

Overview

This JavaFX application provides user management functionalities with multiple roles (Admin, Student, Instructor). It includes features like user authentication, role management, account setup, invitation codes, and password resets within a secure GUI environment.

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Prerequisites

Before starting, ensure you have the following software installed:

- **Java Development Kit (JDK) 11 or higher**
 - **IntelliJ IDEA (Community Edition or Ultimate)**
 - **JavaFX SDK compatible with your JDK version**
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Setup Instructions

1. Install Java Development Kit (JDK)

- **Download JDK:**
 - Visit the [Oracle JDK Downloads](#) page.
 - Choose the latest JDK version appropriate for your operating system.
- **Install JDK:**
 - Run the installer and follow the on-screen instructions.

- Set the installation path (e.g., `C:\Program Files\Java\jdk-17`).
- **Verify Installation:**
 - Open a command prompt or terminal.
 - Run `java -version` to confirm the JDK is installed.

2. Install IntelliJ IDEA

- **Download IntelliJ IDEA:**
 - Go to the [IntelliJ IDEA Downloads](#) page.
 - Download the **Community Edition**.
- **Install IntelliJ IDEA:**
 - Run the installer and follow the instructions.
 - Launch IntelliJ IDEA after installation.

3. Download JavaFX SDK

- **Download JavaFX SDK:**
 - Navigate to the Gluon JavaFX Downloads page.
 - Download the SDK matching your JDK version and operating system.
- **Extract JavaFX SDK:**
 - Unzip the downloaded file to a known directory (e.g., `C:\javafx-sdk-17.0.2`).

4. Clone or Download the Project Code

Clone Repository (if available on GitHub):

bash

Copy code

```
git clone https://github.com/yourusername/yourrepository.git
```

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- **Or Download as ZIP:**
 - Click on the **Code** button on the GitHub repository page.
 - Select **Download ZIP** and extract it to your desired location.

5. Configure the Project in IntelliJ IDEA

Open the Project:

- **Launch IntelliJ IDEA:**
 - On the welcome screen, click **Open**.
 - Navigate to the project directory and select it.

Set Up Project Structure:

- **Verify JDK Configuration:**
 - Go to **File > Project Structure > Project**.
 - Ensure **Project SDK** is set to your installed JDK.
 - Set **Project language level** to '**SDK default**'.
- **Add JavaFX Library:**
 - In **Project Structure**, go to **Libraries**.
 - Click the '+' icon and select **Java**.
 - Navigate to the **lib** folder in your JavaFX SDK directory.
 - Select all **.jar** files and click **OK**.
 - Name the library (e.g., **JavaFX17**) and click **OK**.
- **Configure Module Dependencies:**
 - In **Project Structure**, go to **Modules**.
 - Select your project module.
 - In the **Dependencies** tab, click the '+' icon and select **Library**.
 - Choose the JavaFX library you just added.
- **Set VM Options for JavaFX:**
 - Go to **Run > Edit Configurations...**
 - Click '+' to add a new configuration and select **Application**.
 - Set **Name** to **Main**.
 - Set **Main class** to your main class (e.g., **application.Main**).

In **VM options**, add:

arduino

Copy code

```
--module-path "C:/javafx-sdk-17.0.2/lib" --add-modules
javafx.controls,javafx.fxml
```

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- Replace the path with your JavaFX SDK **lib** directory.
- Use forward slashes (/) in paths, even on Windows.

Import Resources:

- **Ensure Resource Files are Recognized:**
 - Right-click on the **resources** directory.
 - Select **Mark Directory as > Resources Root**.

Running the Application

- **Build the Project:**
 - Go to **Build > Build Project** or press **Ctrl+F9**.

- **Run the Application:**
 - Click the **Run** button (green arrow) or go to **Run > Run 'Main'**.
 - The application should launch, displaying the login or setup screen.
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Application Usage

First-Time Setup

- **Create Admin Account:**
 - Since no users exist initially, you'll be prompted to create an Admin account.
 - Provide a username and password.
- **Complete Account Setup:**
 - After logging in, fill in your email and name details.

Navigating the Application

- **Admin Home Page:**
 - Access features like inviting users, resetting passwords, and managing roles.
- **Inviting New Users:**
 - Generate invitation codes and assign roles to new users.
- **User Login:**
 - New users can use their invitation code to create an account.
 - Users must complete their account setup after the first login.
- **Role Selection:**
 - Users with multiple roles can select the role they wish to use per session.

Logging Out

- Click the **Logout** button available on any home page to exit the session.
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Troubleshooting

- **JavaFX Runtime Components Missing Error:**
 - Ensure the VM options are correctly set with the proper module path.
 - Verify that the JavaFX SDK path is correct and points to the **lib** directory.
- **Class Not Found Exceptions:**
 - Check that all libraries are added to the project dependencies.
 - Rebuild the project to compile all classes.
- **FXML Loading Issues:**

- Confirm that FXML files are in the correct resources directory.
- Ensure `fx:controller` attributes in FXML files match the package structure.