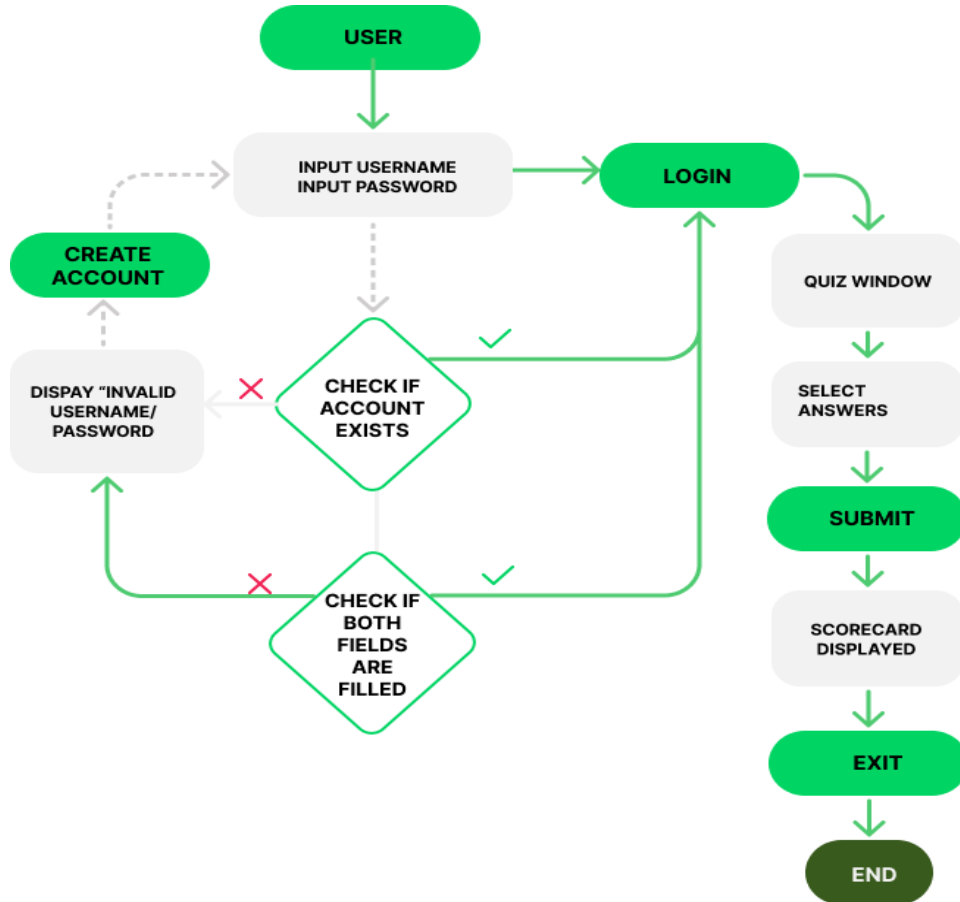# OVERVIEW

- **Problem Statement**: Develop a Java Swing-based quiz application that allows users to log in, attempt multiple-choice questions, and receive a score at the end. The application must support user authentication, data validation, and provide feedback based on the user's quiz performance.

FLOW DIAGRAM

- **Step 1: Login**
  - User enters username and password.
  - Validation of credentials against stored user accounts.
  - If credentials are invalid user can create account and then login. HashMap is used to store Username: Password pairs.

- **Step 2: MCQ Page**
  - Display of multiple-choice questions.
  - User selects answers.
  - Submission of answers.

- **Step 3: Display Score**
    - Calculation of score based on correct answers.
    - Display of user's name, score, and percentage.
    - Option to exit the application.

COMPONENTS USED

JFrame:
- **Purpose:** Main application window.
- **Usage:** Used to create the primary window for your application.

JLabel:
- **Purpose:** Labeling components such as username, password, and questions.
- **Usage:** Used to display text labels alongside corresponding components for better user understanding.

JTextField:
- **Purpose:** Input field for username.
- **Usage:** Provides an area where users can input text for the username.

JPasswordField:
- **Purpose:** Input field for the password.
- **Usage:** Allows users to enter passwords securely without displaying the characters.

