JAVA Mini Project

On

CGPA CALCULATOR

LOVELY PROFESSIONAL UNIVERSITY

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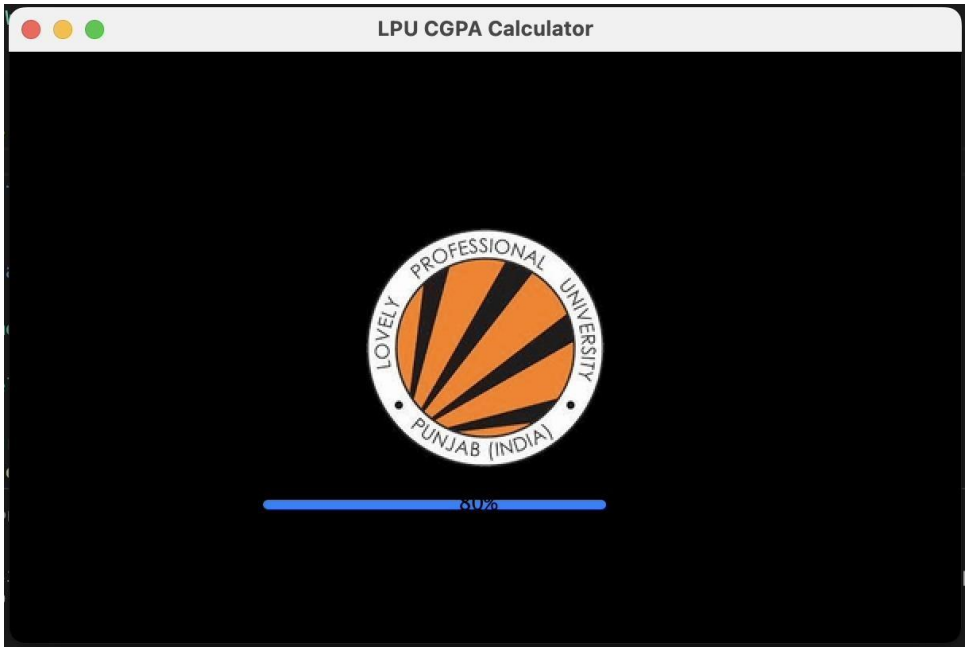
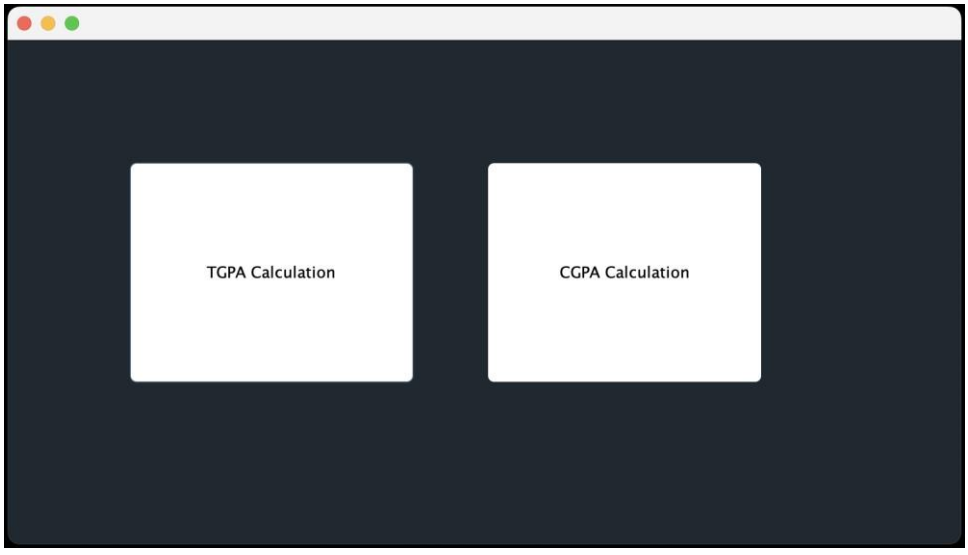
Introduction:

We created an LPU CGPA and TGPA Calculator using Java. For the GUI of the application, we used Java Swing.

