Green University of Bangladesh

Department of Computer Science and Engineering (CSE)
Faculty of Sciences and Engineering
Fall 2022, B.Sc. in CSE (DAY)

LAB REPORT NO # 04

Course Title: Object Oriented Programming (JAVA)
Course Code: CSE 202 Section: CSE 213 - DA (PC)

Lab Experiment Name(s):

Create a Calculator using Java Program Language.

Student Details

Name	ID
Md. Shahidul Islam Prodhan	213902017

Lab Date: 09 November, 2022

Submission Date: 29 November, 2022

Course Teacher's Name: Dr. Muhammad Aminur Rahaman, Associate Professor

[For Teacher's use only: Don't write anything inside this box]

Lab Report Status

Marks:	**Signature:**
Comments:	**Date:**

1. TITLE OF THE LAB EXPERIMENT

Graphical Using Interface by Swing

2. OBJECTIVES

The main aim of the swing how to store and use it properly and perform it.

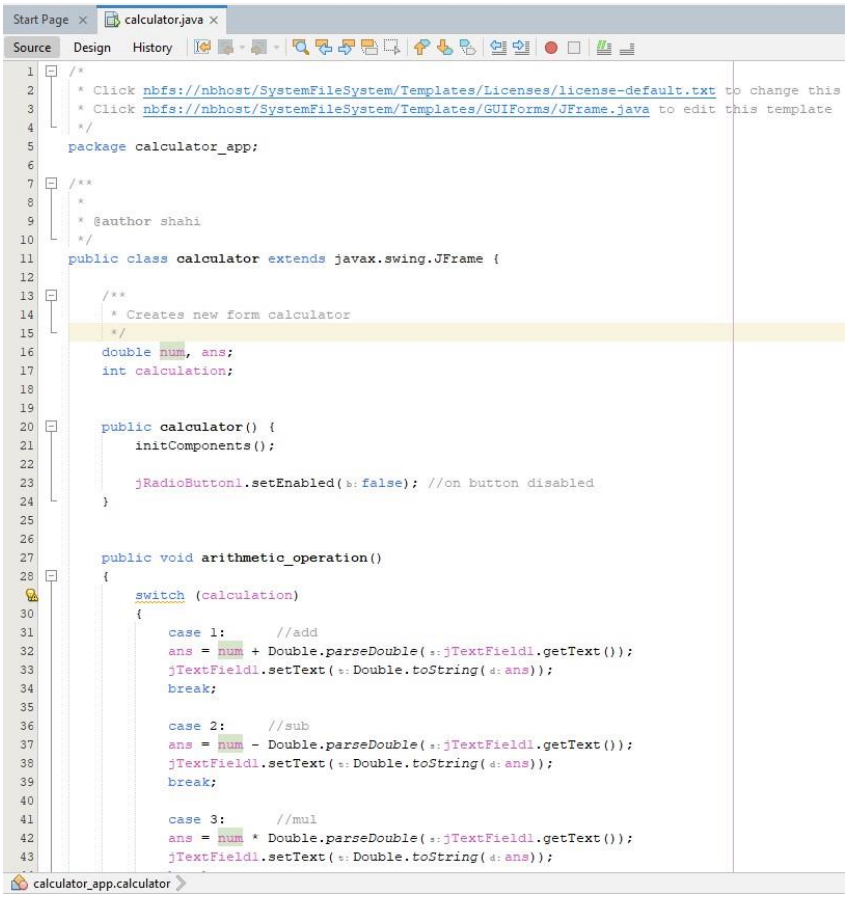
• It is very important for our any project and show it properly as well as how to define size and JFrame and so on.
• Here I actual work frame and input text area, button, Field and so on.

3. PROCEDURE/ ANALYSIS / DESIGN

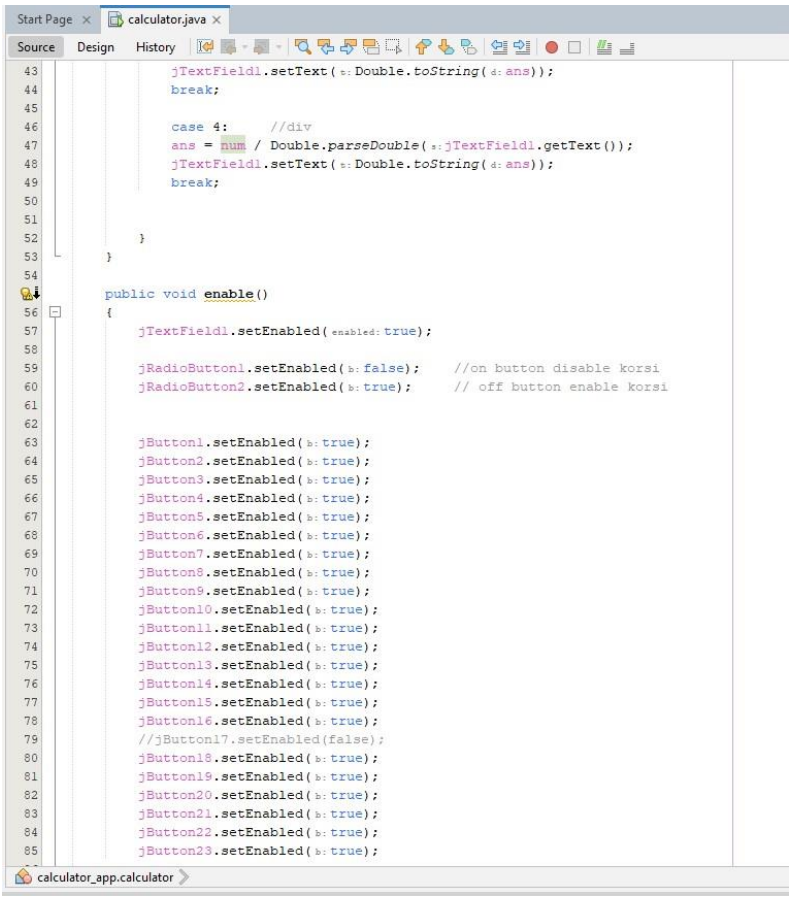
Algorithm:

1. Step 1: Start
2. Step 2: Create a primary approach
3. Step 3: Create java swing
4. Step 4: Initialize button and textField. Check if the ON / OFF button works and other button works or not.
5. Step 5: Work every button ActionListeners. Implement the arithmetic operations and check hek if they work properly.
6. Step 6: Imported Javax Swing library and others.
7. Step 7: Save this program as jar file.
8. Step 7:End.

Code:

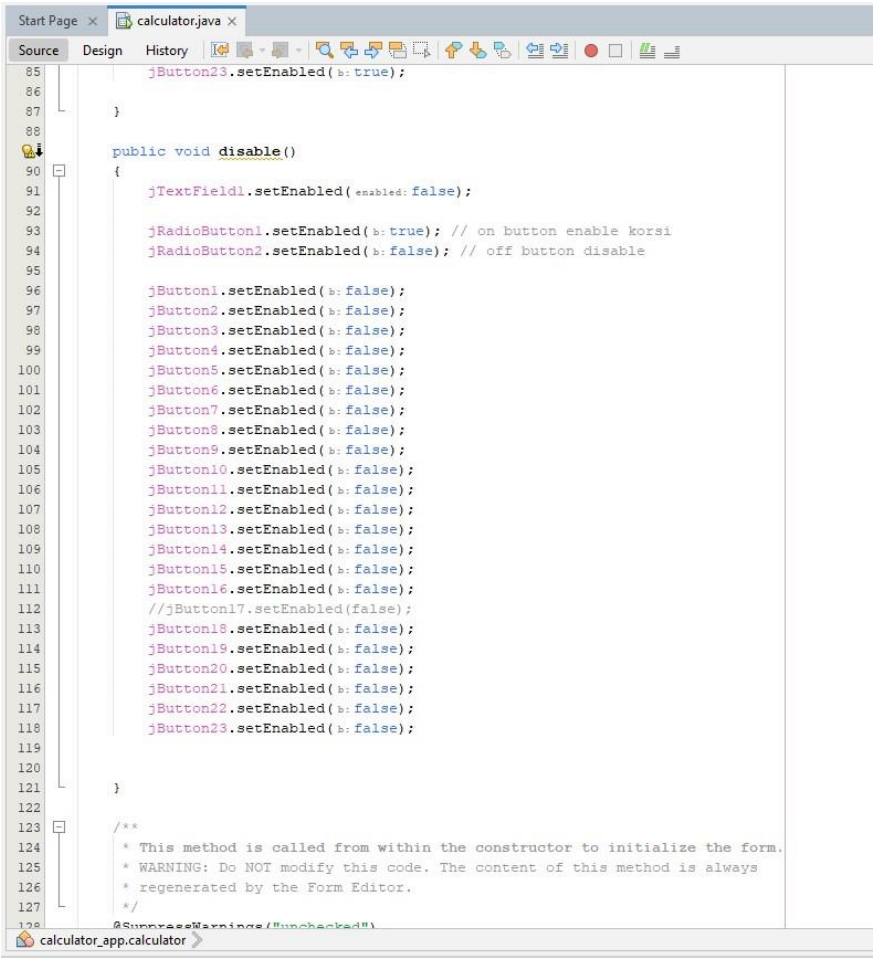


```
Start Page | calculator.java
Source | Design | History

/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this
 * Click nbfs://nbhost/SystemFileSystem/Templates/GUIForms/JFrame.java to edit this template
 */
package calculator_app;

/**
 *
 * @author shahi
 */
public class calculator extends javax.swing.JFrame {

    /**
     * Creates new form calculator
     */
    double num, ans;
    int calculation;


    public calculator() {
        initComponents();

        jRadioButton1.setEnabled(b: false); //on button disabled
    }


    public void arithmetic_operation()
    {
        switch (calculation)
        {
            case 1:      //add
            ans = num + Double.parseDouble(s: jTextField1.getText());
            jTextField1.setText(s: Double.toString(d: ans));
            break;

            case 2:     //sub
            ans = num - Double.parseDouble(s: jTextField1.getText());
            jTextField1.setText(s: Double.toString(d: ans));
            break;

            case 3:      //mul
            ans = num * Double.parseDouble(s: jTextField1.getText());
            jTextField1.setText(s: Double.toString(d: ans));

calculator_app.calculator
```

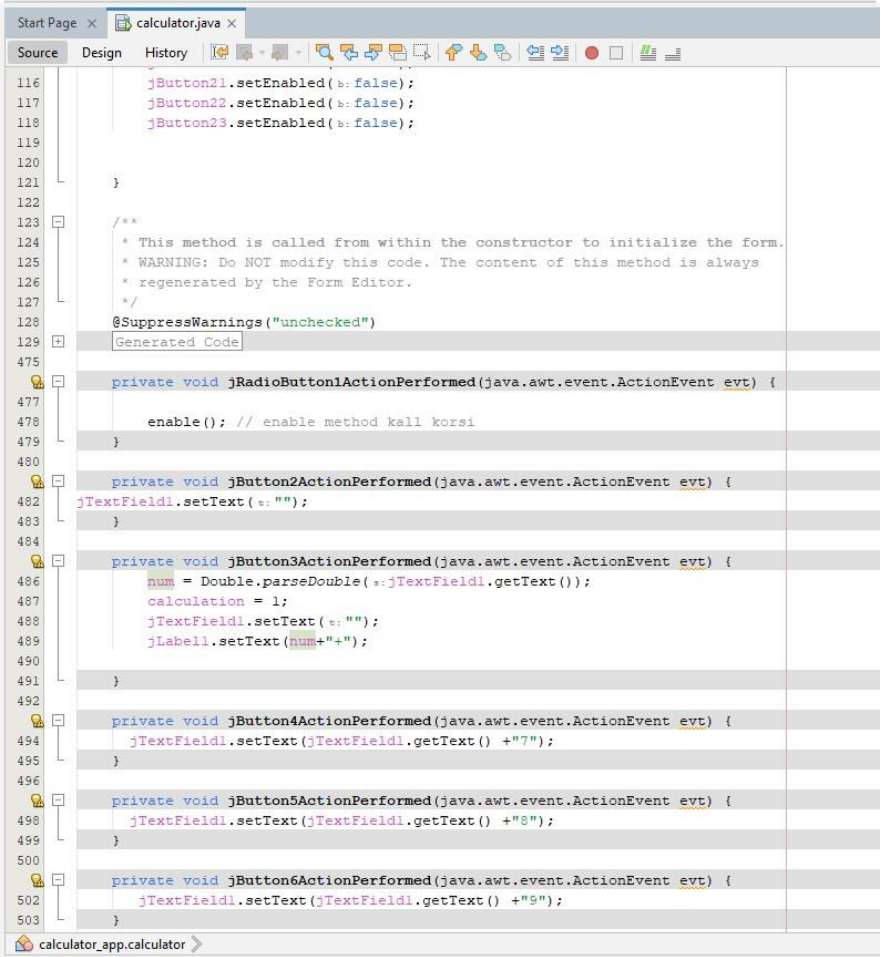


```
Start Page | calculator.java
Source | Design | History

            jTextField1.setText(s: Double.toString(d: ans));
            break;

            case 4:      //div
            ans = num / Double.parseDouble(s: jTextField1.getText());
            jTextField1.setText(s: Double.toString(d: ans));
            break;


        }
    }

    public void enable()
    {
        jTextField1.setEnabled(enabled: true);

        jRadioButton1.setEnabled(b: false);     //on button disable korsi
        jRadioButton2.setEnabled(b: true);      // off button enable korsi


        jButton1.setEnabled(b: true);
        jButton2.setEnabled(b: true);
        jButton3.setEnabled(b: true);
        jButton4.setEnabled(b: true);
        jButton5.setEnabled(b: true);
        jButton6.setEnabled(b: true);
        jButton7.setEnabled(b: true);
        jButton8.setEnabled(b: true);
        jButton9.setEnabled(b: true);
        jButton10.setEnabled(b: true);
        jButton11.setEnabled(b: true);
        jButton12.setEnabled(b: true);
        jButton13.setEnabled(b: true);
        jButton14.setEnabled(b: true);
        jButton15.setEnabled(b: true);
        jButton16.setEnabled(b: true);
        //jButton17.setEnabled(false);
        jButton18.setEnabled(b: true);
        jButton19.setEnabled(b: true);
        jButton20.setEnabled(b: true);
        jButton21.setEnabled(b: true);
        jButton22.setEnabled(b: true);
        jButton23.setEnabled(b: true);

calculator_app.calculator
```

Code:



```
Start Page | calculator.java
Source | Design | History
85          jButton23.setEnabled(b: true);
86
87      }
88
89      public void disable()
90      {
91          jTextField1.setEnabled(enabled: false);
92
93          jRadioButton1.setEnabled(b: true); // on button enable korsi
94          jRadioButton2.setEnabled(b: false); // off button disable
95
96          jButton1.setEnabled(b: false);
97          jButton2.setEnabled(b: false);
98          jButton3.setEnabled(b: false);
99          jButton4.setEnabled(b: false);
100         jButton5.setEnabled(b: false);
101         jButton6.setEnabled(b: false);
102         jButton7.setEnabled(b: false);
103         jButton8.setEnabled(b: false);
104         jButton9.setEnabled(b: false);
105         jButton10.setEnabled(b: false);
106         jButton11.setEnabled(b: false);
107         jButton12.setEnabled(b: false);
108         jButton13.setEnabled(b: false);
109         jButton14.setEnabled(b: false);
110         jButton15.setEnabled(b: false);
111         jButton16.setEnabled(b: false);
112         //jButton17.setEnabled(false);
113         jButton18.setEnabled(b: false);
114         jButton19.setEnabled(b: false);
115         jButton20.setEnabled(b: false);
116         jButton21.setEnabled(b: false);
117         jButton22.setEnabled(b: false);
118         jButton23.setEnabled(b: false);
119
120
121     }
122
123     /**
124      * This method is called from within the constructor to initialize the form.
125      * WARNING: Do NOT modify this code. The content of this method is always
126      * regenerated by the Form Editor.
127      */
128     @SuppressWarnings("unchecked")
calculator_app.calculator
```



```
Start Page | calculator.java
Source | Design | History
116         jButton21.setEnabled(b: false);
117         jButton22.setEnabled(b: false);
118         jButton23.setEnabled(b: false);
119
120
121     }
122
123     /**
124      * This method is called from within the constructor to initialize the form.
125      * WARNING: Do NOT modify this code. The content of this method is always
126      * regenerated by the Form Editor.
127      */
128     @SuppressWarnings("unchecked")
129     Generated Code
475
476     private void jRadioButton1ActionPerformed(java.awt.event.ActionEvent evt) {
477
478         enable(); // enable method kall korsi
479     }
480
481     private void jButton2ActionPerformed(java.awt.event.ActionEvent evt) {
482 jTextField1.setText(t: "");
483     }
484
485     private void jButton3ActionPerformed(java.awt.event.ActionEvent evt) {
486         num = Double.parseDouble(s: jTextField1.getText());
487         calculation = 1;
488         jTextField1.setText(t: "");
489         jLabel1.setText(num+"+");
490
491     }
492
493     private void jButton4ActionPerformed(java.awt.event.ActionEvent evt) {
494       jTextField1.setText(jTextField1.getText() +"7");
495     }
496
497     private void jButton5ActionPerformed(java.awt.event.ActionEvent evt) {
498       jTextField1.setText(jTextField1.getText() +"8");
499     }
500
501     private void jButton6ActionPerformed(java.awt.event.ActionEvent evt) {
502       jTextField1.setText(jTextField1.getText() +"9");
503     }
calculator_app.calculator
```

Code:

Start Page × calculator.java ×

Source Design History

```
    private void jButton5ActionPerformed(java.awt.event.ActionEvent evt) {
      jTextField1.setText(jTextField1.getText() +"8");
    }

    private void jButton6ActionPerformed(java.awt.event.ActionEvent evt) {
       jTextField1.setText(jTextField1.getText() +"9");
    }

    private void jButton7ActionPerformed(java.awt.event.ActionEvent evt) {

        num = Double.parseDouble(s:jTextField1.getText());
        calculation = 2;
        jTextField1.setText(t:"");
        jLabel1.setText(num+"-");
    }

    private void jButton8ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
    }

    private void jButton9ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
    }

    private void jButton10ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
    }

    private void jButton11ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
    }

    private void jButton12ActionPerformed(java.awt.event.ActionEvent evt) {
        num = Double.parseDouble(s:jTextField1.getText());
        calculation = 3;
        jTextField1.setText(t:"");
        jLabel1.setText(num+"*");
    }

    private void jButton13ActionPerformed(java.awt.event.ActionEvent evt) {
       jTextField1.setText(jTextField1.getText() +"4");
    }

    private void jButton14ActionPerformed(java.awt.event.ActionEvent evt) {
```

calculator_app.calculator

Start Page × calculator.java ×

Source Design History

```
        jTextField1.setText(t:"");
        jLabel1.setText(num+"*");
    }

    private void jButton13ActionPerformed(java.awt.event.ActionEvent evt) {
       jTextField1.setText(jTextField1.getText() +"4");
    }

    private void jButton14ActionPerformed(java.awt.event.ActionEvent evt) {
        jTextField1.setText(jTextField1.getText() +"5");
    }

    private void jButton15ActionPerformed(java.awt.event.ActionEvent evt) {
       jTextField1.setText(jTextField1.getText() +"6");
    }

    private void jButton16ActionPerformed(java.awt.event.ActionEvent evt) {
         num = Double.parseDouble(s:jTextField1.getText());
        calculation = 4;
        jTextField1.setText(t:"");
        jLabel1.setText(num+"/");
    }

    private void jButton18ActionPerformed(java.awt.event.ActionEvent evt) {
      jTextField1.setText(jTextField1.getText() +"0");
    }

    private void jButton19ActionPerformed(java.awt.event.ActionEvent evt) {
      jTextField1.setText(jTextField1.getText() +".");
    }

    private void jButton20ActionPerformed(java.awt.event.ActionEvent evt) {
        arithmetic_operation();
        jLabel1.setText(text:"");

        // TODO add your handling code here:
    }

    private void jButton21ActionPerformed(java.awt.event.ActionEvent evt) {
       jTextField1.setText(jTextField1.getText()+ "1");
    }

    private void jButton22ActionPerformed(java.awt.event.ActionEvent evt) {
    jTextField1.setText(jTextField1.getText() +"2");
```

calculator_app.calculator

Code:

Start Page × calculator.java ×

Source Design History

```
571             jTextField1.setText(jTextField1.getText()+ "1");
572         }
573
574         private void jButton22ActionPerformed(java.awt.event.ActionEvent evt) {
575         jTextField1.setText(jTextField1.getText() +"2");
576
577         }
578
579         private void jButton23ActionPerformed(java.awt.event.ActionEvent evt) {
580             jTextField1.setText(jTextField1.getText() +"3");
581         }
582
583         private void jRadioButton2ActionPerformed(java.awt.event.ActionEvent evt) {
584         disable(); //disbale method kall
585
586     // TODO add your handling code here:
587         }
588
589         private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {
590
591             int length = jTextField1.getText().length();
592             int number = jTextField1.getText(). length();
593             String store;
594
595             if (length>0)
596             {
597                 StringBuilder back = new StringBuilder( str:jTextField1.getText());
598                 back.deleteCharAt( index:number);
599                 store=back.toString();
600                 jTextField1.setText( t:store);
601
602             }
603
604
605
606         }
607
608         private void jTextField1ActionPerformed(java.awt.event.ActionEvent evt) {
609             // TODO add your handling code here:
610         }
611
612         /**
613          * @param args the command line arguments
614          */
```

