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Problem No-1: Write about the environment setup of JAVA.

Explanation:

Java is widely used in many applications and also provides computing power for numerous websites. In a previous article, we have seen the [introduction and features of Java](#). In this post, I share a complete JDK installation guide and Java environment variables Setup.

To run the Java application, there is a Java Development Kit (JDK) to install. And there are two environment variables to set. One is a path and the other is a classpath variable.

Install JDK on Windows

First of all, download the latest JDK from its official website of [Oracle](#).

Install downloaded JDK software on your system.

Note: In the case of Windows, by default, Java will be installed at directory path `C:\Program Files\Java`.

After installation opens this directory path. You can find, there are two folders (jdk1.x... and jre)

Java Environment Variables Setup Steps

After installation, we need to set path and classpath environment variable for Java.

Follow the steps on your Windows system as given below.

- Right-click on **My Computer**.
- Select **Advanced System Setting**.
- Click on **Environment Variables** (at the bottom right corner).
- There will be two environment variables, one is the User variable and another is a System variable.
 - If path and classpath variables are already present in System Variable, click on it to edit. Otherwise, set a new variable.
 - Set the path variable by adding the following directory path.

```
C:\Program Files (x86)\Java\jdk1.8.0_111\bin
```

Set the classpath variable by adding the following classpath directory path.

```
C:\Program Files (x86)\Java\jre8\lib
```

- **Note:** These are the respective JDK paths on my system. Find the same on your system.
- Click on **OK**.

Problem no- 02: Write a program that works as a simple calculator.

```
package calculator_apps;
/**
 *
 * @author Akash
 */
public class calculator extends javax.swing.JFrame {
    double num,ans;
    int calculation;
    public calculator() {
        initComponents();
    }
    public void arithmetic_operation()
    {
        switch(calculation)
        {
            case 1:
                ans=num+ Double.parseDouble(jTextField1.getText());
                jTextField1.setText(Double.toString(ans));
                break;
            case 2:
                ans=num- Double.parseDouble(jTextField1.getText());
                jTextField1.setText(Double.toString(ans));
                break;
            case 3:
                ans=num* Double.parseDouble(jTextField1.getText());
                jTextField1.setText(Double.toString(ans));
                break;
            case 4:
                ans=num/ Double.parseDouble(jTextField1.getText());
                jTextField1.setText(Double.toString(ans));
                break;
        }
    }
    @SuppressWarnings("unchecked")
    // <editor-fold defaultstate="collapsed" desc="Generated Code">
    private void initComponents() {

        buttonGroup1 = new javax.swing.ButtonGroup();
        buttonGroup2 = new javax.swing.ButtonGroup();
        jButton1 = new javax.swing.JButton();
        jButton18 = new javax.swing.JButton();
        jTextField1 = new javax.swing.JTextField();
```

```

jRadioButton1 = new javax.swing.JRadioButton();
jRadioButton2 = new javax.swing.JRadioButton();
jButton2 = new javax.swing.JButton();
jButton3 = new javax.swing.JButton();
jButton4 = new javax.swing.JButton();
jButton6 = new javax.swing.JButton();
jButton7 = new javax.swing.JButton();
jButton8 = new javax.swing.JButton();
jButton5 = new javax.swing.JButton();
jButton9 = new javax.swing.JButton();
jButton10 = new javax.swing.JButton();
jButton11 = new javax.swing.JButton();
jButton12 = new javax.swing.JButton();
jButton13 = new javax.swing.JButton();
jButton14 = new javax.swing.JButton();
jButton16 = new javax.swing.JButton();
jButton17 = new javax.swing.JButton();
jButton19 = new javax.swing.JButton();
jButton21 = new javax.swing.JButton();
jButton22 = new javax.swing.JButton();

jButton1.setFont(new java.awt.Font("Tahoma", 0, 20)); // NOI18N
jButton1.setText("GT");
jButton18.setText(".");
setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);
setTitle("Calculator");
setBackground(new java.awt.Color(255, 255, 153));
setLocation(new java.awt.Point(500, 250));
setType(java.awt.Window.Type.UTILITY);

jTextField1.setFont(new java.awt.Font("Segoe UI Semibold", 1, 18)); // NOI18N
jRadioButton1.setFont(new java.awt.Font("Tahoma", 1, 13)); // NOI18N
jRadioButton1.setText("ON");
jRadioButton1.setPreferredSize(new java.awt.Dimension(40, 20));
jRadioButton2.setFont(new java.awt.Font("Tahoma", 1, 13)); // NOI18N
jRadioButton2.setText("OFF");
jRadioButton2.setPreferredSize(new java.awt.Dimension(45, 40));
jRadioButton2.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jRadioButton2ActionPerformed(evt);
    }
});
jButton2.setFont(new java.awt.Font("Tahoma", 1, 13)); // NOI18N
jButton2.setText("8");

