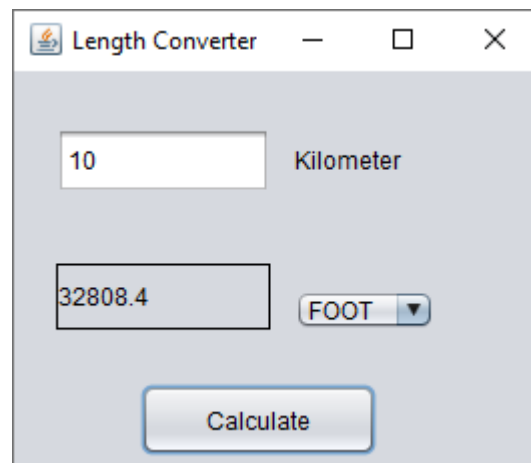
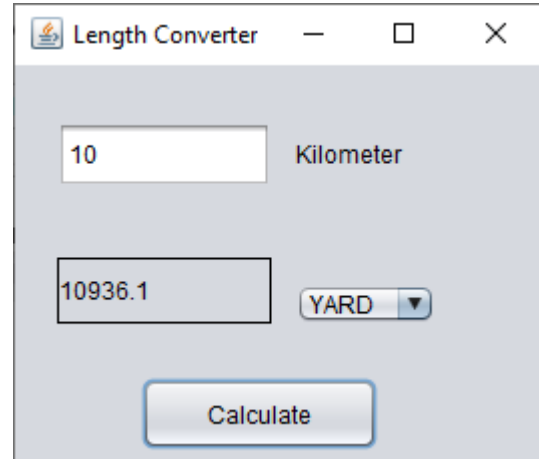
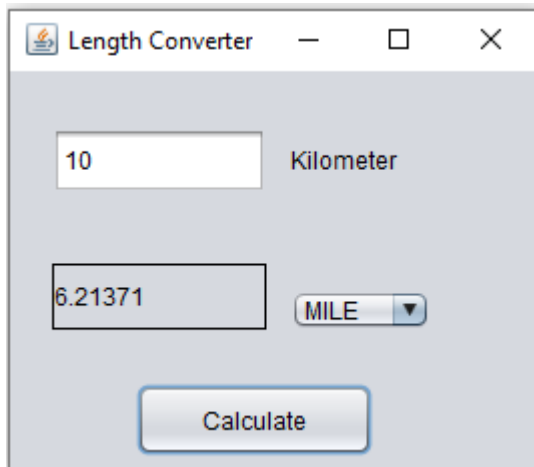


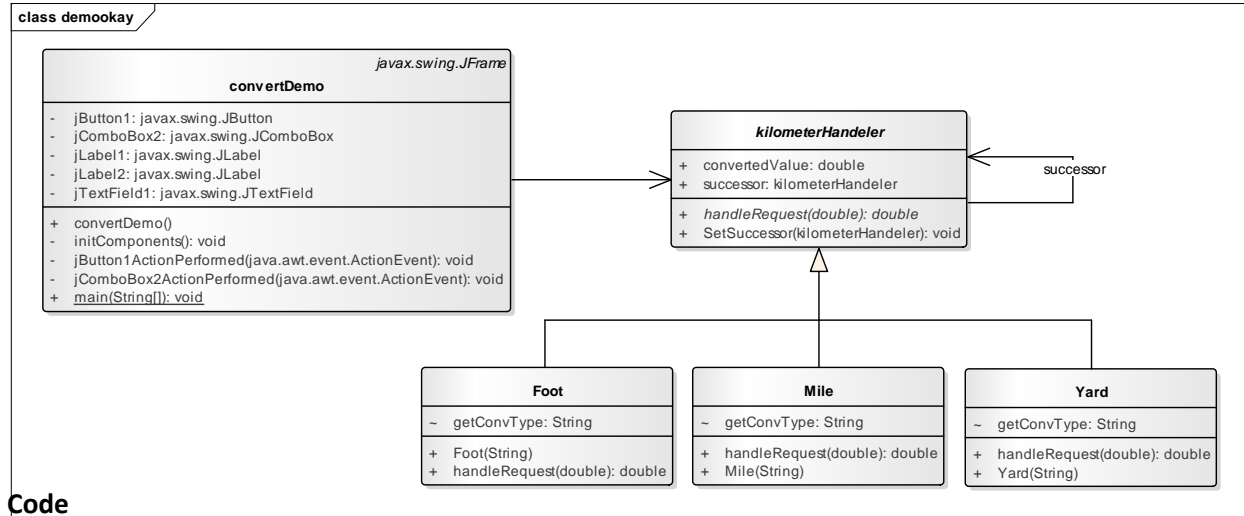
Class Project 2

Problem 1

Screenshots



UML



Code

convertDemo Class

```

1.  /*
2.   * To change this license header, choose License Headers in Project
    Properties.
3.   * To change this template file, choose Tools | Templates
4.   * and open the template in the editor.
5.   */
6.
7.  package demookay;
8.  import javax.swing.JOptionPane;
9.  import java.text.DecimalFormat;
10. /**
11.  *
12.  * @author Hisham Hussein
13.  */
14. public class convertDemo extends javax.swing.JFrame {
15.
16.
17.
18.     /**
19.      * Creates new form convertDemo
20.      */
21.     public convertDemo() {
22.         initComponents();
23.     }
24.
25.
26.
27.     /**
28.      * This method is called from within the constructor to initialize
    the form.
29.      * WARNING: Do NOT modify this code. The content of this method is
    always
30.      * regenerated by the Form Editor.
31.      */
32.     @SuppressWarnings("unchecked")
33.     // <editor-fold defaultstate="collapsed" desc="Generated Code">
  
