



SOUBLANCE

# ATTENDANCE MANAGEMENT SYSTEM

using Java, MySql, JSON, Open CV

REVOLUTIONIZING ATTENDANCE TRACKING

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# ABSTRACT

The GUI-Based Alumni Connect Project is an advanced software application designed to foster enduring relationships between educational institutions and their alumni network. Built with Java and the javax.swing library for the graphical user interface, this project offers an interactive and user-friendly platform for alumni to stay connected with their alma mater and peers. By leveraging XAMPP for MySQL database management, the system ensures efficient data storage and management, facilitating smooth interaction between users.

Key features of the Alumni Connect Project include simple registration and authentication, dynamic alumni profiles, event management, mentorship opportunities, discussion forums, and resource-sharing options. The project incorporates JSON for QR code generation and OpenCV for scanning, ensuring a seamless and secure attendance tracking system within alumni events or meetings.

This project provides a modern solution for networking, knowledge sharing, and collaboration, empowering alumni to contribute to their institution's growth while maintaining meaningful connections. With an emphasis on user engagement and community-building, this system exemplifies how software development principles can create a sustainable and interactive alumni network.



# ABOUT THE PROJECT



The Attendance Management System provides a comprehensive solution for organizations to efficiently track and manage employee attendance. Leveraging cutting-edge technologies, this system streamlines the entire process, from check-in to reporting, ensuring accurate data and improved productivity.



Detailed reports on employee attendance, leave, and overtime provide valuable insights for better decision-making.



# PROBLEM STATEMENT

Traditional attendance systems are time-consuming, prone to errors, and can be easily manipulated. There is a need for an automated, accurate, and secure solution to manage student attendance efficiently. This project aims to develop an Attendance Management System using QR codes and face recognition to streamline the process, eliminate manual errors, and ensure reliable, real-time attendance tracking.

# INTRODUCTION TO THE ATTENDANCE MANAGEMENT SYSTEM

## Automated Time Tracking

Employees can easily clock in and out using QR codes, facial recognition, or mobile apps, eliminating manual timesheets.

## Real-Time Attendance Monitoring

Managers can view live attendance data, track tardiness, and receive alerts for unusual activity.

## Comprehensive Reporting

Detailed reports on employee attendance, leave, and overtime provide valuable insights for better decision-making.



# LEVERAGING JAVA AND MYSQL FOR DATA MANAGEMENT

Java



Java Backend

The system's backend is built on Java, providing a robust and scalable foundation for data processing and API development.

MySQL Database

The attendance data is securely stored in a MySQL database, enabling efficient querying and report generation.

MySQL



*Data Integrity*



Strict data validation and transaction management ensure the reliability and consistency of attendance records.

# EXISTING SYSTEM

The current attendance management systems are often manual or rely on basic digital methods, such as paper registers or spreadsheets. These systems are prone to errors, time-consuming, and susceptible to proxy attendance, where students mark their peers as present. The lack of automation and security in these systems makes them inefficient and unreliable for accurate attendance tracking.



# PROPOSED MODEL

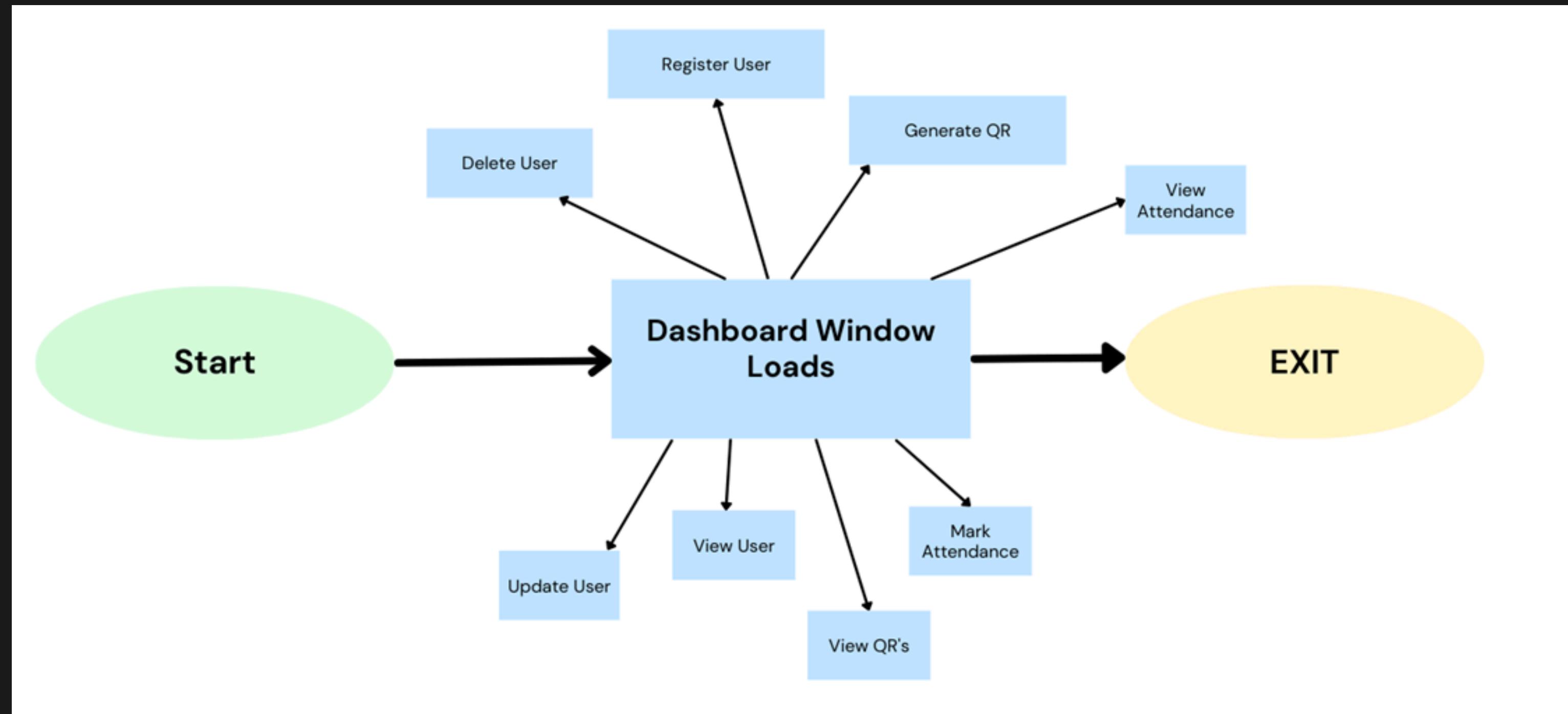
The proposed Attendance Management System automates the process using QR codes and face recognition to mark attendance.