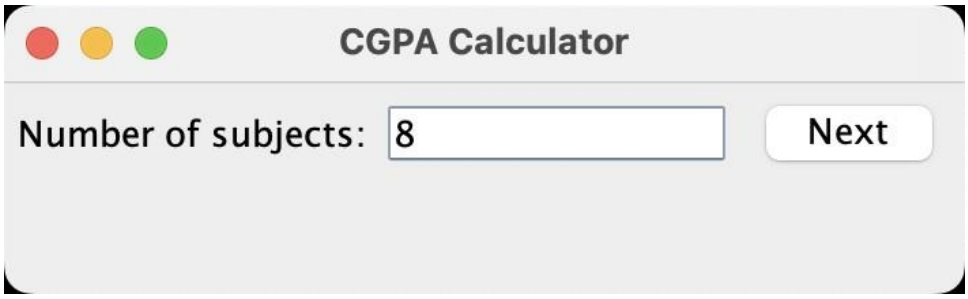


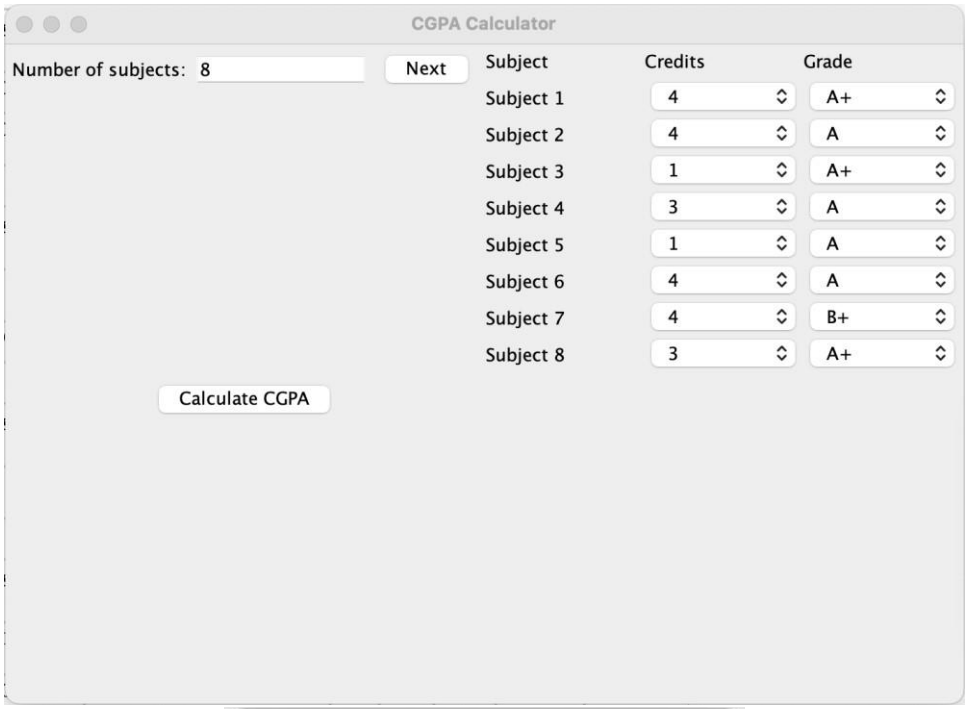
In this Project, we have added two different options for the user:

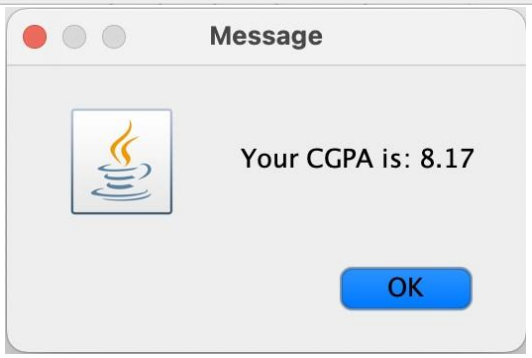


1) Term GPA Calculation (TGPA): The user needs to provide the total number of subjects in the current Semester along with the subject credits and grades

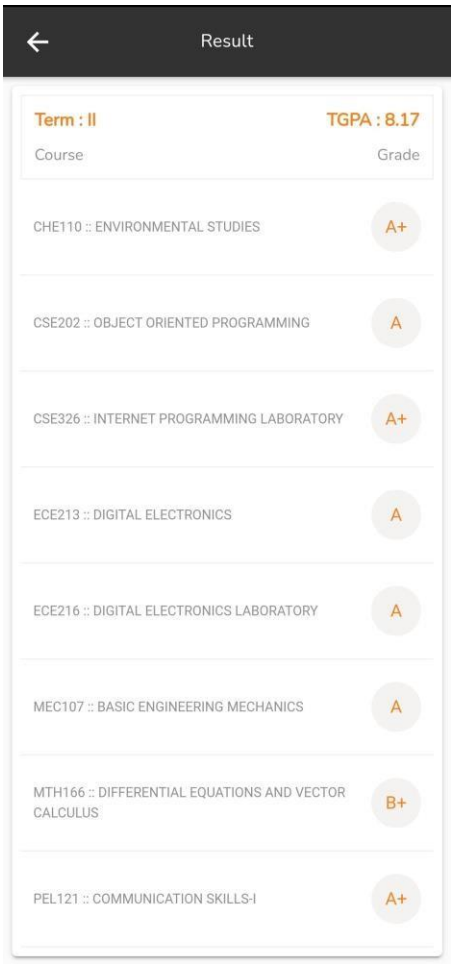
obtained. The selection is done by using the COMBOBOXES in JavaSwing and the term CGPA is calculated accordingly.



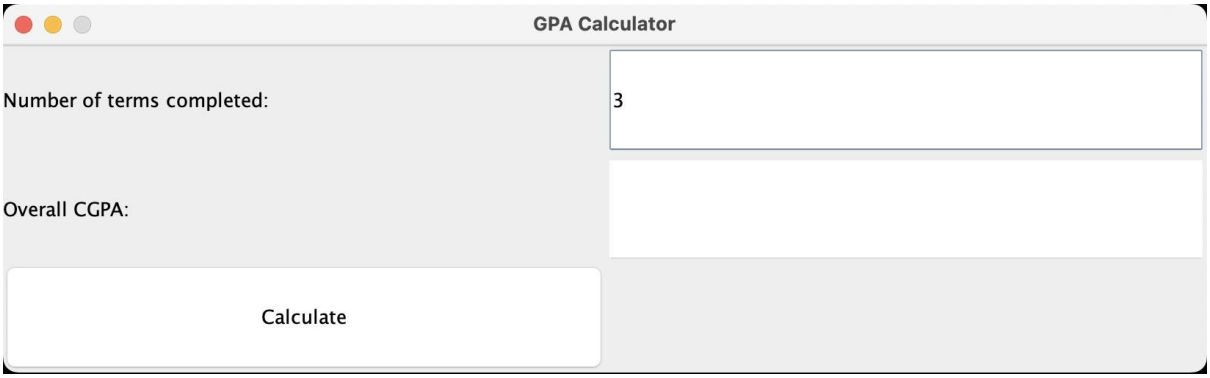


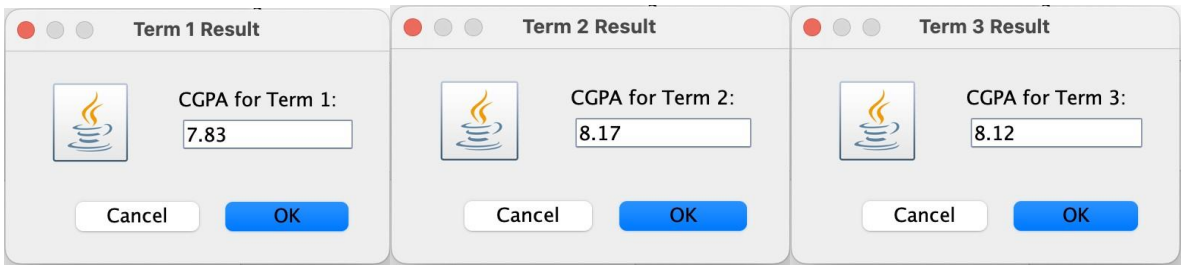


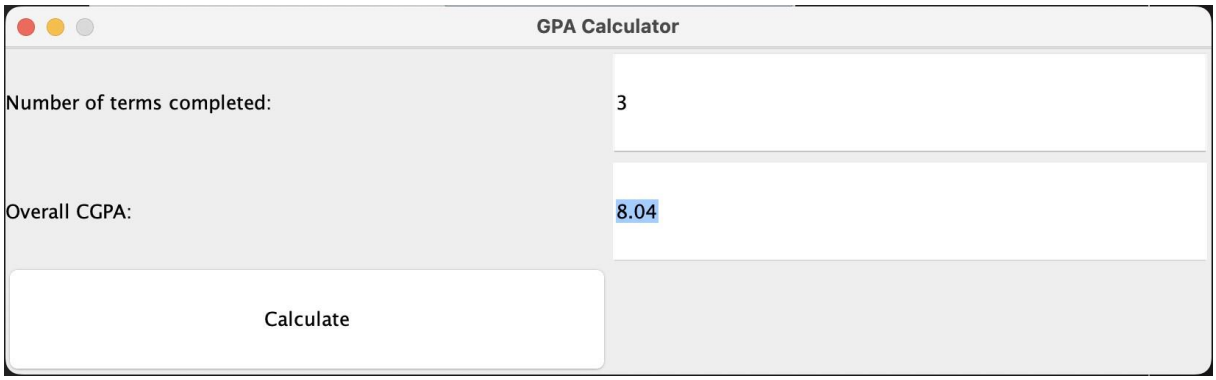
Reference from LPU Touch:



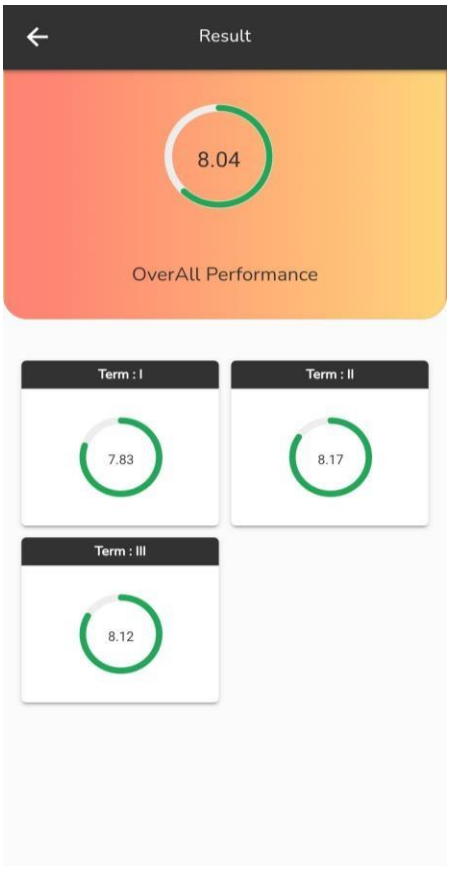
2) Cumulative GPA Calculation (CGPA): In this the user can calculate his/her overall CGPA by entering the past semesters TGPA obtained.







Reference from LPU Touch:



Code:

The program has 4 files named as:

1. WelcomeScreen.java
2. SelectionPage.java
3. TGPACalculator.java
4. CGPACalculator.java

And an Image, which is available in GitHub Link provided at the bottom of the report.

