OBJECT ORIENTED PROGRAMMING (KK14203)

SEMESTER 2 (2019/2020)

PROJECT 2

NAME	NO MATRIC	NO TELEFON
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JAVA CODE CALCULATOR GUI

```java
1  /*
2    NAME : NURMUNIRAH BINTI ASRI
3    MATRIC NO : BI19110077
4    PROJECT 2 : CALCULATOR (GUI)
5  */
6
7  import java.awt.*;
8  import java.awt.event.*;
9  import javax.swing.*;
10 import javax.swing.event.*;
11 //required for border
12 import javax.swing.BorderFactory;
13 import javax.swing.border.Border;
14 //required for exception
15 import java.io.IOException;
16
17 public class Project2_Calculator extends JFrame {
18     private ButtonGroup buttonGroup1;
19     private JButton jButton1;
20     private JButton jButton10;
21     private JButton jButton11;
22     private JButton jButton12;
23     private JButton jButton13;
24     private JButton jButton14;
25     private JButton jButton15;
26     private JButton jButton16;
27     private JButton jButton17;
28     private JButton jButton18;
29     private JButton jButton2;
30     private JButton jButton3;
31     private JButton jButton4;
32     private JButton jButton5;
```

```java
33    private JButton jButton6;
34    private JButton jButton7;
35    private JButton jButton8;
36    private JButton jButton9;
37    private JLabel jLabel1;
38    private JRadioButton jRadioButton1;
39    private JRadioButton jRadioButton2;
40    private JTextField jTextField2;
41
42    double num, ans;
43    int calculation;
44
45    public Project2_Calculator() {
46        initComponents();
47        jRadioButton2.setEnabled(true); //ON button
disable
48        jRadioButton1.setEnabled(false); //OFF button
enable
49
50    }
51
52    private void initComponents() {
53
54        buttonGroup1 = new ButtonGroup();
55        jRadioButton1 = new JRadioButton();
56        jRadioButton2 = new JRadioButton();
57        jButton1 = new JButton();
58        jButton2 = new JButton();
59        jButton3 = new JButton();
60        jButton4 = new JButton();
61        jButton5 = new JButton();
62        jButton6 = new JButton();
63        jButton7 = new JButton();
64        jButton8 = new JButton();
```

```java
65          jButton9 = new JButton();
66          jButton10 = new JButton();
67          jButton11 = new JButton();
68          jButton12 = new JButton();
69          jButton13 = new JButton();
70          jButton14 = new JButton();
71          jButton15 = new JButton();
72          jButton16 = new JButton();
73          jButton17 = new JButton();
74          jButton18 = new JButton();
75          jTextField2 = new JTextField();
76          jLabel1 = new JLabel();
77
78          buttonGroup1.add(jRadioButton1);
79          jRadioButton1.setText("ON");
80          jRadioButton1.addActionListener(new
ActionListener() {
81              public void actionPerformed(ActionEvent evt) {
82                  jRadioButton1ActionPerformed(evt);
83              }
84          });
85
86          buttonGroup1.add(jRadioButton2);
87          jRadioButton2.setText("OFF");
88          jRadioButton2.addActionListener(new
ActionListener() {
89              public void actionPerformed(ActionEvent evt) {
90                  jRadioButton2ActionPerformed(evt);
91              }
92          });
93
94          jButton1.setText("C");
95          jButton1.addActionListener(new ActionListener()
{
```

```java
 96             public void actionPerformed(ActionEvent evt) {
 97                 jButton1ActionPerformed(evt);
 98             }
 99         });
100
101         jButton2.setText("<-");
102         jButton2.addActionListener(new ActionListener()
{
103             public void actionPerformed(ActionEvent evt)
{
104                 jButton2ActionPerformed(evt);
105             }
106         });
107
108         jButton3.setText("4");
109         jButton3.addActionListener(new ActionListener()
{
110             public void actionPerformed(ActionEvent evt)
{
111                 jButton3ActionPerformed(evt);
112             }
113         });
114
115         jButton4.setText("5");
116         jButton4.addActionListener(new ActionListener()
{
117             public void actionPerformed(ActionEvent evt)
{
118                 jButton4ActionPerformed(evt);
119             }
120         });
121
122         jButton5.setText("6");
123         jButton5.addActionListener(new ActionListener()