- **QR Code System:** Each student is assigned a unique QR code, which they scan to mark their attendance. This ensures accurate tracking without manual intervention.
- **Admin Panel:** Provides teachers with real-time attendance records, along with options to manage student profiles and generate attendance reports.



# ARCHITECTURE OF PROPOSED SYSTEM

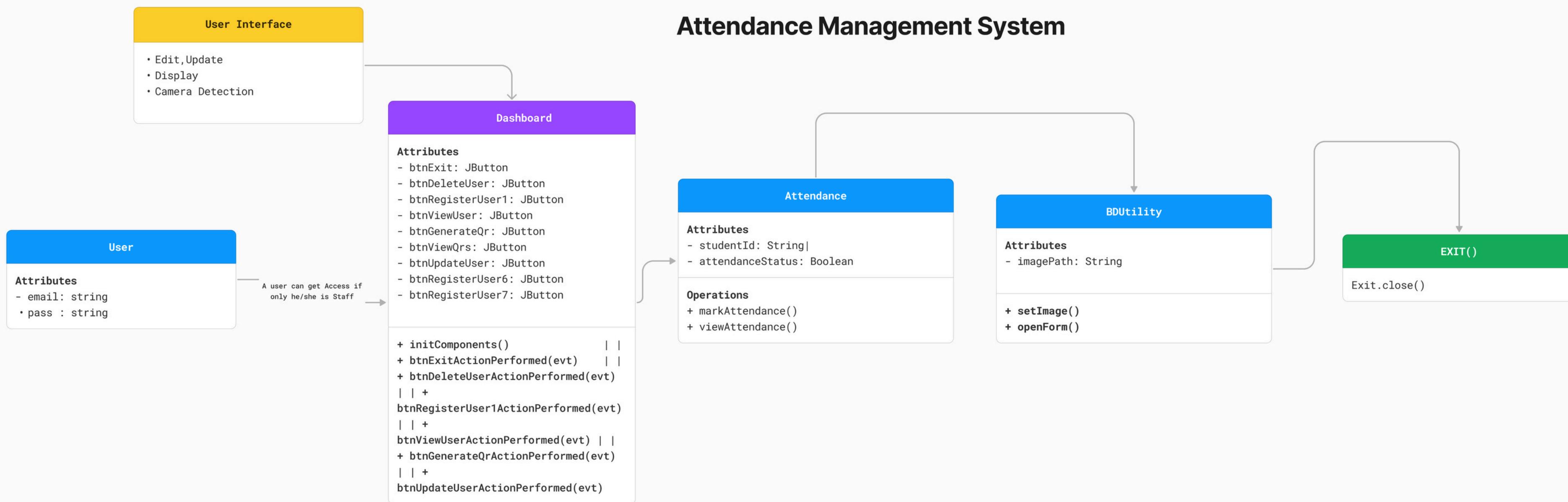
Architecture Diagram



# ARCHITECTURE OF PROPOSED SYSTEM

## UML Diagram

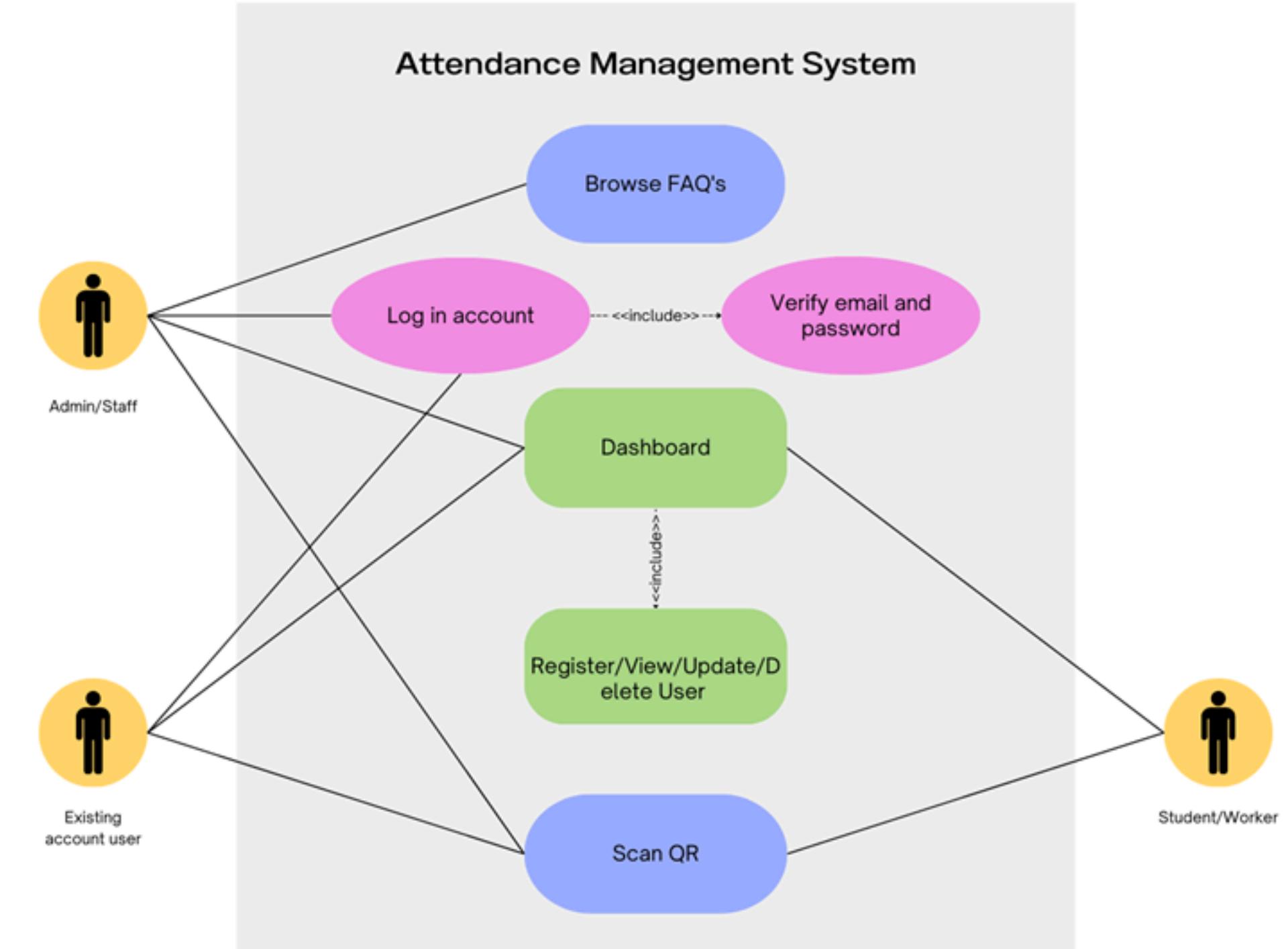
diagram



# ARCHITECTURE OF PROPOSED SYSTEM

## Use Case Diagram

### UML Use Case Diagram



# IMPLEMENTATION DETAILS (SOFTWARE SPEC)

Implementing a GUI-based Alumni Connect Project using Java involves coding the functionalities, creating the graphical user interface (GUI), and integrating with a database. Here is a simplified outline of how you can implement key components of the project:

## 1. Set Up the Development Environment:

- **Install Java & Swing:** Use IntelliJ IDEA or Eclipse for development with Java Swing.
- **Install XAMPP:** Set up MySQL for database management.
- **Set Up OpenCV:** Integrate OpenCV for QR code scanning and image recognition tasks.

## 2. Design Database Schema:

- **Tables:** Users, Events, Forum, Mentorship, and Resources.
- **Relationships:** One-to-many (e.g., user-events), many-to-many (e.g., mentorship, resources).

## 3. Create User Interface Using Java Swing:

- **User Registration:** Form to input user details.
- **Login Screen:** Authenticate users.
- **Dashboard:** Main screen with buttons for features like events, forum, and profile management.
- **Event Creation & Management:** Add and view events.
- **Forum & Mentorship:** Create posts, join mentorship programs, and share resources.