```

```

34.     private void initComponents() {
35.
36.         jButton1 = new javax.swing.JButton();
37.         jTextField1 = new javax.swing.JTextField();
38.         jComboBox2 = new javax.swing.JComboBox();
39.         jLabel1 = new javax.swing.JLabel();
40.         jLabel2 = new javax.swing.JLabel();
41.
42.         setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);
43.         setTitle("Length Converter");
44.
45.         jButton1.setText("Calculate");
46.         jButton1.addActionListener(new java.awt.event.ActionListener()
47.         {
48.             public void actionPerformed(java.awt.event.ActionEvent
49.                 evt) {
50.                     jButton1ActionPerformed(evt);
51.                 }
52.             });
53.         jComboBox2.setModel(new javax.swing.DefaultComboBoxModel(new
54.             String[] { "MILE", "YARD", "FOOT" }));
55.         jComboBox2.addActionListener(new
56.             java.awt.event.ActionListener() {
57.                 public void actionPerformed(java.awt.event.ActionEvent
58.                     evt) {
59.                         jComboBox2ActionPerformed(evt);
60.                     }
61.                 });
62.         jLabel1.setToolTipText("");
63.
64.         jLabel1.setBorder(javax.swing.BorderFactory.createLineBorder(new
65.             java.awt.Color(0, 0, 0)));
66.
67.         jLabel2.setText("Kilometer");
68.
69.         javax.swing.GroupLayout layout = new
70.             javax.swing.GroupLayout(getContentPane());
71.         getContentPane().setLayout(layout);
72.         layout.setHorizontalGroup(
73.             layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
74.                 .addGroup(layout.createSequentialGroup()
75.                     .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
76.                         .addGroup(layout.createSequentialGroup()
77.                             .add(jTextField1,
78.                                 javax.swing.GroupLayout.DEFAULT_SIZE, 107, Short.MAX_VALUE)
79.                             .addComponent(jLabel1,
80.                                 javax.swing.GroupLayout.DEFAULT_SIZE,
81.                                 javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
82.                         .addGroup(layout.createSequentialGroup()
83.                             .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED,
84.                                 javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
85.                             .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
86.                                 .addGroup(layout.createSequentialGroup()
87.                                     .add(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
88.                                         .add(jButton1)
89.                                         .add(jComboBox2))
90.                                     .addGap(21, 21, 21))
91.                                 .addGroup(layout.createSequentialGroup()
92.                                     .add(jLabel2)
93.                                     .addContainerGap())))
94.                             .addContainerGap())
95.                     .addContainerGap())
96.                 .addGroup(layout.createSequentialGroup()
97.                     .add(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
98.                         .add(jButton1)
99.                         .add(jComboBox2))
100.                    .addGap(21, 21, 21)
101.                    .add(jLabel2)
102.                    .addContainerGap())
103.                );
104.         layout.setVerticalGroup(
105.             layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
106.                 .addGroup(layout.createSequentialGroup()
107.                     .add(jTextField1)
108.                     .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
109.                     .add(jComboBox2)
110.                     .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
111.                     .add(jLabel1)
112.                     .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
113.                     .add(jButton1)
114.                     .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
115.                     .add(jLabel2)
116.                     .addContainerGap(10, Short.MAX_VALUE))
117.                );
118.
119.         pack();
120.
121.         setVisible(true);
122.     }
123.
124.     /**
125.      * The main method of the application. It creates a new instance of the LengthConverter
126.      * class and calls the initComponents method to initialize the GUI components.
127.      */
128.     public static void main(String args[]) {
129.         LengthConverter lengthConverter = new LengthConverter();
130.         lengthConverter.initComponents();
131.     }

