LAB 7.

Wednesday, December 28, 2022 1:27 AM

LAB 7.

Exercise 1

1. Add another button object to the GUI which is an **Exit** button.
2. Add the event handler for the **Exit** button so that when it is clicked, the application will close and terminate (you can use the **System.exit(0)** command to terminate a program).
3. Copy the code that you have written for the `exitBtnActionPerformed` here.

   System.exit(0);

Exercise 2

1. Set the instructions in all of the textfields so that when it runs, it shows:

2. How to set it? lengthTF.setText("Enter a number");
3. What happen when you click **Compute** without changing the texts into numbers?

   Error, NumberFormatException: For input string
4. What should we do so that when the user clicks on the textfield, the text "**Enter a number**" will automatically disappear?

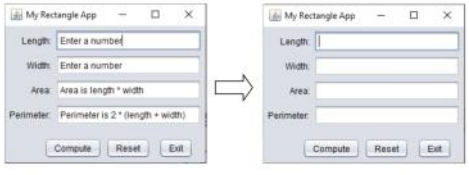
   In lengthTFMouseClicked, set lengthTF.setText(null);
5. Right click on **lengthTF** and select **Event > Mouse > mouseClicked**. What can **mouseClicked** do?

   When the text field is clicked, it brings user to action created.

18

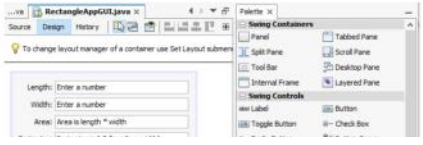
6. Modify the code so that when **lengthTF** textfield is clicked, all texts in textfields will be erased. Show your code.

```
private void lengthTFMouseClicked(java.awt.event.MouseEvent evt) {
        // TODO add your handling code here:

}
```



7. Try other **Events** such as **Events > Key** on any of the textfields. What does it do? (Hints: you can put `System.out.println("Testing");` to see what happens when your cursor is in the textfield, typing, leaving the textfield on the output window).

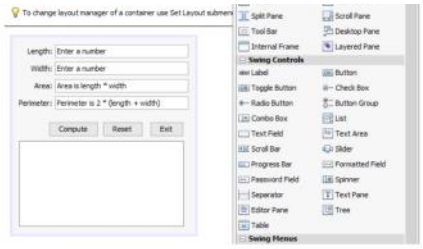
   When we're typing in the textbox, it shows testing on output section
8. Modify the **Design** by adding a textArea and **Change Variable Name** to **displayA**.



CODING

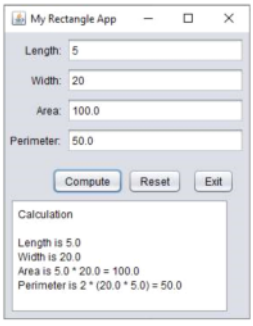
*****

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

/**
 *
 * @author USER
 */
public class RectangleAppGUI extends javax.swing.JFrame {

    /**
     * Creates new form RectangleAppGUI
     */
    public RectangleAppGUI() {
        initComponents();
    }

    /**
     * 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")
    // <editor-fold defaultstate="collapsed" desc="Generated Code">
    private void initComponents() {

        jLabel1 = new javax.swing.JLabel();
        lengthTF = new javax.swing.JTextField();
        widthTF = new javax.swing.JTextField();
        jLabel2 = new javax.swing.JLabel();
        areaTF = new javax.swing.JTextField();
        jLabel3 = new javax.swing.JLabel();
        perimeterTF = new javax.swing.JTextField();
        jLabel4 = new javax.swing.JLabel();
        computeBtn = new javax.swing.JButton();
        resetBtn = new javax.swing.JButton();
        exitBtn = new javax.swing.JButton();
        jScrollPane1 = new javax.swing.JScrollPane();
        displayA = new javax.swing.JTextArea();

        setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);
        setTitle("My Rectagle App");

        jLabel1.setText("Length:");

        lengthTF.setText("Enter a number");
        lengthTF.addMouseListener(new java.awt.event.MouseAdapter() {
            public void mouseClicked(java.awt.event.MouseEvent evt) {
                lengthTFMouseClicked(evt);
            }
        });
        lengthTF.addInputMethodListener(new java.awt.event.InputMethodListener() {
            public void caretPositionChanged(java.awt.event.InputMethodEvent evt) {
            }
            public void inputMethodTextChanged(java.awt.event.InputMethodEvent evt) {
                lengthTFInputMethodTextChanged(evt);
            }
        });
        lengthTF.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                lengthTFActionPerformed(evt);
            }
        });
        lengthTF.addKeyListener(new java.awt.event.KeyAdapter() {
            public void keyTyped(java.awt.event.KeyEvent evt) {
                lengthTFKeyTyped(evt);
            }
        });

        widthTF.setText("Enter a number");
        widthTF.addMouseListener(new java.awt.event.MouseAdapter() {
            public void mouseClicked(java.awt.event.MouseEvent evt) {
                widthTFMouseClicked(evt);
            }
        });
        widthTF.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                widthTFActionPerformed(evt);
            }
        });

        jLabel2.setText("Width:");

        areaTF.setText("Area is length * width");
        areaTF.addMouseListener(new java.awt.event.MouseAdapter() {
            public void mouseClicked(java.awt.event.MouseEvent evt) {
                areaTFMouseClicked(evt);
            }
        });
        areaTF.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                areaTFActionPerformed(evt);
            }
        });

        jLabel3.setText("Area:");

        perimeterTF.setText("Perimeter is 2 * (length + width)");
        perimeterTF.addMouseListener(new java.awt.event.MouseAdapter() {
            public void mouseClicked(java.awt.event.MouseEvent evt) {
                perimeterTFMouseClicked(evt);
            }
```



19

9. Modify the `computeBtnActionPerformed` so that when the **Compute** button is clicked, it will display as shown in the textArea:



10. Copy the code that you wrote for the textArea, modified within the `computeBtnActionPerformed` to show as in the example.

11. Then, modify the `resetBtnActionPerformed` so that when the **Reset** button is clicked, the textArea will also be erased. What is the code that needs to be written?

displayA.setText(null);

12. Explore other components to get a better understanding on what they do. This will be useful to get you thinking on what you should be using for your **Congkak project**.

13. Save your Lab 7 as a PDF file and upload it on OL.

10) On computeBtnActionPerformed, I add

```
widthTF.setText(String.valueOf(width));
lengthTF.setText(String.valueOf(length))
```

Meanwhile on computeBtnMouseClicked, I put

```
displayA.setText("Calculation\n\nLength is " + lengthTF.getText() +
"\nWidth is " + widthTF.getText() + "\nArea is " + lengthTF.getText()
+ " * " + widthTF.getText() + " = " + areaTF.getText() + "\nPerimeter
is 2 * (" + widthTF.getText() + " * " + lengthTF.getText() + ") = " +
perimeterTF.getText() );
```

```
        perimeterTF.setText("Perimeter is 2 * (length + width)");
        perimeterTF.addMouseListener(new java.awt.event.MouseAdapter() {
            public void mouseClicked(java.awt.event.MouseEvent evt) {
                perimeterTFMouseClicked(evt);
            }
        });
        perimeterTF.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                perimeterTFActionPerformed(evt);
            }
        });

        jLabel4.setText("Perimeter:");

        computeBtn.setText("Compute");
        computeBtn.addMouseListener(new java.awt.event.MouseAdapter() {
            public void mouseClicked(java.awt.event.MouseEvent evt) {
                computeBtnMouseClicked(evt);
            }
        });
        computeBtn.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                computeBtnActionPerformed(evt);
            }
        });

        resetBtn.setText("Reset");
        resetBtn.addMouseListener(new java.awt.event.MouseAdapter() {
            public void mouseClicked(java.awt.event.MouseEvent evt) {
                resetBtnMouseClicked(evt);
            }
        });
        resetBtn.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                resetBtnActionPerformed(evt);
            }
        });

        exitBtn.setText("Exit");
        exitBtn.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                exitBtnActionPerformed(evt);
            }
        });

        displayA.setColumns(20);
        displayA.setRows(5);
        displayA.addPropertyChangeListener(new java.beans.PropertyChangeListener() {
            public void propertyChange(java.beans.PropertyChangeEvent evt) {
                displayAPropertyChange(evt);
            }
        });
        jScrollPane1.setViewportView(displayA);

        javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
        getContentPane().setLayout(layout);
        layout.setHorizontalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addGap(47, 47, 47)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
                    .addGroup(layout.createSequentialGroup()
                        .addComponent(jLabel3)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addComponent(areaTF, javax.swing.GroupLayout.PREFERRED_SIZE, 207,
javax.swing.GroupLayout.PREFERRED_SIZE))
                    .addGroup(layout.createSequentialGroup()
                        .addComponent(jLabel2)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addComponent(widthTF, javax.swing.GroupLayout.PREFERRED_SIZE, 207,
javax.swing.GroupLayout.PREFERRED_SIZE))
                    .addGroup(layout.createSequentialGroup()
                        .addComponent(jLabel1)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addComponent(lengthTF, javax.swing.GroupLayout.PREFERRED_SIZE, 207,
javax.swing.GroupLayout.PREFERRED_SIZE))
                    .addGroup(layout.createSequentialGroup()
                        .addComponent(computeBtn)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addComponent(resetBtn)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addComponent(exitBtn))
                    .addGroup(layout.createSequentialGroup()
                        .addComponent(jLabel4)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addComponent(perimeterTF, javax.swing.GroupLayout.PREFERRED_SIZE, 207,
javax.swing.GroupLayout.PREFERRED_SIZE)))
                .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
            .addGroup(layout.createSequentialGroup()
                .addContainerGap()
                .addComponent(jScrollPane1)
                .addContainerGap())
        );
        layout.setVerticalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addContainerGap()
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel1)
                    .addComponent(lengthTF, javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel2)
                    .addComponent(widthTF, javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel3)
                    .addComponent(areaTF, javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
```

```
javax.swing.GroupLayout.PREFERRED_SIZE))
            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
              .addComponent(jLabel4)
              .addComponent(perimeterTF, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
            .addGap(34, 34, 34)
            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
              .addComponent(computeBtn)
              .addComponent(resetBtn)
              .addComponent(exitBtn))
            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
            .addComponent(jScrollPane1, javax.swing.GroupLayout.DEFAULT_SIZE, 150, Short.MAX_VALUE)
            .addContainerGap())
      );

      pack();
    }// </editor-fold>

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

    }

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

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

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

    private void computeBtnActionPerformed(java.awt.event.ActionEvent evt) {
  //i. Read the text input from the textfields
  String lengthText = lengthTF.getText();
  String widthText = widthTF.getText();

  //ii. Convert the text input to type double
  double length = Double.parseDouble(lengthText);
  double width = Double.parseDouble(widthText);

  //Perform the area & perimeter calculations
  double area = length * width;
  double perimeter = 2 * (length + width);

  //iii. Convert the results from double to String
  //and send them to be displayed in the textfields
  widthTF.setText(String.valueOf(width));
  lengthTF.setText(String.valueOf(length));
  areaTF.setText(String.valueOf(area));
  perimeterTF.setText(String.valueOf(perimeter));



    }

    private void resetBtnActionPerformed(java.awt.event.ActionEvent evt) {
  lengthTF.setText("");
  widthTF.setText("");
  areaTF.setText("");
  perimeterTF.setText("");
    }

    private void exitBtnActionPerformed(java.awt.event.ActionEvent evt) {
      System.exit(0);
    }

    private void lengthTFInputMethodTextChanged(java.awt.event.InputMethodEvent evt) {
      // TODO add your handling code here:

    }

    private void lengthTFMouseClicked(java.awt.event.MouseEvent evt) {
      // TODO add your handling code here:
      lengthTF.setText(null);
      widthTF.setText(null);
      areaTF.setText(null);
      perimeterTF.setText(null);
    }

    private void widthTFMouseClicked(java.awt.event.MouseEvent evt) {
      // TODO add your handling code here:

    }

    private void areaTFMouseClicked(java.awt.event.MouseEvent evt) {
      // TODO add your handling code here:

    }

    private void perimeterTFMouseClicked(java.awt.event.MouseEvent evt) {
      // TODO add your handling code here:

    }

    private void resetBtnMouseClicked(java.awt.event.MouseEvent evt) {
      // TODO add your handling code here:
      lengthTF.setText("Enter a number");
      widthTF.setText("Enter a number");
      areaTF.setText("Area is length");
      perimeterTF.setText("Perimeter is");

      displayA.setText(null);
    }

    private void lengthTFKeyTyped(java.awt.event.KeyEvent evt) {
      // TODO add your handling code here:
```

```
        System.out.println("Testing");
    }

    private void computeBtnMouseClicked(java.awt.event.MouseEvent evt) {
        // TODO add your handling code here:
        displayA.setText("Calculation\n\nLength is " + lengthTF.getText() + "\nWidth is " + widthTF.getText() + "\nArea is " +
lengthTF.getText() + " * " + widthTF.getText() + " = " + areaTF.getText() + "\nPerimeter is 2 * (" + widthTF.getText() + " * " +
lengthTF.getText() + ") = " + perimeterTF.getText() );


    }

    private void displayAPropertyChange(java.beans.PropertyChangeEvent evt) {
        // TODO add your handling code here:
        System.out.println("Test");
    }

    /**
     * @param args the command line arguments
     */
    public static void main(String args[]) {
        /* Set the Nimbus look and feel */
        //<editor-fold defaultstate="collapsed" desc=" Look and feel setting code (optional) ">
        /* If Nimbus (introduced in Java SE 6) is not available, stay with the default look and feel.
         * For details see http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
         */
        try {
            for (javax.swing.UIManager.LookAndFeelInfo info : javax.swing.UIManager.getInstalledLookAndFeels()) {
                if ("Nimbus".equals(info.getName())) {
                    javax.swing.UIManager.setLookAndFeel(info.getClassName());
                    break;
                }
            }
        } catch (ClassNotFoundException ex) {
            java.util.logging.Logger.getLogger(RectangleAppGUI.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        } catch (InstantiationException ex) {
            java.util.logging.Logger.getLogger(RectangleAppGUI.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        } catch (IllegalAccessException ex) {
            java.util.logging.Logger.getLogger(RectangleAppGUI.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        } catch (javax.swing.UnsupportedLookAndFeelException ex) {
            java.util.logging.Logger.getLogger(RectangleAppGUI.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        }
        //</editor-fold>

        /* Create and display the form */
        java.awt.EventQueue.invokeLater(new Runnable() {
            public void run() {
                new RectangleAppGUI().setVisible(true);
            }
        });
    }

    // Variables declaration - do not modify
    private javax.swing.JTextField areaTF;
    private javax.swing.JButton computeBtn;
    private javax.swing.JTextArea displayA;
    private javax.swing.JButton exitBtn;
    private javax.swing.JLabel jLabel1;
    private javax.swing.JLabel jLabel2;
    private javax.swing.JLabel jLabel3;
    private javax.swing.JLabel jLabel4;
    private javax.swing.JScrollPane jScrollPane1;
    private javax.swing.JTextField lengthTF;
    private javax.swing.JTextField perimeterTF;
    private javax.swing.JButton resetBtn;
    private javax.swing.JTextField widthTF;
    // End of variables declaration
}
```

****