```

```java
    {
124         public void actionPerformed(ActionEvent evt)
    {
125             jButton5ActionPerformed(evt);
126         }
127     });

128

129     jButton6.setText("-");
130     jButton6.addActionListener(new ActionListener()
    {
131         public void actionPerformed(ActionEvent evt)
    {
132             jButton6ActionPerformed(evt);
133         }
134     });

135

136     jButton7.setText("1");
137     jButton7.addActionListener(new ActionListener()
    {
138         public void actionPerformed(ActionEvent evt)
    {
139             jButton7ActionPerformed(evt);
140         }
141     });

142

143     jButton8.setText("2");
144     jButton8.addActionListener(new ActionListener()
    {
145         public void actionPerformed(ActionEvent evt)
    {
146             jButton8ActionPerformed(evt);
147         }
148     });

149
```

```java
150          jButton9.setText("3");
151          jButton9.addActionListener(new ActionListener()
{
152              public void actionPerformed(ActionEvent evt)
{
153                  jButton9ActionPerformed(evt);
154              }
155          });
156
157          jButton10.setText("+");
158          jButton10.addActionListener(new ActionListener()
{
159              public void actionPerformed(ActionEvent evt)
{
160                  jButton10ActionPerformed(evt);
161              }
162          });
163
164          jButton11.setText("7");
165          jButton11.addActionListener(new ActionListener()
{
166              public void actionPerformed(ActionEvent evt)
{
167                  jButton11ActionPerformed(evt);
168              }
169          });
170
171          jButton12.setText("8");
172          jButton12.addActionListener(new ActionListener()
{
173              public void actionPerformed(ActionEvent evt)
{
174                  jButton12ActionPerformed(evt);
175              }
```

```
176          });
177
178          jButton13.setText("9");
179          jButton13.addActionListener(new ActionListener()
{
180              public void actionPerformed(ActionEvent evt)
{
181                  jButton13ActionPerformed(evt);
182              }
183          });
184
185          jButton14.setText("*");
186          jButton14.addActionListener(new ActionListener()
{
187              public void actionPerformed(ActionEvent evt)
{
188                  jButton14ActionPerformed(evt);
189              }
190          });
191
192          jButton15.setText("=");
193          jButton15.addActionListener(new ActionListener()
{
194              public void actionPerformed(ActionEvent evt)
{
195                  jButton15ActionPerformed(evt);
196              }
197          });
198
199          jButton16.setText("/");
200          jButton16.addActionListener(new ActionListener()
{
201              public void actionPerformed(ActionEvent evt)
{
```

```java
202                    jButton16ActionPerformed(evt);
203            }
204        });
205
206        jButton17.setText("0");
207        jButton17.addActionListener(new ActionListener()
{
208            public void actionPerformed(ActionEvent evt)
{
209                    jButton17ActionPerformed(evt);
210            }
211        });
212
213        jButton18.setText(".");
214        jButton18.addActionListener(new ActionListener()
{
215            public void actionPerformed(ActionEvent evt)
{
216                    jButton18ActionPerformed(evt);
217            }
218        });
219
220        jTextField2.setFont(new Font("Tahoma", 1, 12));
// NOI18N
221
jTextField2.setHorizontalAlignment(JTextField.RIGHT);
222
223        javax.swing.GroupLayout layout = new
GroupLayout(getContentPane());
224        getContentPane().setLayout(layout);
225        layout.setHorizontalGroup(
226
layout.createParallelGroup(GroupLayout.Alignment.LEADING)
227            .addGroup(layout.createSequentialGroup()
```

```
228                   .addGroup(layout.createParallelGroup(Gro
upLayout.Alignment.LEADING)
229                     .addComponent(jRadioButton2,
GroupLayout.Alignment.TRAILING, GroupLayout.PREFERRED_SIZE,
61, GroupLayout.PREFERRED_SIZE)
230                     .addComponent(jRadioButton1,
GroupLayout.Alignment.TRAILING, GroupLayout.PREFERRED_SIZE,
61,GroupLayout.PREFERRED_SIZE)
231                     .addGroup(layout.createSequentialGrou
