Project: - ATM Machine

Report

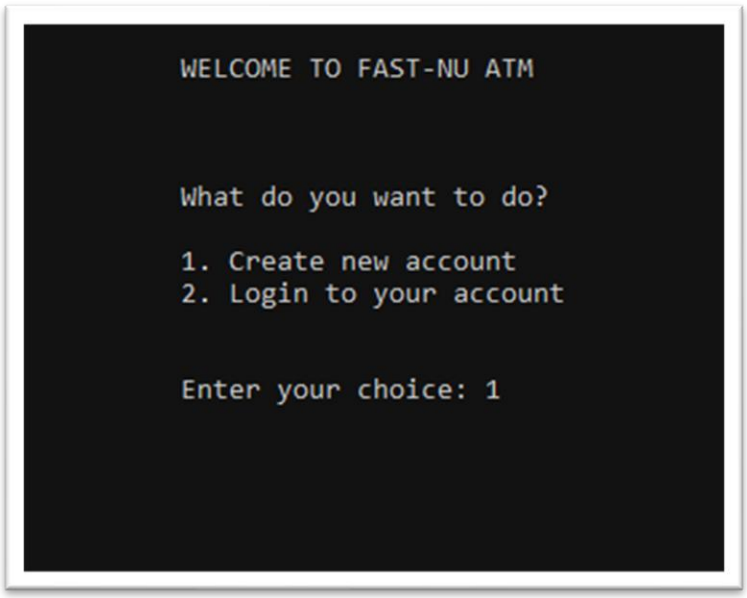
Introduction:

ATM (Automated Teller Machine) is a specialized computer project that makes it convenient for bank account holders to manage their money. It allows them to check their account balances, transfer money from one account to another, withdraw or deposit money, and even print a statement of account transactions. By inserting an ATM Account number and entering a Personal Identification Number (PIN), one can access the services 24 hours a day, 7 days a week.

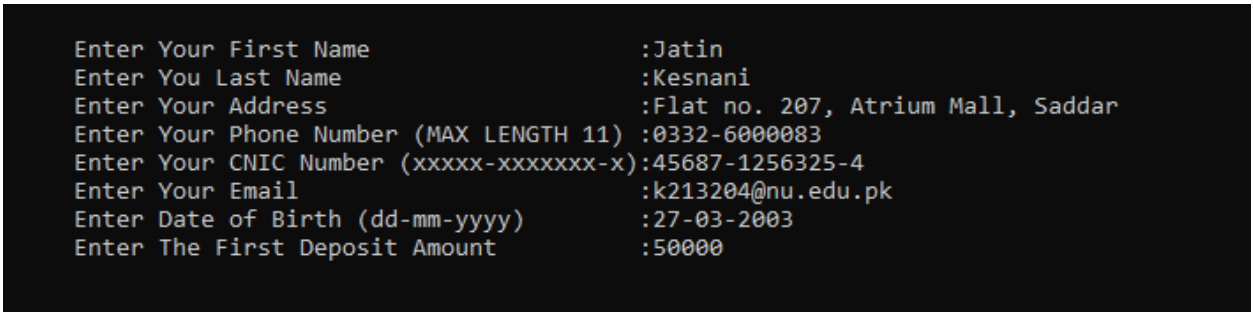
This project has limitations like only 200 customers can create their account and the customer should be above 18 years or else while creating the account it will show a message that the customer is under 18. When a user runs this program, the user will be able to see all the information and services provided by the ATM, when he enters the necessary option and arguments. To develop this ATM system the entire operation has been divided into the following step:

1. Creating account
2. Logging in
3. ATM services
4. Verification processes

Creating account:



When the program is compiled, the user is given two options (1) to create new account and (2) to login in their account which is already created. When the user chooses option (1), the program will redirect the user towards account creation and a file will be created with the name “Database” and with extension “.bin”. Therefore, the user will be asked to enter his First Name, Last Name, Address, Phone Number, CNIC, Email, and Date of Birth. The field for Phone Number and CNIC is designed in such a way that the character “-” is automatically inserted in between the records of Phone Number and CNIC when the user is filling the fields.



```
Enter Your First Name                    :Jatin
Enter You Last Name                      :Kesnani
Enter Your Address                       :Flat no. 207, Atrium Mall, Saddar
Enter Your Phone Number (MAX LENGTH 11)  :0332-6000083
Enter Your CNIC Number (xxxxx-xxxxxxx-x):45687-1256325-4
Enter Your Email                         :k213204@nu.edu.pk
Enter Date of Birth (dd-mm-yyyy)         :27-03-2003
Enter The First Deposit Amount           :50000


Please Wait! Automated Account number is being generated!
```

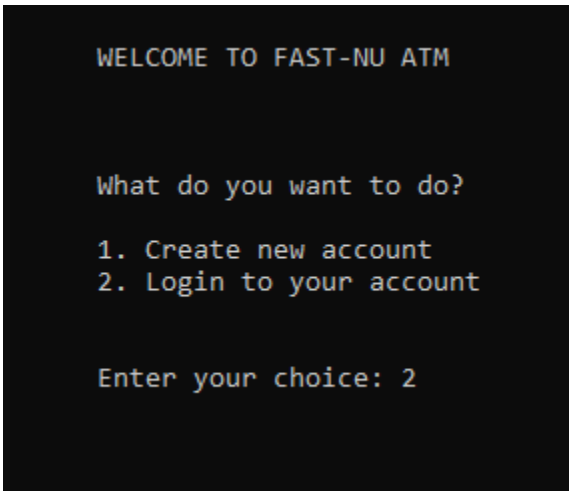
After entering these records, the program tells the user to wait so an automated account number can be created for the user account. For the waiting period, a FOR loop is used and it is looped for “200000000” times. The account number is of 17 digits so rand() Function is used to generate a 17 digit account number; afterwards, the user is asked to enter the pin and verification pin himself and if verification is true, the program will display a message that account has been successfully created and if verification is false the program ask the user to enter the pin and verification pin again. After the condition is true, the data is written to a file named “Database”.

```
Your Account Number is: 10000000000011865
Enter your PIN                   :1234
Enter your PIN again to verify   :1234


Thank you! Your Account has been successfully created.

Contents to file written successfully!



(1) Withdraw Cash                (5) Change your pin
(2) Transfer fund                (6) Check account balance
(3) Deposit Money                (7) Receipt
(4) Bill Payments                (8) Log Out
```

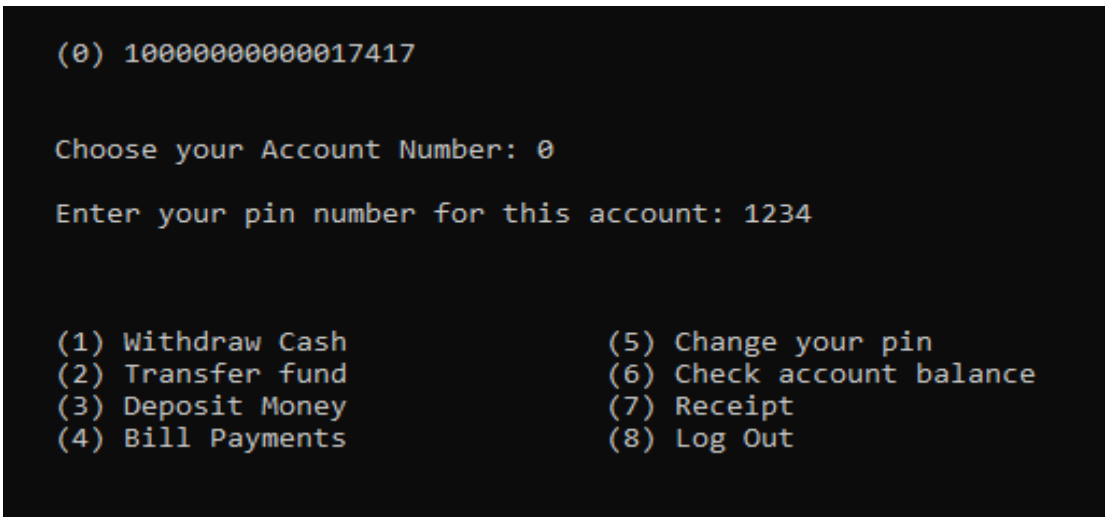
```c
#include <stdio.h>
#include <time.h>
#include <stdlib.h>
#include <string.h>
#include <windows.h>
struct database {
    char f_name[50];
    char l_name[50];
    char address[200];
    char phone_no[20];
    char cnic[15];
    char email[100];
    int day, month, year;
    long int balance_amount;
    long long int account_no;
    int pin, verify_pin;
}customer[200];
```

The above image shows libraries used to create this project and it also shows the variables used to create account and these variables are used in a structure because it represents a record and complete information for one customer.

Logging in:



When the user chooses option (2), the program will starting reading the file which was created while creating the account. The program will only read the account number from the file and it will be displayed on the screen and the reference number will also be given next to the account number and the user only has to choose the reference number and the account for the particular customer will be selected. After choosing the account the user has to enter the PIN for that particular account, the user has three chances to enter the PIN and if pin is incorrect for all three times then a message is displayed that the account is blocked for 24 hours and tells them to visit after 24 hours.



When the correct PIN is entered, a menu is displayed on the screen and this menu consists of the services that this ATM machine provides like cash withdrawal, fund transfer, deposit money and bill payments etc.

ATM Services:

There are 8 options in the menu for the ATM services and these options are written in the program with the help of Switch Case. First of all, the menu is displayed on the screen and the customer is given the choice to choose the service. Every time customer selects a different choice the previous screen is cleared and then the commands for next service is displayed.

```
(1) Withdraw Cash              (5) Change your pin
(2) Transfer fund              (6) Check account balance
(3) Deposit Money              (7) Receipt
(4) Bill Payments              (8) Log Out
```

(1) **Withdraw cash:** When the customer chooses option (1), the customer is asked how much amount he wants to withdraw and if the withdrawal amount is larger than the balance amount then the program displays the message that "You have insufficient balance" and if the balance amount is larger than the withdrawal amount then the withdrawal amount is subtracted from the balance amount and then the balance amount is also updated to the remaining balance left.

```
How much ammount you want to withdraw: 5000

Remaining Balance : 45000
```

(2) **Transfer Fund:** When the customer chooses option (2), the customer is asked about the receiver name, receiver account number and how much amount he wants to transfer to that person. After entering the details the transfer amount is subtracted from balance amount and a message is displayed that "Amount transferred successfully" and then the balance amount is also updated to the remaining balance left.

```
Receiver Name: Sahil Kukreja
Receiver Account number: 10000000019875624


Enter the amount you want to transfer: 6000


!!!Amount transfered Successfully!!!
Current balance is: Rs 39000
```

(3) **Deposit Money:** When the customer chooses option (3), the customer is asked that how much amount he wants to deposit in his account. After entering the deposit amount, the amount is added to the current balance amount and a message is displayed that "Cash Deposited successfully" and then the balance amount is also updated.

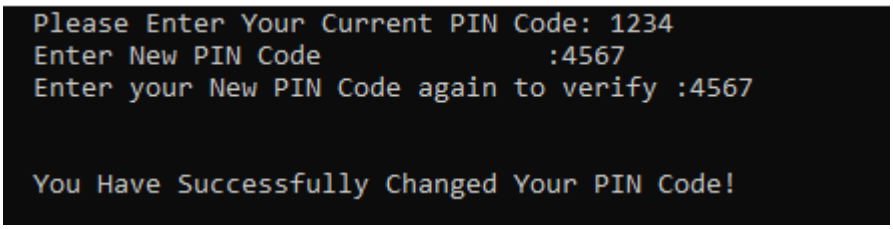
```
Enter your amount you want to deposit in your account: 20000

!!!Cash Deposited Successfully!!!

Your new balance is: 59000
```

(4) **Bill Payments:** When the customer chooses option (2), the customer is given four choices which asks to pay the bill for electricity, for gas, for internet and for telephone. When the user chooses from the following choices, an automated amount for the particular bill is generated and for this rand() function is used and this automated amount is compared with the current balance amount if the bill amount is larger than the balance amount it will output a message that the customer has insufficient balance to pay the bill and if balance amount is greater than the bill amount then the program ask the customer whether he wish to pay the bill or not by giving him the option of (Y or N). If customer choose 'N' the program executes without paying the bill and no amount is deducted from balance amount and if the user chooses 'Y' then the bill amount is subtracted from the balance amount and then the balance amount is updated.

```
Enter your choice: 4


        (1) For electricity
        (2) For Gas
        (3) For Internet
        (4) For Telephone

        Enter the choice: 1
```

```
 Enter the Reference Number: 456789

 Your Total bill amount 2448 is due
 Do you wish to pay the bill (Y/N) : Y

 Your Current Balance is: 47552
```

(5) **Change your PIN:** To change the PIN the customer has to enter the current PIN and the customer has three chances to enter the current PIN, if the PIN is entered incorrectly three times then the account will be blocked for 24 hours and the program will tell the customer to visit again after 24 hours. When the current PIN is entered correctly then it allows the customer to change the PIN. First of all, it asks the customer to enter the new pin and then asks the customer to enter the PIN again to verify. However, if the verification is false, the program redirects user to enter the new PIN again and if the verification is true then a message is displayed that the PIN has successfully changed.



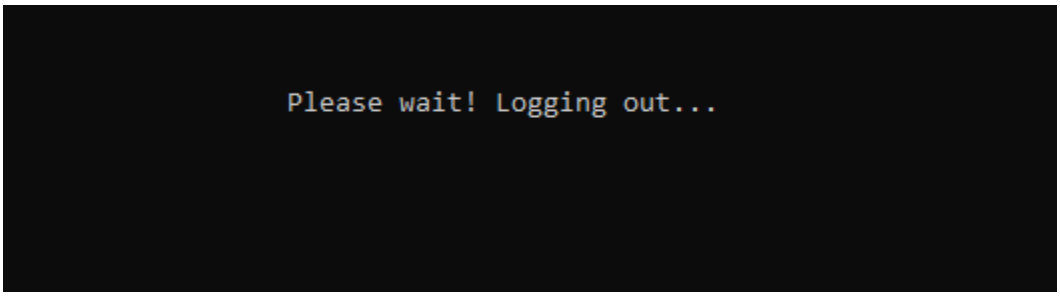
(6) **Check Account Balance:** This case just simply shows the account balance after all the transactions are done and it also shows the amount left in the account.

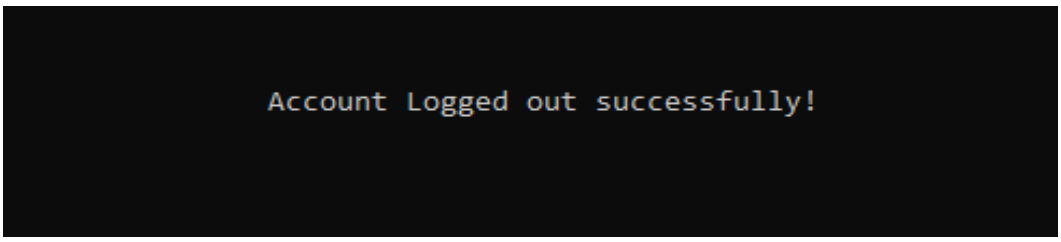
```
Your current account balance is: 47552
```

