

Exercise Description:

You are tasked with developing a simple graphical user interface (GUI) application that allows the user to add names to a list and shuffle the names in random order. The application uses Java Swing components for user interaction.

Details:

1. GUI Class (GUI.java):

- This class creates the graphical interface for the application.
- **Components:**
 - A `JTextField` for inputting names.
 - An "Add" button that allows the user to add the entered name to a list.
 - A `JList` that displays the added names.
 - A "Shuffle" button that shuffles the names in the list randomly.
- **Functionality:**
 - When the user enters a name and clicks "Add", the name is added to the list.
 - When the "Shuffle" button is clicked, the names in the list are shuffled and displayed in a new random order.

2. Main Class (Main.java):

- This class initializes the GUI by creating an instance of the `GUI` class.
- It also contains a placeholder method `printData()` to demonstrate how you might print the names to the console, although in this case, it isn't used within the provided GUI.

Task:

1. Implement the `GUI` class using Java Swing to allow users to input names into a list.
2. Add functionality to shuffle the names in the list when the user clicks the "Shuffle" button.
3. Ensure the GUI window is appropriately sized and the components (text field, buttons, list) are properly laid out.

Bonus:

- Add validation to ensure empty names cannot be added to the list.
- Allow the user to remove names from the list with an additional button.
- Add a "Clear List" button to reset the entire list.

This exercise covers the basics of creating a graphical interface with Java Swing and demonstrates how to manage collections of data in a dynamic and interactive way.