INDEX

LAB REPORT -1

Problem No-1: Write about the Environment Setup of JAVA.

Explanation:

Java is a high-level, class-based, object-oriented programming language that is designed to have as few implementation dependencies as possible. It is a general-purpose programming language intended to let programmers write once, run anywhere (**WORA**), meaning that compiled Java code can run on all platforms that support Java without the need for recompilation. Java applications are typically compiled to bytecode that can run on any Java virtual machine (**JVM**) regardless of the underlying computer architecture. The syntax of Java is similar to **C** and **C++**, but has fewer low-level facilities than either of them. The Java runtime provides dynamic capabilities (such as reflection and runtime code modification) that are typically not available in traditional compiled languages. As of 2019, Java was one of the most popular programming languages in use according to **GitHub**, particularly for client–server web applications, with a reported 9 million developers.

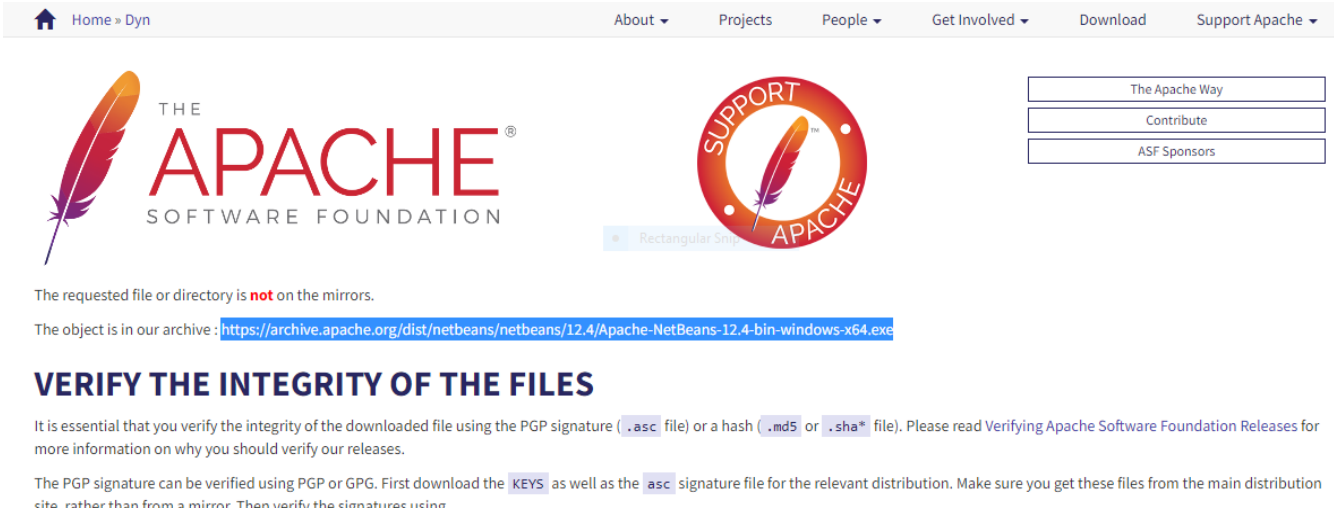
- **JVM:** Java Virtual Machine is the Java platform component that executes programs
- **JRE:** Java Runtime Environment is the on-disk part of Java that creates the JVM.
- **JDK:** Java Development Kit allows developers to create Java programs that can be executed and run by the JVM and JRE.

IDE: A Java IDE is an Integrated Development Environment for programming in Java , many also provide functionality for other languages.

Steps of Installation NetBeans on Windows

1. You need to have a setup file of the NetBeans JAVA into your setup.
2. If you didn't have the setup you can download from the following link: https://archive.apache.org/dist/netbeans/netbeans/12.4/Apache-NetBeans-12.4-bin-windows-x64.exe
3. You can download any type of setup as per your requirements from the above mention web page.
4. Double-Click on the setup by using the mouse.
5. Click on the **Next** option.

6. Check on the **Private Networks**.
7. Click on the **Allow access** button.
8. Check on the **I accept** option and click on the **Next** button.
9. Select the path where you want to install the software and press the **Next** button.
10. Use the **Username and the Password** for the connecting the Front-end to the Back-End.
11. Click on the **Next** button.
12. Click on the **Install** button.
13. Wait for the while till the time the setup is properly installed into the computer.
14. After complication of the setup you can click on the **Finish** button.
15. Now you can start the NetBeans for further use.



LAB REPORT -2

Problem No-2: Write a JAVA program that works as a Simple Calculator.

Calculator Design & Implementation:

```
/**
 *
 * @author Arnab
    public CalculatorV2() {
       initComponents();
   }
  @SuppressWarnings("unchecked")
private void jBtn3ActionPerformed(java.awt.event.ActionEvent evt) {
   String Enternumber = jtxtDisplay.getText() + jBtn3.getText ();
   jtxtDisplay.setText(Enternumber);
   }
```

```
private void jBtn4ActionPerformed(java.awt.event.ActionEvent evt) {
    double firstnum = Double.parseDouble(jtxtDisplay.getText());
  jtxtDisplay.setText("");
    String operations = "/";
}
private void jBtn2ActionPerformed(java.awt.event.ActionEvent evt) {
String Enternumber = jtxtDisplay.getText() + jBtn2.getText ();
jtxtDisplay.setText(Enternumber);
}
private void jBtn1ActionPerformed(java.awt.event.ActionEvent evt) {
String Enternumber = jtxtDisplay.getText() + jBtn1.getText ();
jtxtDisplay.setText(Enternumber);
}
private void jBtn5ActionPerformed(java.awt.event.ActionEvent evt) {
String Enternumber = jtxtDisplay.getText() + jBtn5.getText ();
jtxtDisplay.setText(Enternumber);
}
```



```
private void jBtn6ActionPerformed(java.awt.event.ActionEvent evt) {
String Enternumber = jtxtDisplay.getText() + jBtn6.getText ();
jtxtDisplay.setText(Enternumber);
}
private void jBtn8ActionPerformed(java.awt.event.ActionEvent evt) {
String Enternumber = jtxtDisplay.getText() + jBtn8.getText ();
jtxtDisplay.setText(Enternumber);
}
private void jBtn9ActionPerformed(java.awt.event.ActionEvent evt) {
String Enternumber = jtxtDisplay.getText() + jBtn9.getText ();
    jtxtDisplay.setText(Enternumber);
}
```

```
private void jBtn10ActionPerformed(java.awt.event.ActionEvent evt) {
String Enternumber = jtxtDisplay.getText() + jBtn10.getText ();
jtxtDisplay.setText(Enternumber);
}
private void jBtn11ActionPerformed(java.awt.event.ActionEvent evt) {
String Enternumber = jtxtDisplay.getText() + jBtn11.getText ();
jtxtDisplay.setText(Enternumber);
}
private void jBtn16ActionPerformed(java.awt.event.ActionEvent evt) {
String Enternumber = jtxtDisplay.getText() + jBtn16.getText ();
   jtxtDisplay.setText(Enternumber);
}
String Enternumber = jtxtDisplay.getText() + jBtn17.getText ();
jtxtDisplay.setText(Enternumber);
}
private void jBtn20ActionPerformed(java.awt.event.ActionEvent evt) {
 String answer;
   double secondnum = Double.parseDouble(jtxtDisplay.getText());
   String operations = null;
```



```
if (operations =="+")   {
     double firstnum = 0;
     double result = firstnum + secondnum;
     answer = String.format("%.of",result);
 }
 else if (operations =="-") {
     double firstnum = 0;
     double result = firstnum - secondnum;
     answer = String.format("%.of",result);
 }
```

```
 else if (operations =="*")  {
    double firstnum = 0;
    double result = firstnum * secondnum;
    answer = String.format("%.of",result);
 }
 else if (operations =="/")  {
    double firstnum = 0;
    double result = firstnum / secondnum;
    answer = String.format("%.of",result);
 }
 else if (operations =="%")    {
    double firstnum = 0;
    double result = firstnum % secondnum;
    answer = String.format("%.of",result);
 }
}
 private void jBtn13ActionPerformed(java.awt.event.ActionEvent evt) {
    double firstnum = Double.parseDouble(jtxtDisplay.getText());
jtxtDisplay.setText("");
  String operations = "+";
}
```



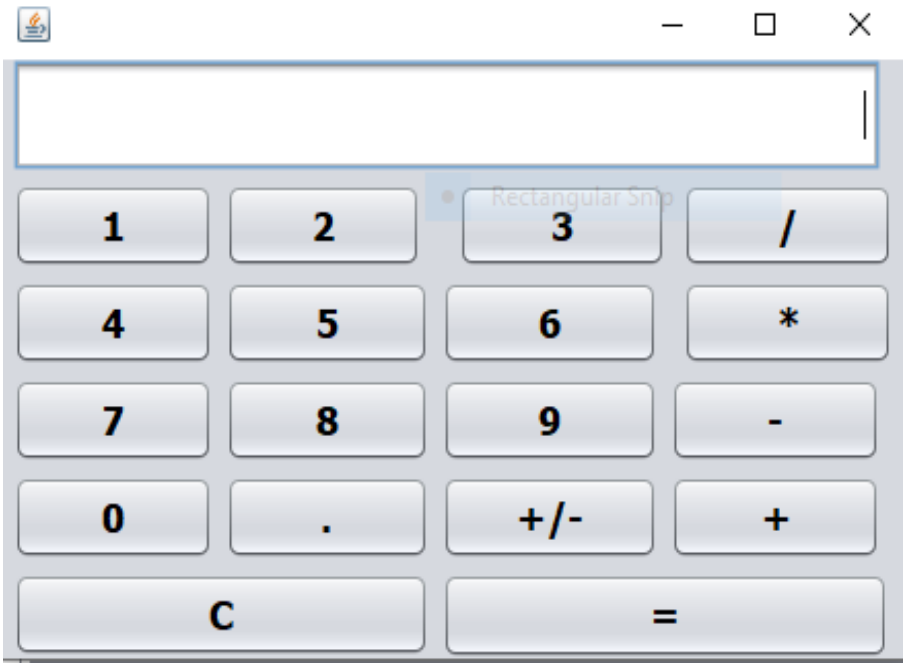
```
private void jBtn12ActionPerformed(java.awt.event.ActionEvent evt) {
    double firstnum = Double.parseDouble(jtxtDisplay.getText());
jtxtDisplay.setText("");
    String operations = "-";
}
 private void jBtn7ActionPerformed(java.awt.event.ActionEvent evt) {
    double firstnum = Double.parseDouble(jtxtDisplay.getText());
  jtxtDisplay.setText("");
```

```
    String operations = "*";
}
 private void jBtn19ActionPerformed(java.awt.event.ActionEvent evt) {
  double ops = Double.parseDouble(String.valueOf(jtxtDisplay.getText()));
   ops =ops * (-1);
   jtxtDisplay.setText(String.valueOf(ops));
  }
  private javax.swing.JButton jBtn1;
  private javax.swing.JButton jBtn10;
  private javax.swing.JButton jBtn11;
  private javax.swing.JButton jBtn12;
  private javax.swing.JButton jBtn13;
  private javax.swing.JButton jBtn15;
  private javax.swing.JButton jBtn16;
  private javax.swing.JButton jBtn17;
  private javax.swing.JButton jBtn19;
  private javax.swing.JButton jBtn2;
  private javax.swing.JButton jBtn20;
  private javax.swing.JButton jBtn3;
  private javax.swing.JButton jBtn4;
  private javax.swing.JButton jBtn5;
  private javax.swing.JButton jBtn6;
  private javax.swing.JButton jBtn7;
```



```
 private javax.swing.JButton jBtn8;
  private javax.swing.JButton jBtn9;
  private javax.swing.JTextField jtxtDisplay;
  }
```

Output:



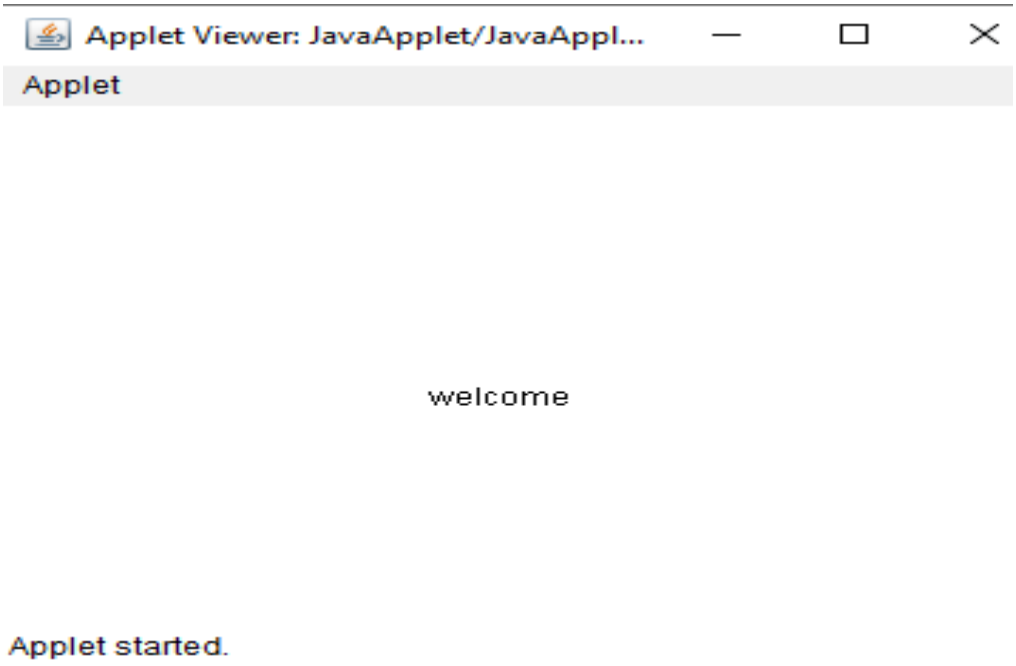
LAB REPORT -3

Problem No-3: JAVA Applet.

My Applet:

```
package JavaApplet;

import java.applet.Applet;

import java.awt.Graphics;

public class JavaApplet extends Applet{

   public void paint(Graphics g){

      g.drawString("welcome",150,150);

   }

   }
```

Output:



Problem No-4: Digital Clock.

Input:

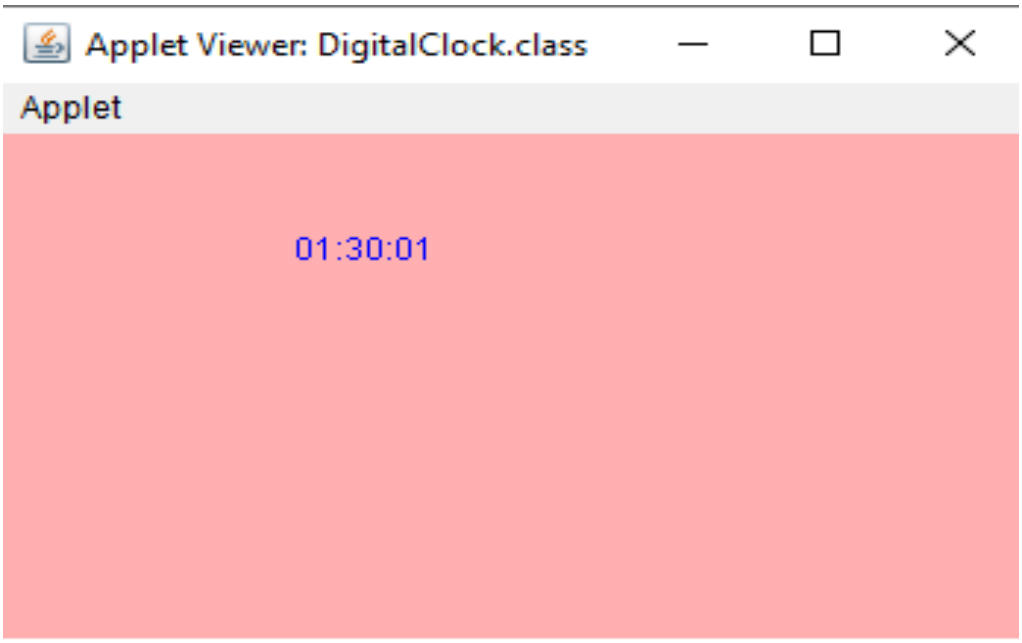
```
import java.applet.*;
import java.awt.*;
import java.util.*;
import java.text.*;
public class DigitalClock extends Applet implements Runnable {
  Thread t = null;
  int hours=0, minutes=0, seconds=0;
  String timeString = "";
  public void init() {
    setBackground( Color.pink);
  }
  public void 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 );  // interval given in milliseconds
      }
    }
    catch (Exception e) { }
  }
   public void paint( Graphics g ) {
    g.setColor( Color.blue );
    g.drawString( timeString, 100, 50 );
  }
}
```

Output:



LAB REPORT -5

Problem No-5: Integer Division.

Input:

```
/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */
/**
 *
```

```
 * @author Arnab
 */
public class javaframe extends javax.swing.JFrame {


    /**
     * Creates new form javaframe
     */
    public javaframe() {
        initComponents();
    }
    @SuppressWarnings("unchecked")
private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {
    int num1= Integer.parseInt(jTextField1.getText());
    int num2= Integer.parseInt(jTextField2.getText());
    float result=(float)num1/num2;
    jLabel4.setText("Division of "+num1+" and "+num2+" is "+result);
    }
    private void jButton2ActionPerformed(java.awt.event.ActionEvent evt) {
    jLabel4.setText(null);
        }
    public static void main(String args[]) {
java.awt.EventQueue.invokeLater(new Runnable() {
            public void run() {
                new javaframe().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 jLabel4;
    private javax.swing.JTextField jTextField1;
    private javax.swing.JTextField jTextField2;
}
```

Output: