Port City International University
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UGC & Govt. Approved University at Khulshi in Chittagong

Lab Report

Course Title: Object Oriented Programming Sessional

Course Code: CSE 212

Name of the Report: Environment Setup, Java Swing, Java Applet

Submitted To	Submitted By
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Experiment No: 01

Problem's Name:

Java Environment Setup.

Description:

Java is a high-level programming language originally developed by Sun Microsystems and released in 1995. Java runs on a variety of platforms, such as Windows, Mac OS, and the various versions of UNIX.

How to Install NetBeans on Windows

Step 1: Install JDK To use NetBeans for Java programming, you need to first install Java Development Kit (JDK). See "JDK - How to Install ".

Step 2: Download Download "NetBeans IDE" installer from http://netbeans.org/downloads/index.html . There are many "bundles" available. For beginners, choose the 1st entry "Java SE" (e.g., "netbeans-8.2-javase-windows.exe " 95MB).

Step 3: Run the Installer Run the downloaded installer.

Experiment No: 02

Problem Statement:

Create a calculator using NetBeans. Which can perform +, -, *, / based on the user input. Handle any exceptions.

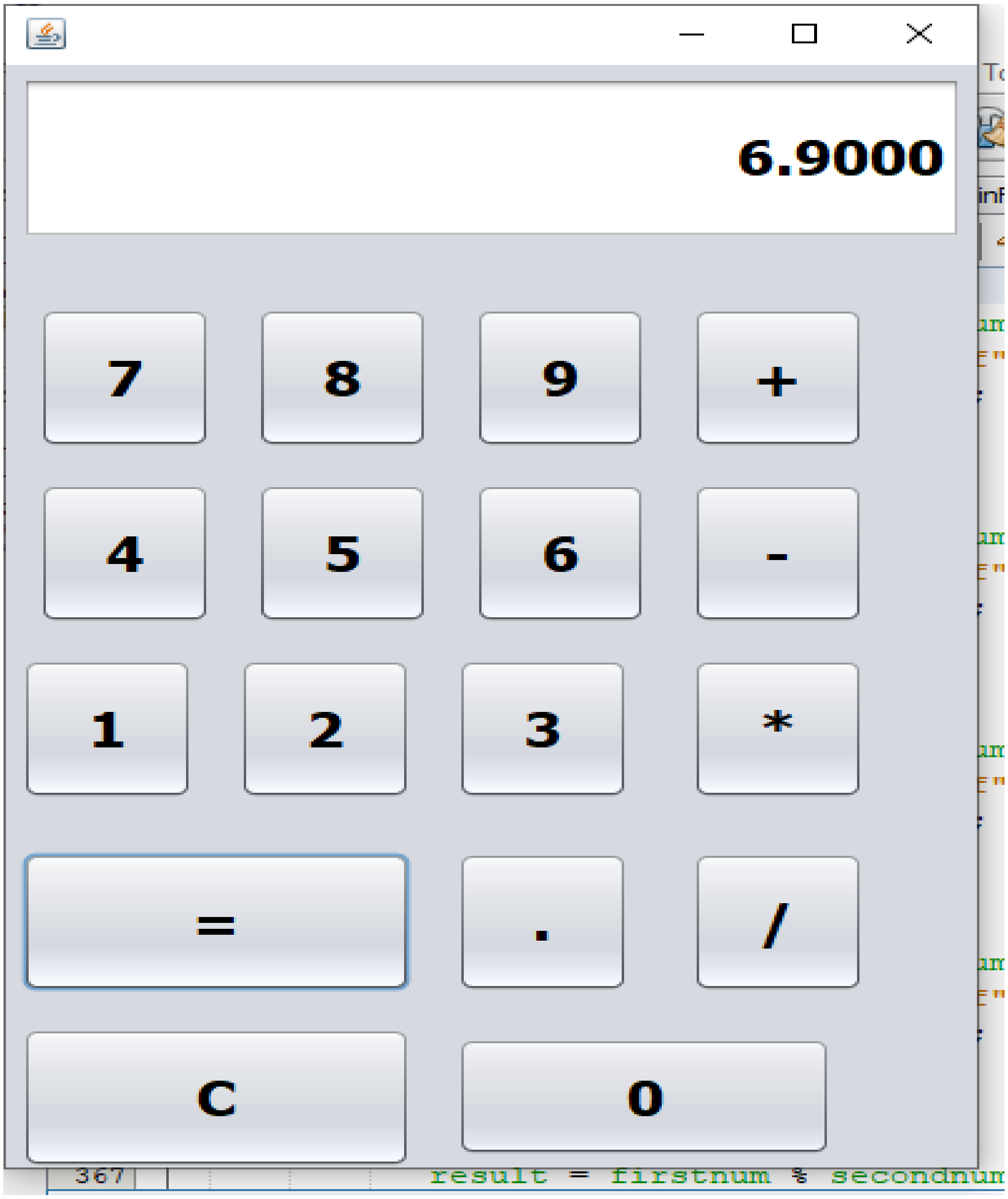
Description:

For creating a simple calculator here we used Java Swing. It is a Graphical User Interface. Here we mainly used TextField, Buttons.