p()
232                       .addGroup(layout.createParallelGr
oup(javax.swing.GroupLayout.Alignment.LEADING)
233                         .addComponent(jButton2,
GroupLayout.PREFERRED_SIZE, 46, GroupLayout.PREFERRED_SIZE)
234                         .addComponent(jButton1,
GroupLayout.PREFERRED_SIZE, 46, GroupLayout.PREFERRED_SIZE)
235                         .addComponent(jLabel1,
GroupLayout.PREFERRED_SIZE, 50,
GroupLayout.PREFERRED_SIZE))
236                       .addGap(11, 11, 11)))
237                 .addGroup(layout.createParallelGroup(Gro
upLayout.Alignment.LEADING)
238                   .addGroup(layout.createSequentialGrou
p()
239                     .addGap(19, 19, 19)
240                     .addGroup(layout.createParallelGr
oup(GroupLayout.Alignment.TRAILING, false)
241                       .addComponent(jButton7,
GroupLayout.DEFAULT_SIZE, GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE)
242                       .addComponent(jButton3,
GroupLayout.DEFAULT_SIZE, GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE)
243                       .addComponent(jButton11,GroupL
```

```
ayout.Alignment.LEADING, GroupLayout.DEFAULT_SIZE,
GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
244                          .addComponent(jButton17,GroupL
ayout.PREFERRED_SIZE, 57, GroupLayout.PREFERRED_SIZE))
245                          .addGap(18, 18, 18)
246                          .addGroup(layout.createParallelGr
oup(javax.swing.GroupLayout.Alignment.LEADING, false)
247                          .addComponent(jButton8,
GroupLayout.DEFAULT_SIZE, GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE)
248                          .addComponent(jButton4,
GroupLayout.DEFAULT_SIZE, GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE)
249                          .addComponent(jButton12,
GroupLayout.DEFAULT_SIZE, GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE)
250                          .addComponent(jButton18,
GroupLayout.PREFERRED_SIZE, 56,
GroupLayout.PREFERRED_SIZE))
251                          .addGap(18, 18, 18)
252                          .addGroup(layout.createParallelGr
oup(GroupLayout.Alignment.LEADING, false)
253                          .addComponent(jButton5,
GroupLayout.DEFAULT_SIZE, GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE)
254                          .addComponent(jButton9,
GroupLayout.DEFAULT_SIZE, GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE)
255                          .addComponent(jButton13,
GroupLayout.DEFAULT_SIZE, GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE)
256                          .addComponent(jButton15,
GroupLayout.PREFERRED_SIZE, 62,
GroupLayout.PREFERRED_SIZE))
```

```
257                    .addGap(18, 18, 18)
258                    .addGroup(layout.createParallelGr
oup(GroupLayout.Alignment.LEADING)
259                       .addGroup(layout.createSequent
ialGroup()
260                          .addGap(0, 0,
Short.MAX_VALUE)
261                          .addGroup(layout.createPara
llelGroup(GroupLayout.Alignment.LEADING, false)
262                             .addComponent(jButton6,
GroupLayout.DEFAULT_SIZE, GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE)
263                             .addComponent(jButton14,
GroupLayout.DEFAULT_SIZE, GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE)
264                             .addComponent(jButton16,
GroupLayout.PREFERRED_SIZE,
69,GroupLayout.PREFERRED_SIZE)))
265                          .addComponent(jButton10,
GroupLayout.PREFERRED_SIZE, 69,
GroupLayout.PREFERRED_SIZE)))
266                       .addGroup(layout.createSequentialGrou
p()
267                          .addGap(18, 18, 18)
268                          .addComponent(jTextField2))))
269        );
270        layout.setVerticalGroup(
271
layout.createParallelGroup(GroupLayout.Alignment.LEADING)
272           .addGroup(layout.createSequentialGroup()
273              .addGap(26, 26, 26)
274              .addGroup(layout.createParallelGroup(Gro
upLayout.Alignment.TRAILING, false)
275                 .addComponent(jTextField2,
```

```
      GroupLayout.PREFERRED_SIZE, 73,GroupLayout.PREFERRED_SIZE)
276                     .addGroup(layout.createSequentialGrou
p()
277                        .addComponent(jLabel1,GroupLayout.
