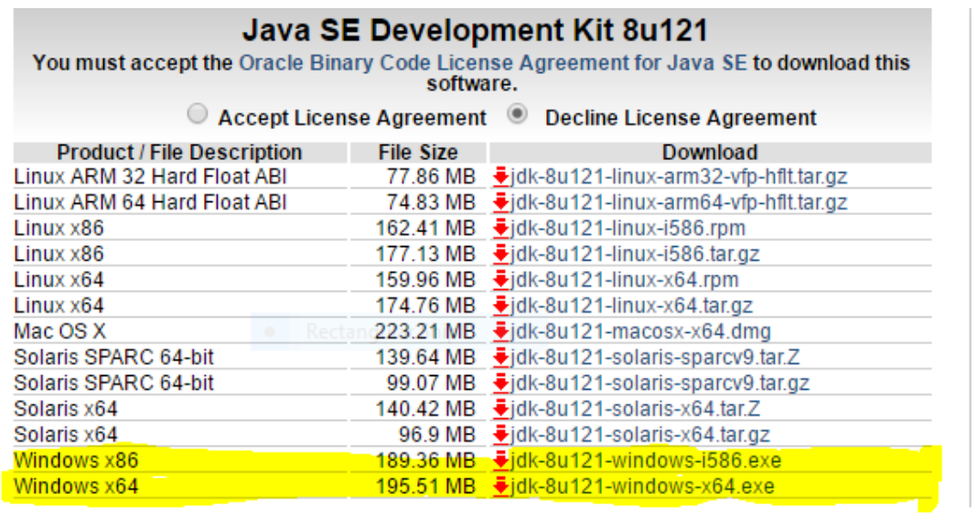
INDEX

1) Java Environment Setup :

Step 1: Java8 JDK is available at Download Java 8. Click the second last link for Windows(32 bit) and the last link for Windows(64 bit) as highlighted below.



Java SE Development Kit 8u121

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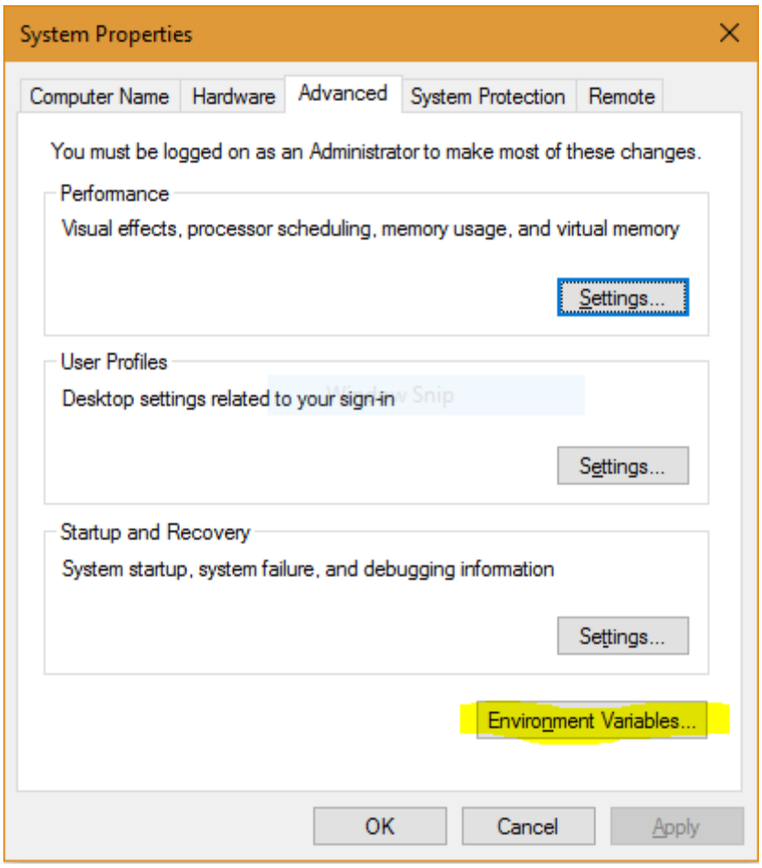
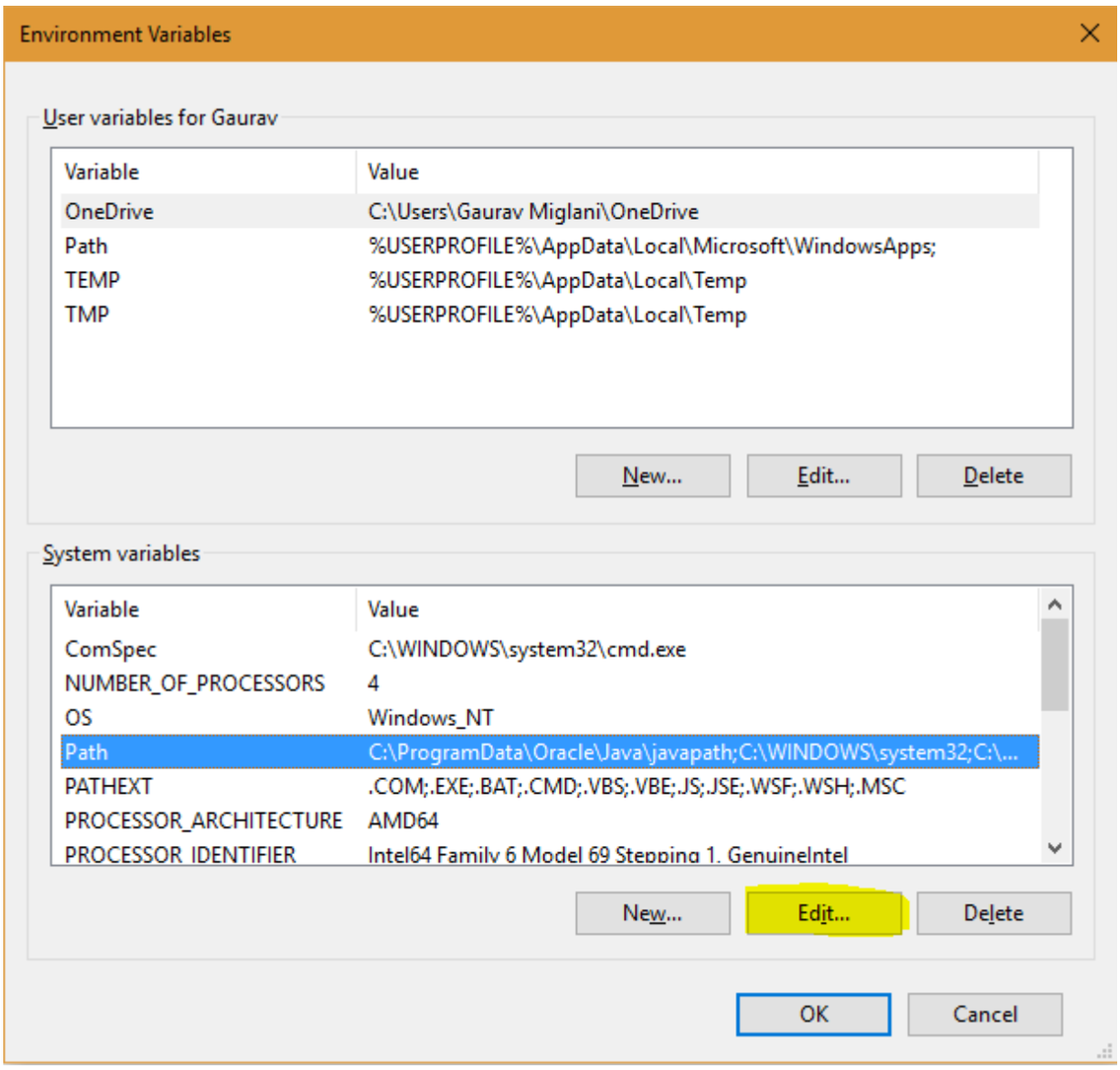
Product / File Description	File Size	Download
Linux ARM 32 Hard Float ABI	77.86 MB	jdk-8u121-linux-arm32-vfp-hflt.tar.gz
Linux ARM 64 Hard Float ABI	74.83 MB	jdk-8u121-linux-arm64-vfp-hflt.tar.gz
Linux x86	162.41 MB	jdk-8u121-linux-i586.rpm
Linux x86	177.13 MB	jdk-8u121-linux-i586.tar.gz
Linux x64	159.96 MB	jdk-8u121-linux-x64.rpm
Linux x64	174.76 MB	jdk-8u121-linux-x64.tar.gz
Mac OS X	223.21 MB	jdk-8u121-macosx-x64.dmg
Solaris SPARC 64-bit	139.64 MB	jdk-8u121-solaris-sparcv9.tar.Z
Solaris SPARC 64-bit	99.07 MB	jdk-8u121-solaris-sparcv9.tar.gz
Solaris x64	140.42 MB	jdk-8u121-solaris-x64.tar.Z
Solaris x64	96.9 MB	jdk-8u121-solaris-x64.tar.gz
Windows x86	189.36 MB	jdk-8u121-windows-i586.exe
Windows x64	195.51 MB	jdk-8u121-windows-x64.exe

Step 2: After download, run the *.exe* file and follow the instructions to install Java on your machine. Once you installed Java on your machine, you have to set up the environment variable.

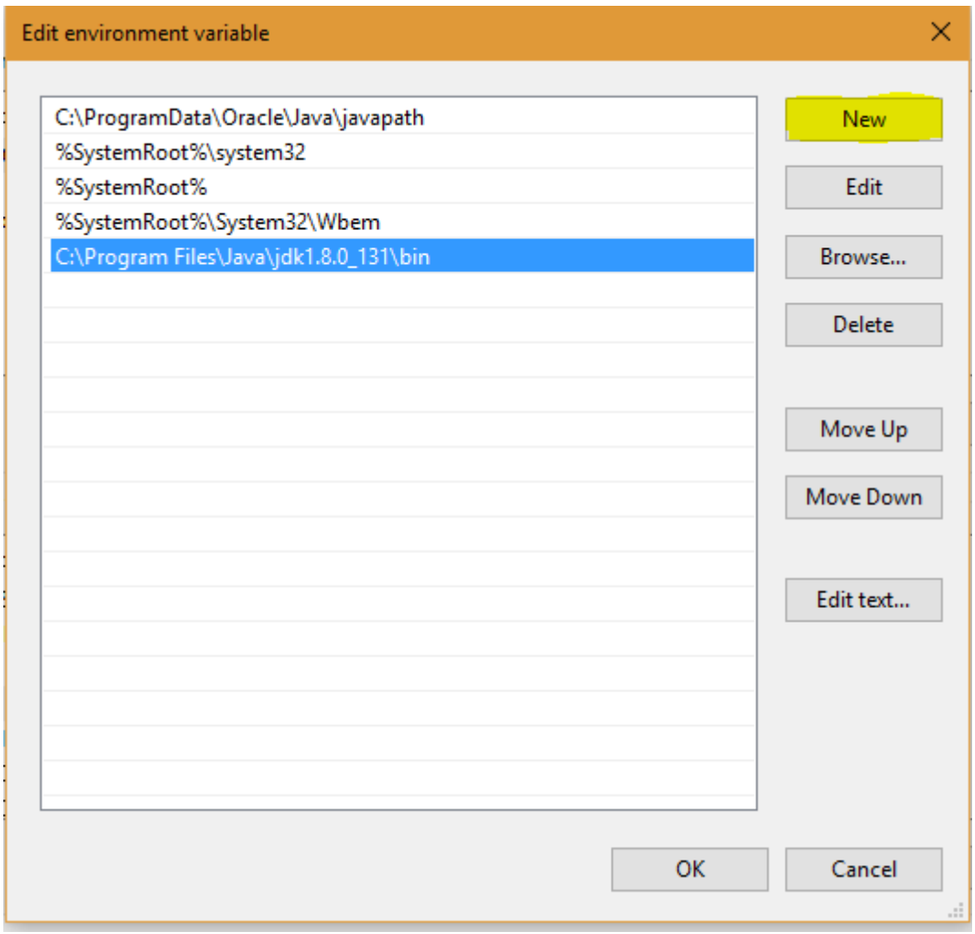
Step 3: Go to **Control Panel -> System and Security -> System.** Under the Advanced System Setting option click on **Environment Variables** as highlighted below.



Step 4: Now, you have to alter the “Path” variable under System variables so that it also contains the path to the Java environment. Select the “Path” variable and click on the Edit button as highlighted below.



Step 5: You will see a list of different paths, click on the New button, and then add the path where java is installed. By default, java is installed in “C:\Program Files\Java\jdk\bin” folder OR “C:\Program Files(x86)\Java\jdk\bin”. In case, you have installed java at any other location, then add that path.



Step 6: Click on OK, Save the settings, and you are done !! Now to check whether the installation is done correctly, open the command prompt and type *javac -version*. You will see that java is running on your machine.
Note: *To make sure whether the compiler is set up, type javac in the command prompt. You will see a list related to javac.*

2) Calculator Design & Implementation :

Input:

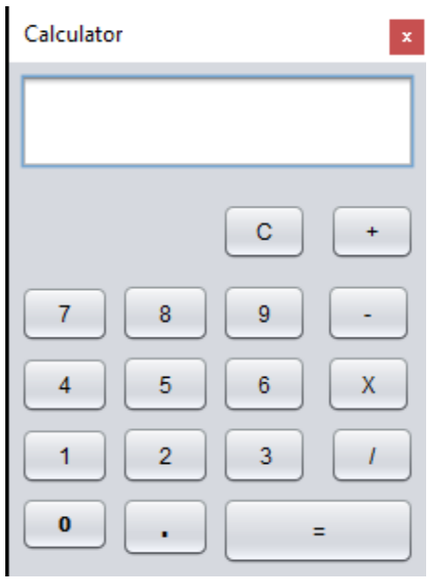
```
package calculator_apps;


/**
 *
 * @author Joyjit
 */

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(jTextField2.getText());
         jTextField2.setText(Double.toString(ans));
         break;
               case 2:
         ans=num- Double.parseDouble(jTextField2.getText());
         jTextField2.setText(Double.toString(ans));
         break;
               case 3:
         ans=num* Double.parseDouble(jTextField2.getText());
         jTextField2.setText(Double.toString(ans));
         break;
               case 4:
         ans=num/ Double.parseDouble(jTextField2.getText());
         jTextField2.setText(Double.toString(ans));
         break;
```

```
    }
    }

    /**
     * This method is called from within the constructor to initialize the form.
     * WARNING: Do NOT modify this code. The content of this method is always
     * regenerated by the Form Editor.
     */
    @SuppressWarnings("unchecked")

  private void jButton2ActionPerformed(java.awt.event.ActionEvent evt) {
jTextField2.setText(jTextField2.getText() +"8");
    }

    private void jButton7ActionPerformed(java.awt.event.ActionEvent evt) {
      jTextField2.setText(jTextField2.getText() +"2");
    }

    private void jButton9ActionPerformed(java.awt.event.ActionEvent evt) {
jTextField2.setText(jTextField2.getText() +"5");
    }

    private void jButton12ActionPerformed(java.awt.event.ActionEvent evt) {
jTextField2.setText(jTextField2.getText() +".");
    }

    private void jButton14ActionPerformed(java.awt.event.ActionEvent evt) {
     num=Double.parseDouble(jTextField2.getText());
    calculation=1;
    jTextField2.setText("");
    }

    private void jButton16ActionPerformed(java.awt.event.ActionEvent evt) {
      jTextField2.setText("");
    }

    private void jButton11ActionPerformed(java.awt.event.ActionEvent evt) {
      jTextField2.setText(jTextField2.getText() +"0");
    }

    private void jButton6ActionPerformed(java.awt.event.ActionEvent evt) {
jTextField2.setText(jTextField2.getText() +"3");
    }

    private void jButton8ActionPerformed(java.awt.event.ActionEvent evt) {
jTextField2.setText(jTextField2.getText() +"1");
    }

    private void jButton10ActionPerformed(java.awt.event.ActionEvent evt) {
jTextField2.setText(jTextField2.getText() +"4");
    }

    private void jButton5ActionPerformed(java.awt.event.ActionEvent evt) {
       jTextField2.setText(jTextField2.getText() +"6");
    }

    private void jButton3ActionPerformed(java.awt.event.ActionEvent evt) {
      jTextField2.setText(jTextField2.getText() +"7");
```

```
    }

    private void jButton4ActionPerformed(java.awt.event.ActionEvent evt) {
jTextField2.setText(jTextField2.getText() +"9");
    }

    private void jButton19ActionPerformed(java.awt.event.ActionEvent evt) {
     num=Double.parseDouble(jTextField2.getText());
    calculation=2;
    jTextField2.setText("");
    }

    private void jButton21ActionPerformed(java.awt.event.ActionEvent evt) {
     num=Double.parseDouble(jTextField2.getText());
    calculation=3;
    jTextField2.setText("");
    }

    private void jButton22ActionPerformed(java.awt.event.ActionEvent evt) {
     num=Double.parseDouble(jTextField2.getText());
    calculation=4;
    jTextField2.setText("");
    }

    private void jButton13ActionPerformed(java.awt.event.ActionEvent evt) {
arithmetic_operation();
    }

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

    }


    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 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.JTextField jTextField1;
    private javax.swing.JTextField jTextField2;
    // End of variables declaration


}
```

Output :



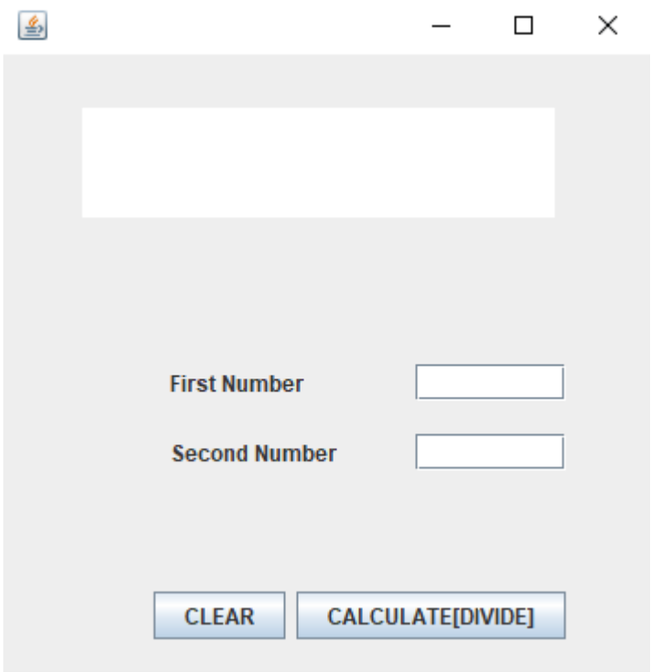
3) Integer Division :

Input:

```
package integerdivision1;

/**
 *
 * @author Joyjit
 */
public class Mainframe extends javax.swing.JFrame {


    public Mainframe() {
        initComponents();
    }


    @SuppressWarnings("unchecked")
    private void jButton2ActionPerformed(java.awt.event.ActionEvent evt) {
int num1 =Integer.parseInt(jTextField3.getText());
int num2 =Integer.parseInt(jTextField2.getText());
float result = (float) num1/num2;
jLabel3.setText(" "+result);
if(result==0){
jLabel3.setText("EXCEPTION OF NUMBER");}
    }

    private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {
        jLabel3.setText("");
        jTextField3.setText("");
        jTextField2.setText("");

    }

    public static void main(String args[]) {
```

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

    // Variables declaration - do not modify
    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 jTextField2;
    private javax.swing.JTextField jTextField3;
    // End of variables declaration
}
```

Output :

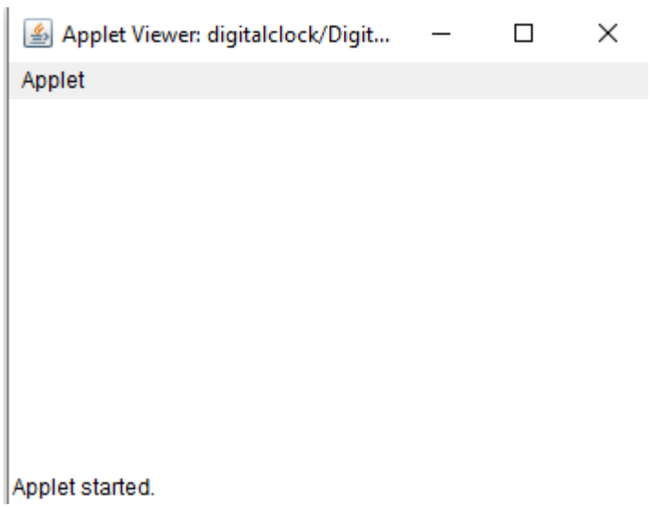


4) My Applet :

Input:

```
package digitalclock;

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

public class DigitalClock extends Applet {
   public void intt(){

   }
   public void print(Graphics g)
   {
      g.setColor( Color.BLUE);
      g.drawString(" ", 100, 100);
   }
}
```

Output:



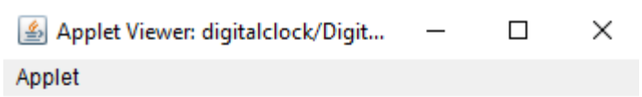
5) Digital Clock :

Input:

```
package digitalclock;

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.white);

   }

   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> 24)hours -=24;
            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.black );
   g.drawString( timeString, 100, 100 );
}
}
```

Output :



03:31:19

Applet started.