# IMPLEMENTATION DETAILS CONTD...

## 4. Backend Implementation:

- **Database Interaction:** Use JDBC for CRUD operations and prepared statements for security.
- **User Authentication:** Validate credentials for login.
- **JSON Integration:** Store event details, forum posts, and resources using JSON.
- **OpenCV Integration:** Use OpenCV for QR code scanning and generation to manage attendance.

## 5. Additional Features:

- **Search & Filters:** Enable searching for events, posts, etc.
- **Notifications:** Notify users about new events or updates.
- **Role-Based Access:** Admin, Event Organizer, Mentor, and Mentee roles.

# RESULTS / SCREENSHOTS

## 1. DATABASE DESIGN

```
MariaDB [(none)]> use attendancemanagementbd
Database changed
MariaDB [attendancemanagementbd]> select * from userdetails;
+----+-----+-----+-----+-----+-----+-----+
| id | name | gender | email | contact | address | state | country | uniqueregid |
|    |       |        |       |         |          |       |        |           |
+----+-----+-----+-----+-----+-----+-----+
| 1 | Dummy1 | Male | Dummy1@yahoo.com | 00000 | Chennai | Tamil Nadu | India | 1115833608803001115833
| 60880500 | Dummy1@yahoo.com.png |
| 2 | Dummy2 | Male | Dummy2@yahoo.com | 11111 | Chennai | Tamil Nadu | India | 1135547602807001135547
| 60280900 | Dummy2@yahoo.com.jpg |
| 3 | Ichigo U | Male | ichigo@gmail.com | 6457896547 | Urupakkam | Kerala | India | 1436187373050014361873
| 730700 | ichigo@gmail.com.png |
+----+-----+-----+-----+-----+-----+-----+
3 rows in set (0.001 sec)

MariaDB [attendancemanagementbd]>
```

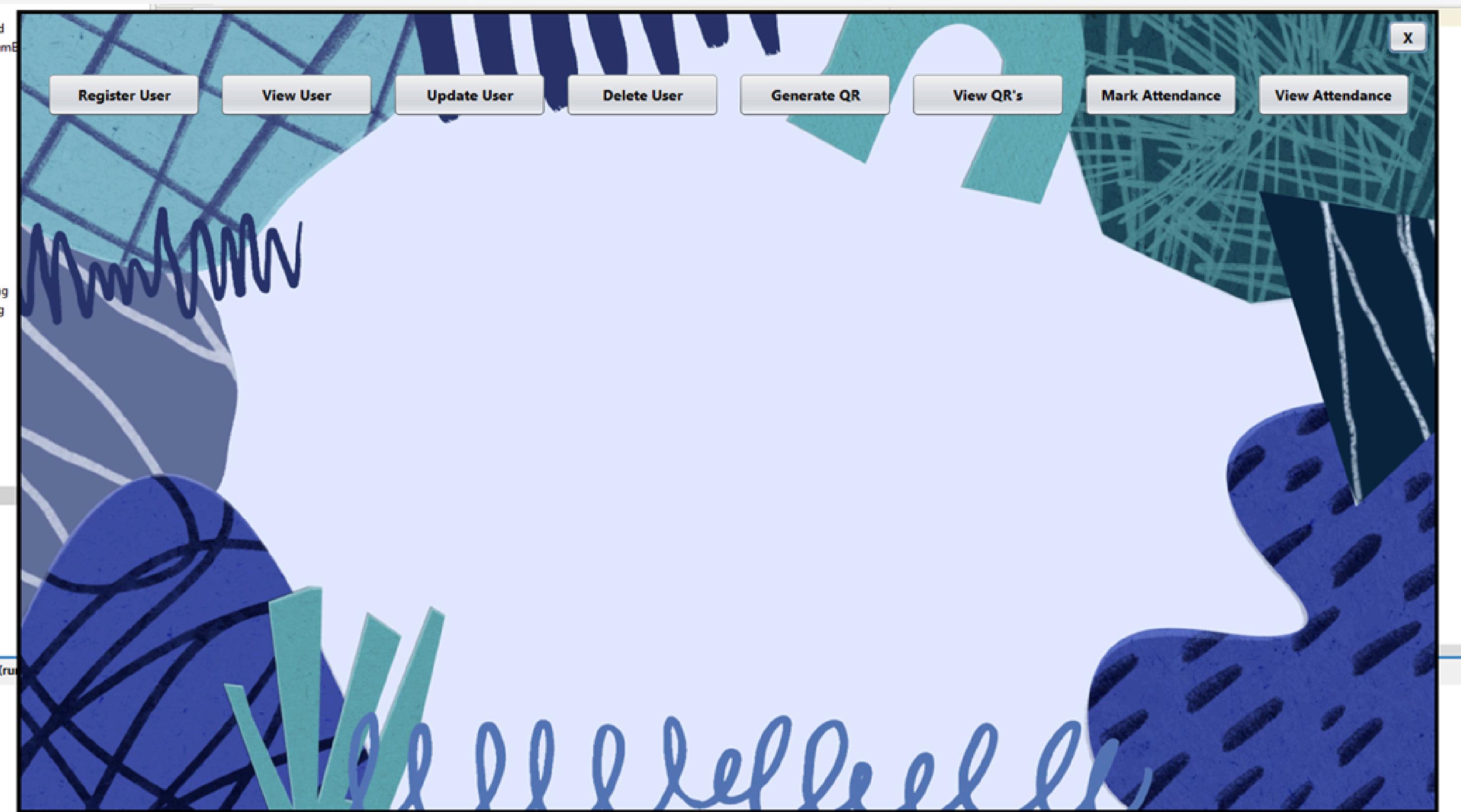
# RESULTS CONTD.....

