USER MANAGEMENT MODULE

This is an admin-only accessible application.

1. *Description*:

The User Management System is a crucial module in the mess management system that facilitates the registration and management of users. It provides functionalities for user registration, login, ID card scanning, password change, and data storage in CSV files.

1.1 Registration:

The module starts with the user registration process, which allows administrators to add new users to the system. During registration, various user details are collected, such as name, roll number, password, phone number, and email address. The registration form includes validation checks to ensure data accuracy and integrity. The system also checks for duplicate roll numbers to avoid any conflicts.

1.2 Entry:

Since this is a admin-only application the entry process is very simple. To record the entry of users into the mess, the system integrates an ID card scanning functionality. Users are required to scan their ID cards to the camera panel, which captures the data from the card. The scanned information, including the entry date and time, is then registered in a separate CSV file dedicated to entry records. As part of the entry process, an amount of 30 rupees is deducted from the user's account to cover the mess charges.

1.3 Data Storage and Security:

The User Management System ensures efficient data storage and retrieval through the use of CSV files. User registration details are stored in a designated CSV file, allowing easy access to user information when required. For instance, administrators can retrieve user names or phone numbers based on roll numbers for administrative purposes or communication with the users.

1.4 **Error Handling:**

Error-handling mechanisms are implemented to enhance the reliability of the system. The system checks for duplicate roll numbers during the registration process to prevent data conflicts. It also includes error handling for invalid ID card scans, ensuring the accuracy of the entry data.

2. Motivation:

The development of the User Management System within the mess management project was driven by several key motivations. These motivations encompassed the need for streamlined user registration, secure login processes, accurate entry tracking, and efficient data management. The following motivations provide a deeper understanding of the driving factors behind the creation of this system:

2.1 **Accurate Entry Tracking:**

The previous system lacked a robust mechanism for accurately tracking user entries into the mess. The User Management System introduced an innovative ID card scanning feature, enabling precise recording of entry dates and times. By utilizing the camera panel to capture ID card information, the system ensures accurate and reliable data, promoting transparency and accountability.

2.2 **Improved Security:**

Security concerns were a key motivation behind the development of the User Management System. By implementing secure login processes, including password authentication and password change functionality, the system ensures the confidentiality and integrity of user accounts. This reduces the risk of unauthorized access and helps protect sensitive user information.

2.3 **Efficient Data Management:**

The User Management System addresses the need for efficient data storage and retrieval. By utilizing CSV files, the system provides a structured and organized approach to store user registration data and entry records. This facilitates quick and easy retrieval of user information whenever required, supporting administrative tasks and communication with users.

3. Relevance to other modules:

3.1 <u>Connection with Transaction Module:</u>

The User Management Module is connected to the Transaction Module, allowing the exchange of essential data between the two modules. This connection facilitates the sharing of roll numbers and account balances of users. The Transaction Module can retrieve user roll numbers from the User Management Module to associate transactions with specific users. Additionally, the User Management Module can provide user account balances to the Transaction Module, enabling accurate calculation and tracking of financial transactions related to the mess charges and deductions.

3.2 <u>Connection with Notification Module:</u>

The User Management Module is also connected to the Notification Module, enabling the exchange of user contact information for sending notifications and messages. By providing phone numbers obtained during user registration, the User Management Module allows the Notification Module to send important updates, reminders, or any other communication relevant to the mess management system. This connection ensures effective communication with users, keeping them informed about various mess-related matters, such as menu changes, payment reminders, or important announcements.