JButton:
- **Purpose:** Interactive buttons for login and creating an account.
- **Usage:** Trigger actions like login or account creation upon clicking.

JRadioButton:
- **Purpose:** Options for multiple-choice questions.
- **Usage:** Display multiple-choice options for each question, allowing users to select one among several choices.

JPanel:
- **Purpose:** Container for organizing GUI components.
- **Usage:** Used to group and arrange Swing components within the MCQ page, providing a layout for better organization and positioning of the questions and options.

Other Components:
- **ButtonGroup:** Used to group radio buttons together for each MCQ, ensuring that only one option can be selected at a time.

EVENTS, ACTION:

Login Button:
- **Event: `loginButton.addActionListener()`**
- **Action:**
  - Retrieves the entered username and password.
  - Validates the credentials against the stored user accounts (**`userAccounts`** HashMap).
  - If the username and password match an entry in the **`userAccounts`**:
    - Opens the MCQ page by calling the **`openMCQPage()`** method.
  - If the credentials don't match:
    - Displays a "Invalid username or password" message using **`JOptionPane.showMessageDialog()`**.

Create Account Button:
- **Event: `createAccountButton.addActionListener()`**
- **Action:**
  - Retrieves the entered username and password.
  - Checks if the username is empty or if it already exists in the **`userAccounts`**.
    - Displays appropriate error messages using **`JOptionPane.showMessageDialog()`**.

- If the username is available:
  - Adds the new username and password to the **userAccounts** HashMap.
  - Displays an "Account created successfully" message using **JOptionPane.showMessageDialog()**.
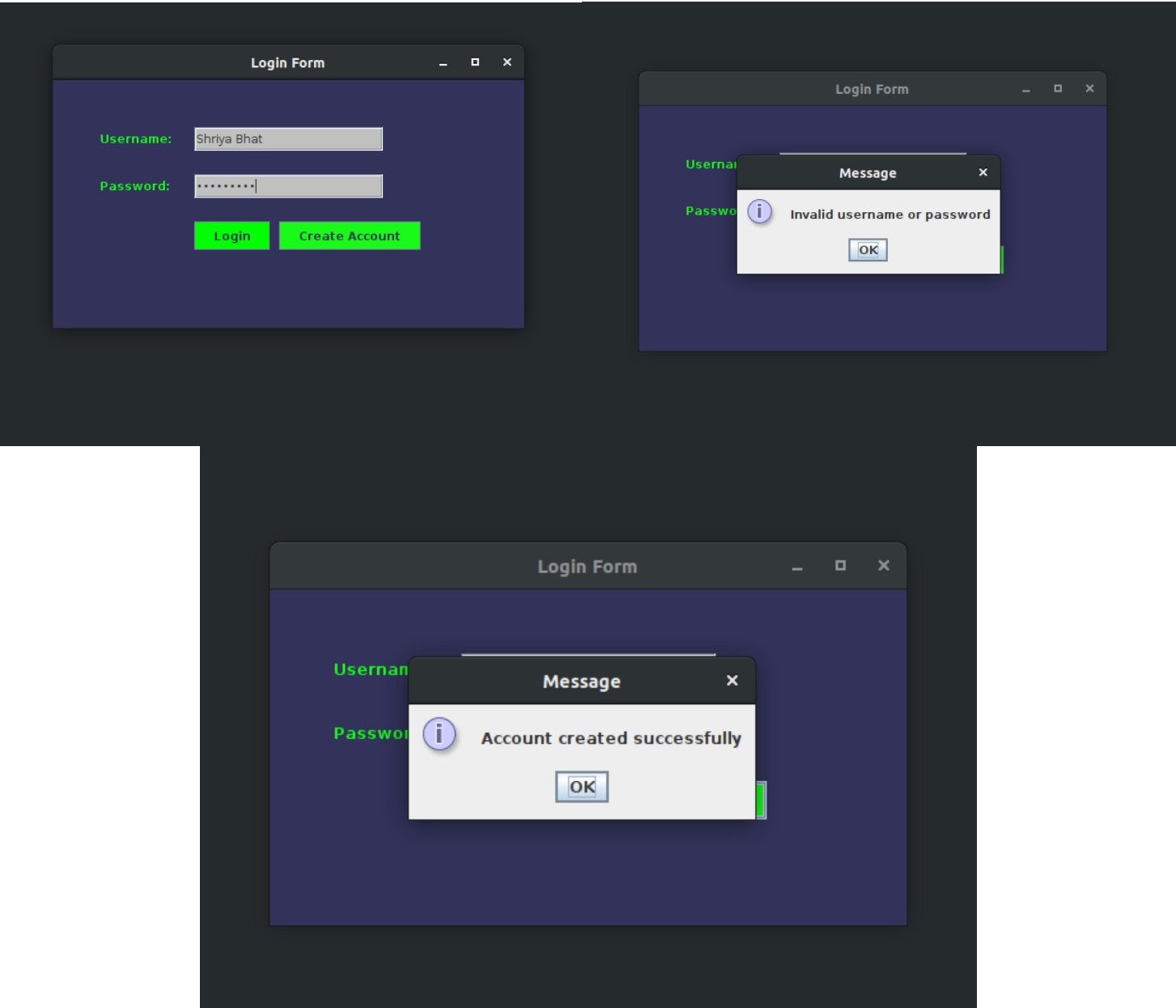
MCQ Submit Button:

- **Event: submitButton.addActionListener()**
- **Action:**
  - Calculates the number of correct answers based on the selected radio buttons.
  - Computes the score as well as the percentage of correct answers.
  - Creates a new JFrame to display the user's name, score, and percentage using JTextFields.
  - Provides an "EXIT" button within this JFrame that closes the application when clicked using **System.exit(0)**.

PROGRAM CODE:

GITHUB: (better visibility)
https://github.com/Shriya-20/OOP_SEM3/blob/e82435cc92831e3815fe2d4e751183d85c533d52/FinalQuiz.java

PROGRAM CODE

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MCQs _ ▢ ✕

ICC Cricket World Cup 2023 QUIZ

1. Which player has hit the most number of sixes?

- ◉ Rohit Sharma
- ○ Glen Maxwell
- ◉ Q de Kock

2. Which stadium witnessed AFG VS AUS featuring Maxwell's OUTRAGEOUS 201* (128) & 1/55 ?

- ◉ Ahmedabad
- ○ Eden Gardens
- ◉ Wankhede

3. Which player is the top wicket taker as of today?

- ◉ Dilshan Madushanka
- ○ Adam Zampa
- ◉ Gerald Coetzee

4. Most runs were scored in total by teams in which match?
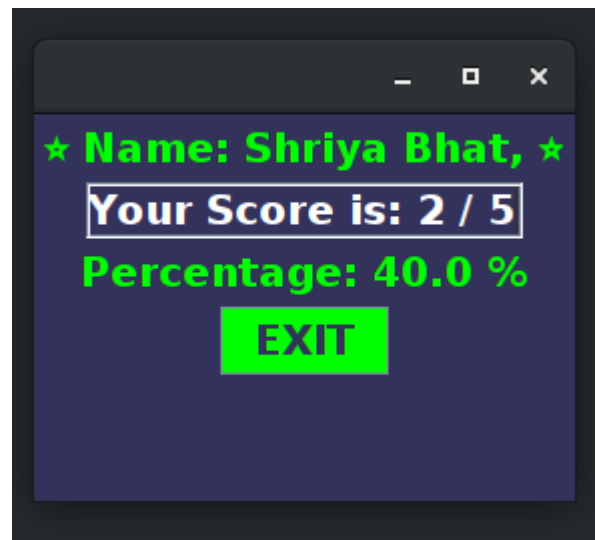
- ◉ IND VS NED
- ○ AUS VS NZ
- ◉ NZ VS PAK

5. Which bowler has the Best Bowling Figures in this World Cup?

- ◉ Marco Jansen
- ○ Adam Zampa
- ◉ Mohammad Shami

Submit

References:

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https://www.geeksforgeeks.org/introduction-to-java-swing/
https://docs.oracle.com/javase%2F7%2Fdocs%2Fapi%2F%2F/javax/swing/package-summary.html

END