## 2. LOGIN PAGE



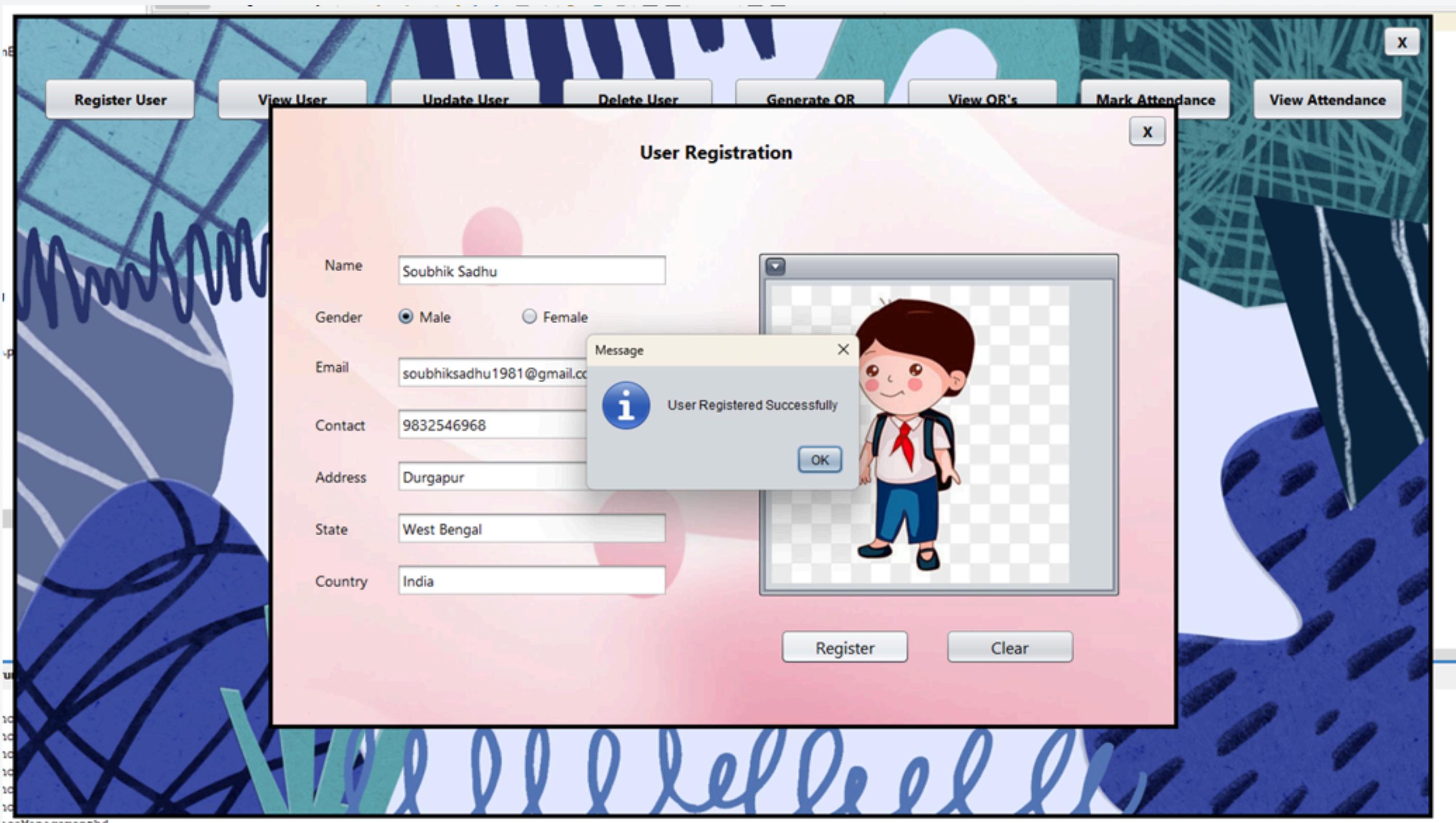
# RESULTS CONTD.....

## 3. GUI DESIGN



# RESULTS CONTD.....

## 4. ADDING NEW USER DETAILS



# RESULTS CONTD.....

## 5. VIEWING USER DETAILS

The screenshot shows a user interface for managing users. At the top, there is a navigation bar with the following buttons: Register User, View User, Update User, Delete User, Generate QR, View QR's, Mark Attendance, and View Attendance. The 'View User' button is highlighted.

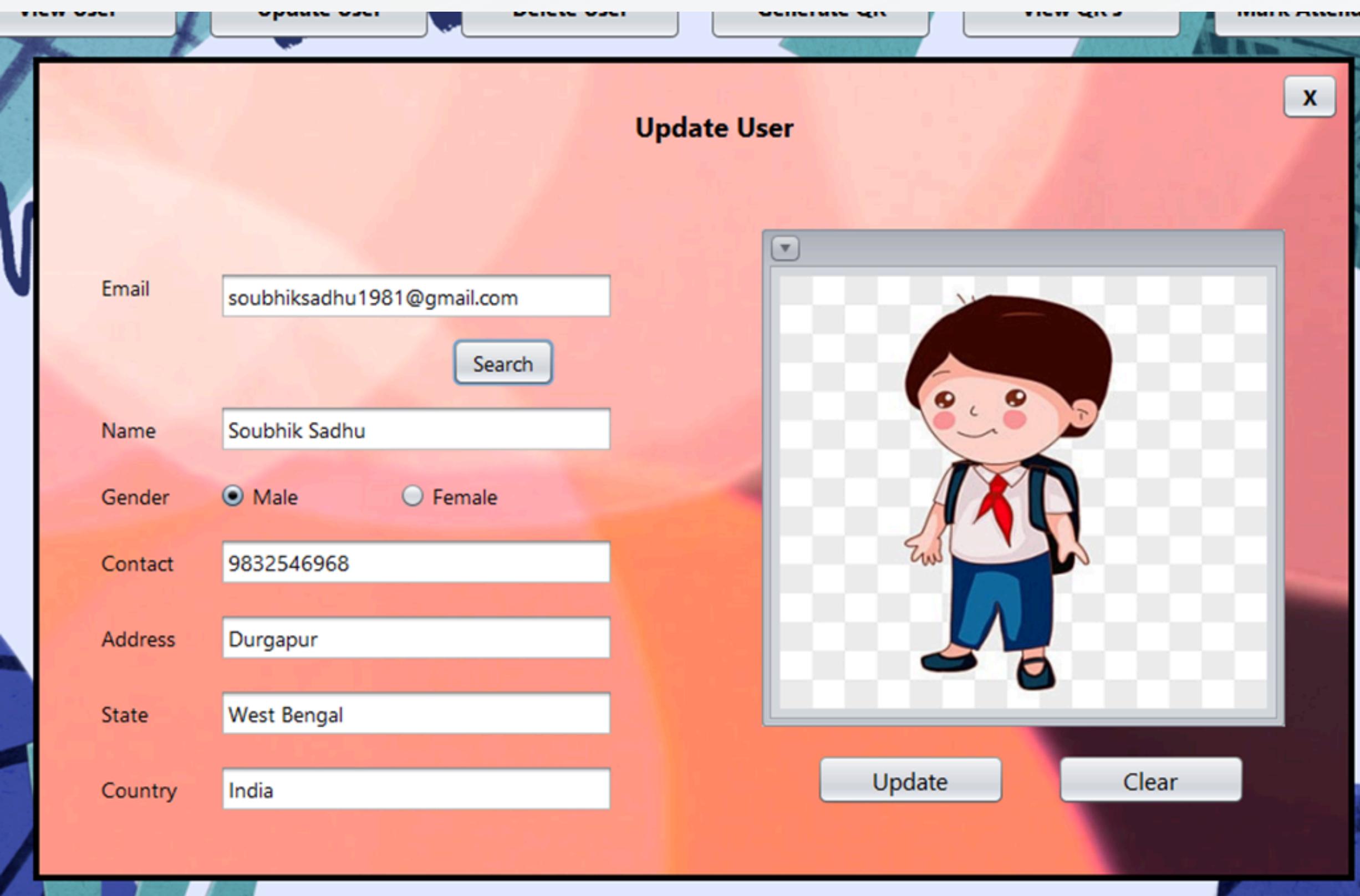
The main area is titled 'View User'. It features a search bar labeled 'Search' with a placeholder 'Enter Name or ID' and a clear button 'X'. Below the search bar is a table displaying user information:

ID	Name	Gender	Email	Contact	Address	State	Country	Registration...	Image Name
1	Dummy1	Male	Dummy1@...	00000	Chennal	Tamil Nadu	India	111583360...	Dummy1@...
2	Dummy2	Male	Dummy2@...	11111	Chennai	Tamil Nadu	India	113554760...	Dummy2@...
3	Ichigo U	Male	Ichigo@gm...	6457896547	Urupakkam	Kerala	India	143618737...	Ichigo@gm...
6	Soubhik Sa...	Male	soubhiksa...	9832546968	Durgapur	West Bengal	India	463403887...	soubhiksa...

To the right of the table, there is a preview window showing a cartoon illustration of a boy with brown hair, wearing a white shirt, blue pants, and a red tie, standing on a checkered background. A black circle highlights the preview window, and a green circle highlights the star icon in the top-left corner of the main content area.

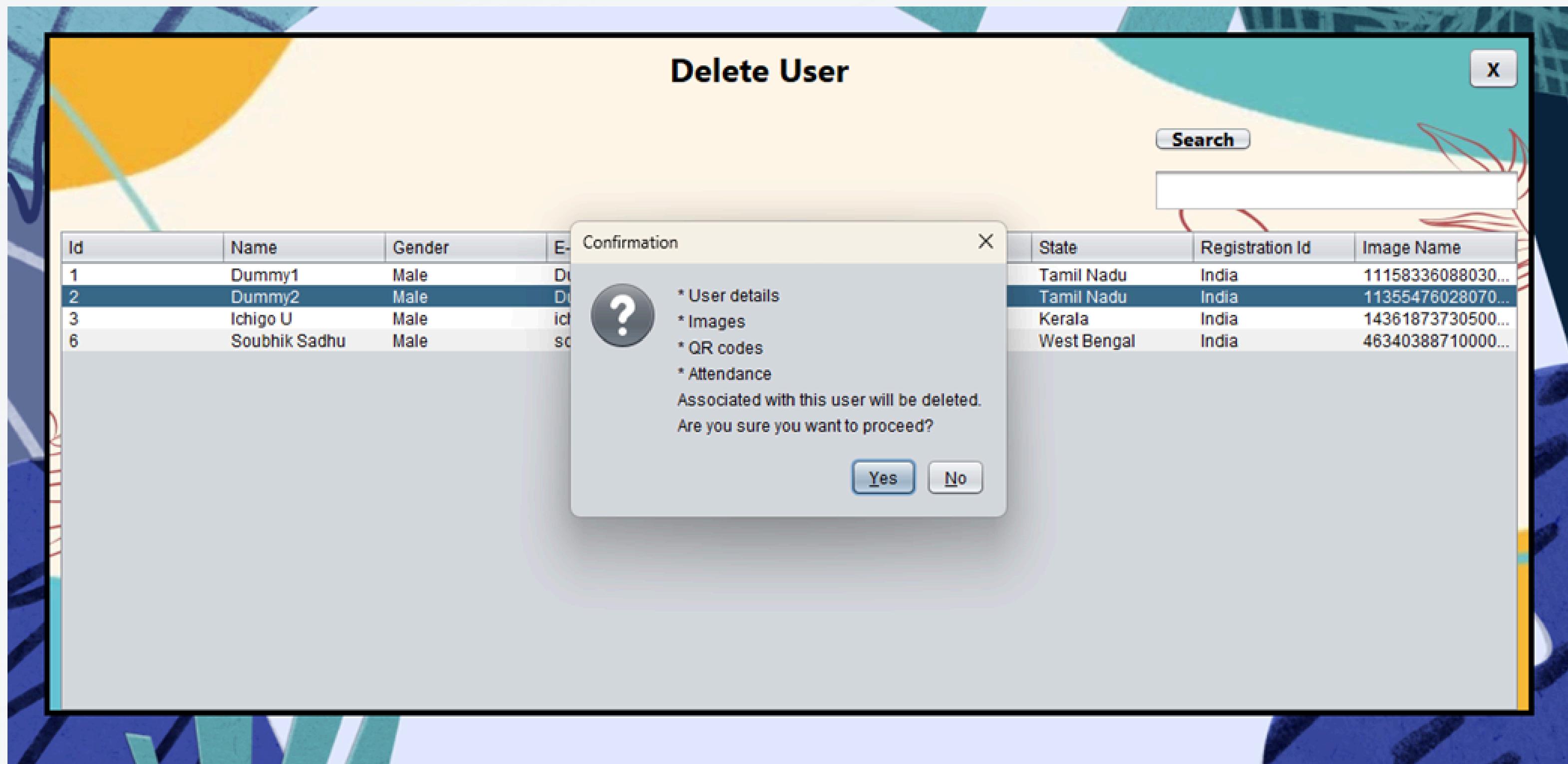
# RESULTS CONTD.....