3.3 <u>Connection with Forgot Password Module:</u>

The User Management Module is linked to the Forgot Password Module, enabling the retrieval of existing passwords for users who have forgotten their passwords. In case a user requests to reset their password, the Forgot Password Module can access the User Management Module to retrieve the existing password associated with the user's roll number. This connection ensures that users can regain access to their accounts without requiring administrative intervention, enhancing user autonomy and minimizing inconvenience.
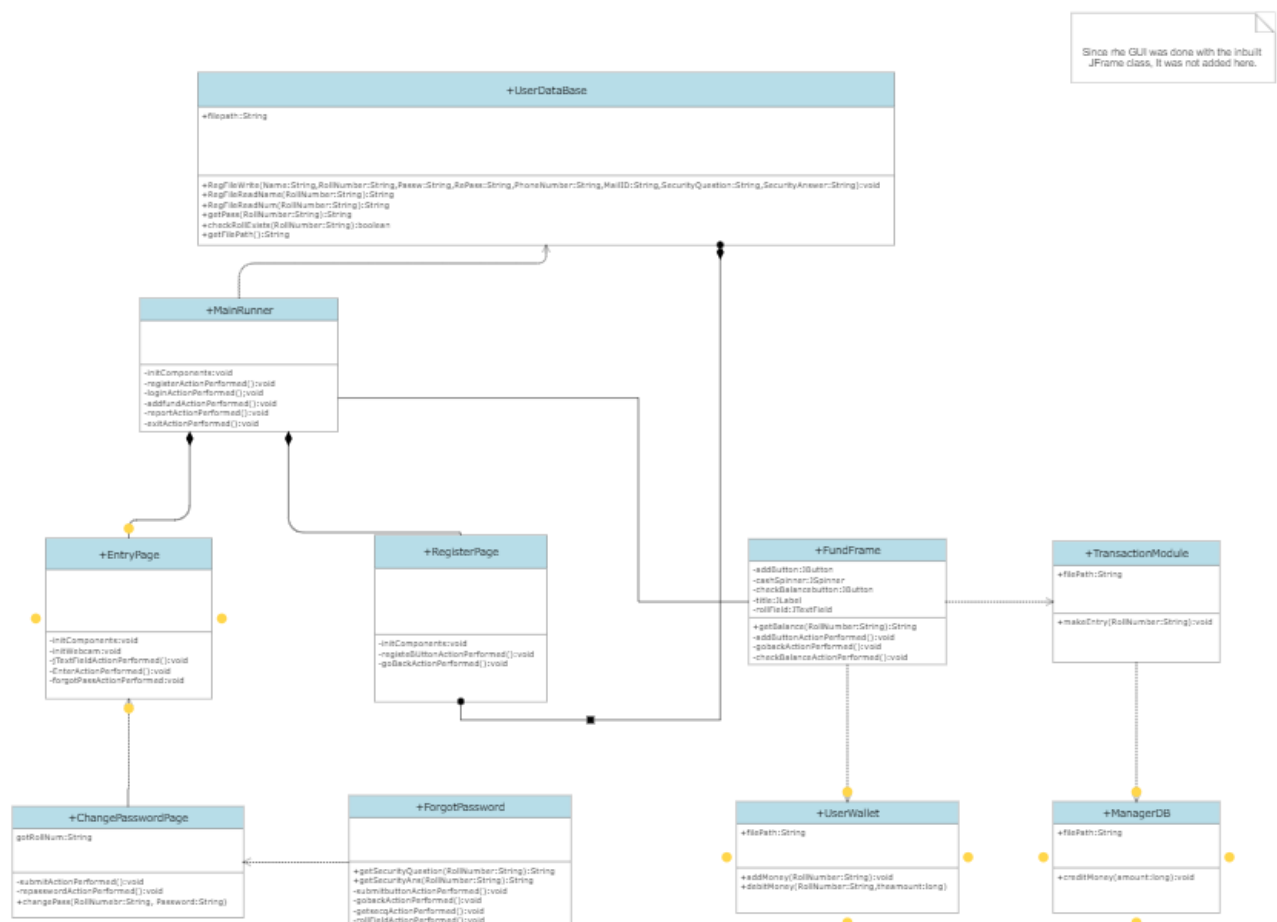
3.4 Connection with Report Module:

The User Management Module can provide roll number data to the Report Module, enabling the generation of comprehensive reports. By sharing the roll numbers of registered users, the Report Module can associate specific data and metrics with individual users, allowing for personalized analysis.
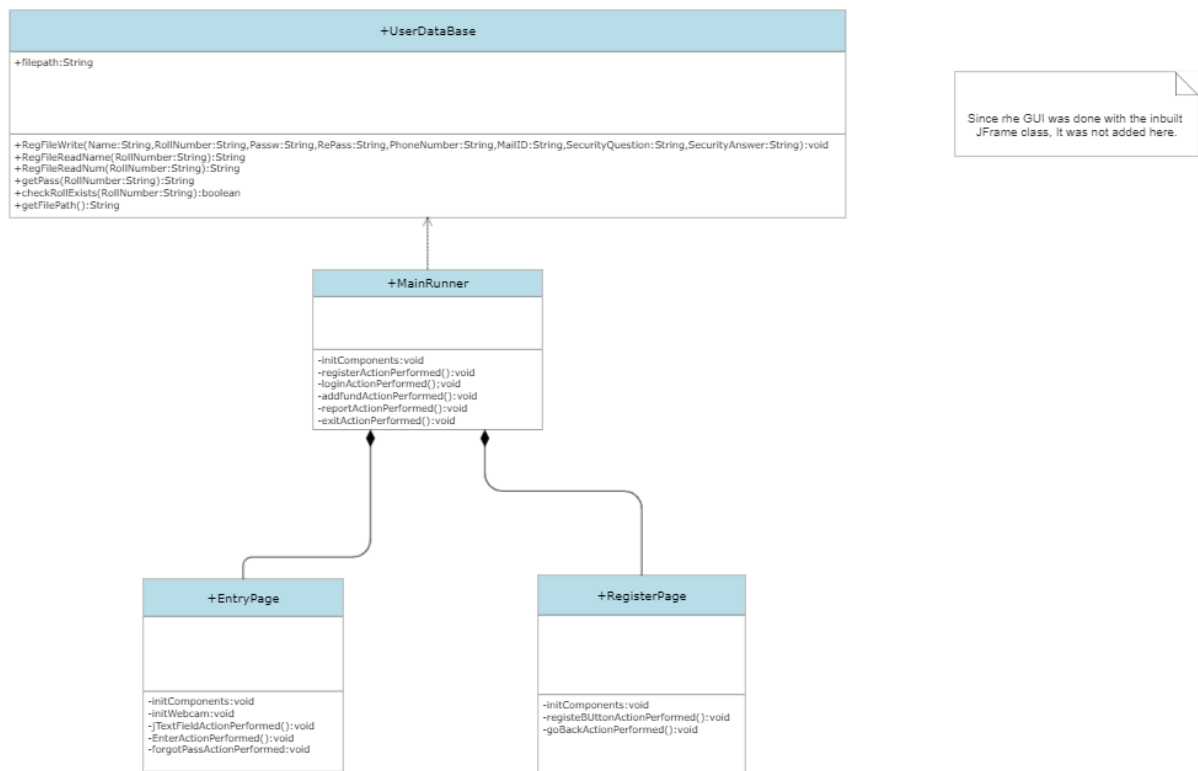
4. Appendix

UML diagrams are given below:

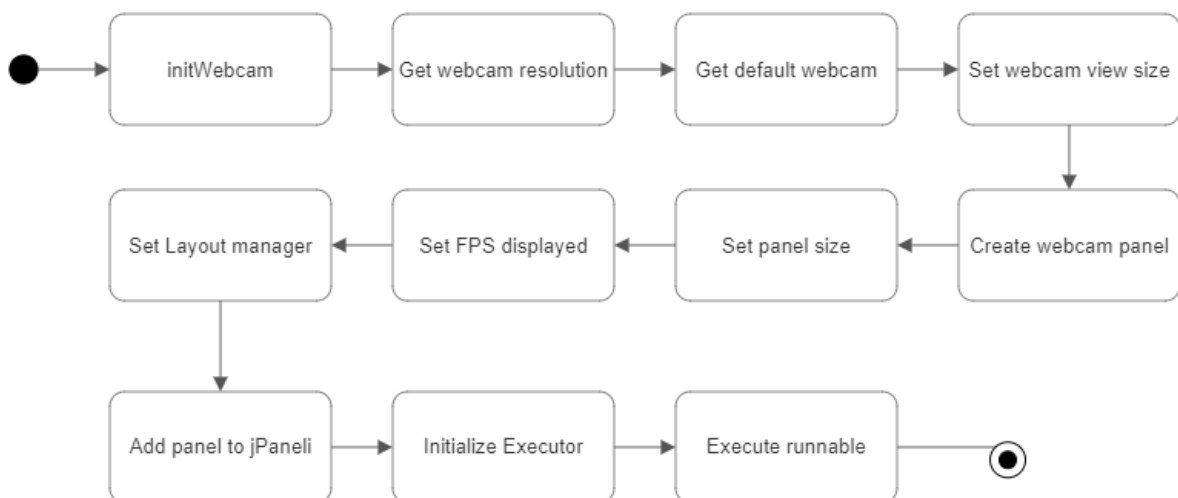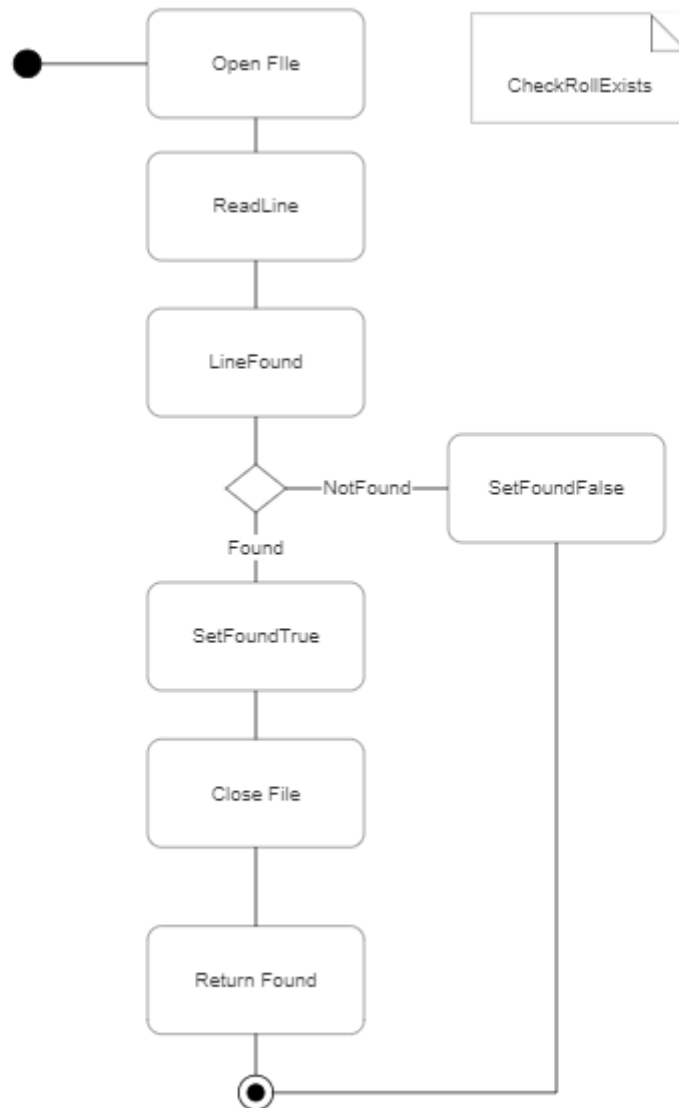## Class diagram of the whole project:

Class diagram of the module:

+UserDataBase

+filepath:String

+RegFileWrite(Name:String,RollNumber:String,Passw:String,RePass:String,PhoneNumber:String,MailID:String,SecurityQuestion:String,SecurityAnswer:String):void
+RegFileReadName(RollNumber:String):String
+RegFileReadNum(RollNumber:String):String
+getPass(RollNumber:String):String
+checkRollExists(RollNumber:String):boolean
+getFilePath():String

Since rhe GUI was done with the inbuilt JFrame class, It was not added here.