```

```

76.                .addComponent(jComboBox2,
    javax.swing.GroupLayout.PREFERRED_SIZE, 70,
    javax.swing.GroupLayout.PREFERRED_SIZE)
77.                .addGap(31, 31, 31))
78.                .addGroup(layout.createSequentialGroup())
79.                .addComponent(jLabel2,
    javax.swing.GroupLayout.DEFAULT_SIZE, 112, Short.MAX_VALUE)
80.                .addContainerGap()))
81.                .addGroup(layout.createSequentialGroup())
82.                .addGap(63, 63, 63)
83.                .addComponent(jButton1,
    javax.swing.GroupLayout.PREFERRED_SIZE, 118,
    javax.swing.GroupLayout.PREFERRED_SIZE)
84.                .addGap(0, 82, Short.MAX_VALUE))
85.            );
86.            layout.setVerticalGroup(
87.                layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
88.                .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
    layout.createSequentialGroup())
89.                .addContainerGap(28, Short.MAX_VALUE)
90.                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.
    BASELINE)
91.                .addComponent(jTextField1,
    javax.swing.GroupLayout.PREFERRED_SIZE, 33,
    javax.swing.GroupLayout.PREFERRED_SIZE)
92.                .addComponent(jLabel2))
93.                .addGap(35, 35, 35)
94.                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.
    TRAILING)
95.                .addComponent(jLabel1,
    javax.swing.GroupLayout.PREFERRED_SIZE, 33,
    javax.swing.GroupLayout.PREFERRED_SIZE)
96.                .addComponent(jComboBox2,
    javax.swing.GroupLayout.PREFERRED_SIZE, 20,
    javax.swing.GroupLayout.PREFERRED_SIZE))
97.                .addGap(27, 27, 27)
98.                .addComponent(jButton1,
    javax.swing.GroupLayout.PREFERRED_SIZE, 36,
    javax.swing.GroupLayout.PREFERRED_SIZE)
99.                .addContainerGap())
100.            );
101.
102.            pack();
103.        } // </editor-fold>
104.
105.        private void jComboBox2ActionPerformed(java.awt.event.ActionEvent
    evt) {
106.            jLabel1.setText("");
107.        }
108.
109.        private void jButton1ActionPerformed(java.awt.event.ActionEvent
    evt) {
110.
111.            if(jTextField1.getText().isEmpty()){
112.                JOptionPane.showMessageDialog(null, "The Kilometer
    textfield is empty", "Empty textfield",
113.                JOptionPane.WARNING_MESSAGE);
114.            }else{

```

```

115.         kilometerHandler mile = new
            Mile(jComboBox2.getSelectedItem().toString());
116.         kilometerHandler yard = new
            Yard(jComboBox2.getSelectedItem().toString());
117.         kilometerHandler foot = new
            Foot(jComboBox2.getSelectedItem().toString());
118.
119.         mile.SetSuccessor(yard);
120.         yard.SetSuccessor(foot);
121.
122.         double getTextBoxValue =
            Double.parseDouble(jTextField1.getText());
123.         double sendValue =
            Math.round(mile.handleRequest(getTextBoxValue)*100000)/100000.0;
124.
125.         jLabel1.setText (String.valueOf(sendValue));
126.     }
127. }
128.
129.
130. /**
131.  * @param args the command line arguments
132.  */
133. public static void main(String args[]) {
134.     /* Set the Nimbus look and feel */
135.     <editor-fold defaultstate="collapsed" desc=" Look and feel
        setting code (optional) ">
136.     /* If Nimbus (introduced in Java SE 6) is not available, stay
        with the default look and feel.
137.     * For details see
        http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.htm
        l
138.     */
139.     try {
140.         for (javax.swing.UIManager.LookAndFeelInfo info :
            javax.swing.UIManager.getInstalledLookAndFeels()) {
141.             if ("Nimbus".equals(info.getName())) {
142.
143.                 javax.swing.UIManager.setLookAndFeel(info.getClassName());
144.                 break;
145.             }
146.         } catch (ClassNotFoundException ex) {
147.
148.             java.util.logging.Logger.getLogger(convertDemo.class.getName()).log(jav
                a.util.logging.Level.SEVERE, null, ex);
149.         } catch (InstantiationException ex) {
150.
151.             java.util.logging.Logger.getLogger(convertDemo.class.getName()).log(jav
                a.util.logging.Level.SEVERE, null, ex);
152.         } catch (IllegalAccessException ex) {
153.
154.             java.util.logging.Logger.getLogger(convertDemo.class.getName()).log(jav
                a.util.logging.Level.SEVERE, null, ex);
155.         }
156.     } catch (javax.swing.UnsupportedLookAndFeelException ex) {

```

```

157.         /* Create and display the form */
158.         java.awt.EventQueue.invokeLater(new Runnable() {
159.             public void run() {
160.                 new convertDemo().setVisible(true);
161.             }
162.         });
163.     }
164. }
165.
166. // Variables declaration - do not modify
167. private javax.swing.JButton jButton1;
168. private javax.swing.JComboBox jComboBox2;
169. private javax.swing.JLabel jLabel1;
170. private javax.swing.JLabel jLabel2;
171. private javax.swing.JTextField jTextField1;
172. // End of variables declaration
173. }

```

Foot class

```

1.  package demookay;
2.
3.
4.  import demookay.convertDemo;
5.
6.  /*
7.   * To change this license header, choose License Headers in Project
   Properties.
8.   * To change this template file, choose Tools | Templates
9.   * and open the template in the editor.
10.  */
11.
12. /**
13.  *
14.  * @author Hisham Hussein
15.  */
16.  public class Foot extends kilometerHandler
17.  {
18.      String getConvType;
19.      public Foot( String ConvType)
20.      {
21.          getConvType = ConvType;
22.      }
23.      public double handleRequest(double convertTo)
24.      {
25.          if ("FOOT".equals(getConvType) )
26.          {
27.              return convertTo * 3280.84;
28.          }
29.          else if (successor != null)
30.          {
31.              return successor.handleRequest(convertTo);
32.          }
33.          else
34.          {
35.              return convertTo;
36.          }
37.      }
38.  }

```

Yard class

```
1.  /*
2.   * To change this license header, choose License Headers in Project
   * Properties.
3.   * To change this template file, choose Tools | Templates
4.   * and open the template in the editor.
5.   */
6.  package demookay;
7.
8.  /**
9.   *
10.   * @author Hisham Hussein
11.   */
12.
13.     public class Yard extends kilometerHandler
14.     {
15.         String getConvType;
16.         public Yard(String ConvType)
17.         {
18.             getConvType = ConvType;
19.         }
20.         public double handleRequest(double convertTo)
21.         {
22.             if ("YARD".equals(getConvType) )
23.             {
24.                 return convertTo * 1093.61;
25.             }
26.             else if (successor != null)
27.             {
28.                 return successor.handleRequest(convertTo);
29.             }
30.             else
31.             {
32.                 return convertTo;
33.             }
34.         }
35.     }
```

Mile class

```
1.  /*
2.   * To change this license header, choose License Headers in Project
   * Properties.
3.   * To change this template file, choose Tools | Templates
4.   * and open the template in the editor.
5.   */
6.  package demookay;
7.
8.  /**
9.   *
10.   * @author Hisham Hussein
11.   */
12.  public class Mile extends kilometerHandler
13.  {
14.      String getConvType;
15.      public Mile( String ConvType)
16.      {
17.          getConvType = ConvType;
```

```

18.
19.     }
20.     public double handleRequest(double convertTo)
21.     {
22.         if ("MILE".equals(getConvType) )
23.         {
24.             return convertTo * 0.621371;
25.         }
26.         else if (successor != null)
27.         {
28.             return successor.handleRequest(convertTo);
29.         }
30.         else
31.         {
32.             return convertTo;
33.         }
34.     }
35. }

```

KilometerHandler

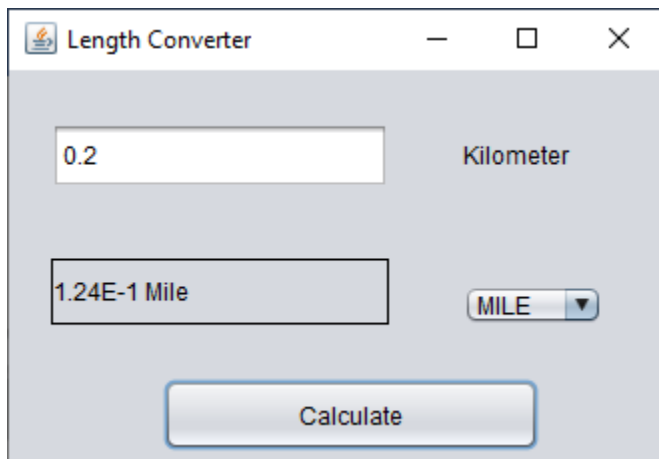
```

1.  /*
2.   * To change this license header, choose License Headers in Project
   * Properties.
3.   * To change this template file, choose Tools | Templates
4.   * and open the template in the editor.
5.   */
6.  package demookay;
7.
8.  /**
9.   *
10.   * @author Hisham Hussein
11.   */
12.  public abstract class kilometerHandler
13.  {
14.      public kilometerHandler successor;
15.      public double convertedValue;
16.      public void SetSuccessor( kilometerHandler successor )
17.      {
18.          this.successor = successor;
19.      }
20.
21.      public abstract double handleRequest(double successorValue);
22.  }
23.

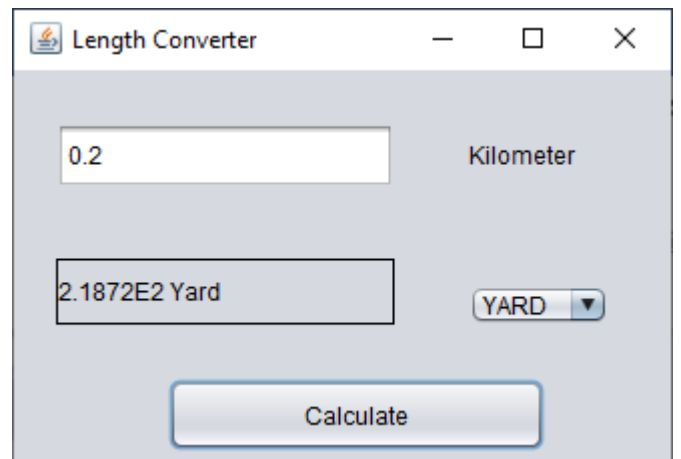
```


Problem 2

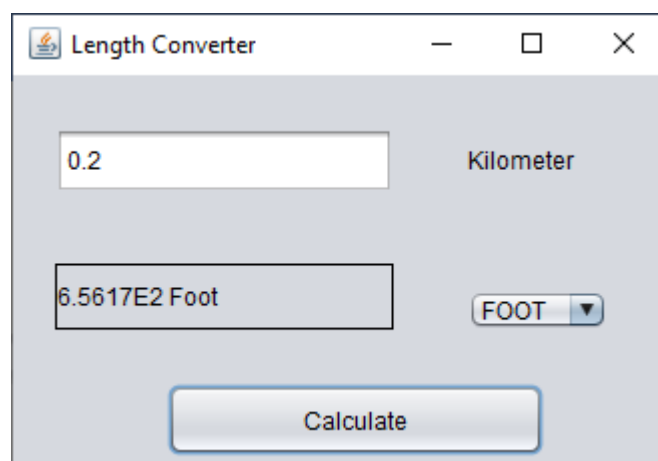
Screenshot



A screenshot of a 'Length Converter' application window. The window has a title bar with a small icon, the text 'Length Converter', and standard window controls (minimize, maximize, close). The main area has a light gray background. At the top, there is a text input field containing '0.2' and the label 'Kilometer' to its right. Below this, there is another text input field containing '1.24E-1 Mile'. To the right of this field is a dropdown menu with 'MILE' selected and a downward arrow. At the bottom center is a button labeled 'Calculate'.

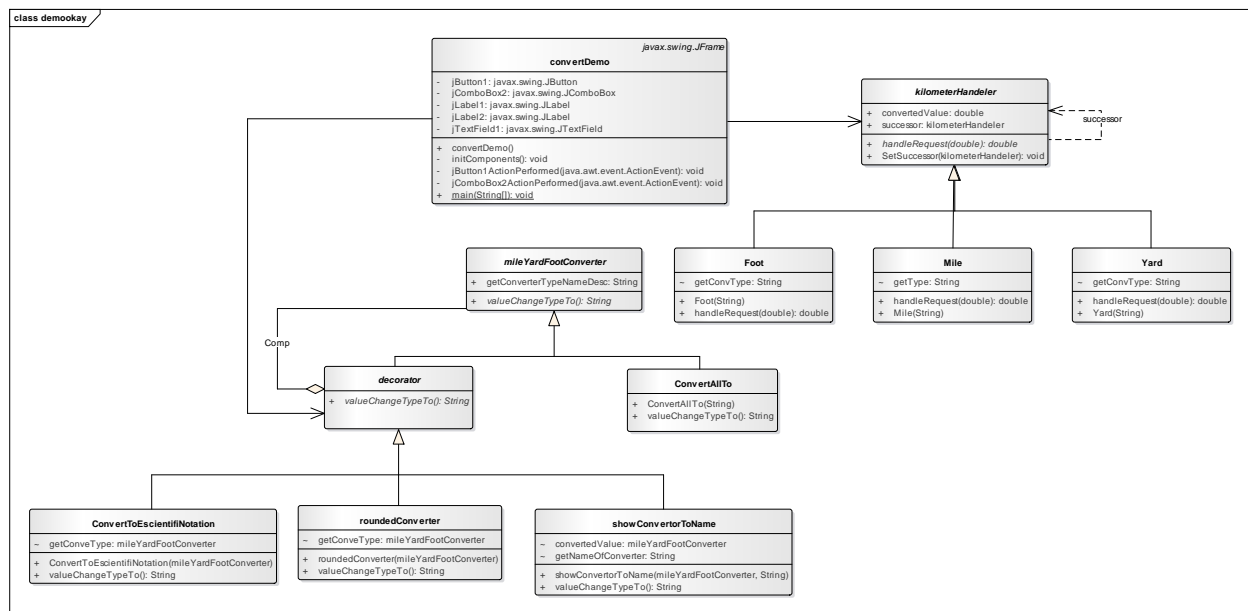


A screenshot of a 'Length Converter' application window, similar to the first one. The input field contains '0.2' and is labeled 'Kilometer'. The output field contains '2.1872E2 Yard'. The dropdown menu shows 'YARD' selected. The 'Calculate' button is at the bottom.



A screenshot of a 'Length Converter' application window. The input field contains '0.2' and is labeled 'Kilometer'. The output field contains '6.5617E2 Foot'. The dropdown menu shows 'FOOT' selected. The 'Calculate' button is at the bottom.

UML



Code

```

1.  /*
2.   * To change this license header, choose License Headers in Project
    Properties.
3.   * To change this template file, choose Tools | Templates
4.   * and open the template in the editor.
5.   */
6.
7.  package demookay;
8.  import javax.swing.JOptionPane;
9.  import java.text.DecimalFormat;
10. /**

```

```

11.  *
12.  * @author Hisham Hussein
13.  */
14.  public class convertDemo extends javax.swing.JFrame {
15.
16.      /**
17.       * Creates new form convertDemo
18.       */
19.      public convertDemo() {
20.          initComponents();
21.      }
22.
23.
24.
25.      /**
26.       * This method is called from within the constructor to initialize
the form.
27.       * WARNING: Do NOT modify this code. The content of this method is
always
28.       * regenerated by the Form Editor.
29.       */
30.      @SuppressWarnings("unchecked")
31.      // <editor-fold defaultstate="collapsed" desc="Generated Code">
32.      private void initComponents() {
33.
34.          jButton1 = new javax.swing.JButton();
35.          jTextField1 = new javax.swing.JTextField();
36.          jComboBox2 = new javax.swing.JComboBox();
37.          jLabel1 = new javax.swing.JLabel();
38.          jLabel2 = new javax.swing.JLabel();
39.
40.          setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);
41.          setTitle("Length Converter");
42.
43.          jButton1.setText("Calculate");
44.          jButton1.addActionListener(new java.awt.event.ActionListener()
{
45.              public void actionPerformed(java.awt.event.ActionEvent
46.              evt) {
47.                  jButton1ActionPerformed(evt);
48.              }
49.          });
50.          jComboBox2.setModel(new javax.swing.DefaultComboBoxModel(new
String[] { "MILE", "YARD", "FOOT" }));
51.          jComboBox2.addActionListener(new
java.awt.event.ActionListener() {
52.              public void actionPerformed(java.awt.event.ActionEvent
53.              evt) {
54.                  jComboBox2ActionPerformed(evt);
55.              }
56.          });
57.          jLabel1.setToolTipText("");
58.          jLabel1.setBorder(javax.swing.BorderFactory.createLineBorder(new
java.awt.Color(0, 0, 0)));
59.
60.          jLabel2.setText("Kilometer");
61.

```

```

62.         javax.swing.GroupLayout layout = new
        javax.swing.GroupLayout(getContentPane());
63.         getContentPane().setLayout(layout);
64.         layout.setHorizontalGroup(
65.             layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
66.                 .addGroup(layout.createSequentialGroup()
67.                     .addGap(21, 21, 21)
68.                     .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING, false)
69.                         .addComponent(jLabel1,
70.                             javax.swing.GroupLayout.DEFAULT_SIZE,
71.                             javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
72.                         .addComponent(jTextField1,
73.                             javax.swing.GroupLayout.DEFAULT_SIZE, 169, Short.MAX_VALUE))
74.                     .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED,
75.                         37, Short.MAX_VALUE)
76.                     .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING, false)
77.                         .addComponent(jComboBox2, 0, 70, Short.MAX_VALUE)
78.                         .addComponent(jLabel2,
79.                             javax.swing.GroupLayout.DEFAULT_SIZE,
80.                             javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
81.                     .addGap(31, 31, 31)
82.                     .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
83.                         layout.createSequentialGroup()
84.                             .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE,
85.                                 Short.MAX_VALUE)
86.                             .addComponent(jButton1,
87.                                 javax.swing.GroupLayout.PREFERRED_SIZE, 188,
88.                                 javax.swing.GroupLayout.PREFERRED_SIZE)
89.                             .addGap(63, 63, 63)
90.                         );
91.                 layout.setVerticalGroup(
92.                     layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
93.                         .addGroup(layout.createSequentialGroup()
94.                             .addGap(26, 26, 26)
95.                             .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
96.                                 .addComponent(jTextField1,
97.                                     javax.swing.GroupLayout.PREFERRED_SIZE, 33,
98.                                     javax.swing.GroupLayout.PREFERRED_SIZE)
99.                                 .addComponent(jLabel2))
100.                             .addGap(35, 35, 35)
101.                             .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
102.                                 .addComponent(jLabel1,
103.                                    javax.swing.GroupLayout.PREFERRED_SIZE, 33,
104.                                    javax.swing.GroupLayout.PREFERRED_SIZE)
105.                                 .addComponent(jComboBox2,
106.                                    javax.swing.GroupLayout.PREFERRED_SIZE, 20,
107.                                    javax.swing.GroupLayout.PREFERRED_SIZE))
108.                             .addGap(27, 27, 27)

```

```

93.         .addComponent(jButton1,
    javax.swing.GroupLayout.PREFERRED_SIZE, 36,
    javax.swing.GroupLayout.PREFERRED_SIZE)
94.         .addContainerGap()
95.     );
96.
97.     pack();
98. }// </editor-fold>
99.
100. private void jComboBox2ActionPerformed(java.awt.event.ActionEvent
    evt) {
101.     jLabel1.setText("");
102. }
103.
104. private void jButton1ActionPerformed(java.awt.event.ActionEvent
    evt) {
105.
106.     if(jTextField1.getText().isEmpty()){
107.         JOptionPane.showMessageDialog(null, "The Kilometer
    textfield is empty", "Empty textfield", JOptionPane.WARNING_MESSAGE);
108.     }else{
109.
110.         kilometerHandler mile = new
    Mile(jComboBox2.getSelectedItem().toString());
111.         kilometerHandler yard = new
    Yard(jComboBox2.getSelectedItem().toString());
112.         kilometerHandler foot = new
    Foot(jComboBox2.getSelectedItem().toString());
113.
114.         mile.SetSuccessor(yard);
115.         yard.SetSuccessor(foot);
116.
117.         double getTextBoxValue =
    Double.parseDouble(jTextField1.getText());
118.         double sendValue = mile.handleRequest(getTextBoxValue);
119.
120.         mileYardFootConverter kiloMeterConv = new ConvertAllTo(
    String.valueOf(sendValue));
121.         kiloMeterConv = new roundedConverter(kiloMeterConv);
122.         kiloMeterConv = new
    ConvertToEscientifiNotation(kiloMeterConv);
123.         kiloMeterConv = new
    showConvertorToName(kiloMeterConv,jComboBox2.getSelectedItem().toString
    ());
124.         jLabel1.setText (kiloMeterConv.valueChangeTypeTo());
125.     }
126. }
127.
128.
129. /**
130.  * @param args the command line arguments
131.  */
132. public static void main(String args[]) {
133.     /* Set the Nimbus look and feel */
134.     //<editor-fold defaultstate="collapsed" desc=" Look and feel
    setting code (optional) ">
135.     /* If Nimbus (introduced in Java SE 6) is not available, stay
    with the default look and feel.
136.     * For details see
    http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.htm
1

```

```

137.         */
138.         try {
139.             for (javax.swing.UIManager.LookAndFeelInfo info :
                javax.swing.UIManager.getInstalledLookAndFeels()) {
140.                 if ("Nimbus".equals(info.getName())) {
141.                     javax.swing.UIManager.setLookAndFeel(info.getClassName());
142.                     break;
143.                 }
144.             }
145.         } catch (ClassNotFoundException ex) {
146.             java.util.logging.Logger.getLogger(convertDemo.class.getName()).log(java
                a.util.logging.Level.SEVERE, null, ex);
147.         } catch (InstantiationException ex) {
148.             java.util.logging.Logger.getLogger(convertDemo.class.getName()).log(java
                a.util.logging.Level.SEVERE, null, ex);
149.         } catch (IllegalAccessException ex) {
150.             java.util.logging.Logger.getLogger(convertDemo.class.getName()).log(java
                a.util.logging.Level.SEVERE, null, ex);
151.         } catch (javax.swing.UnsupportedLookAndFeelException ex) {
152.             java.util.logging.Logger.getLogger(convertDemo.class.getName()).log(java
                a.util.logging.Level.SEVERE, null, ex);
153.         }
154.         //</editor-fold>
155.
156.         /* Create and display the form */
157.         java.awt.EventQueue.invokeLater(new Runnable() {
158.             public void run() {
159.                 new convertDemo().setVisible(true);
160.
161.             }
162.         });
163.     }
164.
165.     // Variables declaration - do not modify
166.     private javax.swing.JButton jButton1;
167.     private javax.swing.JComboBox jComboBox2;
168.     private javax.swing.JLabel jLabel1;
169.     private javax.swing.JLabel jLabel2;
170.     private javax.swing.JTextField jTextField1;
171.     // End of variables declaration
172. }

```

showConvertorToName class

```

1.  /*
2.   * To change this license header, choose License Headers in Project
    Properties.
3.   * To change this template file, choose Tools | Templates
4.   * and open the template in the editor.
5.   */
6. package demookay;
7.
8. /**
9.   *

```

```

10.  * @author Hisham Hussein
11.  */
12.  public class showConvertorToName extends decorator {
13.
14.      String getNameOfConverter;
15.      mileYardFootConverter convertedValue;
16.      public showConvertorToName(mileYardFootConverter
    sendConv,String getNameConv)
17.      {
18.          this.getNameOfConverter = getNameConv;
19.          this.convertedValue = sendConv;
20.
21.      }
22.
23.      @Override
24.      public String valueChangeTypeTo() {
25.          getConverterTypeNameDesc =
    convertedValue.valueChangeTypeTo();
26.          if ("MILE".equals(getNameOfConverter))
27.          {
28.              getConverterTypeNameDesc = getConverterTypeNameDesc +
    " Mile";
29.          }
30.          else if ("FOOT".equals(getNameOfConverter))
31.          {
32.              getConverterTypeNameDesc = getConverterTypeNameDesc +
    " Foot";
33.          }
34.          else if ("YARD".equals(getNameOfConverter))
35.          {
36.              getConverterTypeNameDesc = getConverterTypeNameDesc +
    " Yard";
37.          }
38.          return getConverterTypeNameDesc;
39.      }
40.
41.
42.
43.  }

```

roundedConverter class

```

1.  /*
2.  * To change this license header, choose License Headers in Project
    Properties.
3.  * To change this template file, choose Tools | Templates
4.  * and open the template in the editor.
5.  */
6.  package demookay;
7.
8.  /**
9.   *
10.   * @author Hisham Hussein
11.   */
12.  public class roundedConverter extends decorator{
13.
14.
15.      mileYardFootConverter getConveType;
16.      public roundedConverter(mileYardFootConverter getConveType) {

```

```

17.         this.getConveType = getConveType;
18.     }
19.     @Override
20.     public String valueChangeTypeTo() {
21.         getConverterTypeNameDesc =
22.         getConveType.valueChangeTypeTo();
23.         double convertIt =
24.         Math.round(Double.parseDouble(getConverterTypeNameDesc) * 1000) /
25.         1000.0;
26.         System.out.println(convertIt);
27.         getConverterTypeNameDesc = String.valueOf(convertIt);
28.         return getConverterTypeNameDesc;
29.     }
30. }

```

mileYardFootConverter class

```

1.  /*
2.   * To change this license header, choose License Headers in Project
3.   * Properties.
4.   * To change this template file, choose Tools | Templates
5.   * and open the template in the editor.
6.   */
7.  package demookay;
8.
9.  /**
10.   * @author Hisham Hussein
11.   */
12.  public abstract class mileYardFootConverter {
13.
14.      public String getConverterTypeNameDesc;
15.      public abstract String valueChangeTypeTo();
16.
17.  }

```

kilometerHandler class

```

1.  /*
2.   * To change this license header, choose License Headers in Project
3.   * Properties.
4.   * To change this template file, choose Tools | Templates
5.   * and open the template in the editor.
6.   */
7.  package demookay;
8.
9.  /**
10.   * @author Hisham Hussein
11.   */
12.  public abstract class kilometerHandler
13.  {
14.      public kilometerHandler successor;
15.      public double convertedValue;
16.      public void SetSuccessor( kilometerHandler successor )
17.      {

