[] args) {
      Animal animal = new Animal();
      animal.animalMove();

      Animal dog = new Dog();
      dog.animalMove();

      Math m = new Math();
      m.sub();
      m.sub(10, 7);
   }
}

class Math{
   void sub(){
      int x=24, y=12;
      System.out.println("Result is: "+ (x-y));
   }

   void sub(int x, int y){
      System.out.println("Result of the given number is: "+ (x-y));
   }
}

class Animal {
   public void animalMove() {
      System.out.println("Animal move");
   }
}
class Dog extends Animal {

   @Override
   public void animalMove() {
      System.out.println("Dog is running");
   }
}
```

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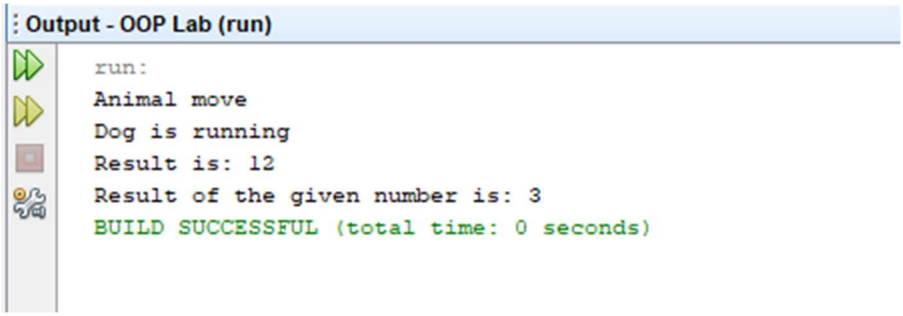
Output:



Experiment No 9: Creating and executing simple Applets

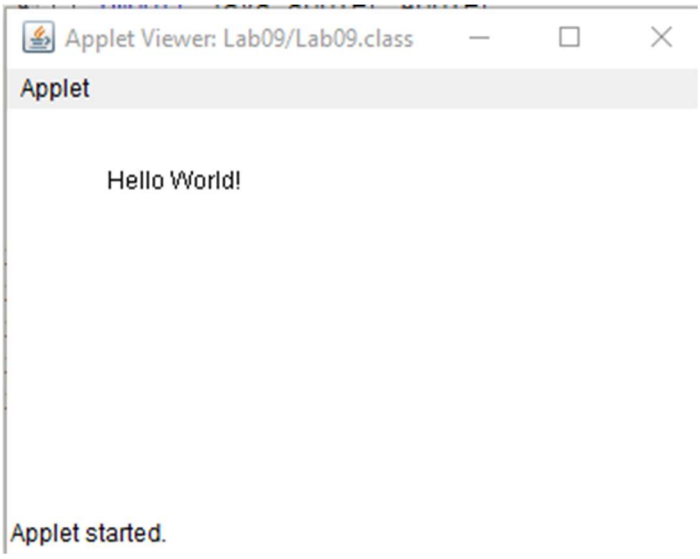
Code:

```
import java.applet.Applet;
import java.awt.Graphics;

public class Lab09 extends Applet{

   @Override
   public void paint(Graphics g) {
         g.drawString("Hello World!", 50, 40);
      }
}
```

Output:



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Experiment No 10:

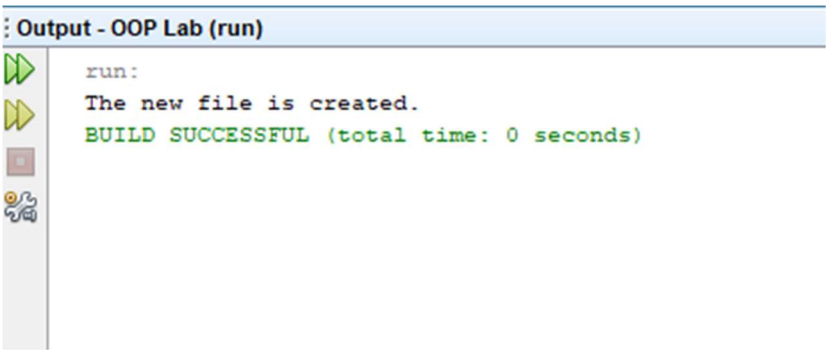
Code:

