## Java Swing application

that analyzes statistical data and represents a graph based on user input for the X and Y axes (in this case, employment statistical growth for a country)

you can use Java Swing for the user interface and JFreeChart for generating the graph.

Github link:

https://github.com/himanshuSinghworkPort/java_swing_application_employement_growth_analysis
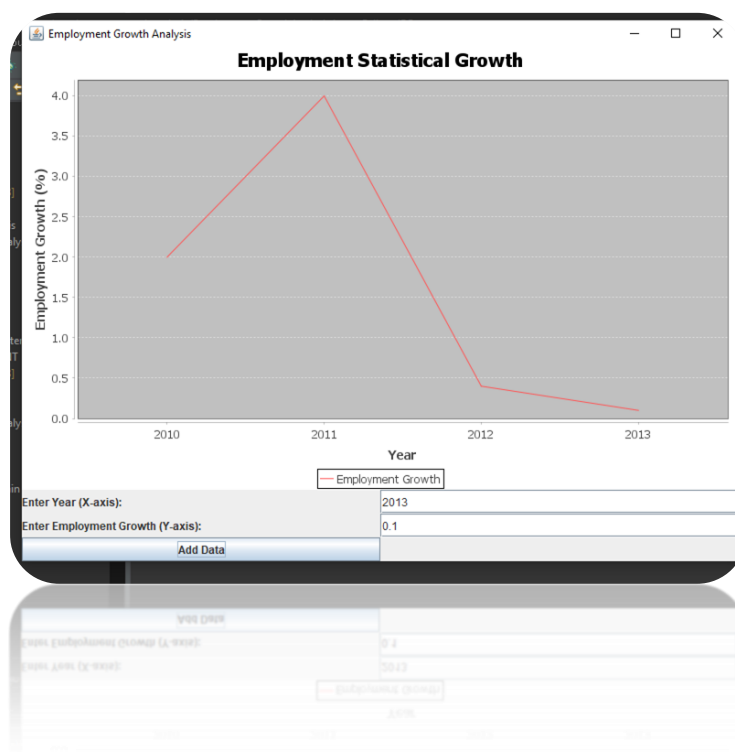
Project name:Java_GUI_UI_Stats_EMPLOYEMENT

Package name:stats_graph_x_y

Class name: **EmploymentGrowthAnalysis**

Open eclipse>> create MAVEN PROJECT

For maven projects there is pom.xml file

Edit it and add>>

Set up Maven (optional but recommended):

If you're using Maven to manage dependencies, add JFreeChart to your pom.xml:

```
<dependency>
    <groupId>org.jfree</groupId>
    <artifactId>jfreechart</artifactId>
    <version>1.5.3</version>
</dependency>
```

Or add jar files manually:

Add JFreeChart Manually

1. Download JFreeChart from SourceForge JFreeChart.
2. Extract the ZIP file and locate the jfreechart-x.x.x.jar and jcommon-x.x.x.jar files.
3. In Eclipse, right-click on your project and select **Build Path** -> **Configure Build Path**.
4. Click on the **Libraries** tab and then **Add External JARs**.
5. Select both the jfreechart and jcommon JAR files you downloaded.
6. Click **Apply** and **Close**.

Java source code:

```java
import org.jfree.chart.ChartFactory;

import org.jfree.chart.ChartPanel;

import org.jfree.chart.JFreeChart;

import org.jfree.chart.plot.PlotOrientation;

import org.jfree.data.category.DefaultCategoryDataset;

import javax.swing.*;

import java.awt.*;
```

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

import java.awt.event.ActionListener;


public class EmploymentGrowthAnalysis extends JFrame

{

    private JTextField xField;

    private JTextField yField;

    private DefaultCategoryDataset dataset;


    public EmploymentGrowthAnalysis()

{

        setTitle("Employment Growth Analysis");

        setSize(800, 600);

        setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);

        setLayout(new BorderLayout());


        // Input Panel

        JPanel inputPanel = new JPanel();

        inputPanel.setLayout(new GridLayout(3, 2));


        inputPanel.add(new JLabel("Enter Year (X-axis): "));
```

```java
    xField = new JTextField();

    inputPanel.add(xField);


    inputPanel.add(new JLabel("Enter Employment Growth (Y-axis): "));

    yField = new JTextField();

    inputPanel.add(yField);


    JButton addButton = new JButton("Add Data");

    inputPanel.add(addButton);


    // Graph Panel

    dataset = new DefaultCategoryDataset();

    JFreeChart chart = ChartFactory.createLineChart(

        "Employment Statistical Growth",

        "Year",

        "Employment Growth (%)",

        dataset,

        PlotOrientation.VERTICAL,

        true, true, false);


    ChartPanel chartPanel = new ChartPanel(chart);
```

```java
        add(chartPanel, BorderLayout.CENTER);

        add(inputPanel, BorderLayout.SOUTH);


        // Add Button Action Listener

        addButton.addActionListener(new ActionListener() {

            @Override

            public void actionPerformed(ActionEvent e) {

                String year = xField.getText();

                String growth = yField.getText();


                if (!year.isEmpty() && !growth.isEmpty()) {

                    try {

                        double growthValue = Double.parseDouble(growth);