PREFERRED_SIZE, 22,GroupLayout.PREFERRED_SIZE)
278                        .addPreferredGap(LayoutStyle.Comp
onentPlacement.RELATED)
279                        .addComponent(jRadioButton1)
280                        .addPreferredGap(LayoutStyle.Comp
onentPlacement.UNRELATED)
281                        .addComponent(jRadioButton2)))
282                  .addGap(4, 4, 4)
283                  .addGroup(layout.createParallelGroup(Gro
upLayout.Alignment.BASELINE)
284                     .addComponent(jButton8,
GroupLayout.PREFERRED_SIZE, 47, GroupLayout.PREFERRED_SIZE)
285                     .addComponent(jButton9,
GroupLayout.PREFERRED_SIZE, 47, GroupLayout.PREFERRED_SIZE)
286                     .addComponent(jButton7,
GroupLayout.PREFERRED_SIZE, 44, GroupLayout.PREFERRED_SIZE)
287                     .addComponent(jButton2,
GroupLayout.PREFERRED_SIZE, 44, GroupLayout.PREFERRED_SIZE)
288                     .addComponent(jButton10,
GroupLayout.PREFERRED_SIZE, 45,
GroupLayout.PREFERRED_SIZE))
289                  .addPreferredGap(LayoutStyle.ComponentPl
acement.RELATED)
290                  .addGroup(layout.createParallelGroup(Gro
upLayout.Alignment.LEADING)
291                     .addGroup(layout.createParallelGroup(
javax.swing.GroupLayout.Alignment.BASELINE)
292                        .addComponent(jButton4,
GroupLayout.PREFERRED_SIZE, 47, GroupLayout.PREFERRED_SIZE)
293                        .addComponent(jButton5,
```

```
GroupLayout.PREFERRED_SIZE, 47, GroupLayout.PREFERRED_SIZE)
294                    .addComponent(jButton6,
GroupLayout.PREFERRED_SIZE, 45,
GroupLayout.PREFERRED_SIZE))
295                    .addGroup(GroupLayout.Alignment.TRAIL
ING,
layout.createParallelGroup(GroupLayout.Alignment.BASELINE)
296                        .addComponent(jButton3,
GroupLayout.PREFERRED_SIZE, 44, GroupLayout.PREFERRED_SIZE)
297                        .addComponent(jButton1,
GroupLayout.PREFERRED_SIZE, 50,
GroupLayout.PREFERRED_SIZE)))
298                .addPreferredGap(LayoutStyle.ComponentPl
acement.RELATED)
299                .addGroup(layout.createParallelGroup(Gro
upLayout.Alignment.BASELINE)
300                    .addComponent(jButton13,
GroupLayout.PREFERRED_SIZE, 47, GroupLayout.PREFERRED_SIZE)
301                    .addComponent(jButton12,
GroupLayout.PREFERRED_SIZE, 47, GroupLayout.PREFERRED_SIZE)
302                    .addComponent(jButton11,
GroupLayout.PREFERRED_SIZE, 44, GroupLayout.PREFERRED_SIZE)
303                    .addComponent(jButton14,
GroupLayout.PREFERRED_SIZE, 45,
GroupLayout.PREFERRED_SIZE))
304                .addPreferredGap(LayoutStyle.ComponentPl
acement.RELATED)
305                .addGroup(layout.createParallelGroup(Gro
