ATM Interface in Java System

Submitted in partial fulfillment of the requirements of the degree

BACHELOR OF ENGINEERING

IN

Computer science and Engineering (Data Science)
Sem - III

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(AY 2022-23)

CERTIFICATE

This is to certify that the Mini Project entitled **"ATM INTERFACE IN JAVA"** is a bonafide workof **KHAPRE TUSHAR JAGDISH (DS36), PAWAR SIDDHARTH SUNIL(DS38), SINGH HARSH YOGENDHAR (DS39), SHARMA VIKAS RAJENDRA(DS40)** submitted to the University of Mumbai in partial fulfillment of the requirement for the award of the degree of **"Bachelor of Engineering"** in **"Computerscience and Engineering (Data Science)" .**

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Abstract

Automated Teller Machine enables the clients of a bank to have access to their account without going to the bank. This is achieved only by development the application using online concepts.

When the product is implemented, the user who uses this product will be able to see all the information and services provided by the ATM, when he enters the necessary option and arguments. The product also provides services likerequest for cheques, deposit cash and other advanced requirement of the user. The data is stored in the database and is retrieved whenever necessary. The implementation needs ATM machine hardware to operate or similar simulatedconditions can also be used to successfully use the developed product.

Chapter no 1

Introduction

The program is designed in such a way that the user has to card and pin number. Once verified, he is provided a menu and he/she had to enter the option provided in the menu. For example, when the user wants to view the list of payment history than he/she had to enter the option for payment history provided in the main menu. When the option is entered alone with the respective argument, then the payment history is displayed onthe screen.

The user also must be given option to browse through the pages like previous page, next page, etc.The user may experience a delay in retrieving or viewing the data, when there are many users loggedon to the same bank branch system.

1.1 Motivation

The motivation of this project comes with observing their difficulties in busy situation while I was there as I usually visit the place to order food. Personally I don’t have much time to wait in long queues. This restaurant is also very crowded during lunch and dinner time. Although this restaurant in not very large they have to provide quality service to enormous number of customers. Without a system it is very difficult. Other than that, I value learning web designing and development because I have less experience in this area and it will helpful in future for my carrier. New expectation is there for this project due the current situation in the country with Covid-19 virus. This kind of solution will help to make the restaurant less crowded.

1.2 Problem Statement

Problem statement

Millions of times per day around the globe people are instantly withdrawing money at automatic teller machines (ATMs). Given the fast-pace of the world today, it is not surprising that the demand for access to quick cash is so immense. The power of ATMs would not be possible without secure connections. The final act of ATM dispending cash is the result of an amazingly fast burst of the customer never sees, but a trust is being done in a confidential manner.

Millions of times per day around the globe people are instantly withdrawing money at automatic teller machines (ATMs). Given the fast-pace of the world today, it is not surprising that the demand for access to quick cash is so immense. The power of ATMs would not be possible without secure connections. The final act of ATM dispending cash is the result of an amazingly fast burst of the customer never sees, but a trust is being done in a confidential manner

- Enter Name, Account number, Account type to be shown during transactions.
- Shows the information about the person who is doing the transaction.
- Enter amount to deposited in the account.
- Shows the Balance in the account.
- Enter amount to be withdrawn from the account, and then it shows available balance.
- Cancel the transaction.

1.3 Objectives

Atm(automatedtellermachine)isamachinewhichisusedforcashwithdrawals,intakeandout ake and some others small purpose. Atm is for those person who had bank accounts. It canease our life. On behalf of that we made ATM Management System for making our work easier.The code is written in java language. Visual Studio is used to compile the code. The code carryout all the functions that all standard atm machines

Chapter no 2

Literature Survey

2.1 Survey of Existing System: -

In designing model for predicting the cash needs of ATMs within a network for a single financial institution, Long-Short Term Memory (LSTM) Recurrent Neural Networks (RNN) were shown to perform better for this challenge when compared to our technique. The dataset utilised for this research was made up of the transactions made at seven ATMs in Karachi, Pakistan, between June 2013 and December 2015. Using the Symmetric Mean Absolute Percentage Error (SMAPE), the results of the trials may be reported

[1]. Time Series Model for ATM is based on the ARIMA approach and uses time series data (TASM4ATM). The replenishment data from 2040 ATM is used to train the software. The model is compared to Recurrent Neural Networks and Amazon's Deep AR model. Predicting ATMs may be done in two ways: a single ATM and a cluster of ATMs

[2]. Predicting the ATM cash replenishment amount is one such difficulty, ensuring that the minimal quantity of cash is always present before the next replacement. There'll be no client unhappiness as a result of an ATM that is always cash filled. For this issue, the Root Mean Squared Error (RMSE) of the Long Short-Term Memory (LSTM) model is 132.53, which is positive. They expect to cluster ATMs based on transaction patterns and cash demand similarities in order to predict a cash supply. It is possible to utilise a basic model to service a large number of ATMs in this manner

[3]. When considering replenishment expenses as well as stock-outs, an ideal restocking strategy aims to reduce overall money holding and customer discontent costs to a minimum. The replenishment approach takes into account the fact that future financial needs are not known at the outset of the planning process. Rather than making point forecasts, they employ prediction intervals to account for unknown future cash needs, and then apply robust optimization and linear programming to address the issue of replenishing currency. Retroactive ATM cash withdraw data is used to assess the effectiveness of various refilling strategies [4]. Predicting NN5 cash needs using support vector machines (SVMs) as the most promising machine learning approach. This study's major objective is to predict NN5 time series utilizing support vector regression, followed by calculating Root Mean Square Error. Clustering is used in ATM cash prediction pre-processing to enhance the RMSE,

2.2 limitations of Existing system research gap: -

This study provides better guidelines for bank mangers and policy makers to enhance customers satisfaction via service quality of ATM. It also provides indications about service threats which identified in the survey. However, there are some limitation of the results and conclusions made by this study. First major limitation is related to sampling there is may be some sampling error sampling biasness and time biasness which reduce validity of the results. Although author has tried to reduce this errors by adopting appropriate and scientific sampling methods as well as advanced statistical tools of DATA ANALYSIS.

Chapter no 3

Proposed System

3.1. Introduction

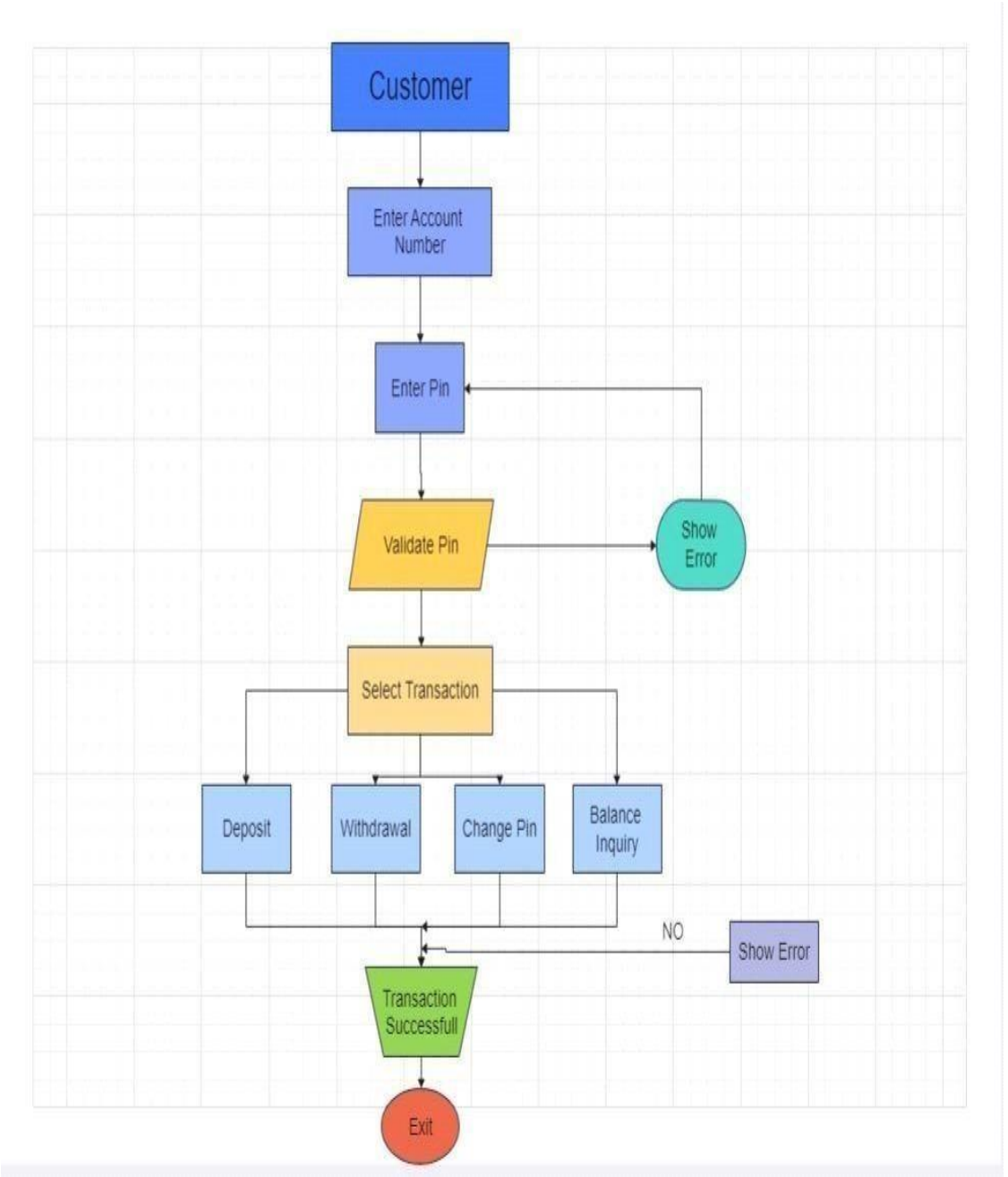
A bank customer is able to access his or her account using an automatic teller machine. To be able to use an ATM a customer must first register an account number and a passcode number. The customer's information is then added to a list of registered users. The ATM user interface consists of a keypad, a display window, a selection of choice options, and a help screen that displays instructions for completing an ATM transaction. Users are asked to enter their account number from the keypad followed by their passcode. If the customer is a valid user, instructions are given for choosing a transaction. During a transaction, the user's account is accessed and updated. Upon completion of a transaction, the user may elect to make another transaction or to quit.

ADVANTAGES OF ATM

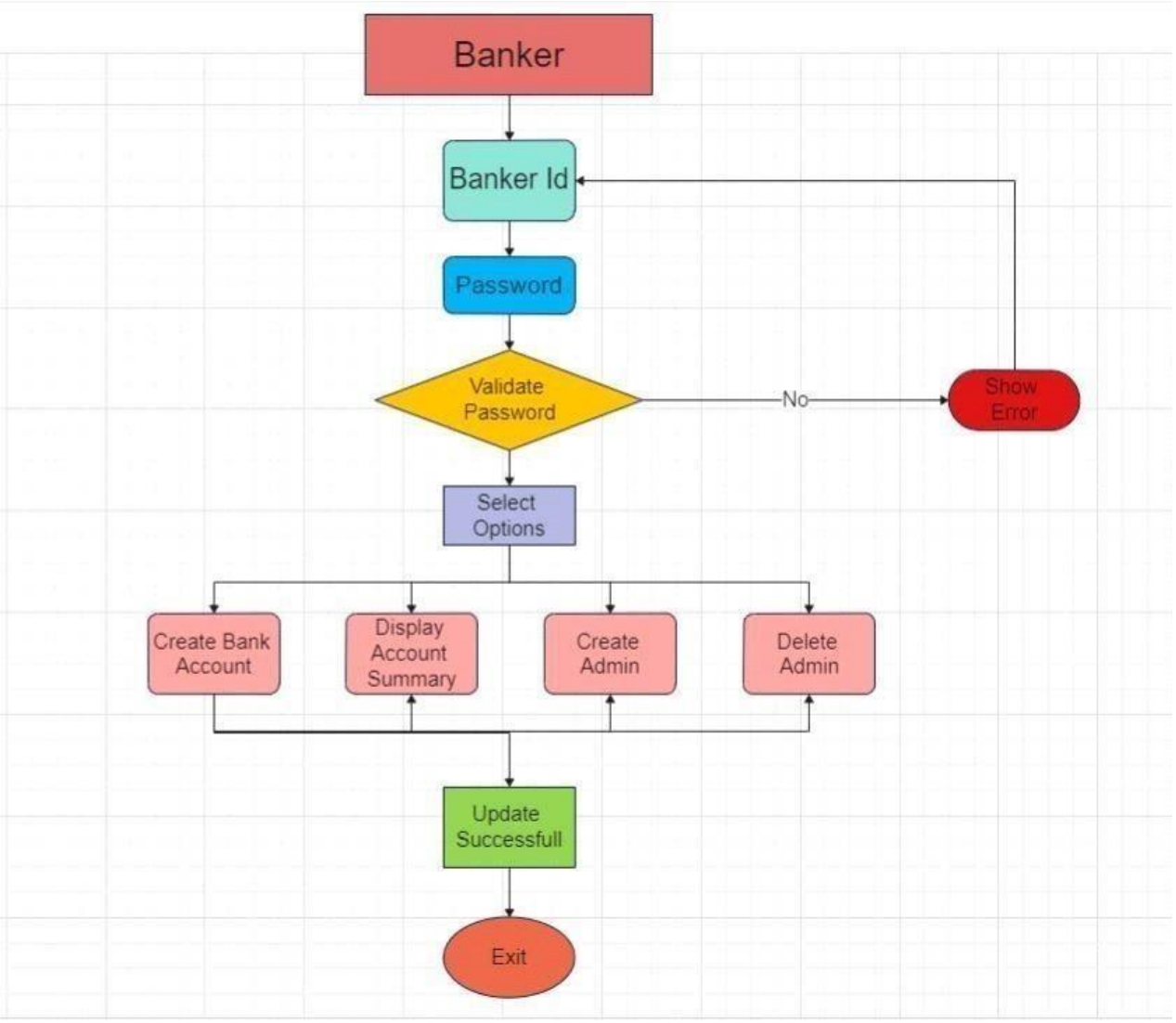
- Access to hard Cash Anywhere at Anytime.
- ATM Machines offer Financial Inclusion.
- ATM Machines offer wide range of services.
- ATM machines are Cheaper to Maintain
- ATM machines Serve an Important Function in times of Crisis.
- ATM machines can be targeted by criminals, robbers and hackers.

3.2 FLOW CHART

CUSTOMER FLOW CHART



BANKER FLOW CHART



3.3) Details of Hardware & Software

- **Software Required**

Project Name	**ATM INTERFACE**
Language used	Java
Database	FILE SYSTEM
Software	Note pad , Eclipse IDE

- **Hardware Required (minimum)**

PC used	**DELL**
Processor	Intel i5 Intel(R) Core(TM) i7-4600M CPU @ 2.90GHz 2.89 GHz
Memory	4 GB RAM
File system	64 Bit

Chapter no 4

Experiments and Result

We have experimented with different platforms for code execution and at last got settled to complete the project on Note pad We have experimented through various templates for the user interface of our Program for this purpose we took in consideration . Not only this we went through but we learned how to implement the Project and we also experimented by adding tabsin text editor

4.2 Results

1. Welcome screen:

```
*** Welcome to LTCE Bank, MUMBAI University Branch! ***

------------------------
       Enter your choice:
------------------------
1. Banker
2. Customer
3. Exit

       Choice:
```

2. Banker login:

```
*** Welcome to LTCE Bank, KOPAR KHAIRANE University Branch! ***

-------------------------
        Enter your choice:
-------------------------
1. Banker
2. Customer
3. Exit

        Choice: 1

Please enter admin id: admin
Please enter admin password: admin@123
```

3. Login authentication:

```
------------------------
        Enter your choice:
------------------------
1. Banker
2. Customer
3. Exit

        Choice: 1

Please enter admin id: tush
Please enter admin password: 5555

# Please enter valid credentials! #

Please enter admin id:
```

2. Banker Option:

```
Choose the number corresponding to function:
1. Create a bank account
2. Display Account summary
3. Close bank account
4. Create an admin account
5. Delete an admin account
6. Return to main menu

        Choice:
```

3.1 Create Bank Account:

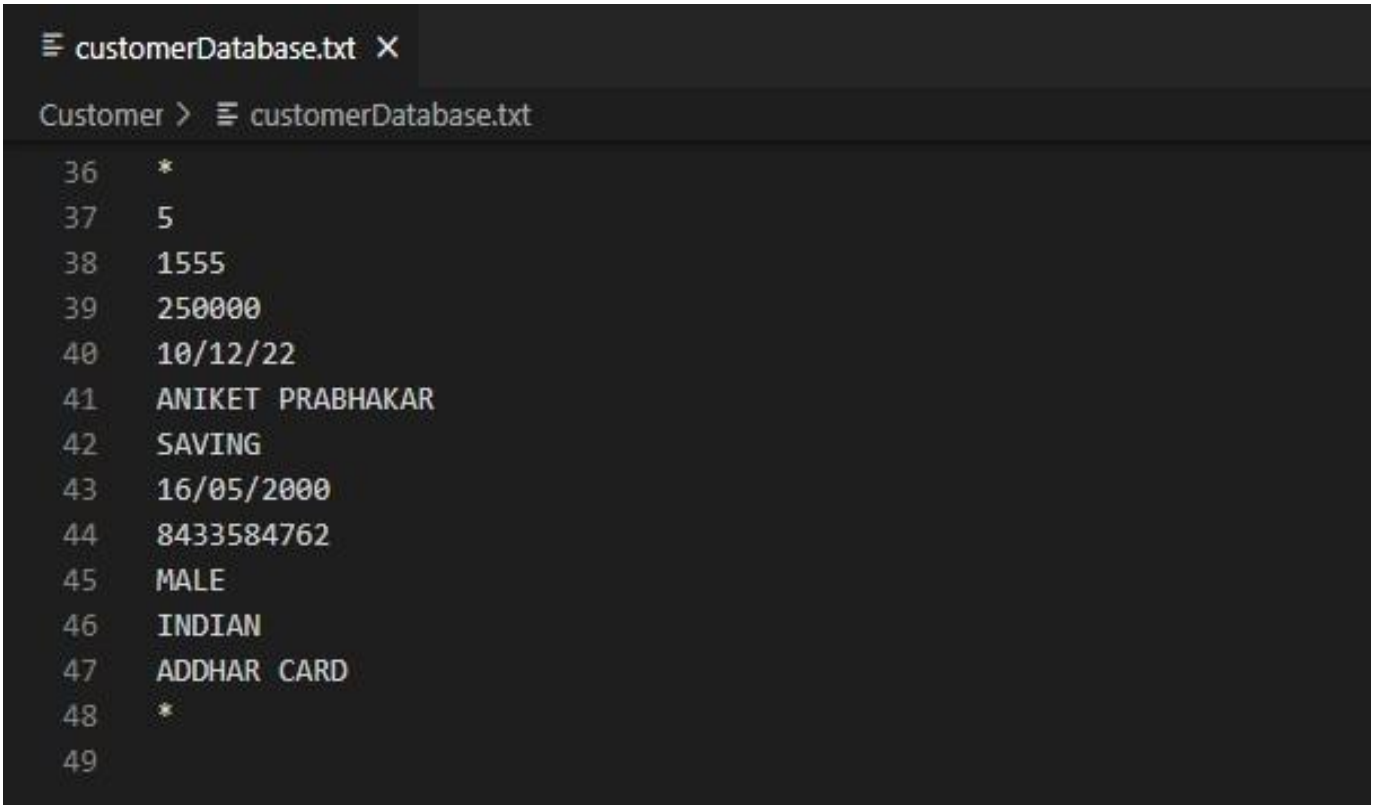
```
        Choice: 1
Please enter your account number: 1
This account number already exists! Please enter another account number:
005
Please enter date of account creation (dd/mm/yyyy): 10/12/22
Please enter your name: ANIKET PRABHAKAR PATIL
Please enter your account type: SAVING
Please enter your date of birth (dd/mm/yyyy): 16/05/2000
Please enter your Mobile number: 8433584762
Please enter your gender (Male/Female): MALE
Please enter your nationality: INDIAN
Please enter your KYC document: ADDHARCARD
Please set your 4-digit PIN: 1555
Confirm PIN: 1555
Please enter your initial balance: 250000
# Customer account added successfully! #
```

3.2 DISPLAY ACCOUNT SUMMARY:

```
        Choice: 2

Please enter account number whose data is to be displayed: 1
Account number : 1
Current balance : 250000
Date of Account Creation : 10/12/22
Name of account holder : ANIKET PRABHAKAR PATIL
Type of account : SAVING
DOB of account holder : 16/05/2000
Mobile number : 8433584762
Gender : MALE
Nationality : INDIAN
KYC : ADDHARCARD
```

3.3 DATA STORE IN COUSTOMER DATABASE:


customerDatabase.txt

Customer > customerDatabase.txt

```
*
5
1555
250000
10/12/22
ANIKET PRABHAKAR
SAVING
16/05/2000
8433584762
MALE
INDIAN
ADDHAR CARD
*
```

3.4 DATA STORE IN CUSTOMER DATABASE:

```
Choose the number corresponding to function:
1. Create a bank account
2. Display Account summary
3. Close bank account
4. Create an admin account
5. Delete an admin account
6. Return to main menu

        Choice: 3

Please enter account number whose data is to be deleted: 5

Account with account no. 5 closed successfully!
```

3.5 CREATE NEW ADMIN ACCOUNT

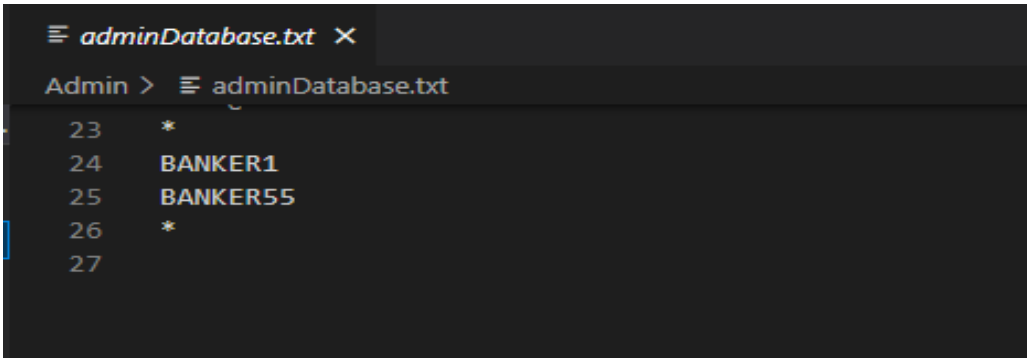
```
Choose the number corresponding to function:
1. Create a bank account
2. Display Account summary
3. Close bank account
4. Create an admin account
5. Delete an admin account
6. Return to main menu

        Choice: 4

Enter Admin id: BANKER1
Enter Admin password: BANKER55

# Admin account created successfully! #
```

3.6 NEW ADMIN ID AND PASSWORD STORE IN DATA BASE:



3.5 DELETE AN ADMIN ACCOUNT:

```
Choose the number corresponding to function:
1. Create a bank account
2. Display Account summary
3. Close bank account
4. Create an admin account
5. Delete an admin account
6. Return to main menu

        Choice: 5

Please enter admin id whose data is to be deleted: BANKER1
Please enter admin password: BANKER55

# Admin account deleted successfully! #
```

3.6 DELETE FROM ADMIN DATABASE:

Admin > adminDatabase.txt

```
7    harsh
8    harsh@12
9    *
10   vikas
11   vikas@99
12   *
13   sidd
14   sidd@123
15   *
```

- **4 CUSTOMER:**

- **4.1 DEPOSIT MONEY:**

```
Choose the number corresponding to function:
1. Deposit money
2. Withdraw money
3. Change PIN
4. Show account balance
5. Close bank account
6. Return to main menu

        Choice: 1

Please enter your account number: 5
Please enter the 4 digit PIN of your account number: 1555
Please enter the amount to deposit: 5000

Sum of Rs. 5000 deposited successfully. Your updated balance is Rs. 30000

Choose the number corresponding to function:
1. Deposit money
2. Withdraw money
3. Change PIN
4. Show account balance
5. Close bank account
6. Return to main menu

        Choice:
```

4.2 WITHDRAW MONEY:

```
Choose the number corresponding to function:
1. Deposit money
2. Withdraw money
3. Change PIN
4. Show account balance
5. Close bank account
6. Return to main menu

        Choice: 2

Please enter your account number: 5
Please enter the 4 digit PIN of your account number: 1555

Please enter the amount to withdraw: 2514

Sum of Rs. 2514 withdrawn successfully. Your updated balance is Rs. 27486
```

4.3 CHANGE PIN:

```
Choose the number corresponding to function:
1. Deposit money
2. Withdraw money
3. Change PIN
4. Show account balance
5. Close bank account
6. Return to main menu

        Choice: 3

Please enter your account number: 5
Please enter the 4 digit PIN of your account number: 1555

Please set your new 4-digit PIN: 1222

Confirm PIN: 1222

# Your PIN was changed successfully! #
```

4.4 SHOW ACCOUNT BALANCE:

```
Choose the number corresponding to function:
1. Deposit money
2. Withdraw money
3. Change PIN
4. Show account balance
5. Close bank account
6. Return to main menu

        Choice: 3

Please enter your account number: 5
Please enter the 4 digit PIN of your account number: 1555

Please set your new 4-digit PIN: 1222

Confirm PIN: 1222

# Your PIN was changed successfully! #
```

4.4CLOSE BANK ACCOUNT :

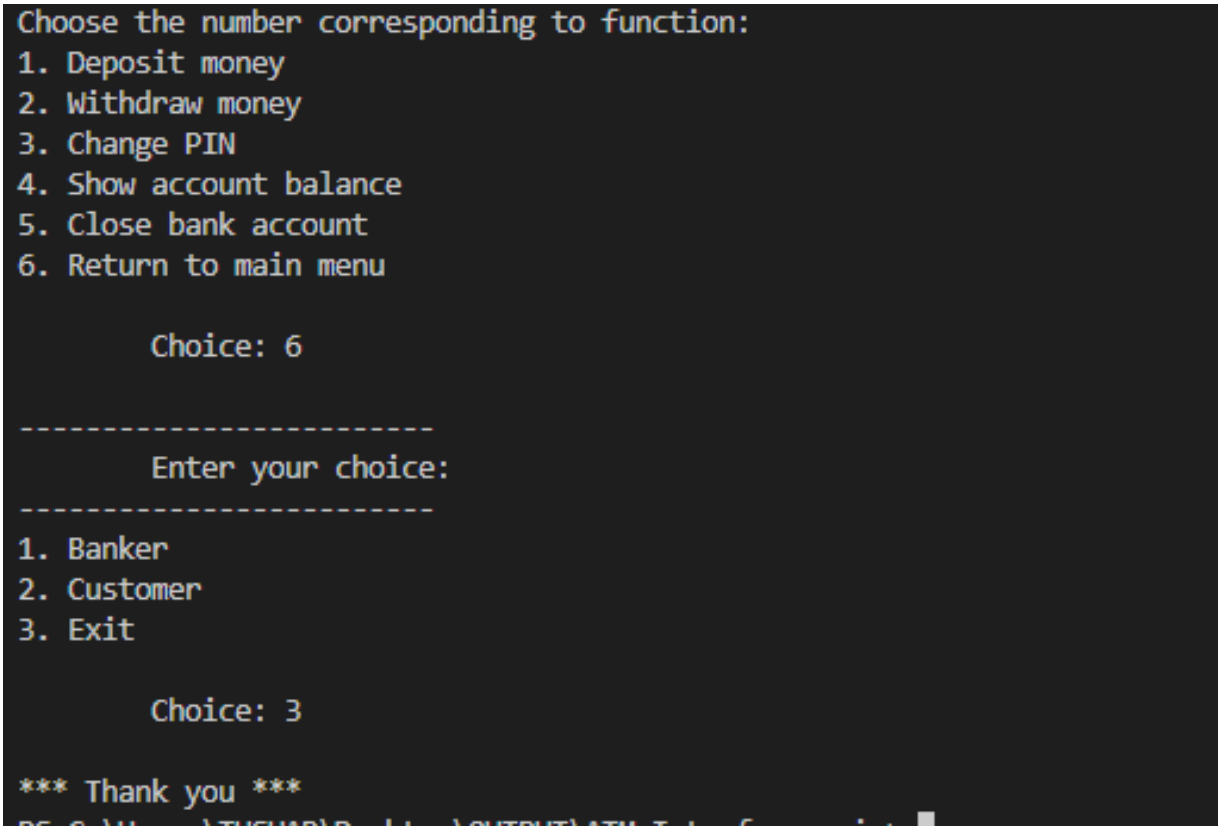
```
Choose the number corresponding to function:
1. Deposit money
2. Withdraw money
3. Change PIN
4. Show account balance
5. Close bank account
6. Return to main menu

        Choice: 5

Please enter your account number: 5
Please enter the 4 digit PIN of your account number : 1222

Account with account no. 5 closed successfully!
```

3.EXIT:


Choose the number corresponding to function:
1. Deposit money
2. Withdraw money
3. Change PIN
4. Show account balance
5. Close bank account
6. Return to main menu
Choice: 6
Enter your choice:
1. Banker
2. Customer
3. Exit
Choice: 3
*** Thank you ***

Chapter no 5

Conclusion and future work

Conclusion

The purpose of the wireless restaurant management system is to improve worker efficiency and to maximize profit margin of restaurant owners by providing better service. Providing prompt response to customers through use of a System and data collection by the Main Dispatcher will allow this to happen. This project proved to be a larger task than expected due to lack of manpower and late arriving parts. Certain functionality also had to be abandoned to meet time constraints. The System is not designed to replace the existing ordering systems which are at many restaurants but to complement it. Once the Restaurant Management System becomes further refined with the ideas discussed in the previous section, it will pose to be an indispensable tool.

Future Plan

The system is designed keeping in mind the current requirements of the ATM. However some aspects were not considered and system can easily changing where shop requirements are changed.

- Some of the enhancements can be:
- System can be design in GUI environment.
- The system can be made flexible so that new modules can be added at any given time
- In future system can be construct the modules of fund transfer, Mobile recharge, pay electricity bill can be developed

References

SR.no	Paper title	Author	Technique used	Findings (Result)	Remarks
1.	ATM cash predictionusing timeseries approach	Rafiet.al	VAR-MAX model is built foreach ATM basedon transaction data, which is then used to predict future ATM performance.	RMSE of 358950.12 was established by comparing the outcomes of identical ATM datasets across 2.5 million transactions.	Need very long time
2.	Towards optimal ATM cash replenishmentutilizing time series analysis	Rafiet.al	Using the A RIMAtechnique to time series data, this paper presents an A RIMA Time Series model for ATMs (TASM4ATM). Six bankin g organisations' ATMback-endrefill data was used in this inquiry.	In comparison to the other models examined, the suggested model generated an average of 7.86/7.99 MAPE / SMAPE errors on individual ATMs and 6.57/6.64 on clusters of ATMs.	In accuracy
3.	A LSTM Based Modelfor PredictingATM	Azad et.al	adopting a data-driven method forthe estimate ofthe proper quantity for	Determining the appropriate quantity of cash to have on hand for	Inefficient Prediction

Links References

- https://www.javatpoint.com/atm-program-java#:~:text=In%20Java%2C%20we%20can%20create,check%20the%20balance%2C%20and%20exit.
- https://www.javatpoint.com/atm-automated-teller-machine
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- https://tutorialsinhand.com/tutorials/java-programs/java-menu-driven-program/atm-menu-driven-java-program.aspx