                        dataset.addValue(growthValue, "Employment Growth", year);

                    } catch (NumberFormatException ex) {

                        JOptionPane.showMessageDialog(null, "Please enter a valid
number for employment growth.");

                    }

                } else {

                    JOptionPane.showMessageDialog(null, "Please enter both Year and
Employment Growth.");
```

```java
        }

      }

    });

  }


  public static void main(String[] args) {

    SwingUtilities.invokeLater(() -> {

      EmploymentGrowthAnalysis app = new EmploymentGrowthAnalysis();

      app.setVisible(true);

    });

  }
}
```

Explanation of Code:

1. **Libraries**:
   o We use JFreeChart to create and display a line chart.
2. **User Interface**:
   o A form with two fields: one for inputting the year (X-axis) and one for the employment growth percentage (Y-axis).
   o A "Add Data" button that allows users to submit the values and update the graph.
3. **Graph Generation**:
   o The JFreeChart library generates the line chart based on the values added to the dataset.
   o The dataset.addValue() method adds data to the chart dynamically when the user inputs values and clicks the button.

Steps to Run:

1. **Download the JFreeChart Library** if you are not using Maven, and add it to your classpath: JFreeChart download.
2. Compile and run the code. When the application starts, enter the year and employment growth rate, and press "Add Data" to plot the graph.

Ctrl+ Alt+ x
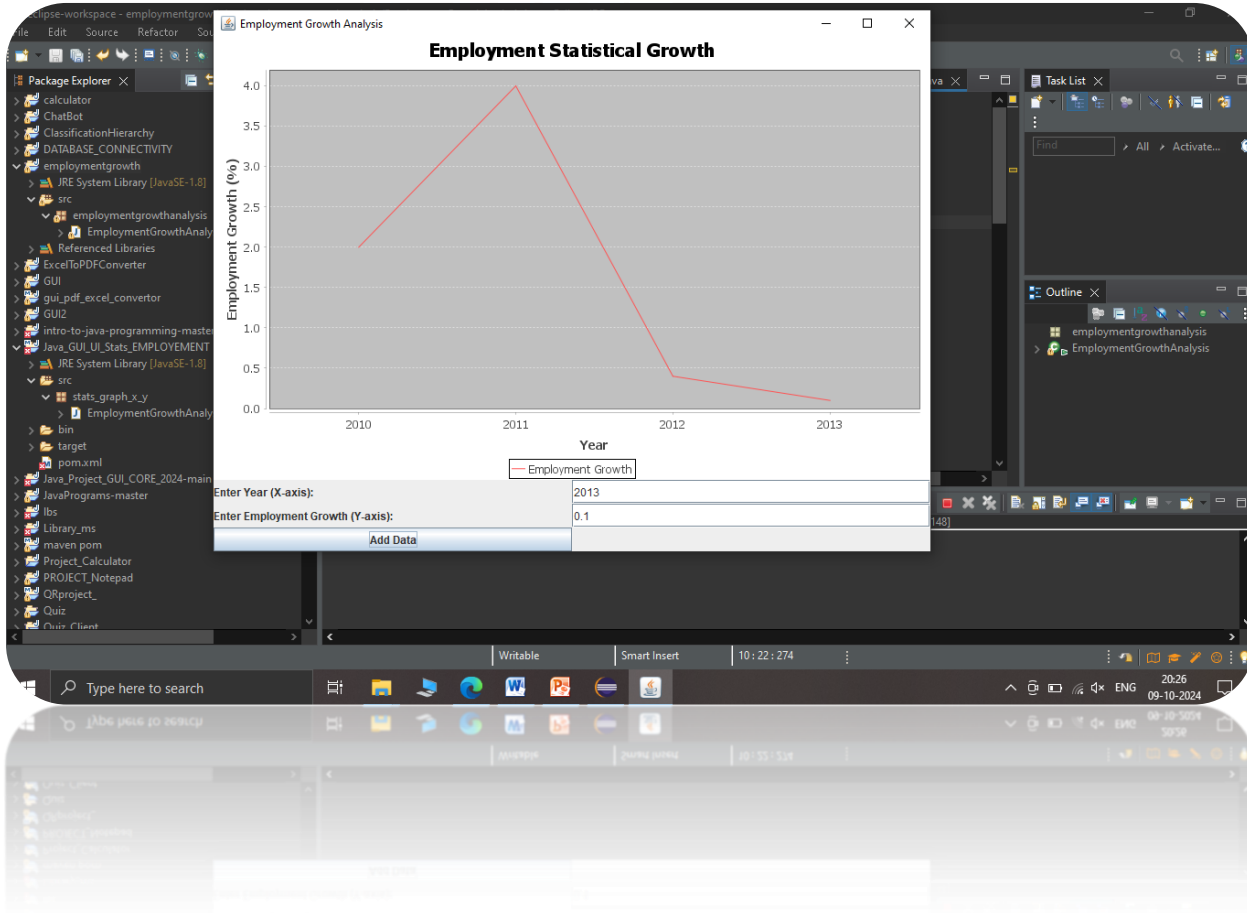
QR CODE TO ACCESS PROJECT ON GITHUB