```
package Lab10;

import java.io.File;

public class Lab10 {
   public static void main(String[] args)
   {
      // File name specified
      File obj = new File("myfile.txt");
       System.out.println("The new file is created.");
   }
}
```

Output:



Experiment No 11:

Code:

```
package Lab11;

public class Lab11 {
   public static void main(String[] args) {
      Thread MultiThread1 = new Thread("Theread-1");
      Thread MultiThread2 = new Thread("Theread-2");
      MultiThread1.start();
      MultiThread2.start();
      System.out.println("Thread names are following:");
      System.out.println(MultiThread1.getName());
      System.out.println(MultiThread2.getName());
   }
```

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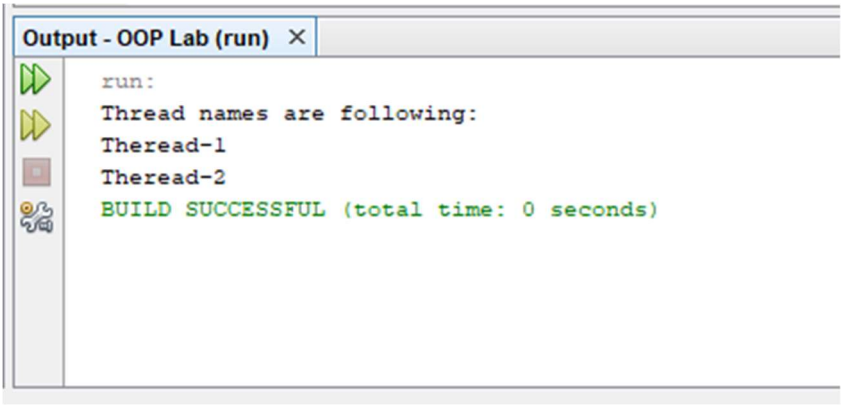
```
    public void run() {
    }
}
```

Output:



Experiment No 13:

Code:

```
public class calculator extends javax.swing.JFrame {

    public calculator() {
        initComponents();
    }

    @SuppressWarnings("unchecked")
    // <editor-fold defaultstate="collapsed" desc="Generated Code">
    private void initComponents() {

        jLabel1 = new javax.swing.JLabel();
        jLabel2 = new javax.swing.JLabel();
        jLabel3 = new javax.swing.JLabel();
        jLabel4 = new javax.swing.JLabel();
        x = new javax.swing.JTextField();
        y = new javax.swing.JTextField();
        z = new javax.swing.JTextField();
        jButton1 = new javax.swing.JButton();
        jButton2 = new javax.swing.JButton();
        jButton3 = new javax.swing.JButton();
        jButton4 = new javax.swing.JButton();
        jButton5 = new javax.swing.JButton();
        jButton6 = new javax.swing.JButton();
        jButton7 = new javax.swing.JButton();
        jButton8 = new javax.swing.JButton();
```

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```
setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);
setBackground(new java.awt.Color(255, 204, 204));

jLabel1.setBackground(new java.awt.Color(255, 102, 102));
jLabel1.setFont(new java.awt.Font("MV Boli", 0, 18)); // NOI18N
jLabel1.setForeground(new java.awt.Color(51, 204, 255));
jLabel1.setText("       Simple Calculator");

jLabel2.setFont(new java.awt.Font("MV Boli", 0, 11)); // NOI18N
jLabel2.setForeground(new java.awt.Color(255, 102, 0));
jLabel2.setText("Number-1");

jLabel3.setFont(new java.awt.Font("MV Boli", 0, 11)); // NOI18N
jLabel3.setForeground(new java.awt.Color(255, 102, 153));
jLabel3.setText("Number-2");

jLabel4.setFont(new java.awt.Font("MV Boli", 0, 11)); // NOI18N
jLabel4.setForeground(new java.awt.Color(255, 102, 153));
jLabel4.setText("Result");

x.addActionListener(new java.awt.event.ActionListener() {
   public void actionPerformed(java.awt.event.ActionEvent evt) {
      xActionPerformed(evt);
   }
});

jButton1.setText("+");
jButton1.addActionListener(new java.awt.event.ActionListener() {
   public void actionPerformed(java.awt.event.ActionEvent evt) {
      jButton1ActionPerformed(evt);
   }
});

jButton2.setText("-");
jButton2.addActionListener(new java.awt.event.ActionListener() {
   public void actionPerformed(java.awt.event.ActionEvent evt) {
      jButton2ActionPerformed(evt);
   }
});

jButton3.setText("*");
jButton3.addActionListener(new java.awt.event.ActionListener() {
   public void actionPerformed(java.awt.event.ActionEvent evt) {
```