```

```

jButton2.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton2ActionPerformed(evt);
    }
});
jButton3.setFont(new java.awt.Font("Tahoma", 1, 13)); // NOI18N
jButton3.setText("7");
jButton3.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton3ActionPerformed(evt);
    }
});
jButton4.setFont(new java.awt.Font("Tahoma", 1, 13)); // NOI18N
jButton4.setText("9");
jButton4.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton4ActionPerformed(evt);
    }
});
jButton6.setFont(new java.awt.Font("Tahoma", 1, 13)); // NOI18N
jButton6.setText(" 3");
jButton6.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton6ActionPerformed(evt);
    }
});
jButton7.setFont(new java.awt.Font("Tahoma", 1, 13)); // NOI18N
jButton7.setText("2");
jButton7.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton7ActionPerformed(evt);
    }
});
jButton8.setFont(new java.awt.Font("Tahoma", 1, 13)); // NOI18N
jButton8.setText("1");
jButton8.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton8ActionPerformed(evt);
    }
});
jButton5.setFont(new java.awt.Font("Tahoma", 1, 13)); // NOI18N
jButton5.setText("6");
jButton5.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {

```

```

        jButton5ActionPerformed(evt);
    }
});
jButton9.setFont(new java.awt.Font("Tahoma", 1, 13)); // NOI18N
jButton9.setText("5");
jButton9.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton9ActionPerformed(evt);
    }
});
jButton10.setFont(new java.awt.Font("Tahoma", 1, 13)); // NOI18N
jButton10.setText("4");
jButton10.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton10ActionPerformed(evt);
    }
});
jButton11.setFont(new java.awt.Font("Tahoma", 1, 11)); // NOI18N
jButton11.setText("0");
jButton11.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton11ActionPerformed(evt);
    }
});
jButton12.setFont(new java.awt.Font("Tahoma", 1, 13)); // NOI18N
jButton12.setText(".");
jButton12.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton12ActionPerformed(evt);
    }
});
jButton13.setText("=");
jButton13.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton13ActionPerformed(evt);
    }
});
jButton14.setFont(new java.awt.Font("Tahoma", 1, 13)); // NOI18N
jButton14.setText("+");
jButton14.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton14ActionPerformed(evt);
    }
});

```

```

jButton16.setFont(new java.awt.Font("Tahoma", 1, 13)); // NOI18N
jButton16.setText("CE");
jButton16.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton16ActionPerformed(evt);
    }
});
jButton17.setFont(new java.awt.Font("Tahoma", 1, 13)); // NOI18N
jButton17.setText("+/-");
jButton17.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton17ActionPerformed(evt);
    }
});
jButton19.setFont(new java.awt.Font("Tahoma", 1, 13)); // NOI18N
jButton19.setText("-");
jButton19.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton19ActionPerformed(evt);
    }
});
jButton21.setFont(new java.awt.Font("Tahoma", 1, 13)); // NOI18N
jButton21.setText("X");
jButton21.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton21ActionPerformed(evt);
    }
});
jButton22.setFont(new java.awt.Font("Tahoma", 1, 13)); // NOI18N
jButton22.setText("/");
jButton22.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton22ActionPerformed(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()
            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addContainerGap())

