

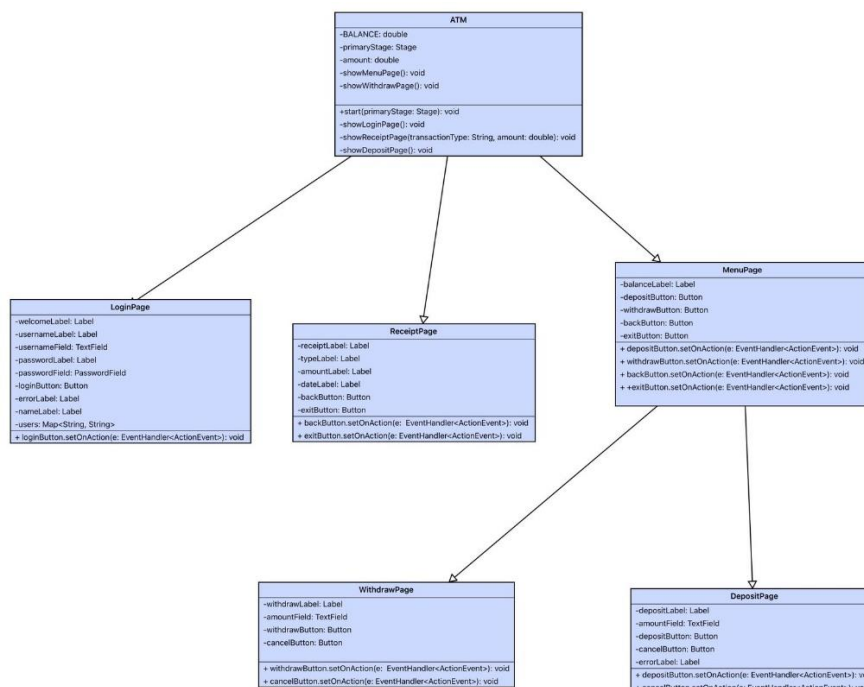
Final Project Report – Spring 2023

JavaFX ATM Program

Introduction:

The purpose of this project is to develop a JavaFX program for an Automated Teller Machine (ATM). The program prompts the user to enter their account number and PIN, verifies the credentials, and provides a menu for performing various transactions such as checking balance, making deposits, making withdrawals, and exiting the system. The program also generates transaction receipts with details like transaction type, amount, and date.

UML Diagram:



Program Implementation:

The program is implemented using JavaFX, which provides a rich set of graphical user interface (GUI) components for building interactive applications. The code is structured into multiple methods, each responsible for handling a specific functionality. The main stages of the program are as follows:

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1. Login Page:

The login page is the initial screen displayed to the user. It consists of labels for instructions, text fields for entering the account number and PIN, a login button, and an error label to display login errors. Upon clicking the login button, the entered credentials are validated against a pre-defined set of users stored in a map. If the credentials are correct, the menu page is displayed; otherwise, an error message is shown. The login page also displays the names of the creators of the program.

2. Menu Page:

The menu page is displayed after successful login. It shows the current account balance and provides options for deposit, withdrawal, going back to the login page, or exiting the system. The menu page is implemented using a border pane layout, with the balance label at the top and buttons for different options at the center. Clicking the deposit or withdrawal button navigates to the respective pages, while the back button takes the user back to the login page, and the exit button closes the application.

3. Deposit Page:

The deposit page allows the user to enter the amount they want to deposit into their account. It includes a label for instructions, a text field for entering the amount, a deposit button, a cancel button, and an error label to display any invalid input errors. Clicking the deposit button adds the specified amount to the account balance and navigates to the receipt page, while the cancel button takes the user back to the menu page.

4. Withdraw Page:

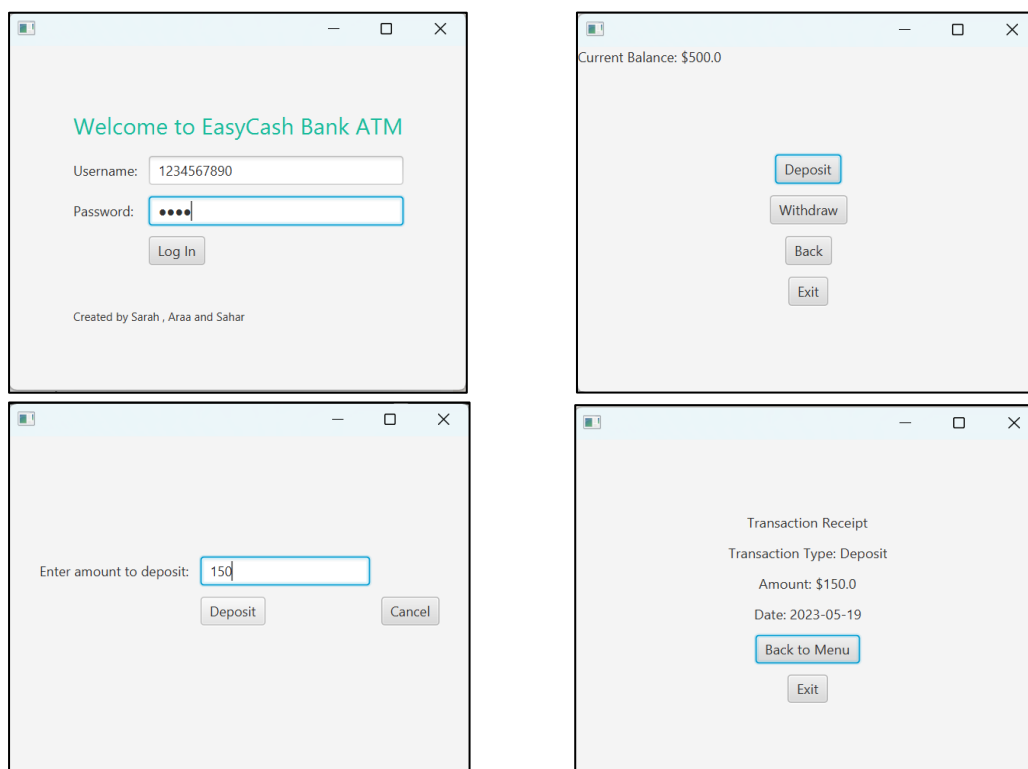
The withdraw page allows the user to enter the amount they want to withdraw from their account. It consists of a label for instructions, a text field for entering the amount, a withdraw button, a cancel button, and an error label to display any invalid input errors. Clicking the withdraw button subtracts the specified amount from the account balance if sufficient funds are available and navigates to the receipt page. If the user attempts to withdraw more than the available balance, an error message is displayed. Clicking the cancel button takes the user back to the menu page.

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5. Receipt Page:

The receipt page displays the transaction receipt with details such as transaction type (deposit or withdrawal), amount, and the current date. It includes labels for each detail, as well as buttons to go back to the menu page or exit the system. Clicking the back button takes the user back to the menu page, while the exit button closes the application.

Screenshots:



Conclusion:

The developed JavaFX program provides a user-friendly interface for an ATM system. It allows users to securely log in, view their account balance, and perform transactions like deposits and withdrawals. The program also generates transaction receipts for each transaction, providing users with a record of their activities. The modular structure of the code enables easy maintenance and future enhancements. This project demonstrates the practical application of JavaFX for building interactive GUI-based applications.