+MainRunner

-initComponents:void
-registerActionPerformed():void
-loginActionPerformed();void
-addfundActionPerformed():void
-reportActionPerformed():void
-exitActionPerformed():void

+EntryPage

-initComponents:void
-initWebcam:void
-jTextFieldActionPerformed():void
-EnterActionPerformed():void
-forgotPassActionPerformed:void

+RegisterPage

-initComponents:void
-registeBUttonActionPerformed():void
-goBackActionPerformed():void

Activity diagrams of each function:

initWebcam:

CheckRollExists:

RegFileRead:

RegFileWrite:

ACTIVITY DIAGRAM FOR REGFILEWRITE IN USERDATABASE

ReadFile

Check Passwords

Doesnt match

Passwords match

Prepare Data with the input arguments

Check if user already exists

Exists

Append Data to the file

Close File
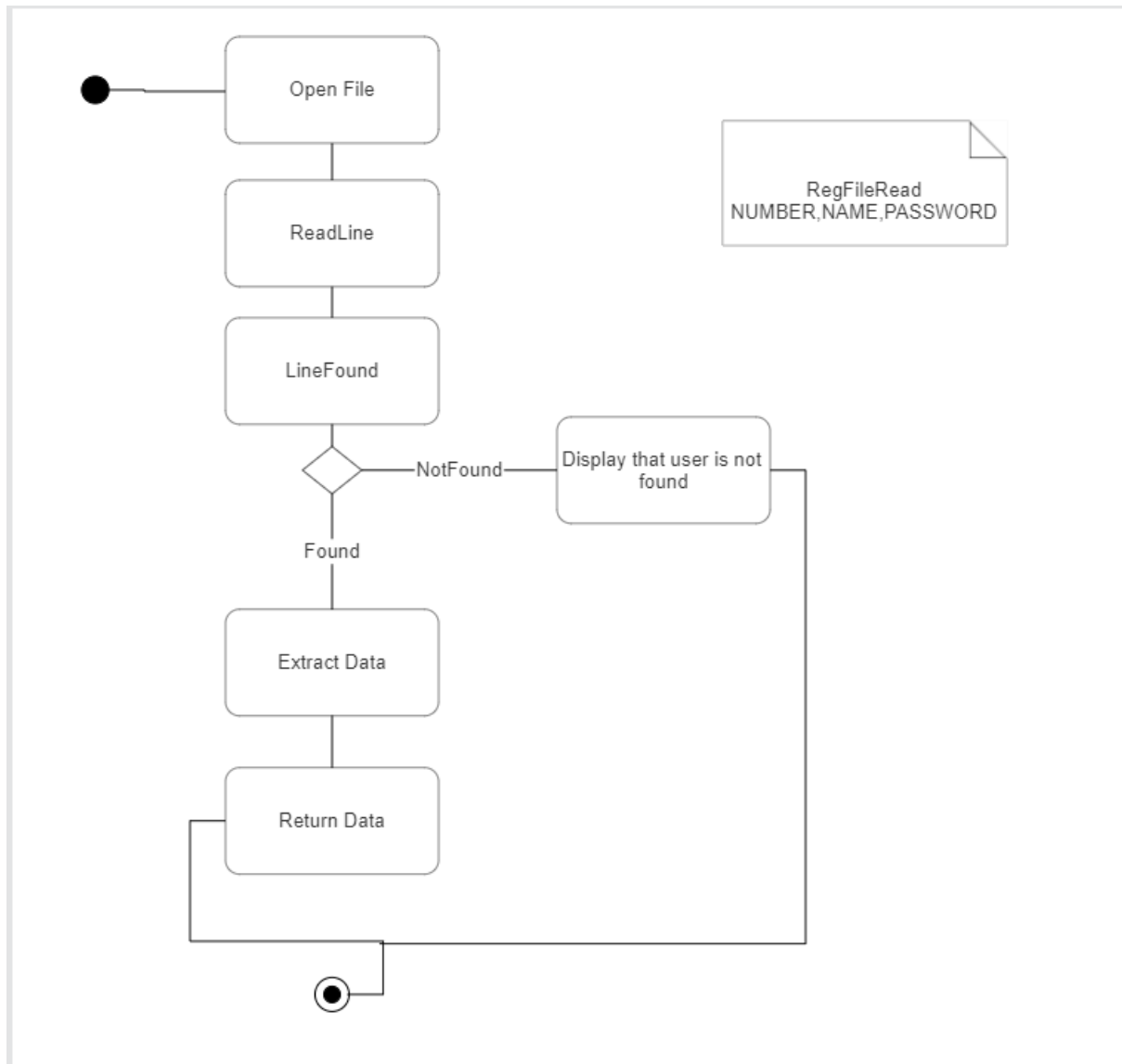
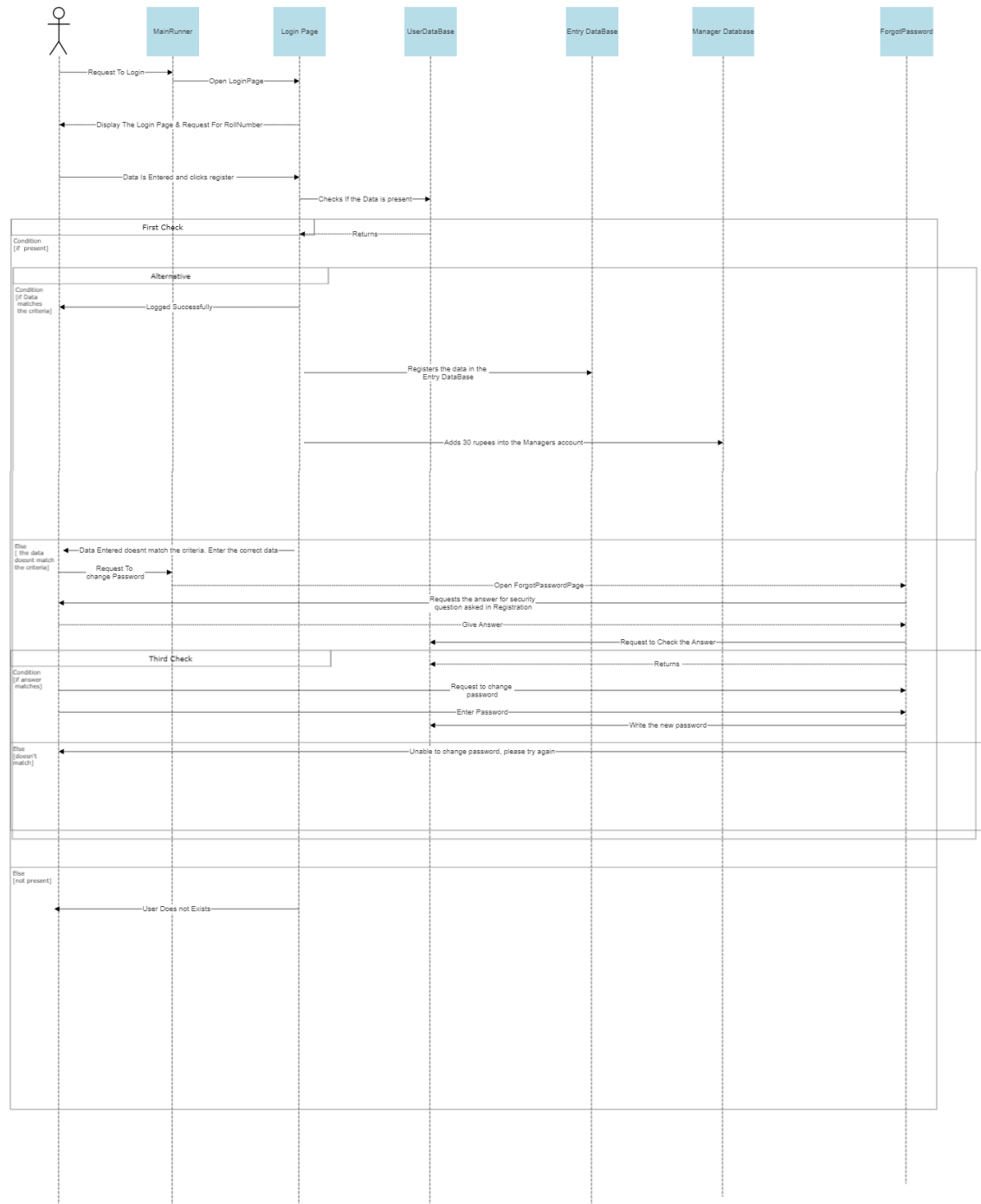Show Success Message
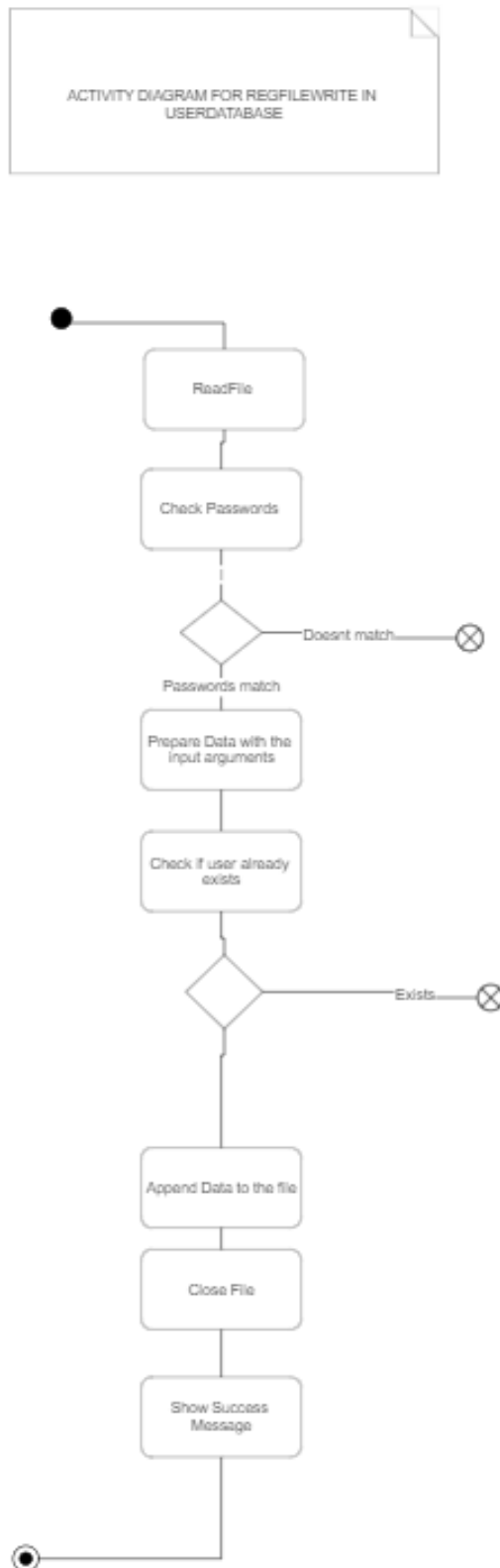
Sequence diagrams of the module:

Login Page sequence:

Register Page sequence:

Actors/Objects: MainRunner, Report Page, UserDataBase, Entry DataBase, Reports Folder

- Request To Report Page
- Open Report Page
- Display The Report Page & Request For all the Data
- Data Is Entered and clicks get Report
- Checks If the User is present

Alternative

Condition [if present]
- Returns
- Request Entry data from
- Give Entry Data
- Create Report and save it in the folder
- Report Generated Successfully

Else [if not present]
- User Already Exists