```



```

        .addGroup(layout.createSequentialGroup())
        .addComponent(jButton11, javax.swing.GroupLayout.PREFERRED_SIZE, 49,
javax.swing.GroupLayout.PREFERRED_SIZE)

        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
        .addComponent(jButton12, javax.swing.GroupLayout.PREFERRED_SIZE, 49,
javax.swing.GroupLayout.PREFERRED_SIZE)

        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
        .addComponent(jButton13, javax.swing.GroupLayout.PREFERRED_SIZE,
104, javax.swing.GroupLayout.PREFERRED_SIZE)
        .addGap(0, 0, Short.MAX_VALUE))
        .addGroup(layout.createSequentialGroup())

        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addComponent(jTextField1)
        .addGroup(layout.createSequentialGroup())

        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup())

        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addComponent(jRadioButton1,
javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(jRadioButton2,
javax.swing.GroupLayout.PREFERRED_SIZE, 49,
javax.swing.GroupLayout.PREFERRED_SIZE))

        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
        .addComponent(jButton17,
javax.swing.GroupLayout.PREFERRED_SIZE, 49,
javax.swing.GroupLayout.PREFERRED_SIZE)

        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
        .addComponent(jButton16,
javax.swing.GroupLayout.PREFERRED_SIZE, 49,
javax.swing.GroupLayout.PREFERRED_SIZE))
        .addGroup(layout.createSequentialGroup())
        .addComponent(jButton8,
javax.swing.GroupLayout.PREFERRED_SIZE, 49,
javax.swing.GroupLayout.PREFERRED_SIZE)

        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

```

```

        .addComponent(jButton7,
javax.swing.GroupLayout.PREFERRED_SIZE, 49,
javax.swing.GroupLayout.PREFERRED_SIZE)

        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
        .addComponent(jButton6,
javax.swing.GroupLayout.PREFERRED_SIZE, 47,
javax.swing.GroupLayout.PREFERRED_SIZE))
        .addGroup(layout.createSequentialGroup())
        .addComponent(jButton10,
javax.swing.GroupLayout.PREFERRED_SIZE, 49,
javax.swing.GroupLayout.PREFERRED_SIZE)

        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
        .addComponent(jButton9,
javax.swing.GroupLayout.PREFERRED_SIZE, 49,
javax.swing.GroupLayout.PREFERRED_SIZE)

        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
        .addComponent(jButton5,
javax.swing.GroupLayout.PREFERRED_SIZE, 47,
javax.swing.GroupLayout.PREFERRED_SIZE))
        .addGroup(layout.createSequentialGroup())
        .addComponent(jButton3,
javax.swing.GroupLayout.PREFERRED_SIZE, 53,
javax.swing.GroupLayout.PREFERRED_SIZE)

        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
        .addComponent(jButton2,
javax.swing.GroupLayout.PREFERRED_SIZE, 49,
javax.swing.GroupLayout.PREFERRED_SIZE)

        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
        .addComponent(jButton4,
javax.swing.GroupLayout.PREFERRED_SIZE, 47,
javax.swing.GroupLayout.PREFERRED_SIZE)))

        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addComponent(jButton19,
javax.swing.GroupLayout.PREFERRED_SIZE, 47,
javax.swing.GroupLayout.PREFERRED_SIZE)

```

```

        .addComponent(jButton21,
javax.swing.GroupLayout.PREFERRED_SIZE, 47,
javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(jButton22,
javax.swing.GroupLayout.PREFERRED_SIZE, 47,
javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(jButton14,
javax.swing.GroupLayout.PREFERRED_SIZE, 49,
javax.swing.GroupLayout.PREFERRED_SIZE))
        .addGap(0, 0, Short.MAX_VALUE)))
        .addContainerGap()))
);
layout.setVerticalGroup(
    layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup()
            .addGap(21, 21, 21)
            .addComponent(jTextField1, javax.swing.GroupLayout.PREFERRED_SIZE, 41,
javax.swing.GroupLayout.PREFERRED_SIZE)
            .addGap(18, 18, 18)

        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addComponent(jRadioButton1,
javax.swing.GroupLayout.PREFERRED_SIZE, 23, Short.MAX_VALUE)

        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
            .addComponent(jRadioButton2,
javax.swing.GroupLayout.PREFERRED_SIZE, 19,
javax.swing.GroupLayout.PREFERRED_SIZE))
            .addComponent(jButton17, javax.swing.GroupLayout.Alignment.TRAILING,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE)
            .addComponent(jButton14, javax.swing.GroupLayout.Alignment.TRAILING,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE)
            .addComponent(jButton16, javax.swing.GroupLayout.Alignment.TRAILING,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE))
        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)

        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
            .addComponent(jButton3, javax.swing.GroupLayout.PREFERRED_SIZE, 31,
javax.swing.GroupLayout.PREFERRED_SIZE)

```

```

        .addComponent(jButton2, javax.swing.GroupLayout.PREFERRED_SIZE, 32,
javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(jButton4, javax.swing.GroupLayout.PREFERRED_SIZE, 32,
javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(jButton19, javax.swing.GroupLayout.PREFERRED_SIZE, 32,
javax.swing.GroupLayout.PREFERRED_SIZE))
        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
        .addComponent(jButton10, javax.swing.GroupLayout.PREFERRED_SIZE, 31,
javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(jButton9, javax.swing.GroupLayout.PREFERRED_SIZE, 32,
javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(jButton5, javax.swing.GroupLayout.PREFERRED_SIZE, 32,
javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(jButton21, javax.swing.GroupLayout.PREFERRED_SIZE, 32,
javax.swing.GroupLayout.PREFERRED_SIZE))
        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
        .addComponent(jButton8, javax.swing.GroupLayout.PREFERRED_SIZE, 31,
javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(jButton7, javax.swing.GroupLayout.PREFERRED_SIZE, 32,
javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(jButton6, javax.swing.GroupLayout.PREFERRED_SIZE, 32,
javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(jButton22, javax.swing.GroupLayout.PREFERRED_SIZE, 32,
javax.swing.GroupLayout.PREFERRED_SIZE))
        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
        .addComponent(jButton11, javax.swing.GroupLayout.PREFERRED_SIZE, 31,
javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(jButton12, javax.swing.GroupLayout.PREFERRED_SIZE, 32,
javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(jButton13, javax.swing.GroupLayout.PREFERRED_SIZE, 32,
javax.swing.GroupLayout.PREFERRED_SIZE))
        .addGap(25, 25, 25))
    );

    pack();
}
private void jButton2ActionPerformed(java.awt.event.ActionEvent evt) {
    jTextField1.setText("Your calculator is off");
}

```

```

    }
    private void jButton2ActionPerformed(java.awt.event.ActionEvent evt) {
jTextField1.setText(jTextField1.getText() +"8");
    }
    private void jButton7ActionPerformed(java.awt.event.ActionEvent evt) {
        jTextField1.setText(jTextField1.getText() +"2");
    }
    private void jButton9ActionPerformed(java.awt.event.ActionEvent evt) {
jTextField1.setText(jTextField1.getText() +"5");
    }
    private void jButton12ActionPerformed(java.awt.event.ActionEvent evt) {
jTextField1.setText(jTextField1.getText() +".");
    }
    private void jButton14ActionPerformed(java.awt.event.ActionEvent evt) {
        num=Double.parseDouble(jTextField1.getText());
        calculation=1;
        jTextField1.setText("");
    }
    private void jButton16ActionPerformed(java.awt.event.ActionEvent evt) {
        jTextField1.setText("");
    }
    private void jButton17ActionPerformed(java.awt.event.ActionEvent evt) {
jTextField1.setText(jTextField1.getText() +"+/-");
    }
    private void jButton11ActionPerformed(java.awt.event.ActionEvent evt) {
        jTextField1.setText(jTextField1.getText() +"0");
    }
    private void jButton6ActionPerformed(java.awt.event.ActionEvent evt) {
jTextField1.setText(jTextField1.getText() +"3");
    }
    private void jButton8ActionPerformed(java.awt.event.ActionEvent evt) {
jTextField1.setText(jTextField1.getText() +"1");
    }
    private void jButton10ActionPerformed(java.awt.event.ActionEvent evt) {
jTextField1.setText(jTextField1.getText() +"4");
    }
    private void jButton5ActionPerformed(java.awt.event.ActionEvent evt) {
        jTextField1.setText(jTextField1.getText() +"6");
    }
    private void jButton3ActionPerformed(java.awt.event.ActionEvent evt) {
        jTextField1.setText(jTextField1.getText() +"7");
    }
    private void jButton4ActionPerformed(java.awt.event.ActionEvent evt) {
jTextField1.setText(jTextField1.getText() +"9");
    }