upLayout.Alignment.BASELINE)
306                    .addComponent(jButton16,
GroupLayout.PREFERRED_SIZE, 45, GroupLayout.PREFERRED_SIZE)
307                    .addComponent(jButton15,
GroupLayout.PREFERRED_SIZE, 47, GroupLayout.PREFERRED_SIZE)
308                    .addComponent(jButton18,
```

```java
GroupLayout.PREFERRED_SIZE, 47, GroupLayout.PREFERRED_SIZE)
309                    .addComponent(jButton17,
GroupLayout.PREFERRED_SIZE, 44,
GroupLayout.PREFERRED_SIZE))
310                .addContainerGap(22, Short.MAX_VALUE))
311        );
312
313        pack();
314    }
315
316    private void jButton4ActionPerformed(ActionEvent evt)
{
317        jTextField2.setText( jTextField2.getText()+ "5");
318    }
319
320    private void jButton8ActionPerformed(ActionEvent evt)
{
321        jTextField2.setText( jTextField2.getText()+ "2");
322    }
323
324    private void jButton12ActionPerformed(ActionEvent
evt) {
325       jTextField2.setText( jTextField2.getText()+ "8");
326    }
327
328    private void jButton18ActionPerformed(ActionEvent
evt) {
329       jTextField2.setText( jTextField2.getText()+ ".");
330    }
331
332    private void jButton13ActionPerformed(ActionEvent
evt) {
333       jTextField2.setText( jTextField2.getText()+ "9");
334    }
```

```java
335
336    private void
jRadioButton2ActionPerformed(ActionEvent evt) {    //Off
button
337        disabled(); //call disable method
338    }
339
340    private void jButton7ActionPerformed(ActionEvent evt)
{
341        jTextField2.setText( jTextField2.getText()+ "1");
342    }
343
344    private void jButton9ActionPerformed(ActionEvent evt)
{
345        jTextField2.setText( jTextField2.getText()+ "3");
346    }
347
348    private void jButton3ActionPerformed(ActionEvent evt)
{
349        jTextField2.setText( jTextField2.getText()+ "4");
350    }
351
352    private void jButton5ActionPerformed(ActionEvent evt)
{
353        jTextField2.setText( jTextField2.getText()+ "6");
354    }
355
356    private void jButton11ActionPerformed(ActionEvent
evt) {
357        jTextField2.setText( jTextField2.getText()+ "7");
358    }
359
360    private void jButton17ActionPerformed(ActionEvent
evt) {
```

```java
361        jTextField2.setText( jTextField2.getText()+ "0");
362    }
363
364    private void jButton15ActionPerformed(ActionEvent
evt) {
365    math_operation();
366    jLabel1.setText("");
367    }
368
369    private void jButton10ActionPerformed(ActionEvent
evt) {    //addition button
370        num = Double.parseDouble(jTextField2.getText());
371        calculation = 1;
372        jTextField2.setText("");
373        jLabel1.setText(num + "+");
374
375    }
376
377    private void jButton6ActionPerformed(ActionEvent evt)