Button Implementation Code:

```
private void jbtequalActionPerformed(java.awt.event.ActionEvent evt) {
    String answer;
    secondnum = Double.parseDouble(jtxtDisplay.getText());
    if (operations=="+")
    {
        result = firstnum + second;
         answer = String.format("%.4f",result);
        jtxtDisplay.setText(answer);
    }
   else if (operations == "-")
    {
        result = firstnum - secondnum;
        answer = String.format("%.4f",result);
        jtxtDisplay.setText(answer);
    }
    if (operations == "*")
    {
        result = firstnum * secondnum;
        answer = String.format("%.4f",result);
        jtxtDisplay.setText(answer);
    }
    if (operations == "/")
    {
        result = firstnum / secondnum;
        answer = String.format("%.4f",result);
        jtxtDisplay.setText(answer);
    }
    if (operations == "%")
    {
        result = firstnum % secondnum;
        answer = String.format("%.4f",result);
        jtxtDisplay.setText(answer);
    }
```

Output:



```
6.9000
```

```
result = firstnum % secondnum
```

Experiment No: 03

Problem Statement:

Write an applet program that displays a message.

Description:

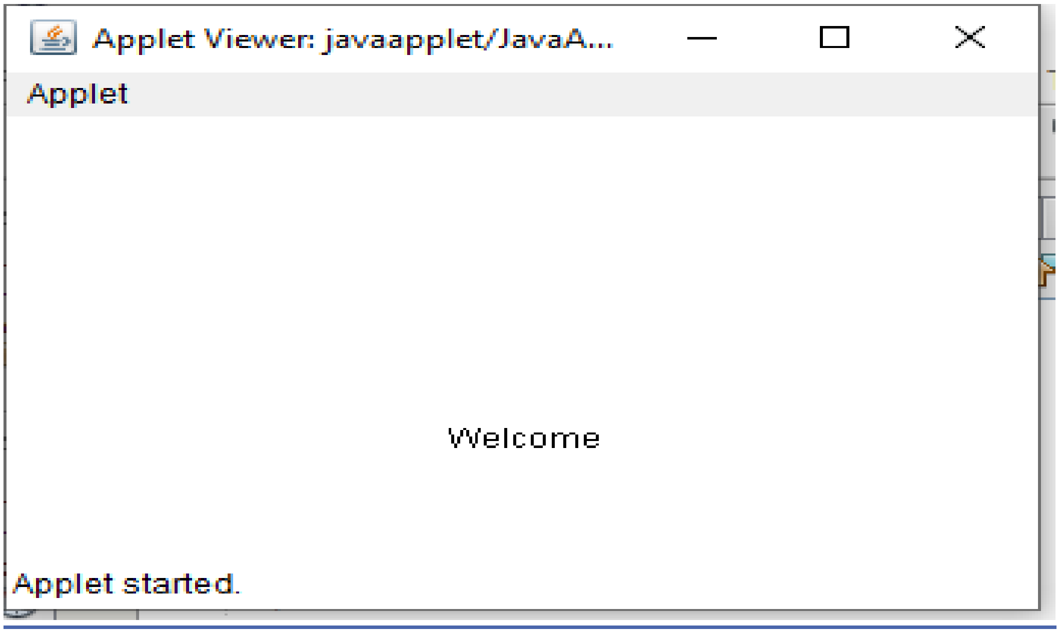
Applet is a special type of program that is embedded in the webpage to generate the dynamic content. It runs inside the browser and works at client side.

Here we used Paint Function which is also called when the **applet begins execution**. Whatever the cause, whenever the applet must redraw its output, paint() is called.

Code Implementation:

```
package javaapplet;
   import java.awt.Graphics;
public class JavaApplet extends java.applet.Applet  {
      public void paint(Graphics g){
         g.drawString("Welcome",150,150);
      }
   }
```

Output:



```
Welcome
```

Applet started.

Experiment No: 04

Problem Statement:

Write a program that creates a user interface to perform integer divisions. The user enters two numbers in the text fields, Num1 and Num2. The division of Num1 and Num2 is displayed in the Result field when the Divide button is clicked. If Num1 or Num2 were not an integer, the program would throw a NumberFormatException. If Num2 were Zero, the program would throw an Arithmetic Exception Display the exception in a message dialog box.