```

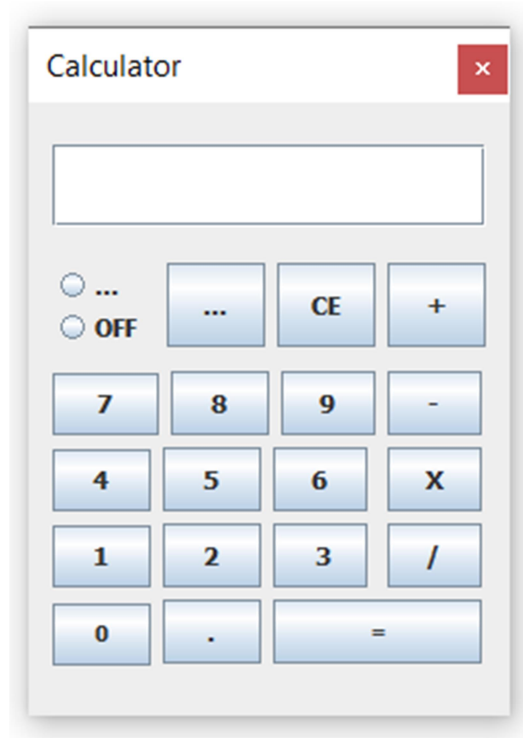
```

    }
    private void jButton19ActionPerformed(java.awt.event.ActionEvent evt) {
        num=Double.parseDouble(jTextField1.getText());
        calculation=2;
        jTextField1.setText("");
    }
    private void jButton21ActionPerformed(java.awt.event.ActionEvent evt) {
        num=Double.parseDouble(jTextField1.getText());
        calculation=3;
        jTextField1.setText("");
    }
    private void jButton22ActionPerformed(java.awt.event.ActionEvent evt) {
        num=Double.parseDouble(jTextField1.getText());
        calculation=4;
        jTextField1.setText("");
    }
    private void jButton13ActionPerformed(java.awt.event.ActionEvent evt) {
        arithmetic_operation();
    }
    public static void main(String args[]) {
        java.awt.EventQueue.invokeLater(new Runnable() {
            public void run() {
                new calculator().setVisible(true);
            }
        });
    }
    // Variables declaration - do not modify
    private javax.swing.ButtonGroup buttonGroup1;
    private javax.swing.ButtonGroup buttonGroup2;
    private javax.swing.JButton jButton1;
    private javax.swing.JButton jButton10;
    private javax.swing.JButton jButton11;
    private javax.swing.JButton jButton12;
    private javax.swing.JButton jButton13;
    private javax.swing.JButton jButton14;
    private javax.swing.JButton jButton16;
    private javax.swing.JButton jButton17;
    private javax.swing.JButton jButton18;
    private javax.swing.JButton jButton19;
    private javax.swing.JButton jButton2;
    private javax.swing.JButton jButton21;
    private javax.swing.JButton jButton22;
    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.JButton jButton9;  
private javax.swing.JRadioButton jRadioButton1;  
private javax.swing.JRadioButton jRadioButton2;  
private javax.swing.JTextField jTextField1;  
// End of variables declaration  
}
```

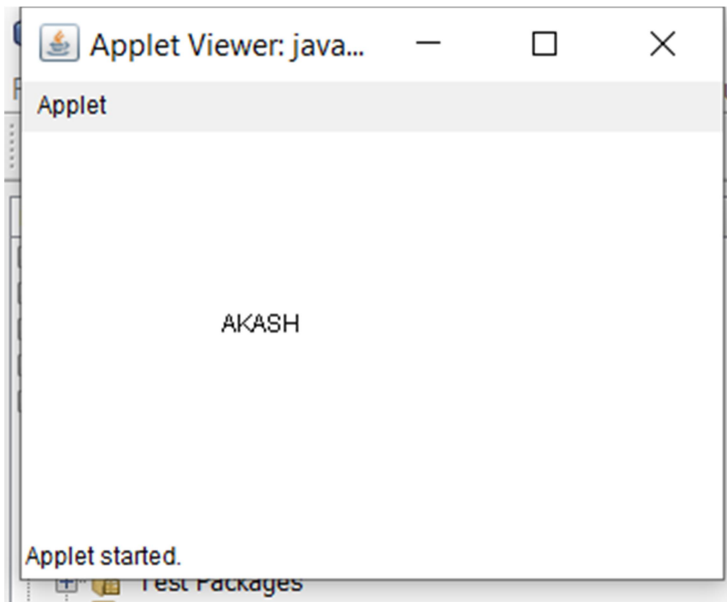
Output:



Problem no- 03: JAVA Applet

```
package javaapplet;  
/**  
 *  
 * @author AKASH  
 */  
import java.applet.Applet;  
import java.awt.Graphics;  
public class Javaapplet extends Applet {  
  
    public void paint(Graphics g)  
    {  
        g.drawString("AKASH",100,100);  
    }  
  
}
```

Output:



Problem no-4: Digital Clock

```
package digital_clock;

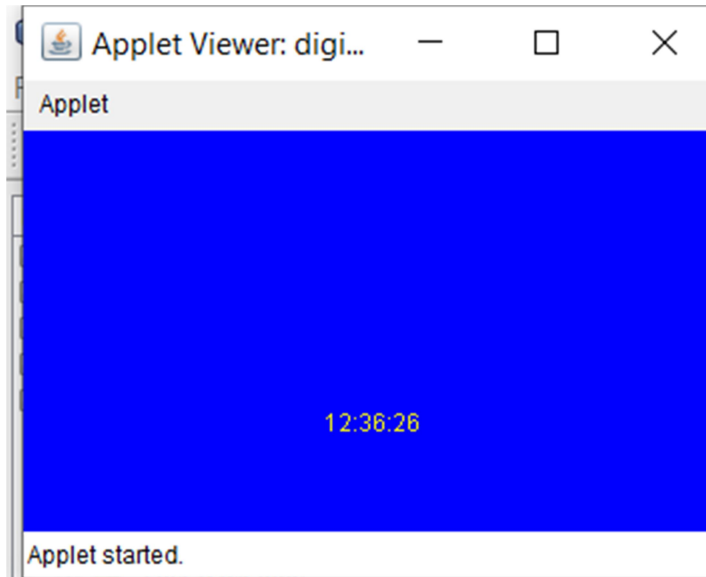
import java.applet.*;
import java.awt.*;
import java.util.*;
import java.text.*;

public class Digital_clock extends Applet implements Runnable{
    Thread t = null;
    int hours =0,minutes=0,seconds=0;
    String timeString=" ";
    public void init()
    {
        setBackground(Color.blue);
    }
    public void start()
    {
        t = new Thread(this);
        t.start();
    }
    public void run()
    {
        try{
            while(true)
            {
                Calendar cal = Calendar.getInstance();
                hours = cal.get(Calendar.HOUR_OF_DAY);
                if(hours>12) hours-=12;
                minutes = cal.get(Calendar.MINUTE);
                seconds = cal.get(Calendar.SECOND);
                SimpleDateFormat formatter = new SimpleDateFormat("hh:mm:ss");
                Date date = cal.getTime();
                timeString = formatter.format(date);
                repaint();
                t.sleep(1000);
            }
        }
        catch(Exception e){
        }
    }
    public void paint(Graphics g)
    {

```

```
        g.setColor(Color.yellow);  
        g.drawString(timeString,150,150);  
    }  
}
```

Output:



Problem no-5: Integer Division

```
import javax.swing.JOptionPane;
/**
 *
 * @author Akash
 */
public class mainframe extends javax.swing.JFrame {
    public mainframe() {
        initComponents();
    }
    @SuppressWarnings("unchecked")
    // <editor-fold defaultstate="collapsed" desc="Generated Code">
    private void initComponents() {

        jButton1 = new javax.swing.JButton();
        jButton2 = new javax.swing.JButton();
        jTextField1 = new javax.swing.JTextField();
        jTextField2 = new javax.swing.JTextField();
        jLabel1 = new javax.swing.JLabel();
        jLabel2 = new javax.swing.JLabel();
        jPanel1 = new javax.swing.JPanel();
        jLabel3 = new javax.swing.JLabel();

        setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

        jButton1.setFont(new java.awt.Font("Tahoma", 1, 14)); // NOI18N
        jButton1.setText("Calculate");
        jButton1.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jButton1ActionPerformed(evt);
            }
        });
        jButton2.setFont(new java.awt.Font("Tahoma", 1, 14)); // NOI18N
        jButton2.setText("Clear");
        jButton2.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jButton2ActionPerformed(evt);
            }
        });
        jTextField1.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jTextField1ActionPerformed(evt);
            }
        });
    }
}
```

```

    }
});
jTextField2.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jTextField2ActionPerformed(evt);
    }
});
jLabel1.setFont(new java.awt.Font("Tahoma", 1, 13)); // NOI18N
jLabel1.setText("First Number");
jLabel2.setFont(new java.awt.Font("Tahoma", 1, 13)); // NOI18N
jLabel2.setText("Second Number");
jPanel1.setBorder(javax.swing.BorderFactory.createEmptyBorder(1, 1, 1, 1));
jLabel3.setBorder(javax.swing.BorderFactory.createBevelBorder(javax.swing.border.BevelBorder.RAISED));

    javax.swing.GroupLayout jPanel1Layout = new javax.swing.GroupLayout(jPanel1);
    jPanel1.setLayout(jPanel1Layout);
    jPanel1Layout.setHorizontalGroup(
        jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel1Layout.createSequentialGroup()
                .addGap(20, 20, 20)
                .addComponent(jLabel3, javax.swing.GroupLayout.PREFERRED_SIZE, 225,
javax.swing.GroupLayout.PREFERRED_SIZE)
                .addGap(22, Short.MAX_VALUE))
            );
    jPanel1Layout.setVerticalGroup(
        jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel1Layout.createSequentialGroup()
                .addGap(20, 20, 20)
                .addComponent(jLabel3, javax.swing.GroupLayout.DEFAULT_SIZE, 53,
Short.MAX_VALUE)
                .addGap(20, 20, 20))
            );

    javax.swing.GroupLayout layout = new
javax.swing.GroupLayout(getContentPane());
    getContentPane().setLayout(layout);
    layout.setHorizontalGroup(
        layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addGap(43, 43, 43)

```

```

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING,
false)
    .addComponent(jPanel1, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
    .addGroup(layout.createSequentialGroup())

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING,
false)
    .addComponent(jButton1, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
    .addComponent(jLabel1, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
    .addComponent(jLabel2, javax.swing.GroupLayout.DEFAULT_SIZE, 116,
Short.MAX_VALUE))
    .addGap(35, 35, 35)

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING,
false)
    .addComponent(jTextField2)
    .addComponent(jTextField1,
javax.swing.GroupLayout.Alignment.TRAILING)
    .addComponent(jButton2,
javax.swing.GroupLayout.Alignment.TRAILING, javax.swing.GroupLayout.DEFAULT_SIZE,
116, Short.MAX_VALUE))))
    .addContainerGap(84, Short.MAX_VALUE))
);
layout.setVerticalGroup(
    layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
layout.createSequentialGroup()
    .addGap(21, 21, 21)
    .addComponent(jPanel1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
    .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 54,
Short.MAX_VALUE)

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING,
false)
    .addComponent(jLabel1, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
    .addComponent(jTextField1, javax.swing.GroupLayout.DEFAULT_SIZE, 35,
Short.MAX_VALUE))
    .addGap(51, 51, 51)

