PES University, Bengaluru

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Department of Computer Science & Engineering

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UE19CS353 – Object Oriented Analysis and Design with Java

Theory ISA (Mini Project)

Report on

<Automatic Teller Machine>

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6th Semester | Section – E

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Chapter 1

1.1. Project Description:

This project is to make an automated teller machine with the user's account number, pin number, and bank account. Using these credentials, users can deposit, withdraw and transfer funds.

1.2. Link to Github repository:

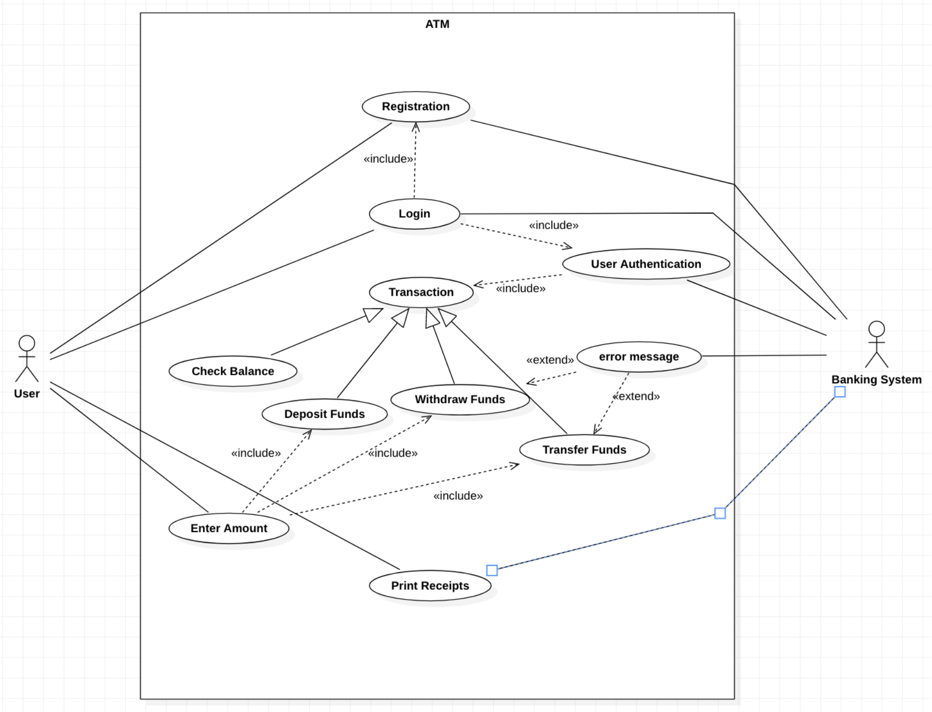
https://github.com/riasingh12/ATM

1.3. Features:

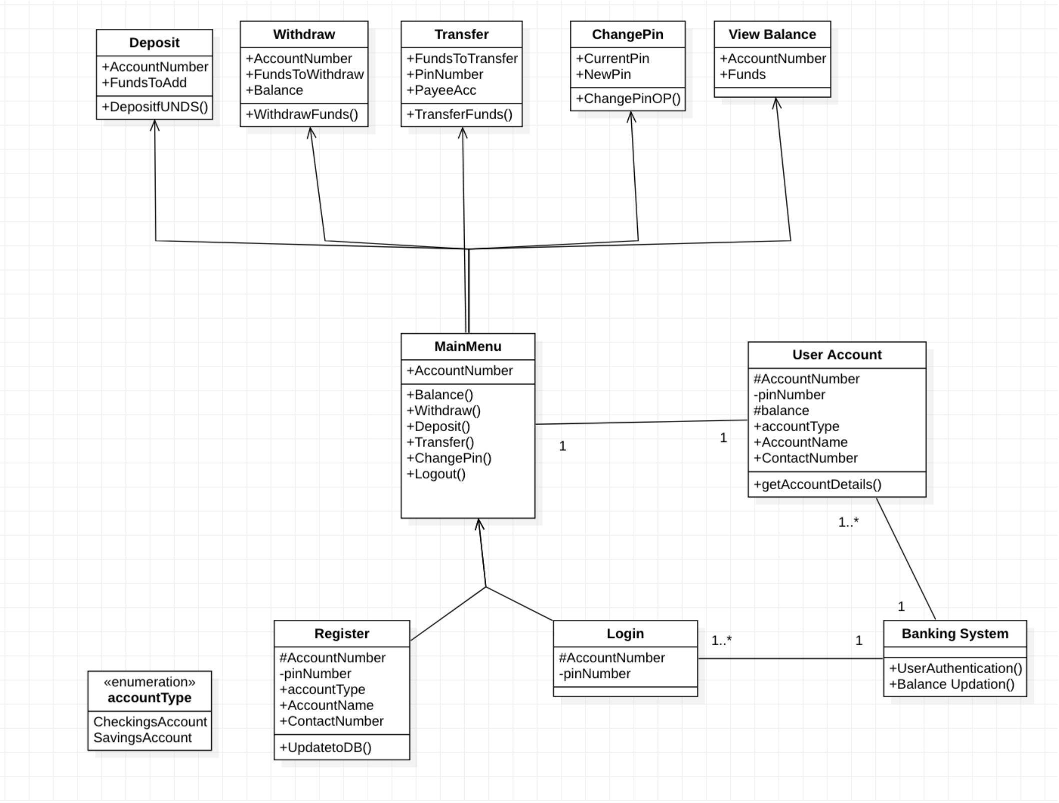
- User signup and login- Creating users along with their login credentials and storing them using files.
- Cash deposit- Enabling users to deposit cash into their accounts.
- Cash withdrawal- Allowing users to withdraw cash based on the amount present in the account.
- View balance- Users will be able to view their current balance before performing any actions.
- Transfer- Allowing transfer of funds from one user to another existing user.
- Change Pin- Allowing the user to change their account Pin.