## 6. UPDATING NEW USER DETAILS



# RESULTS CONTD.....

## 7. DELETING USER DETAILS



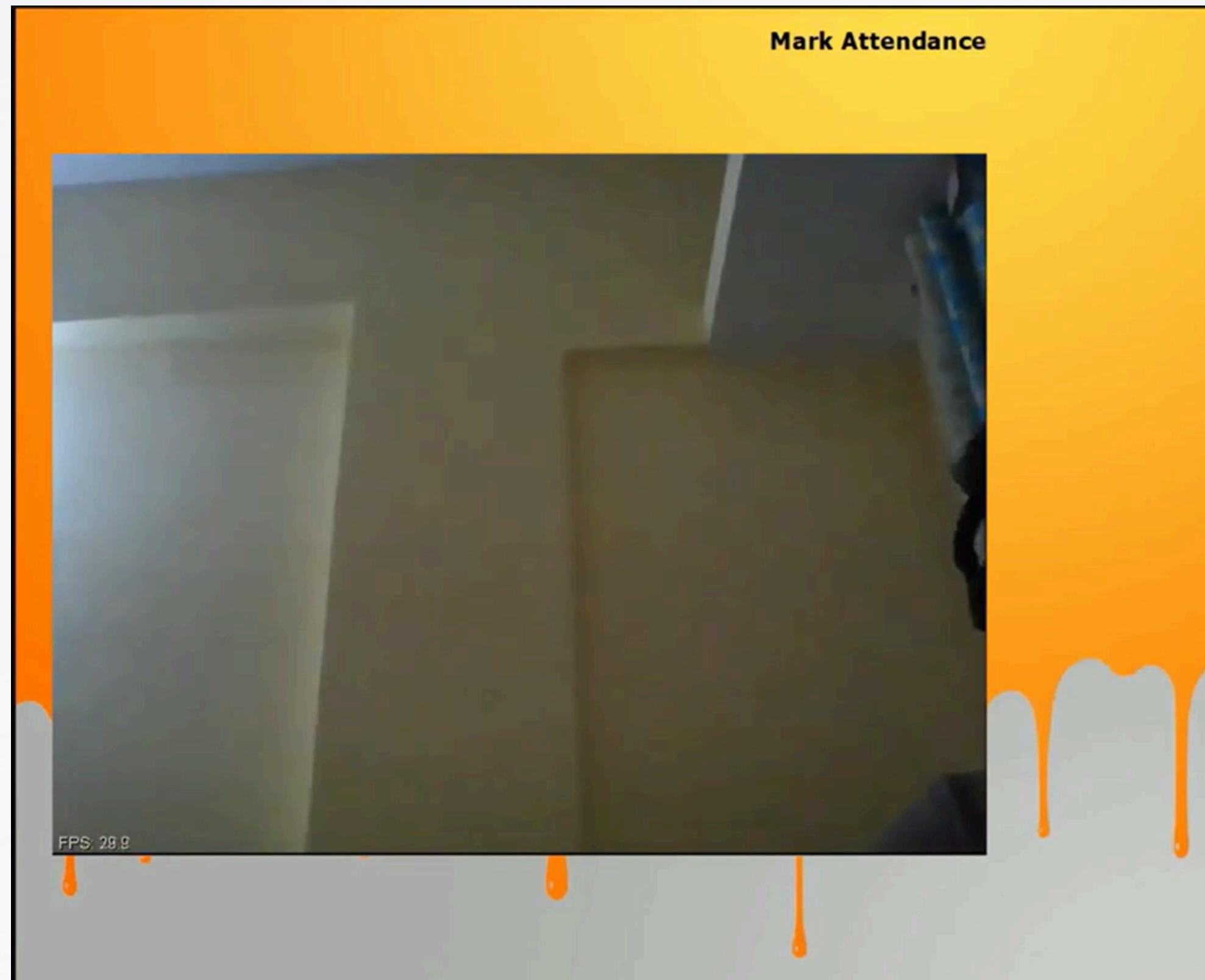
# RESULTS CONTD.....

## 8. GENERATING USER QR DETAILS



# RESULTS CONTD.....

## 9. GENERATING USER QR DETAILS



# CONCLUSION & FUTURE ENHANCEMENT

The **Attendance Management System** provides a seamless and efficient solution for tracking attendance through **face recognition technology**. By automating attendance recording, the system eliminates the need for QR codes and enhances security and accuracy. Key features like **user registration, profile management, and event creation** contribute to a smooth user experience for both students and event organizers.

Built on a strong technical foundation using **Java Swing, MySQL, and OpenCV**, the system ensures efficient data management, secure operations, and easy scalability.

Looking to the future, enhancements such as **AI-based recommendations, improved face recognition capabilities, and expanded features for event management** will further elevate the system's performance, making it a robust tool for a growing user base.

## Future Scope:

To further enhance the platform and user experience, the following features are proposed:

1. **AI-based Recommendations:** Personalize user experience by recommending events, mentorship opportunities, or networking activities based on individual profiles and past interactions.
2. **Alumni Achievements and Spotlight:** Create a section to showcase alumni achievements and success stories, inspiring others and fostering a sense of pride and community.
3. **Enhanced Attendance Tracking:** Continue refining the **face recognition** technology to ensure seamless and secure attendance management, eliminating the need for QR codes.

**THANK'S FOR  
WATCHING**



**SOUBLANCE**