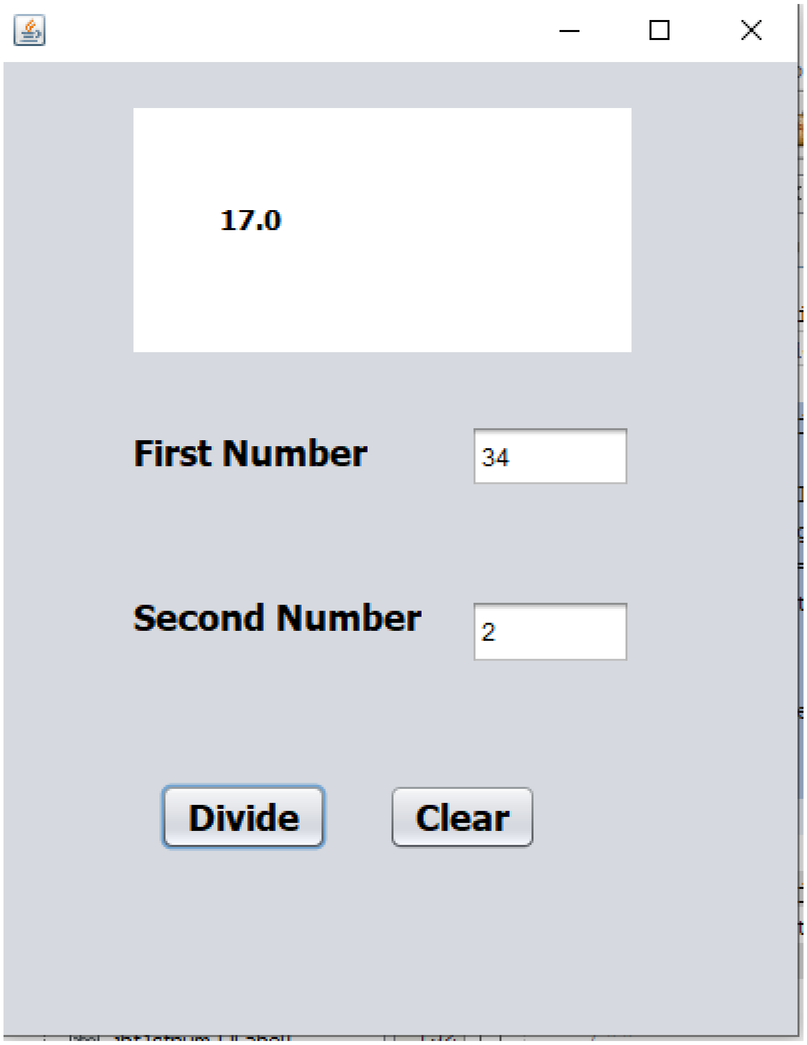
Description:

For this experiment we used Java Applet. We import all the necessary packages and classes. We did all the necessary work in JFrame . For exception handling we used try and catch case.

Code Implementation:

```
private void jbtdivActionPerformed(java.awt.event.ActionEvent evt) {
       try{
        int num1=Integer.parseInt(jTextField1.getText());
    int num2=Integer.parseInt(jTextField2.getText());
    float result = (float)num1/num2;
        jLabel.setText(" "+result );
    }catch(ArithmeticException e){
    }
    }
```

Output:



17.0

First Number 34

Second Number 2

Experiment No: 05

Problem Statement:

Write an applet program that displays a digital clock.

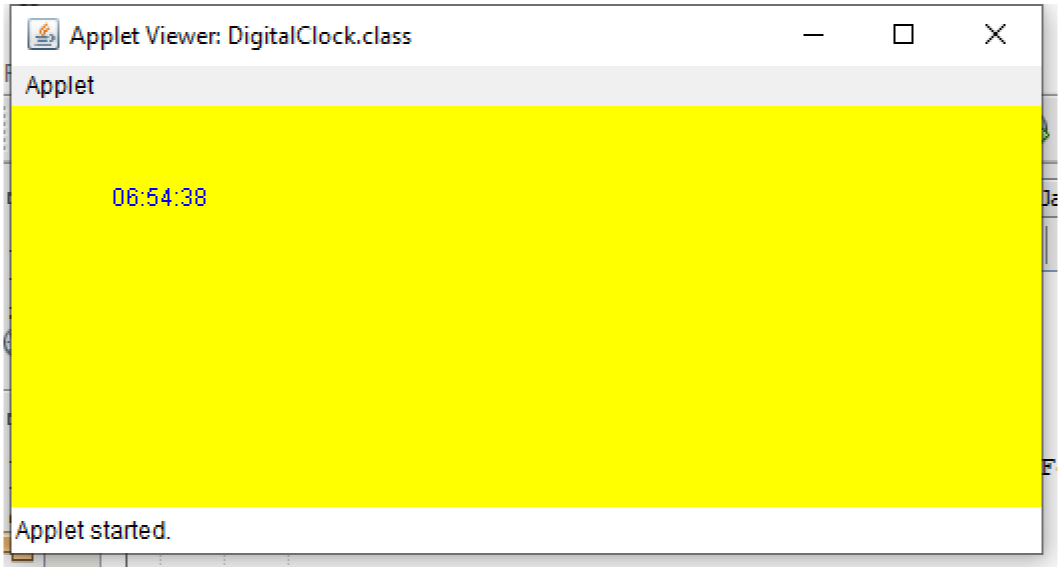
Description:

Digital clock can be created by using the Calendar and SimpleDateFormat class. Here we used Java Applet for creating digital clock.

Code Implementation:

```
public class DigitalClock extends Applet implements Runnable {
  Thread t = null;
  int hours=0, minutes=0, seconds=0;
  String timeString = "";
  public void init() {
    setBackground( Color.yellow);
  }
  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, 50, 50 );

   }

}
```

Output:



```
06:54:38
```

Applet started.