Chapter 2

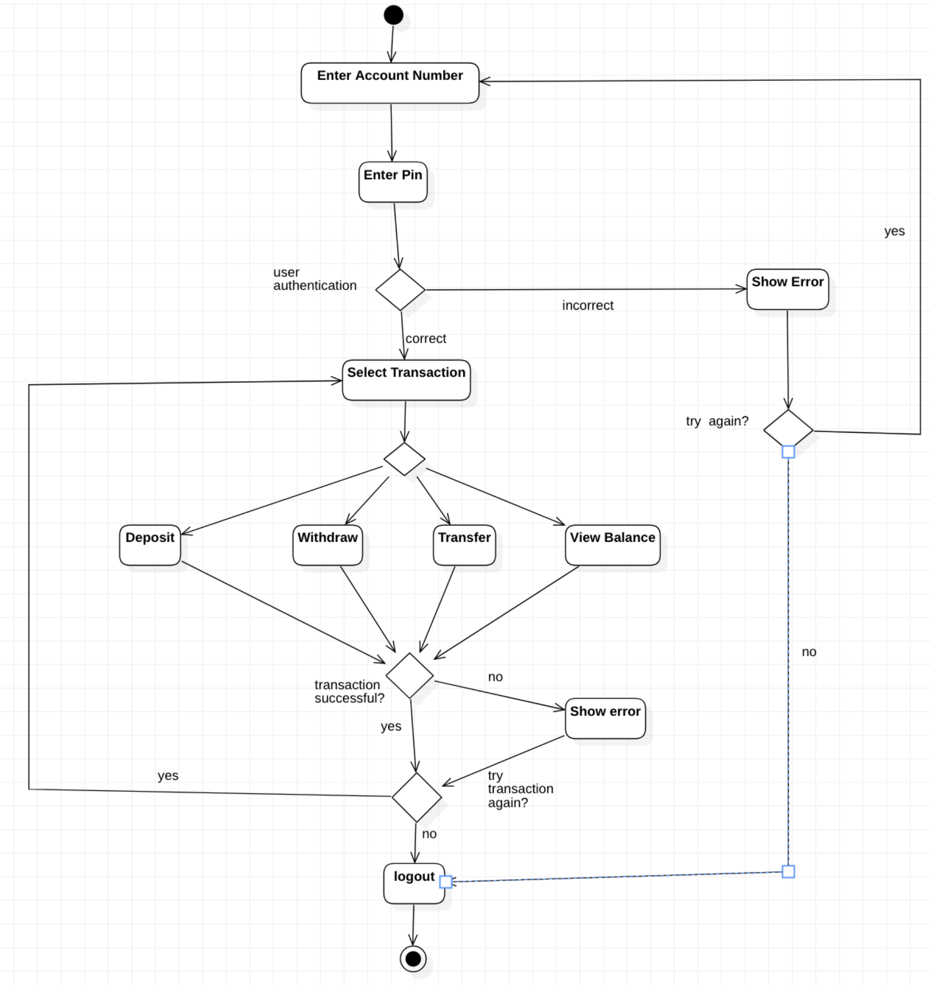
2.1. Analysis and Design Models



2.1.1. Use Case Diagram



2.1.2. Class Diagram



2.1.3. State Diagram

Chapter 3

3.1. Tools and Frameworks Used

Language: Java

Frontend: Swing, AWT

Database: SQL and PHP

IDE: Netbeans

Chapter 4

4.1. Design Principles:

Single Responsibility Function is applied because each functionality of the ATM has its own class.

Open-Close Principle because if we need to add new functionality we can just extend by adding a new class for that functionality without needing to disrupt the existing classes.

4.2. Design Patterns:

Behavioral Design Pattern:

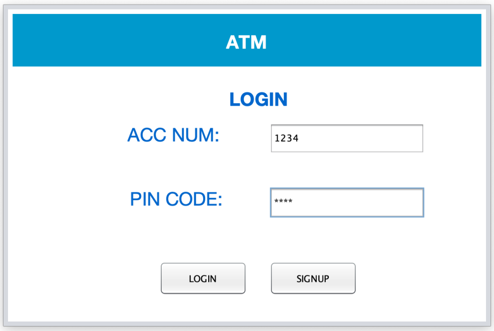
State- As our project is ATM where the click of a button and other event triggers cause changes in action, we have applied State as a design pattern that allows an object to alter its behavior when its internal state changes.

Structural Design Pattern:

Facade- This design pattern delegates client requests to appropriate subsystem classes which in turn implement those subsystem functionalities. In our ATM, we have implemented a “menu” that would call the functionalities as per the user’s request.

Chapter 5

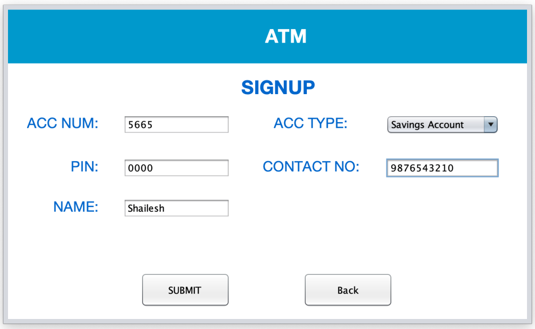
5.1. Application Screenshots (3-4 important pages)



ACC NUM: 1234

PIN CODE: ****

5.1.1. Login Page



ACC NUM: 5665

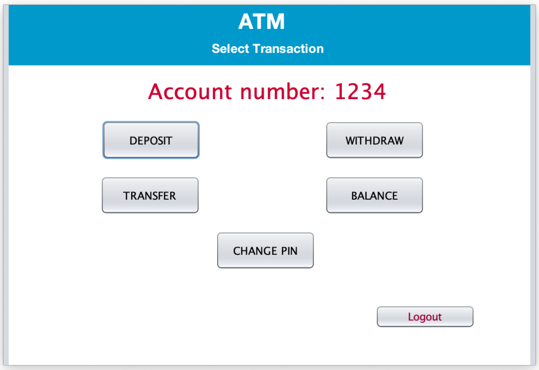
ACC TYPE: Savings Account

PIN: 0000

CONTACT NO: 9876543210

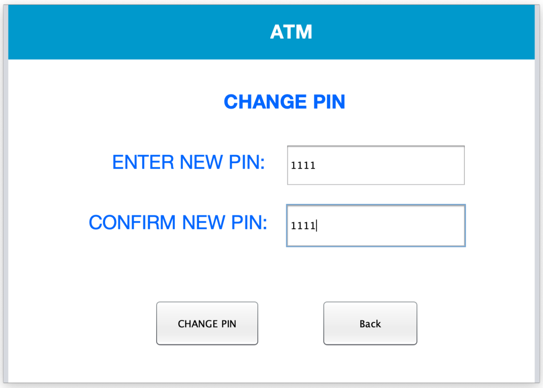
NAME: Shailesh

5.1.2. Signup Page



Account number: 1234

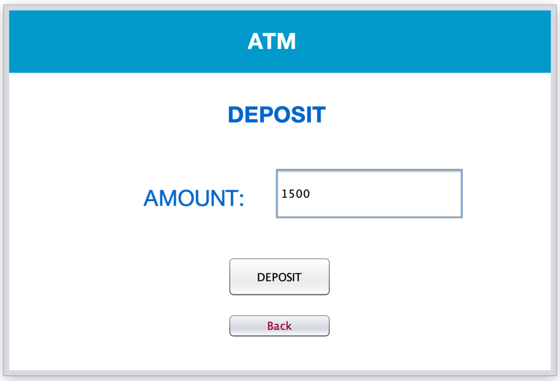
5.1.3. Transaction Menu Page



ENTER NEW PIN: 1111

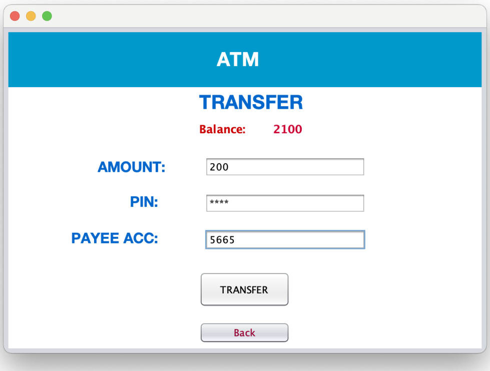
CONFIRM NEW PIN: 1111

5.1.4. Change Pin Page



AMOUNT: 1500

5.1.5. Deposit Page



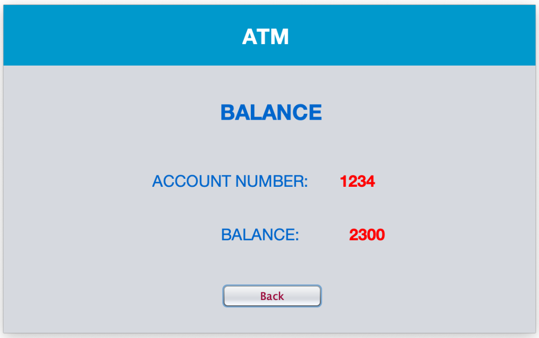
Balance: 2100

AMOUNT: 200

PIN: ****

PAYEE ACC: 5665

5.1.6. Transfer Page



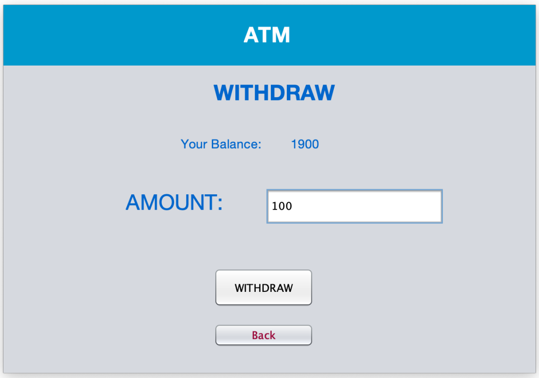
ATM

BALANCE

ACCOUNT NUMBER: 1234

BALANCE: 2300

5.1.7. Balance Page



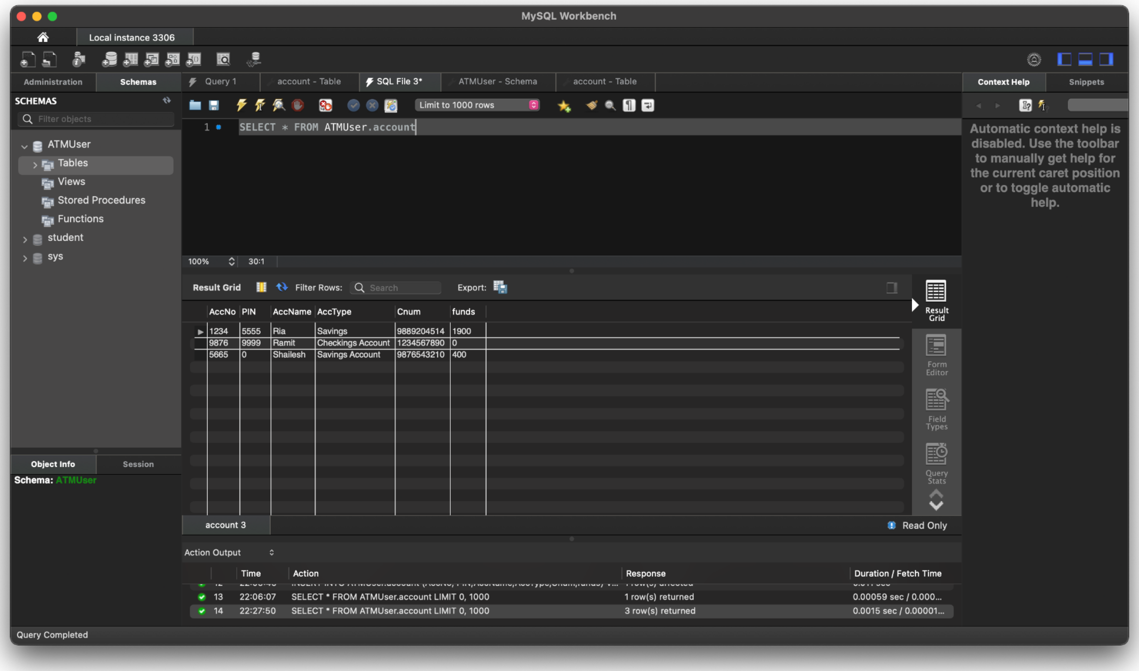
ATM

WITHDRAW

Your Balance: 1900

AMOUNT: 100

5.1.8. Withdraw Page



```
SELECT * FROM ATMUser.account
```

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Schema: ATMUser

AccNo	PIN	AccName	AccType	Cnum	funds
1234	5555	Ria	Savings	9889204514	1900
9876	9999	Ramit	Checkings Account	1234567890	0
5665	0	Shailesh	Savings Account	9876543210	400

	Time	Action	Response	Duration / Fetch Time
13	22:06:07	SELECT * FROM ATMUser.account LIMIT 0, 1000	1 row(s) returned	0.00059 sec / 0.000...
14	22:27:50	SELECT * FROM ATMUser.account LIMIT 0, 1000	3 row(s) returned	0.0015 sec / 0.00001...

Query Completed

5.1.9. Database

Chapter 7

7.1. Team member contributions

SRN	Name	Contribution
PES2UG19CS307	R Shailesh	Deposit, Withdraw
PES2UG19CS319	Ramit Bathula	Login, Signup
PES2UG19CS326	Ria Singh	Transfer, Change Pin

Frontend & Backend of each function was done by the respective member.

Chapter 8

7.1. Conclusion

The ATM we have designed consists of multiple functionalities like deposit cash, withdraw cash, change pin, transfer funds, and view balance. We have also integrated structural and behavioral design patterns like facade and state respectively alongside the following two solid principles such as Single Responsibility and Open Close. This project was designed using swing for frontend, SQL via myphpadmin for backend on Netbeans IDE.

Chapter 9

8.1. References

- https://www.javatpoint.com/java-swing
- https://www.w3schools.com/php/php_mysql_connect.asp
- https://www.rose-hulman.edu/class/se/csse290-WebProgramming/201520/SupportCode/SQL-setup.html