(7) **Receipt:** When the customer want the receipt of his transactions then it needs to display the Date and Time on which receipt was printed so for this #include<time.h> library is used and time(&t) function is used so it can display current date and time. Therefore, all the services that the customer used and the amount for that services is also printed in the receipt.

```
||      ------------------------------------  ||
||                                            ||
||              FAST-NU ATM SYSTEM            ||
||                                            ||
||                                            ||
||      ------------------------------------  ||
||                                            ||
||      Date Time: 26-12-2021   22:5:40       ||
||                                            ||
||      Full Name       :Jatin Kesnani        ||
||      Account Number  :10000000000017417    ||
||      Deposited Amount:20000                ||
||      Withdrawn Amount:5000                 ||
||      Transfer Amount :6000                 ||
||      Current Balance :55948                ||
||                                            ||
||      Thankyou for Visitng! Have a great day! ||
```

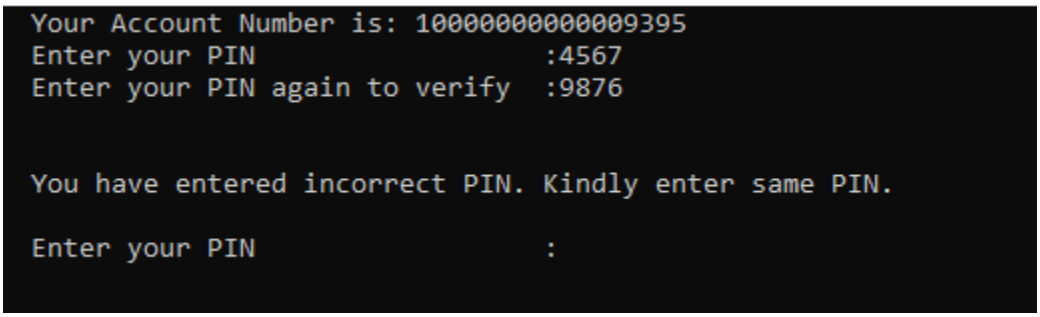
(8) **Log Out:** When the customer is done using the ATM machine then he can exit by logging out from the system and for this he has to choose option (8). When option (8) is selected it displays a message and tells the user to wait for the account to log out. For the waiting period, a FOR loop is used and it is looped for “200000000” times. After the loop is complete the screen is cleared and then the program displays the message that “Account Logged out successfully” and again FOR loop is used and it is looped for “200000000” times, after the loop completes the program exits.





Verification processes: Throughout the program, a lot of verification processes are used like while creating account the program verifies that the customer who is creating account whether he is above 18 years or not, if the customer is under 18 years the program does not let him create an account for the ATM machine; however the program continues if the customer is 18 years old. Then again while creating the account, when the customer enters the PIN for their account then the program tells them to verify their PIN by entering it again and if verification is false then the program redirects them to enter the password again or the program continues if the verification is true. However, the program is also checking the files. When the customer chooses option (1) to create the account, the program checks whether the file is created or not, if not then it creates the file in which the destination was given. However, if zero accounts are created and the customer directly chooses option (2) to login the account then the program checks the file and when it cannot find the file then it displays a message that "File not open/found".

The program also verifies the account number and PIN when the customer wants to log in to their account then it compares the account number and PIN to the records written in the file and when the verification is false the program redirects the customer to enter the account number and PIN again and when the verification is true then the program redirects them to the ATM services which they can avail. Therefore, services like Cash Withdrawal and Bill payments, the program checks the balance amount and the amount entered during these services, if these amounts are greater than the balance amount then the program tells them that you have insufficient balance but if these amounts are less than the balance amount then the program continues. These all are verification processes included in the ATM project.



```
(0) 10000000000017417

Choose your Account Number: 0

Enter your pin number for this account: 1345

Enter your pin number for this account: 1345

Enter your pin number for this account: 1345

YOUR ACCOUNT HAS BEEN BLOCKED FOR 24 HOURS! PLEASE VISIT THE BANK TO RE-OPEN OR VISIT AGAIN AFTER 24 HOURS!
```

```
Please Enter Your Current PIN Code: 1234
Enter New PIN Code                :8562
Enter your New PIN Code again to verify :4567


Enter the correct Pin!!!


Please Enter Your Current PIN Code:
```