```



```

18.         this.successor = successor;
19.     }
20.
21.     public abstract double handleRequest(double successorValue);
22. }

```

Decorator class

```

1.  /*
2.   * To change this license header, choose License Headers in Project
   Properties.
3.   * To change this template file, choose Tools | Templates
4.   * and open the template in the editor.
5.   */
6.  package demookay;
7.
8.  /**
9.   *
10.   * @author Hisham Hussein
11.   */
12.  public abstract class decorator extends mileYardFootConverter{
13.
14.  public abstract String valueChangeTypeTo();
15.  }

```

Yard class

```

1.  /*
2.   * To change this license header, choose License Headers in Project
   Properties.
3.   * To change this template file, choose Tools | Templates
4.   * and open the template in the editor.
5.   */
6.  package demookay;
7.
8.  /**
9.   *
10.   * @author Hisham Hussein
11.   */
12.  public class Yard extends kilometerHandeler
13.  {
14.      String getConvType;
15.      public Yard(String ConvType)
16.      {
17.          getConvType = ConvType;
18.      }
19.      public double handleRequest(double convertTo)
20.      {
21.          if ("YARD".equals(getConvType) )
22.          {
23.              return convertTo * 1093.613298;
24.          }
25.          else if (successor != null)
26.          {
27.              return successor.handleRequest(convertTo);
28.          }
29.          else
30.          {

```

```
31.             return convertTo;
32.         }
33.     }
34. }
```

Mile class

```
1.  /*
2.   * To change this license header, choose License Headers in Project
   Properties.
3.   * To change this template file, choose Tools | Templates
4.   * and open the template in the editor.
5.   */
6.  package demookay;
7.
8.  /**
9.   *
10.   * @author Hisham Hussein
11.   */
12. public class Mile extends kilometerHandler
13. {
14.     String getType;
15.     public Mile( String ConvType)
16.     {
17.         getType = ConvType;
18.     }
19.     public double handleRequest(double convertTo)
20.     {
21.         if ("MILE".equals(getType) )
22.         {
23.             return convertTo * 0.621371;
24.         }
25.         else if (successor != null)
26.         {
27.             return successor.handleRequest(convertTo);
28.         }
29.         else
30.         {
31.             return convertTo;
32.         }
33.     }
34. }
35. }
```

Foot class

```
1.  package demookay;
2.
3.
4.  import demookay.convertDemo;
5.
6.  /*
7.   * To change this license header, choose License Headers in Project
   Properties.
8.   * To change this template file, choose Tools | Templates
9.   * and open the template in the editor.
10.   */
11.  
```

```

12.  /**
13.   *
14.   * @author Hisham Hussein
15.   */
16.   public class Foot extends kilometerHandler
17.   {
18.       String getConvType;
19.       public Foot( String ConvType)
20.       {
21.           getConvType = ConvType;
22.       }
23.       public double handleRequest(double convertTo)
24.       {
25.           if ("FOOT".equals(getConvType) )
26.           {
27.               return convertTo * 3280.84;
28.           }
29.           else if (successor != null)
30.           {
31.               return successor.handleRequest(convertTo);
32.           }
33.           else
34.           {
35.               return convertTo;
36.           }
37.       }
38.   }

```

ConvertToEscientifiNotation class

```

1.  /**
2.   * To change this license header, choose License Headers in Project
   * Properties.
3.   * To change this template file, choose Tools | Templates
4.   * and open the template in the editor.
5.   */
6.  package demookay;
7.
8.  import java.text.DecimalFormat;
9.  import java.text.NumberFormat;
10.
11.  public class ConvertToEscientifiNotation extends decorator {
12.      mileYardFootConverter getConveType;
13.      public ConvertToEscientifiNotation(mileYardFootConverter
   getConveType){
14.          this.getConveType = getConveType;
15.      }
16.
17.      @Override
18.      public String valueChangeTypeTo() {
19.          NumberFormat formatter = new DecimalFormat();
20.          getConverterTypeNameDesc =
   getConveType.valueChangeTypeTo();
21.          double d = Double.parseDouble(getConverterTypeNameDesc);
22.          getConverterTypeNameDesc = String.valueOf(d);
23.          formatter = new DecimalFormat("0.####E0");
24.          getConverterTypeNameDesc =
   String.valueOf(formatter.format(d));
25.          return getConverterTypeNameDesc;

```

```
26.     }
27.
28. }
```

ConvertAllTo class

```
1. /*
2.  * To change this license header, choose License Headers in Project
   Properties.
3.  * To change this template file, choose Tools | Templates
4.  * and open the template in the editor.
5.  */
6. package demookay;
7.
8. /**
9.  *
10.  * @author Hisham Hussein
11.  */
12. public class ConvertAllTo extends mileYardFootConverter {
13.     public ConvertAllTo( String m )
14.     {
15.         getConverterTypeNameDesc = m;
16.     }
17.
18.     public String valueChangeTypeTo()
19.     {
20.         return getConverterTypeNameDesc;
21.     }
22. }
```