calculator_app.calculator

Start Page × calculator.java ×

Source Design History

```
611
612         /**
613          * @param args the command line arguments
614          */
615         public static void main(String args[]) {
616             /* Set the Nimbus look and feel */
617             Look and feel setting code (optional)
638
639             /* Create and display the form */
640             java.awt.EventQueue.invokeLater(new Runnable() {
642                 public void run() {
643                     new calculator().setVisible( b:true);
644                 }
645             });
646         }
647
648         // Variables declaration - do not modify
649         private javax.swing.ButtonGroup buttonGroup1;
650         private javax.swing.JButton jButton1;
651         private javax.swing.JButton jButton10;
652         private javax.swing.JButton jButton11;
653         private javax.swing.JButton jButton12;
654         private javax.swing.JButton jButton13;
655         private javax.swing.JButton jButton14;
656         private javax.swing.JButton jButton15;
657         private javax.swing.JButton jButton16;
658         private javax.swing.JButton jButton18;
659         private javax.swing.JButton jButton19;
660         private javax.swing.JButton jButton2;
661         private javax.swing.JButton jButton20;
662         private javax.swing.JButton jButton21;
663         private javax.swing.JButton jButton22;
664         private javax.swing.JButton jButton23;
665         private javax.swing.JButton jButton3;
666         private javax.swing.JButton jButton4;
667         private javax.swing.JButton jButton5;
668         private javax.swing.JButton jButton6;
669         private javax.swing.JButton jButton7;
670         private javax.swing.JButton jButton8;
671         private javax.swing.JButton jButton9;
672         private javax.swing.JLabel jLabel1;
673         private javax.swing.JLabel jLabel2;
674         private javax.swing.JRadioButton jRadioButton1;
675         private javax.swing.JRadioButton jRadioButton2;
```

calculator_app.calculator

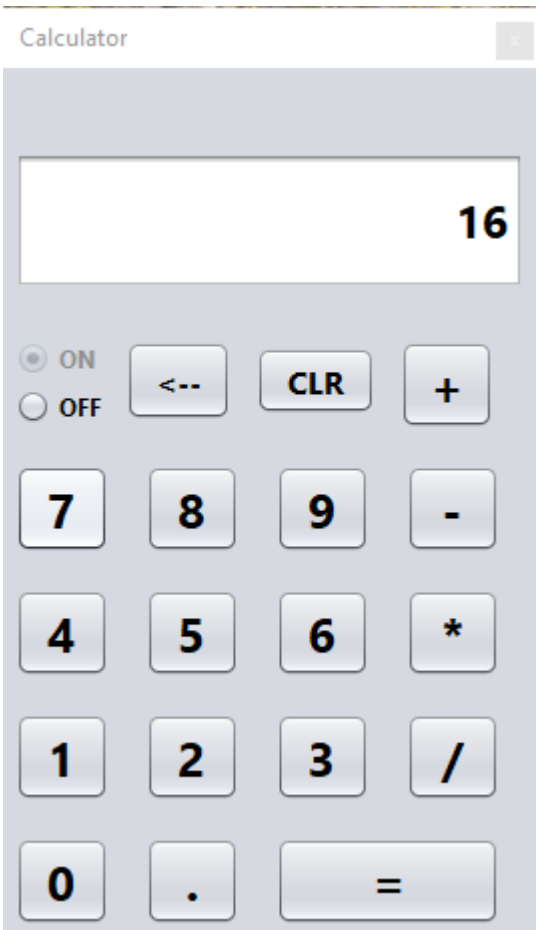
Code:

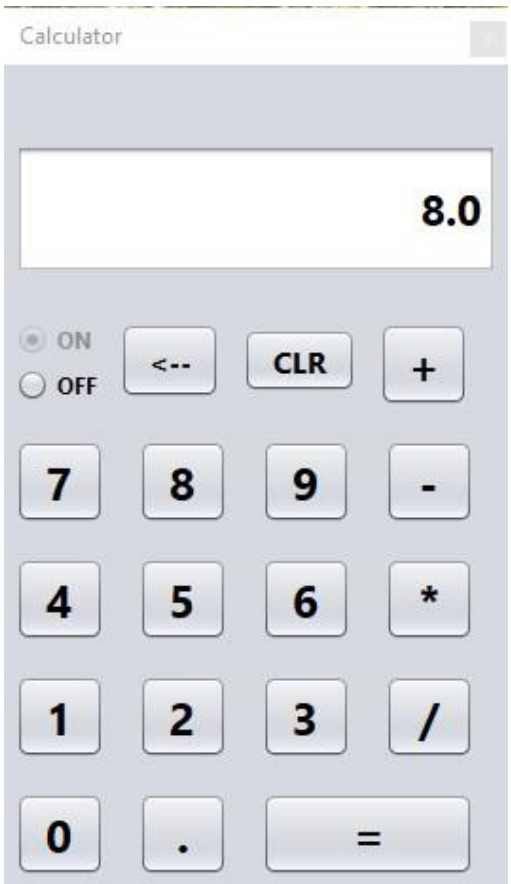

Start Page
calculator.java
Source
Design
History
650 private javax.swing.JButton jButton10;
651 private javax.swing.JButton jButton11;
652 private javax.swing.JButton jButton12;
653 private javax.swing.JButton jButton13;
654 private javax.swing.JButton jButton14;
655 private javax.swing.JButton jButton15;
656 private javax.swing.JButton jButton16;
657 private javax.swing.JButton jButton18;
658 private javax.swing.JButton jButton19;
659 private javax.swing.JButton jButton2;
660 private javax.swing.JButton jButton20;
661 private javax.swing.JButton jButton21;
662 private javax.swing.JButton jButton22;
663 private javax.swing.JButton jButton23;
664 private javax.swing.JButton jButton3;
665 private javax.swing.JButton jButton4;
666 private javax.swing.JButton jButton5;
667 private javax.swing.JButton jButton6;
668 private javax.swing.JButton jButton7;
669 private javax.swing.JButton jButton8;
670 private javax.swing.JButton jButton9;
671 private javax.swing.JLabel jLabel1;
672 private javax.swing.JLabel jLabel2;
673 private javax.swing.JRadioButton jRadioButton1;
674 private javax.swing.JRadioButton jRadioButton2;
675 private javax.swing.JTextField jTextField1;
676 // End of variables declaration
677 }
678
calculator_app.calculator

Output:

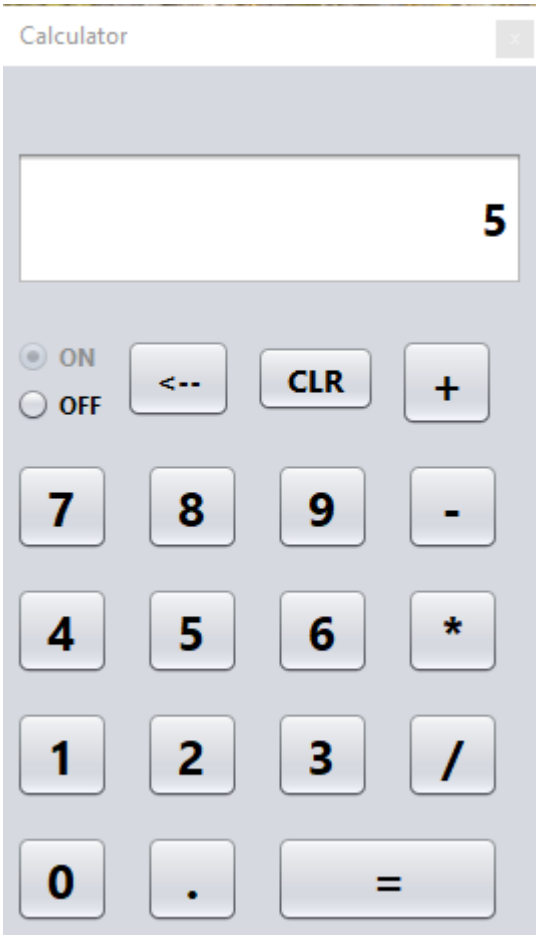

Calculator
ON
OFF
<--
CLR
+
7
8
9
-
4
5
6
*
1
2
3
/
0
.
=

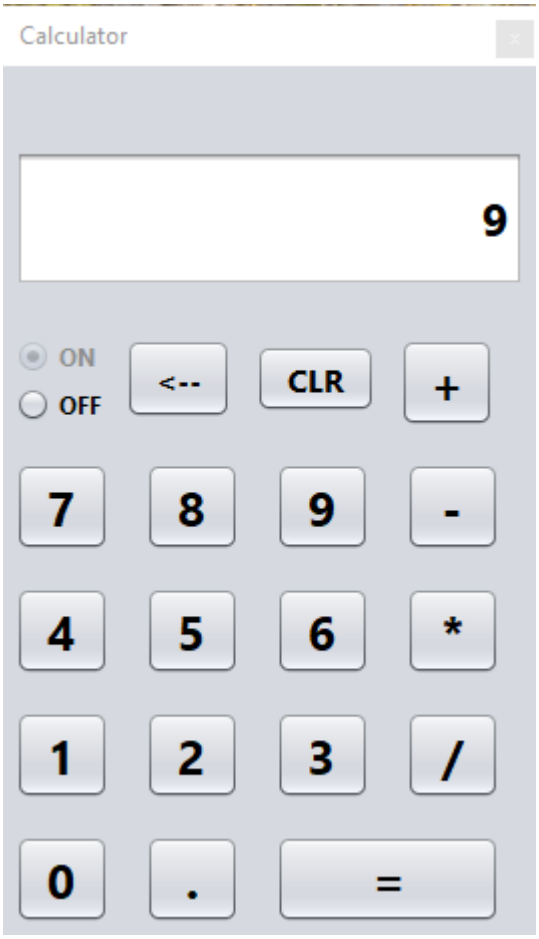

Calculator
ON
OFF
<--
CLR
+
7
8
9
-
4
5
6
*
1
2
3
/
0
.
=

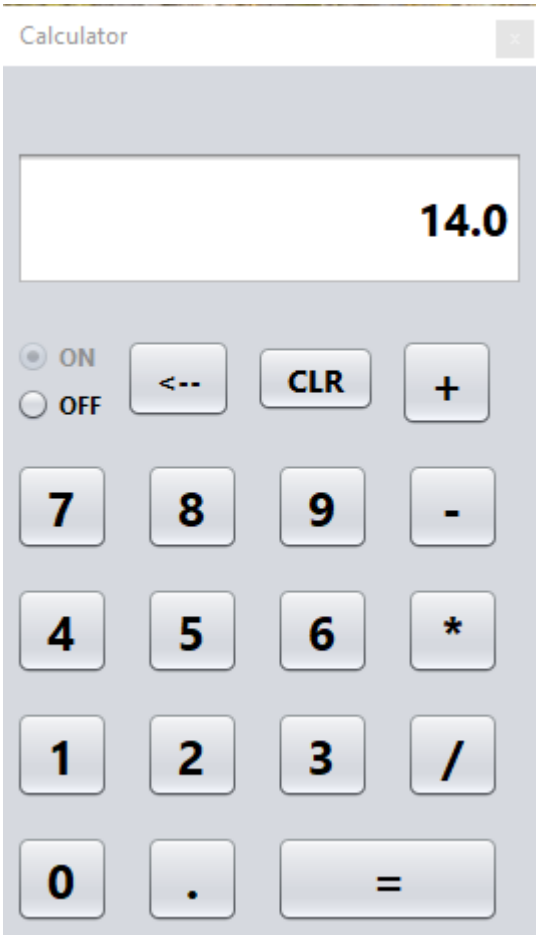

Calculator
16
ON
OFF
<--
CLR
+
7
8
9
-
4
5
6
*
1
2
3
/
0
.
=


Calculator
8.0
ON
OFF
<--
CLR
+
7
8
9
-
4
5
6
*
1
2
3
/
0
.
=

Output:


Calculator
5
ON
OFF
<--
CLR
+
7
8
9
-
4
5
6
*
1
2
3
/
0
.
=


Calculator
9
ON
OFF
<--
CLR
+
7
8
9
-
4
5
6
*
1
2
3
/
0
.
=


Calculator
14.0
ON
OFF
<--
CLR
+
7
8
9
-
4
5
6
*
1
2
3
/
0
.
=

Output:

Test	Input	Expected output	Original output	Result
Addition	5+9	14	14.0	Pass
Subtraction	10-5	5	5.0	Pass
Multiplication	10*6	60	60.0	Pass
Division	16/2	8	8.0	Pass

6. ANALYSIS AND DISCUSSION

1). We could not show how to define different set bounds.
2) I could not show the display while a number is stored
3) Implemented the basic arithmetic functions only.

7. SUMMARY

1) We have used NetBeans IDE for java
2) We have learned to solve java functionality and some other things from it.
3) We have learned the usage of Swing and saved it as a JAR file.