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```
        jButton3ActionPerformed(evt);
      }
    });

    jButton4.setText("/");
    jButton4.addActionListener(new java.awt.event.ActionListener() {
      public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton4ActionPerformed(evt);
      }
    });

    jButton5.setText("%");
    jButton5.addActionListener(new java.awt.event.ActionListener() {
      public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton5ActionPerformed(evt);
      }
    });

    jButton6.setText("√");
    jButton6.addActionListener(new java.awt.event.ActionListener() {
      public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton6ActionPerformed(evt);
      }
    });

    jButton7.setText("²");
    jButton7.addActionListener(new java.awt.event.ActionListener() {
      public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton7ActionPerformed(evt);
      }
    });

    jButton8.setText("CE");
    jButton8.addActionListener(new java.awt.event.ActionListener() {
      public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton8ActionPerformed(evt);
      }
    });

    javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
    getContentPane().setLayout(layout);
    layout.setHorizontalGroup(
      layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
      .addGroup(layout.createSequentialGroup()
```

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```
            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
               .addGroup(layout.createSequentialGroup()
                  .addGap(55, 55, 55)
                  .addComponent(jLabel1, javax.swing.GroupLayout.PREFERRED_SIZE, 274,
javax.swing.GroupLayout.PREFERRED_SIZE))
               .addGroup(layout.createSequentialGroup()
                  .addGap(49, 49, 49)
                  .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                     .addGroup(layout.createSequentialGroup()
                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING,
false)
                           .addComponent(jLabel2, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                           .addComponent(jLabel3, javax.swing.GroupLayout.DEFAULT_SIZE, 65,
Short.MAX_VALUE)
                           .addComponent(jLabel4, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING,
false)
                           .addComponent(x, javax.swing.GroupLayout.DEFAULT_SIZE, 128,
Short.MAX_VALUE)
                           .addComponent(y)
                           .addComponent(z)))
                     .addGroup(layout.createSequentialGroup()
                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING,
false)
                           .addGroup(javax.swing.GroupLayout.Alignment.LEADING,
layout.createSequentialGroup()
                              .addComponent(jButton5)
                              .addGap(18, 18, 18)
                              .addComponent(jButton6, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
                           .addGroup(layout.createSequentialGroup()
                              .addComponent(jButton1)
                              .addGap(18, 18, 18)
                              .addComponent(jButton2, javax.swing.GroupLayout.PREFERRED_SIZE, 52,
javax.swing.GroupLayout.PREFERRED_SIZE)))
                        .addGap(18, 18, 18)
                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING,
false)
                           .addComponent(jButton3, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
```

