ATM Group Project

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Introduction

ATM system is very useful when we maintain our investments. Here, we have created an ATM (Automated Teller Machine) application using the java programming language. In this development, we have used GUI (Graphical User Interface). So, this project has become user-friendly.

In this ATM system, no one can log in to the system without registering the system. So, unless someone hasn't got an account, they can create one by registering. After logging in to the system, the user can deposit, withdraw and transfer money. And also, in this program, the user can check the account balance and check transaction history.

Furthermore, in this program, we have used text files to store all the data. They have been named "*login.txt", "customer details.txt", "transaction.txt" and "balance.txt*". Here, the "*login.txt*" file stores the account numbers and passwords. The "*customer details.txt*" file stores the details given by the user when registering. All the transactions are written in the "transaction.txt" file while the account balance is written in "*balance.txt*"

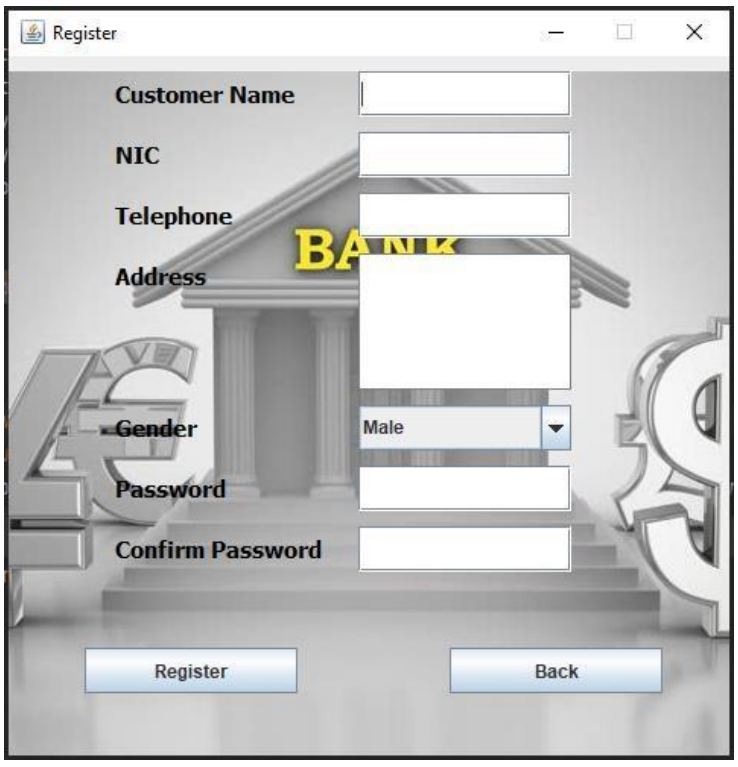
Overview

For the first time logging into the system, the user can see the following interface. Users cannot log in to the system without registering.

Figure 1: First Interface

1. Registration

For the very first time, the user needs to create an account by registering. Users can register to the system by clicking the register button in the first interface which is shown in the above picture.



When registering to the system, the user will be asked to fill in some details which are needed to create an account. They are customer name, National Identity card number, telephone number, address, gender and password.

Figure 2: Register Window

In this system, we have created many validations to minimize mistakes. When entering the NIC number, it should be included 9 or 12 numbers. So, if the user enters numbers more than 12 digits, it will be displayed as follows.

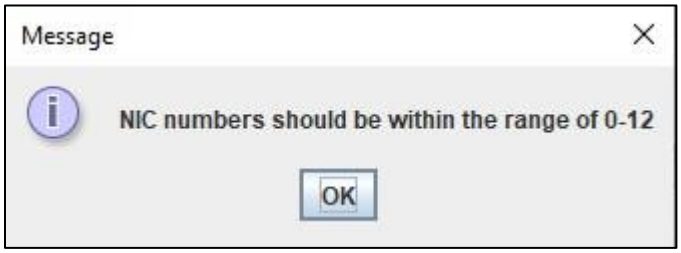


Figure 3: NIC validation on text field

And also, if that NIC number is a smaller one, it will be displayed another error message which shows to enter a valid NIC number.

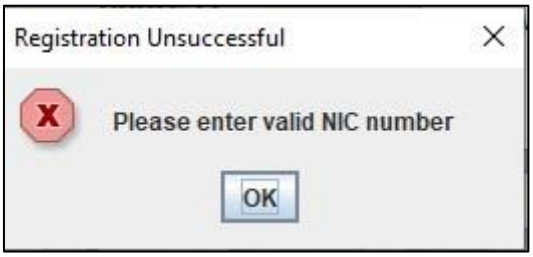


Figure 4: NIC validation on button click

Not only that, a telephone number contains only 10 digits. So, here if the user enters characters, it will be shown to enter digits only.

Figure 5: Telephone number data type validation

And also, if the user enters an invalid number of digits for a telephone number, it will be displayed to the user as follows.

Figure 6: Telephone number range validation

When typing the address, the user has been given the facility of typing the address line by line. And then, when it comes to gender, user can select their gender. Next, the user can type their password. It should be contained only 4 numeric values. So, when the user enters more than 4 numbers it shows a message not to enter more than 4 numbers. And also, when the user enters a character, it will be shown by a message and avoid them to enter those characters.

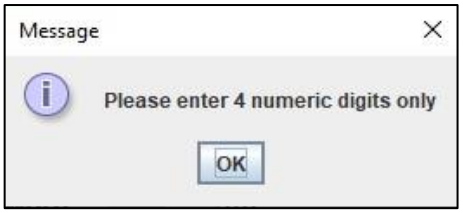


Figure 8: Password range validation

Figure 7: Password data type validation

After entering the password, the user needs to re-enter that password in the confirm password field. Here, if that user enters a password that is not equal to the number which is entered in the password field, it will be shown in an error message.

Figure 9: Re-enter password

After filling all those fields, the user needs to click on the register button to register to the system. Here, if the user has missed filling any of the above fields, it will be shown by an error message as follows after clicking the register button.

Figure 10: Empty text fields validation

If the user fills all the above fields successfully and clicks the Register button, an account number will be created randomly and it will be shown in a message box while giving the message that registration is successful.

Figure 11: Successful Registration

Here, all the details that the user filled in the customer details field will be written line by line into a text file which is named *"customer details.txt"*. It can be seen as follows.

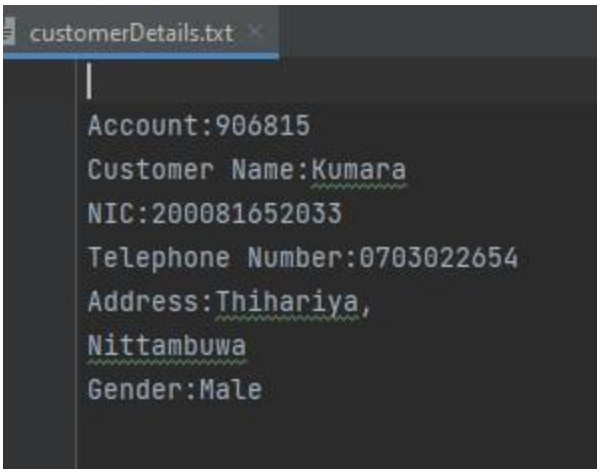


Figure 12: customerDetails.txt

Not only that, these details are written into another two files which are *"balance.txt"* and *"login.txt"* In the *"balance.txt"* file, the account number and the balance which is 0 will be written.

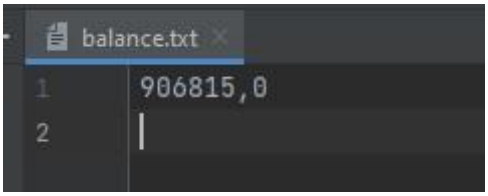


Figure 13: balance.txt after registration

And also, again the account number and the password are written into the *"login.txt"* file as follows.

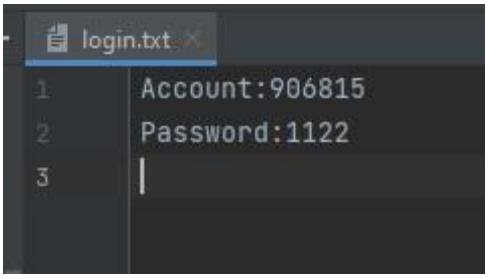
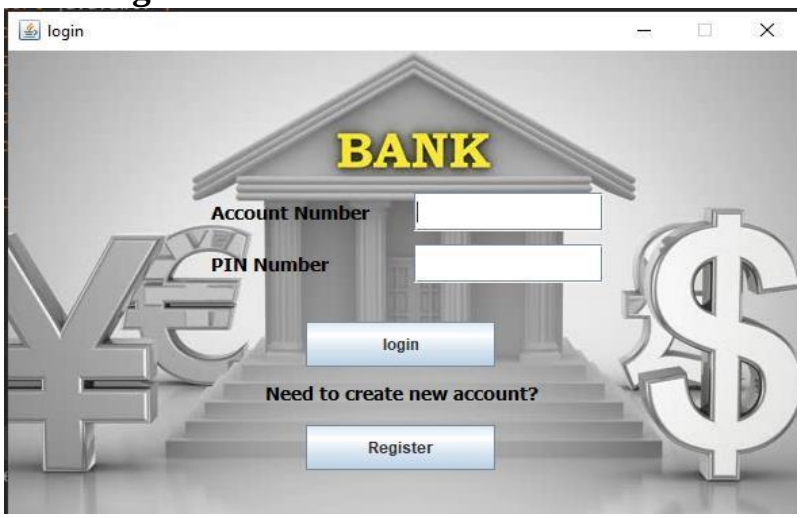


Figure 14: login.txt after registration

After that, the user will be taken to the first page which has named as "login" page.

2. Login



Here, the user can log in to the system by entering the account number which was randomly created and shown in the message and the password.

Figure 15: Login window

If the user enters an incorrect account number or a password, it will be shown as an error message. And also, if the user enters characters, it will be shown as follows and then the user needs to re-enter the account number and the password.

Figure 17: Login password data type validation

Figure 16: Incorrect password or account number

Unless it shows any errors, the user can log in to the system and do transactions after clicking the "ok" button of the message box which shows "successful login".

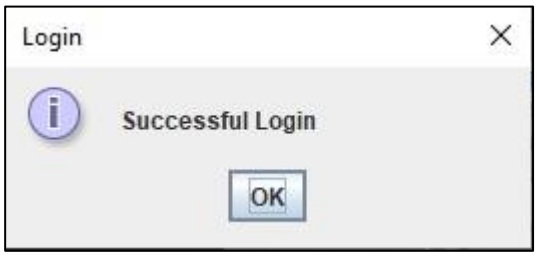


Figure 18: Successful Login

After clicking the above "ok" button, the user will be taken to the home page of the ATM system. Here, at the top of the page, the account number of the user is displayed. This home page contains six buttons which are deposit, withdraw, check balance, transaction history, transfer, and logout. So, the users can do the necessary transaction by clicking those buttons.

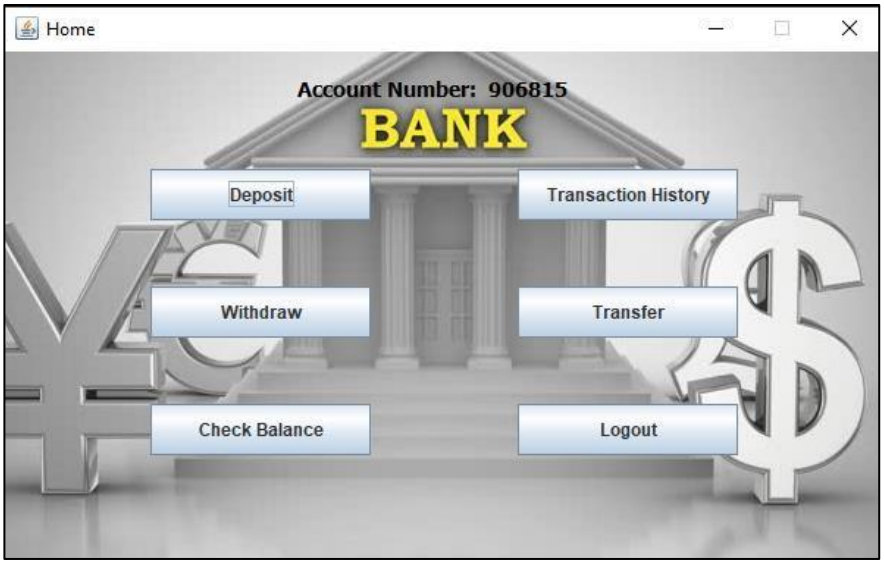


Figure 19: Home window

3. Deposit

On the above home page, the first button is the deposit button. By clicking that button, the user can come to the deposit page which is contained the account number of the user.

Figure 20: Deposit window

Here, the user should enter the amount which should be deposited. If the user keeps that field empty, he will be shown an error message which shows that the user cannot keep empty fields.

Figure 21: Deposit error

When the user deposits money for the first time where the account balance is zero, the user cannot deposit an amount that is less than Rs 1000.00. So, the first deposit of a user should be greater than or equal to Rs 1000.00. If that amount is less than Rs 1000.00 the user will be displayed the following error message.

Figure 22: Invalid deposit amount

After clicking the deposit button after entering the correct amount, the amount will be deposited by showing that the deposited money successfully and the new account balance. And also, the user will be returned to the home page.

Figure 23: Deposit successful

Here, the balance of the money deposited account is updated in the "balance.txt" file and another new file is created named "transaction.txt". In that file, this transaction is written with the time and date.

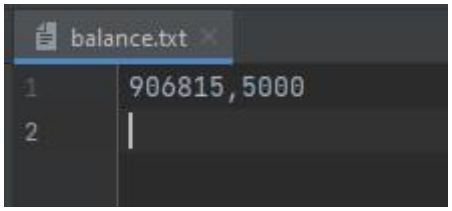


Figure 25: balance after deposit

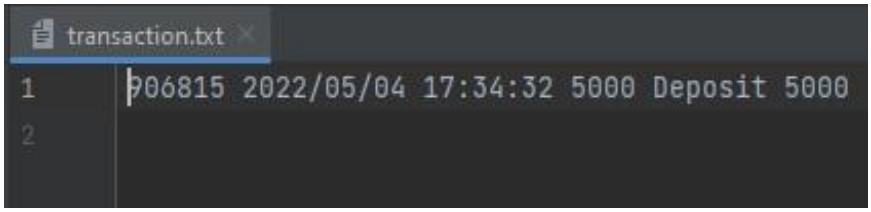


Figure 24: transaction file after deposit

After coming to the deposit page, by clicking the back button user can go to the home page.

4. Withdraw

Users can come to the withdraw page after clicking withdraw button on the home page.

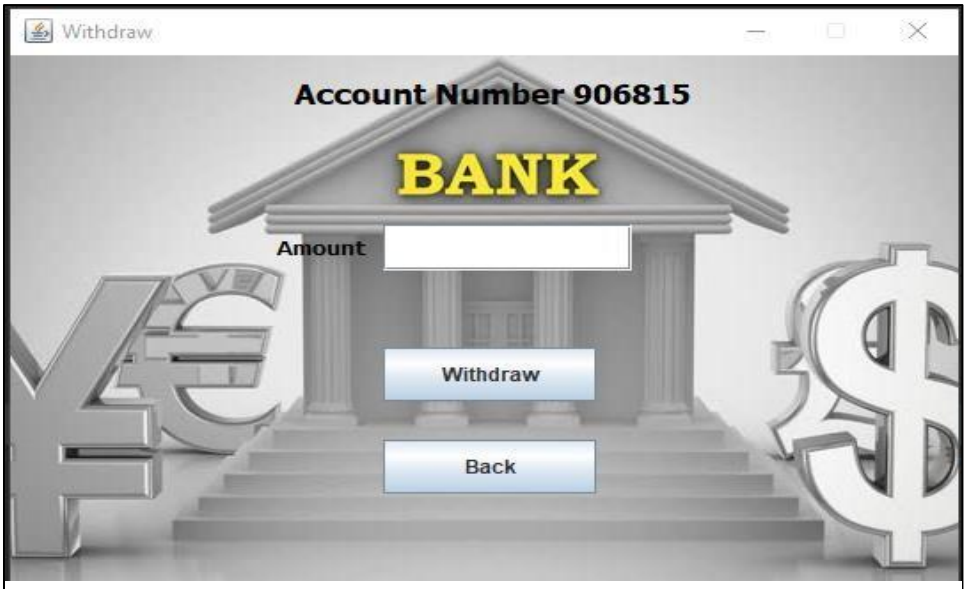


Figure 26: Withdraw window

Here, also user can not withdraw money without entering an amount. If the user keeps the text field empty, the user will be shown the following error message.

Figure 27: Withdraw error

And also, here the user cannot withdraw the full amount from the account. Rs.1000.00 should be kept in it. So, when the user is going to withdraw the full balance, the following message will be shown.

Figure 28: Withdraw limit exceeded

If the user has entered an amount that can be withdrawn, the amount would have been withdrawn after clocking the withdrawn button by showing the following message.

Figure 29: Withdraw successful

After withdrawing money, the balance will be updated in "balance.txt". And also, the transaction will be written into "transaction.txt".

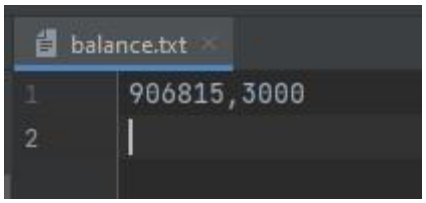


Figure 31: Balance after withdraw

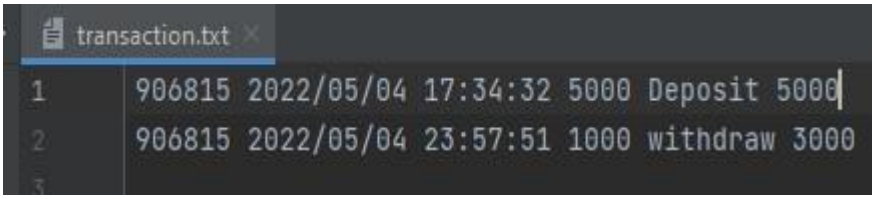


Figure 30: Transaction file after withdraw

After withdrawing money successfully, the user is returned to the home page. And also, users can use the back button in withdraw page to go to the home page.

5. Check Balance

By clicking the check balance button on the home page, user can check their balance as follows. And also, users can go to the home page by clicking on the back button.

Figure 32: Check Balance window

6. Transaction History

The transaction history page contains all the information about deposit, withdrawal and transfer money. Here, a table has been created to display transaction history. In this table, account number, transaction type, time, date and account balance can be seen. The user can check transaction history by clicking on the "Transaction History" button on the home page. Here also, the user can go to the home page by clicking on the back button on the transaction history page.

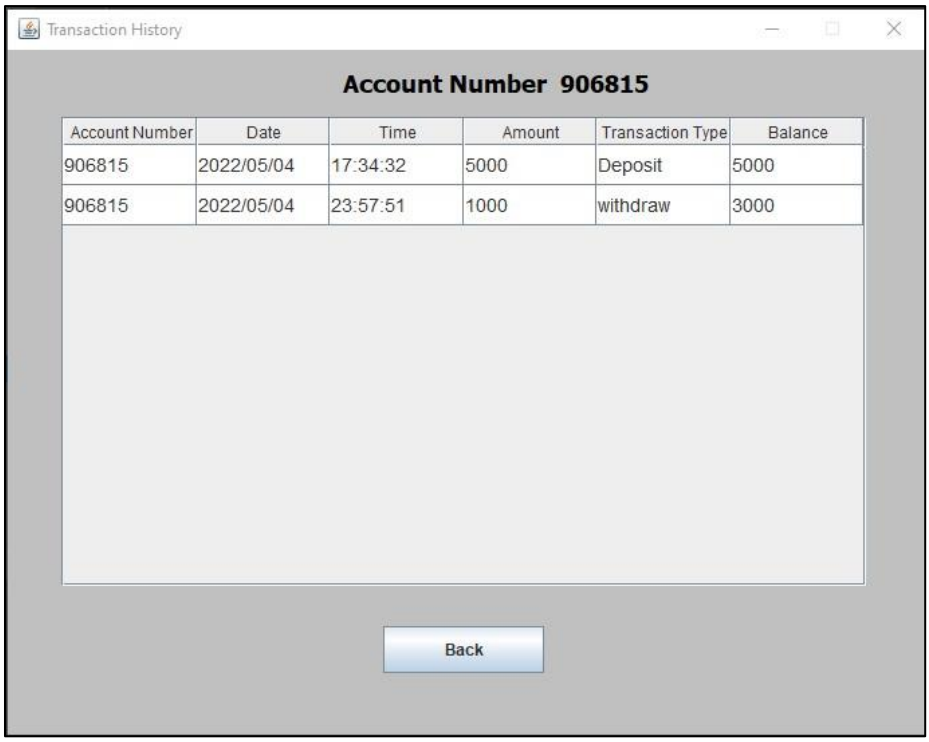


Figure 33: Transaction History window

7. Transfer

By clicking on the transfer button on the home page, the user can transfer money.

Figure 34: Transfer window

In this ATM project, the user can transfer money from one account to another account. But those accounts should be registered in this bank. So, money transfers cannot be done between two banks.

When the user has entered an account number that is not registered in the bank, an error message will be shown as follows.

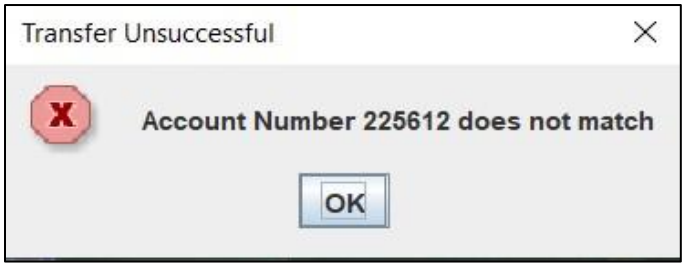


Figure 35: Transfer error

If the user enters a valid account number with a valid amount, the user will be shown the following message and transferring will be done.

Figure 36: Transfer successful

Not only that, after doing a money transfer it will be written into the *"transaction.txt"* file as two transactions which are withdrawn and deposited money. And also, the account balance of both accounts will be updated in "balance.txt".

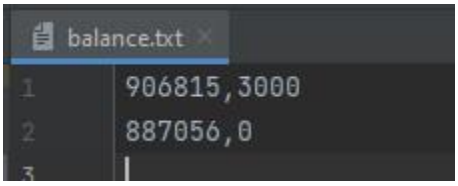


Figure 38: Balance before

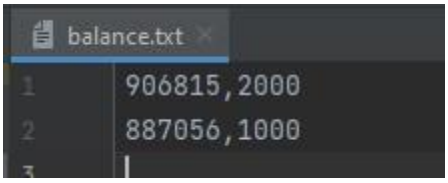


Figure 37: Balance after

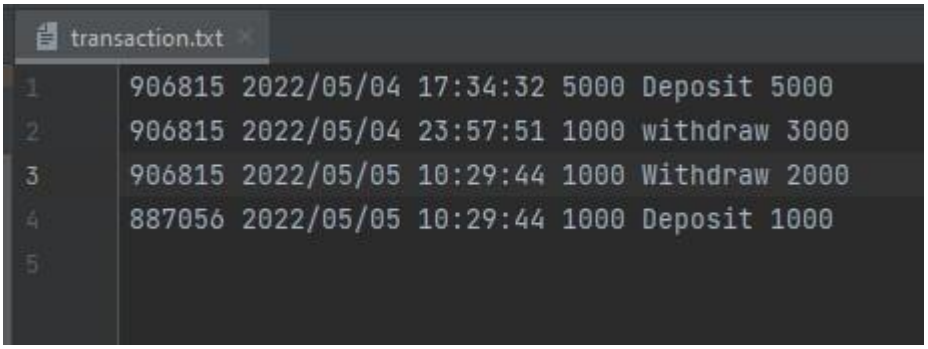


Figure 39: transaction file after transfer

And also, here the user cannot leave empty fields. If the user keeps the text fields empty, the following error message will be shown.

Figure 40: Transfer error

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8. Logout

By clicking the logout button on the home page, the user can log out from the system. Once the user clicks the button user is asked to confirm it by showing the following message box. If the user clicks ok, the user will be logged out. Unless the user will be stayed on the same page.

Figure 41: logout

Not only that, in this whole program, when the user needs to enter an account number and amount, those text fields are made to accept only numbers. So, when the user enters a character, it will be shown as follows.

Figure 42: Data type validation

Member Contribution

Member	Contribution Made
1. Sasanthi Lakmini	Login
	Registration
	Deposit
	Check Balance
2. Adithya Kawmini	Made GUIs
	Withdraw
	Transaction History
	Transfer