1. WelcomeScreen.java

```
import java.awt.Color; import
javax.swing.ImageIcon; import
javax.swing.JFrame; import
javax.swing.JLabel; import
javax.swing.JProgressBar;


public class WelcomeScreen {


   private static int value;
   public static void main(String[] args){
      JFrame frame = new JFrame();
      JLabel label = new JLabel();
      JProgressBar bar = new JProgressBar();
bar.setValue(value);       bar.setBounds(160,
280, 270, 9);       bar.setStringPainted(true);



Thread thread = new Thread(() -> {
for (int i = 0; i <= 100; i += 20) {
try {
```

```
            Thread.sleep(600);          }
catch (InterruptedException e) {
e.printStackTrace();
        }
        bar.setValue(i);
if(bar.getValue()==100){

            frame.dispose();
            SelectionPage mywindow = new SelectionPage();


        }
    } });
thread.start()
;



        ImageIcon image1 = new ImageIcon("lpu_logo3.png");
label.setIcon(image1);
        label.setHorizontalAlignment(JLabel.CENTER);
label.setVerticalAlignment(JLabel.CENTER);
label.add(bar);         frame.setSize(600, 400);
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
frame.setTitle("LPU CGPA Calculator");          frame.setLocationRelativeTo(null);
        frame.getContentPane().setBackground(new Color(0,0,0));
frame.add(label);         frame.setVisible(true);
    }
}
```

2. SelectionPage.java

```
import java.awt.Color; import
java.awt.event.ActionEvent; import
java.awt.event.ActionListener;

import javax.swing.JButton; import
javax.swing.JFrame; import
javax.swing.JLabel;



public class SelectionPage implements ActionListener {

   JButton button = new JButton();
   JButton button2 = new JButton();



SelectionPage(){

      JLabel label = new JLabel();

      button.setBounds(100,100,243,190);
button.setText("TGPA Calculation");        label.add(button);

      button2.setBounds(400,100,235,190);
button2.setText("CGPA Calculation");        label.add(button2);

      JFrame frame = new JFrame();
frame.setSize(800,450);
frame.setLocationRelativeTo(null);
      frame.getContentPane().setBackground(new Color(33,41,48));
frame.add(label);        frame.setVisible(true);
```

```
        button.addActionListener(new ActionListener() {
public void actionPerformed(ActionEvent e) {
frame.setVisible(false);
                TGPACalculator w2 = new TGPACalculator();
            }
        });

        button2.addActionListener(new ActionListener() {
public void actionPerformed(ActionEvent e) {
frame.setVisible(false);
                CGPACalculator W1 = new CGPACalculator();
            }
        });
}
@Override
public void actionPerformed(ActionEvent e) {}
}
```

3. TGPACalculator.java

```
import javax.swing.*; import
java.awt.*; import
java.awt.event.ActionEvent; import
java.awt.event.ActionListener; public
class TGPACalculator extends
JFrame implements ActionListener {
private JLabel numSubjectsLabel;
private JTextField numSubjectsField;
private JButton nextButton;     private
JLabel[] subjectLabels;     private
JComboBox<Integer>[]
creditBoxes;     private
```

```
JComboBox<String>[] gradeBoxes;
private JButton calculateButton;

   public TGPACalculator() {
setTitle("CGPA Calculator");
      numSubjectsLabel = new JLabel("Number of subjects:");
numSubjectsField = new JTextField(10);        nextButton =
new JButton("Next");
nextButton.addActionListener(this);        JPanel
numSubjectsPanel = new JPanel();
numSubjectsPanel.add(numSubjectsLabel);
numSubjectsPanel.add(numSubjectsField);
numSubjectsPanel.add(nextButton);        setLayout(new
GridLayout(2, 1));        add(numSubjectsPanel);        pack();
      setLocationRelativeTo(null);
      setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
      setVisible(true);
   }

   @Override
   public void actionPerformed(ActionEvent e) {
if (e.getSource() == nextButton) {
         int numSubjects = Integer.parseInt(numSubjectsField.getText());
subjectLabels = new JLabel[numSubjects];          creditBoxes = new
JComboBox[numSubjects];          gradeBoxes = new
JComboBox[numSubjects];          JPanel subjectsPanel = new
JPanel();
         subjectsPanel.setLayout(new GridLayout(numSubjects + 1, 3));
subjectsPanel.add(new JLabel("Subject"));
subjectsPanel.add(new JLabel("Credits"));
```

```
subjectsPanel.add(new JLabel("Grade"));            for (int i = 0; i <
numSubjects; i++) {
            subjectLabels[i] = new JLabel("Subject " + (i+1));
subjectsPanel.add(subjectLabels[i]);
creditBoxes[i] = new JComboBox<>();                for (int j =
1; j <= 5; j++) {                  creditBoxes[i].addItem(j);
            }
            subjectsPanel.add(creditBoxes[i]);
            gradeBoxes[i] = new JComboBox<>(new String[]{"O", "A+", "A", "B+", "B", "C","E"});
subjectsPanel.add(gradeBoxes[i]);
        }
        calculateButton = new JButton("Calculate CGPA");
calculateButton.addActionListener(this);           JPanel
buttonPanel = new JPanel();
buttonPanel.add(calculateButton);           setLayout(new
GridLayout(2, 1));           add(subjectsPanel);
add(buttonPanel);           pack();
        setLocationRelativeTo(null);
    }
    else if (e.getSource() == calculateButton) {
        double totalCredits = 0;           double
totalGradePoints = 0;           for (int i = 0; i <
subjectLabels.length; i++) {               int credits = (int)
creditBoxes[i].getSelectedItem();               totalCredits +=
credits;
            String grade = (String) gradeBoxes[i].getSelectedItem();
Double gradePoint;               switch (grade) {                  case
"O":                  gradePoint = 10.0;                  break;
case "A+":                  gradePoint = 9.0;                  break;
case "A":                  gradePoint = 8.0;                  break;
case "B+":                  gradePoint = 7.0;                  break;
```

```
case "B":                gradePoint = 6.0;                break;
case "C":                gradePoint = 5.0;                break;
case "E":
                gradePoint = 0.0;
default:
gradePoint = 0.0;
break;
            }
            totalGradePoints += credits * gradePoint;
        }
        Double cgpa = totalGradePoints / totalCredits;
        JOptionPane.showMessageDialog(this, "Your CGPA is: " + String.format("%.2f", cgpa));
    }
  }
  public static void main(String[] args) {
new TGPACalculator();
  }
}
```