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```
                        .addComponent(jButton7, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
                    .addGap(18, 18, 18)
                    .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING,
false)
                        .addComponent(jButton8, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                        .addComponent(jButton4, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))))))
            .addContainerGap(71, Short.MAX_VALUE))
        );
        layout.setVerticalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addGap(21, 21, 21)
                .addComponent(jLabel1, javax.swing.GroupLayout.PREFERRED_SIZE, 48,
javax.swing.GroupLayout.PREFERRED_SIZE)
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel2, javax.swing.GroupLayout.PREFERRED_SIZE, 25,
javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addComponent(x, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addGap(18, 18, 18)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel3, javax.swing.GroupLayout.PREFERRED_SIZE, 24,
javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addComponent(y, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addGap(26, 26, 26)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel4, javax.swing.GroupLayout.PREFERRED_SIZE, 24,
javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addComponent(z, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addGap(18, 18, 18)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jButton1)
                    .addComponent(jButton2)
                    .addComponent(jButton3)
                    .addComponent(jButton4))
                .addGap(18, 18, 18)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jButton5)
```

z

```
                .addComponent(jButton6)
                .addComponent(jButton7)
                .addComponent(jButton8))
            .addContainerGap(26, Short.MAX_VALUE))
    );

    pack();
}// </editor-fold>

private void jButton6ActionPerformed(java.awt.event.ActionEvent evt) {
    double a, c;
    a = Integer.parseInt(x.getText());

    c = (int) Math.sqrt(a);
    z.setText("" + c);
}

private void jButton8ActionPerformed(java.awt.event.ActionEvent evt) {

    int a,b,c;
    x.setText(null);
    y.setText(null);
    z.setText(null);
}

private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {
    int a, b, c;
    a = Integer.parseInt(x.getText());
    b = Integer.parseInt(y.getText());
    c = a + b;
    z.setText("" + c);
}

private void jButton2ActionPerformed(java.awt.event.ActionEvent evt) {
    int a, b, c;
    a = Integer.parseInt(x.getText());
    b = Integer.parseInt(y.getText());
    c = a - b;
    z.setText("" + c);
}

private void xActionPerformed(java.awt.event.ActionEvent evt) {

}
```

z

```
    private void jButton3ActionPerformed(java.awt.event.ActionEvent evt) {
        int a, b, c;
        a = Integer.parseInt(x.getText());
        b = Integer.parseInt(y.getText());
        c = a * b;
        z.setText("" + c);
    }

    private void jButton4ActionPerformed(java.awt.event.ActionEvent evt) {
        int a, b, c;
        a = Integer.parseInt(x.getText());
        b = Integer.parseInt(y.getText());
        c = a / b;
        z.setText("" + c);
    }

    private void jButton5ActionPerformed(java.awt.event.ActionEvent evt) {
        int a, b, c;
        a = Integer.parseInt(x.getText());
        b = Integer.parseInt(y.getText());
        c = a % b;
        z.setText("" + c);
    }

    private void jButton7ActionPerformed(java.awt.event.ActionEvent evt) {
      double a, c;
        a = Integer.parseInt(x.getText());

        c = a*a;
        z.setText("" + c);
    }


    public static void main(String args[]) {

        java.awt.EventQueue.invokeLater(new Runnable() {
            public void run() {
                new calculator().setVisible(true);
            }
        });
    }

    private javax.swing.JButton jButton1;
```

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```
    private javax.swing.JButton jButton2;
    private javax.swing.JButton jButton3;
    private javax.swing.JButton jButton4;
    private javax.swing.JButton jButton5;
    private javax.swing.JButton jButton6;
    private javax.swing.JButton jButton7;
    private javax.swing.JButton jButton8;
    private javax.swing.JLabel jLabel1;
    private javax.swing.JLabel jLabel2;
    private javax.swing.JLabel jLabel3;
    private javax.swing.JLabel jLabel4;
    private javax.swing.JTextField x;
    private javax.swing.JTextField y;
    private javax.swing.JTextField z;
}
```

Output: