Report on the IT Laboratory Exercise

Course name

ITK- 1039-Object Oriented Programming

The ID and the topic of the exercise

Final Project 2- Simulator of Automated Teller Machine

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ATM SIMULATOR

Requirements:

This project has been developed using object-oriented design methodology. That means it contains both object-oriented design part and implementation part. We began our project by analyzing the requirements of an automatic teller machine. In this project, there are class diagram and activity diagram for better explaining the development of project. Following list contains the requirements of this simulation of automated teller machine.

- Program shall allow user to insert card and enter pin, if the user enter wrong info for 3 times, their account will be locked.

- Program shall withdraw and deposit money as well as check balance of the account linked to the card via a bank database.

- It is assumed that card is inserted to the system while program is executed, and user must enter PIN in order to begin operations. Each card shall be linked to unique account. Program shall allow editing (add, remove, update) cards.

- Program shall keep balance of accounts as well as shall keep track on last five operations. Program shall display balance along with last five operations and shall printout it to the file on demand.

- Program shall block withdraw operation if there is not enough means on the account.

- Program shall display receipt of deposit or withdraw operation as well as shall printout it to a file on demand.

- Program shall use standard output of the computer as the display of simulated ATM. User interface shall be character based.

Class needed:

After specifying the requirements of the ATM, we analyse and decide that the program should have these class:

1. Account:
   This will be the main class to hold the customer's information like balance or necessary information as well as method to adjust card's information.
2. Card:
   This will be the class to hold information about bank's card of customer, we assume that each card will be linked to a unique account and one account may have several numbers of cards.
3. Bank database:
   This class play a role of a bank that manage customer's data include authentication and transactions' information.
4. Transaction:
   A common class to manage customer's transactions.
5. Withdrawal:
   Class to support withdraw transaction and its methods.
6. Deposit:
   Class to support deposit transaction and its methods.
7. Balance inquiry:
   Class to support balance inquiry transaction and its methods.
8. ATM:
   This will be the class to play the role of the main environment to execute the others.
   This will help display the menu for customer's selection and help customer to give the decision on what they want to do.

Sequence of events:

Furthermore, This ATM simulator program has following sequence of events.

1. User inserts the card and fill in necessary information. If user does it right, then the screen would display the main menu. If the user does not enter correct information, then the screen would ask user to enter the info again.

2. If the user enters info wrong for three times, their account will be locked.

3. From the main menu the user will enter their selection. If right, the screen should execute the user selection. If wrong, the program will ask the user to enter valid selection again.

4. For example, User chooses check balance from main menu. Then, the program will display user balance from database and ask for receipt. If user chooses print receipt option, then the program will print out receipt in a specific file and the program will display the main menu again.

5. If user chooses withdraw cash option from main menu, the program will display ask user for the amount and money then execute the command.

6. The program will ask for receipt. If user chooses print receipt; the program will print out receipt in a specific file and again the program will display the main menu again.

7. If user chooses deposit cash option from main menu, the program will display ask user for the amount and money then execute the command. Again, the program will ask for receipt. User chooses print receipt; the program will print out receipt in a specific file and the program will display the main menu again.

8. User chooses edit info from main menu. The program will display the edit menu and ask user for the selection. User chooses selection and the program will ask for necessary information. User enters information and save them. The program displays the main menu again.

9. User choose to exit the program; the program will terminate, and the screen will display the goodbye message.

With this report, we developed an object-oriented design and implemented code in C++ for simulation of automated teller machine as we attached in UML and source code file.