4. CGPACalculator.java

```
import javax.swing.*;
import java.awt.*; import
java.awt.event.*;


public class CGPACalculator implements ActionListener {
  JFrame frame;
  JPanel panel;
  JLabel noOfTermsLabel, overallCGPALabel;
  JTextField noOfTermsField, overallCGPAField;
  JButton calculateButton;
```

```
    public CGPACalculator() {
        frame = new JFrame("GPA Calculator");
frame.setSize(820, 250);        frame.setResizable(false);
frame.setLocationRelativeTo(null);
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
frame.getContentPane().setBackground(new Color(33,41,48));        panel = new JPanel();
        panel.setLayout(new GridLayout(3, 2));
        noOfTermsLabel = new JLabel("Number of terms completed: ");
panel.add(noOfTermsLabel);        noOfTermsField = new
JTextField();        panel.add(noOfTermsField);
        overallCGPALabel = new JLabel("Overall CGPA: ");
panel.add(overallCGPALabel);        overallCGPAField =
new JTextField();
overallCGPAField.setEditable(false);
panel.add(overallCGPAField);
        calculateButton = new JButton("Calculate");
calculateButton.addActionListener(this);
panel.add(calculateButton);
frame.add(panel);        frame.setVisible(true);
    }
    public void actionPerformed(ActionEvent e) {
if (e.getSource() == calculateButton) {
            int noOfTerms = Integer.parseInt(noOfTermsField.getText());
double overallCGPA = 0.0;            for (int i = 1; i <= noOfTerms;
i++) {
                JTextField termCGPAField = new JTextField();
                Object[] fields = {"CGPA for Term " + i + ":", termCGPAField};
                int result = JOptionPane.showConfirmDialog(null, fields, "Term " + i + " Result",
JOptionPane.OK_CANCEL_OPTION);
                if (result == JOptionPane.OK_OPTION) {
                    double termCGPA = Double.parseDouble(termCGPAField.getText());
overallCGPA += termCGPA;
```

```
            } else {

return;
            }
        }
        overallCGPA /= noOfTerms;
        overallCGPAField.setText(String.format("%.2f", overallCGPA));
    }
  }
  public static void main(String[] args) {
new CGPACalculator();
  }
}
```