{   //subtraction button
378        num = Double.parseDouble(jTextField2.getText());
379        calculation = 2;
380        jTextField2.setText("");
381        jLabel1.setText(num + "-");
382    }
383
384    private void jButton14ActionPerformed(ActionEvent
evt) {    //multiplication button
385        num = Double.parseDouble(jTextField2.getText());
386        calculation = 3;
387        jTextField2.setText("");
388        jLabel1.setText(num + "*");
389    }
390
```

```java
391    private void jButton16ActionPerformed(ActionEvent
evt) {    //divide button
392        num = Double.parseDouble(jTextField2.getText());
393        calculation = 4;
394        jTextField2.setText("");
395        jLabel1.setText(num + "/");
396    }
397
398    private void jButton1ActionPerformed(ActionEvent evt)
{ //button clear
399        jTextField2.setText("");
400    }
401
402    private void
jRadioButton1ActionPerformed(ActionEvent evt) {    //on
button
403        enable(); //call method for enable
404    }
405
406    private void jButton2ActionPerformed(ActionEvent evt)
{
407
408        int length = jTextField2.getText().length();
409        int number = jTextField2.getText().length() - 1;
410        String store;
411
412        if (length > 0){
413
414            StringBuilder back = new StringBuilder
(jTextField2.getText());
415            back.deleteCharAt(number);
416            store = back.toString();
417            jTextField2.setText(store);
418
```

```java
419          }

421      }


424      public void math_operation(){


427          switch (calculation)
428          {
429              case 1 : //addition
430                  ans = num +
Double.parseDouble(jTextField2.getText());
431
jTextField2.setText(Double.toString(ans));
432                  break;
433              case 2 : //subtaction
434                  ans = num -
Double.parseDouble(jTextField2.getText());
435
jTextField2.setText(Double.toString(ans));
436                  break;
437              case 3 : //multiplication
438                  ans = num *
Double.parseDouble(jTextField2.getText());
439
jTextField2.setText(Double.toString(ans));
440                  break;
441              case 4 : //division
442                  ans = num /
Double.parseDouble(jTextField2.getText());
443
jTextField2.setText(Double.toString(ans));
444                  break;
```

```java
445            }
446        }
447        public void disabled(){ //OFF button
448            jTextField2.setEnabled(false);
449            jTextField2.setText("");
450            jRadioButton1.setEnabled(true);
451            jRadioButton2.setEnabled(false);
452            jButton1.setEnabled(false);