```

```

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
    .addComponent(jTextField2, javax.swing.GroupLayout.PREFERRED_SIZE, 35,
javax.swing.GroupLayout.PREFERRED_SIZE)
    .addComponent(jLabel2, javax.swing.GroupLayout.PREFERRED_SIZE, 35,
javax.swing.GroupLayout.PREFERRED_SIZE))
.addGap(61, 61, 61)

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
    .addComponent(jButton1, javax.swing.GroupLayout.PREFERRED_SIZE, 34,
javax.swing.GroupLayout.PREFERRED_SIZE)
    .addComponent(jButton2, javax.swing.GroupLayout.PREFERRED_SIZE, 34,
javax.swing.GroupLayout.PREFERRED_SIZE))
.addGap(52, 52, 52))
);
pack();
}
private void jTextField1ActionPerformed(java.awt.event.ActionEvent evt) {

}
private void jTextField2ActionPerformed(java.awt.event.ActionEvent evt) {

}

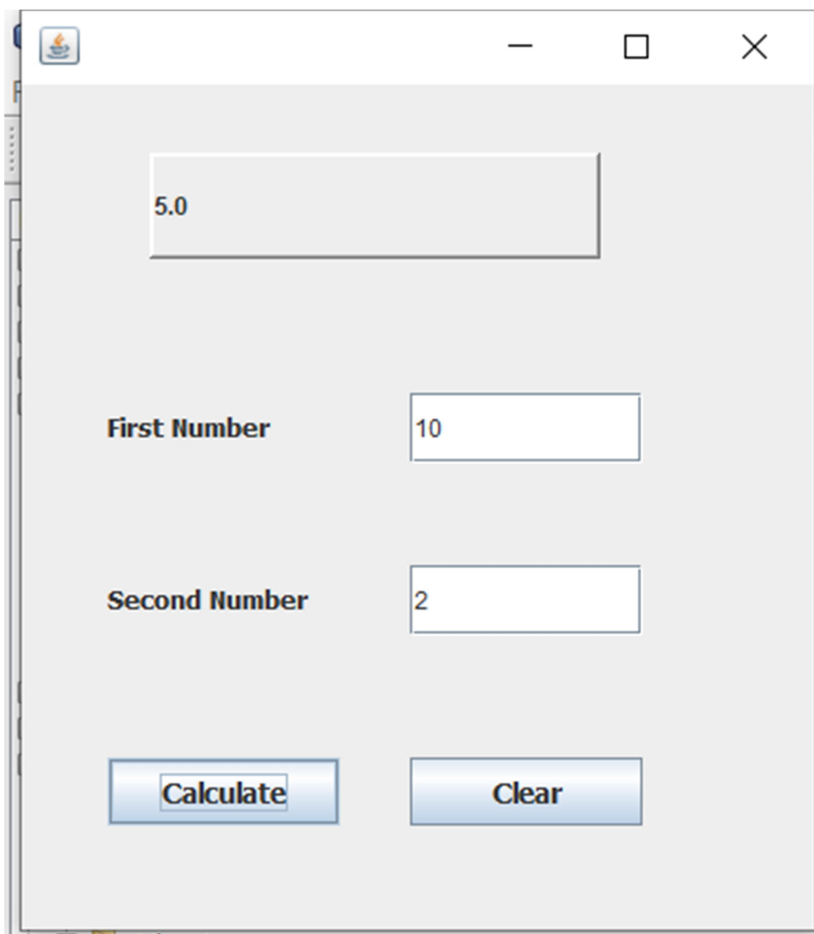
private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    int num1=Integer.parseInt(jTextField1.getText());
    int num2=Integer.parseInt(jTextField2.getText());
    float calculate=(float)num1/num2;
    jLabel3.setText(""+calculate);
    if(calculate==0){
jLabel3.setText("EXCEPTION OF NUMBER");}
}

private void jButton2ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    jTextField1.setText("");
    jTextField2.setText("");
    jLabel3.setText("");
}
public static void main(String args[]) {
    java.awt.EventQueue.invokeLater(new Runnable() {
        public void run() {
            new mainframe().setVisible(true);
        }
    }
}

```

```
    });  
}  
private javax.swing.JButton jButton1;  
private javax.swing.JButton jButton2;  
private javax.swing.JLabel jLabel1;  
private javax.swing.JLabel jLabel2;  
private javax.swing.JLabel jLabel3;  
private javax.swing.JPanel jPanel1;  
private javax.swing.JTextField jTextField1;  
private javax.swing.JTextField jTextField2;  
// End of variables declaration  
}
```

Output:



The screenshot shows a Java Swing window titled "Calculator" with a standard Mac OS X title bar (red, yellow, and green buttons). The window has a light gray background. At the top, there is a text field containing the value "5.0". Below this, there are two rows of labels and text fields. The first row has the label "First Number" followed by a text field containing "10". The second row has the label "Second Number" followed by a text field containing "2". At the bottom of the window, there are two buttons: "Calculate" and "Clear", both with a blue gradient and white text.