# **Exercise Description:**

You are tasked with creating a simple Java application with a graphical user interface (GUI) that allows the user to create a Student object by inputting a student's name and ID through text fields. The GUI will display the created student in the console after clicking a button.

#### **Details:**

## 1. Student Class (Student.java):

- Represents a student with attributes:
  - name: The student's name.
  - id: The student's ID.

#### Constructor:

Initializes the student's name and ID based on user input.

### Methods:

- getName() and getId(): Return the name and ID of the student.
- toString(): Returns a string representation of the student, combining the name and ID.

# 2. GUI Class (GUI.java):

• This class extends JFrame to create the graphical interface.

## • Components:

- JTextField nameField: A text field for inputting the student's name.
- JTextField idField: A text field for inputting the student's ID.
- JButton createStudentButton: A button that, when clicked, creates a Student object based on the input.

#### Process:

- The ButtonListener inner class listens for button clicks and creates a Student object using the text entered in the fields.
- The created student's details are printed to the console using the toString() method of the Student class.

## 3. Main Class (Main.java):

• The main class simply launches the GUI by creating an instance of the GUI class.

#### Task:

- 1. Implement the Student class with appropriate attributes and methods to handle student creation.
- 2. Implement the GUI class with text fields for user input and a button that creates a Student object based on the input.
- 3. In the Main class, launch the GUI and ensure the student details are printed to the console when the button is clicked.

# **Bonus:**

- Add input validation to ensure that both the name and ID fields are filled out before allowing the student to be created.
- Display the student details directly in the GUI (e.g., in a label) instead of printing to the console.

This exercise focuses on building a simple GUI using Java Swing, handling user input, and using objects to manage student data.