453            jButton2.setEnabled(false);
454            jButton3.setEnabled(false);
455            jButton4.setEnabled(false);
456            jButton5.setEnabled(false);
457            jButton6.setEnabled(false);
458            jButton7.setEnabled(false);
459            jButton8.setEnabled(false);
460            jButton9.setEnabled(false);
461            jButton10.setEnabled(false);
462            jButton11.setEnabled(false);
463            jButton12.setEnabled(false);
464            jButton13.setEnabled(false);
465            jButton14.setEnabled(false);
466            jButton15.setEnabled(false);
467            jButton16.setEnabled(false);
468            jButton17.setEnabled(false);
469            jButton18.setEnabled(false);
470
471        }
472
473        public void enable(){ // ON button
474            jTextField2.setEnabled(true);
475            jRadioButton1.setEnabled(false);
476            jRadioButton2.setEnabled(true);
477            jButton1.setEnabled(true);
478            jButton2.setEnabled(true);
```

```java
479            jButton3.setEnabled(true);
480            jButton4.setEnabled(true);
481            jButton5.setEnabled(true);
482            jButton6.setEnabled(true);
483            jButton7.setEnabled(true);
484            jButton8.setEnabled(true);
485            jButton9.setEnabled(true);
486            jButton10.setEnabled(true);
487            jButton11.setEnabled(true);
488            jButton12.setEnabled(true);
489            jButton13.setEnabled(true);
490            jButton14.setEnabled(true);
491            jButton15.setEnabled(true);
492            jButton16.setEnabled(true);
493            jButton17.setEnabled(true);
494            jButton18.setEnabled(true);
495
496       }
497
498    public static void main(String args[]) {
499
500        JFrame f = new JFrame ("Calculator");
501
f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
502
503
504        try {
505            for (UIManager.LookAndFeelInfo info :
UIManager.getInstalledLookAndFeels()) {
506                if ("Nimbus".equals(info.getName())) {
507
UIManager.setLookAndFeel(info.getClassName());
508                    break;
509                }
```

```java
510                 }
511         } catch (ClassNotFoundException ex) {
512
java.util.logging.Logger.getLogger(Project2_Calculator.cl
ass.getName()).log(java.util.logging.Level.SEVERE, null,
ex);
513         } catch (InstantiationException ex) {
514
java.util.logging.Logger.getLogger(Project2_Calculator.cl
ass.getName()).log(java.util.logging.Level.SEVERE, null,
ex);
515         } catch (IllegalAccessException ex) {
516
java.util.logging.Logger.getLogger(Project2_Calculator.cl
ass.getName()).log(java.util.logging.Level.SEVERE, null,
ex);
517         } catch
(javax.swing.UnsupportedLookAndFeelException ex) {
518
java.util.logging.Logger.getLogger(Project2_Calculator.cl
ass.getName()).log(java.util.logging.Level.SEVERE, null,
ex);
519         }
520
521
522     EventQueue.invokeLater(new Runnable() {
523         public void run() {
524             new
Project2_Calculator().setVisible(true);
525         }
526     });
527
528
529     //add panels to frame
```

```
530        f.setVisible(true);
531    }
532
533
534 }
535
```
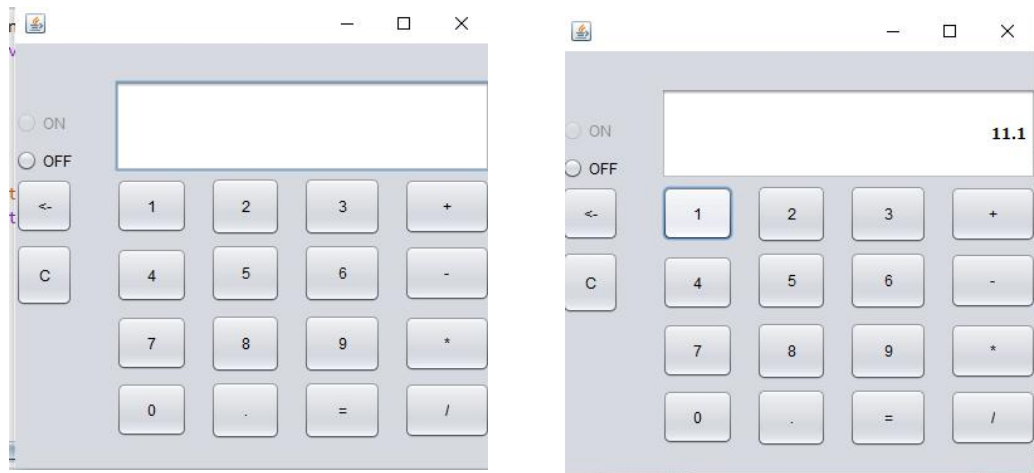
OBJECT OREEINTED CONCEPT FOR CALCULATOR

```java
1  /*
2    NAME : NURMUNIRAH BINTI ASRI
3    MATRIC NO : BI19110077
4    OBJECT ORIENTED CONCEPT
5  */
6
7  import java.util.Scanner;
8
9  class calculator{
10   double a, b;
11
12   calculator(double a, double b){
13     this.a = a;
14     this.b = b;
15   }
16
17   double add(){
18     return a+b;
19   }
20
21   double sub(){
22     return a-b;
23   }
24
25   double mult(){
26     return a*b;
27   }
28
29   double div(){
30     return a/b;
31   }
32 }
```
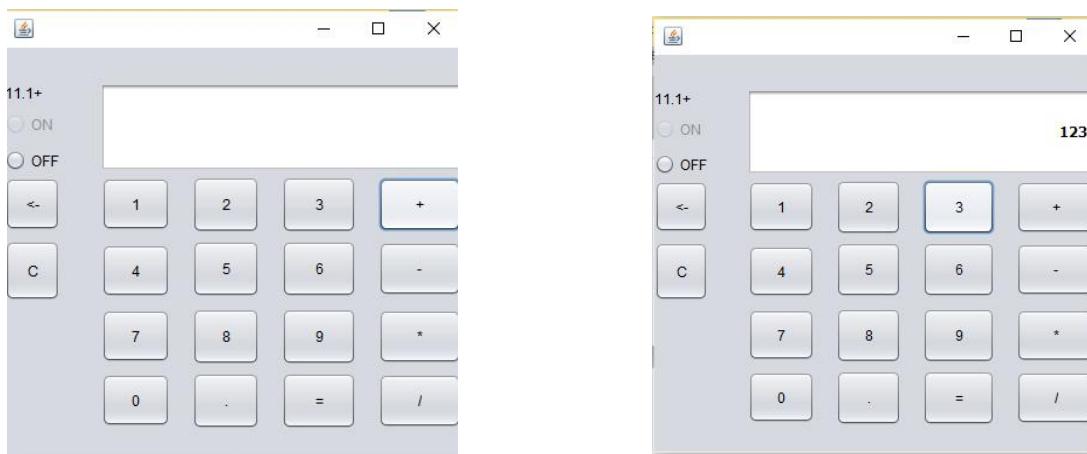
```java
33
34 public class Calc {
35    public static void main (String[] args){
36
37       Scanner sc = new Scanner (System.in);
38       double a, b, c = 0.0;
39       String op;
40
41       System.out.print ("Enter value of a : ");
42       a = sc.nextDouble();
43       System.out.print ("Enter value of b : ");
44       b = sc.nextDouble();
45       System.out.print ("Enter the operation (+ , - , * ,
/ ) : ");
46       op = sc.next();
47
48       calculator obj = new calculator(a,b);
49       switch (op){
50          case "+" : System.out.println(a + op + b + " = "
+ obj.add()); break;
51          case "-" : System.out.println(a + op + b + " = "
+ obj.sub()); break;
52          case "*" : System.out.println(a + op + b + " = "
+ obj.mult()); break;
53          case "/" : System.out.println(a + op + b + " = "
+ obj.div()); break;
54          default : System.out.print("\nInvalid!");
55       }
56
57    }
58
```
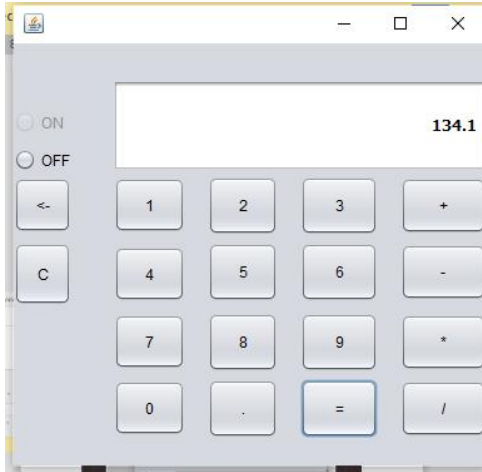
USER MANUAL

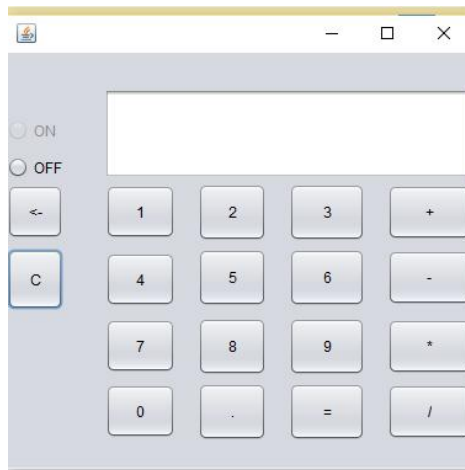1. When the program is run, the user has to input the number.

2. Pick the operation. The number will be displayed on the top-left corner of the calculator. After that click a new number.

3. Click the '=' button and the result will be displayed on the white box on the top-corner of the calculator.

4. If the user want to delete all the number, the user can click on the 'C' button which is on the left corner of the calculator.

5. If the user want to turn of the calculator, the user can click the 'OFF' button and click the 'ON' button to turn it on.