

## **ATM++ Documentation**

### **Problem Definition:**

The users need a program that imitates the functions of an ATM.

The objectives of this program is to act as a whole bank system where people can choose whether they will go to the bank office to create, update, delete, unblock accounts. Or they can choose to go to the ATM if they want to withdraw, deposit, balance inquiry, change pin, load mobile, or fund transfer.

Withdrawal of money should always be in bills which is divisible by 100. You can withdraw money if the amount that the user wants is greater than or equal to the user's balance. You can only use load mobile in an existing phone number and if the user has enough balance. You can only use fund transfer in to an existing account and if the user has enough balance. Upon fund transferring, you can see the user's account balance in which you have transferred to. There will always be an confirmation in every process that the user will do.

The information of the program will contain the Account Number (8 Numbers), First Name, Last Name, Middle Name (20 characters' max for the names), Contact Number (less than 15 digits), Balance, Pin (4 digits) and the state of the account (old, new, or blocked).

In creating and completing a new account, the user has the choice to edit existing inputted data. Only letters are allowed in the name of the user and numbers as for the contact number. Upon creating an account, the program is responsible for avoiding duplicate accounts. The new user will be given a new temporary pin and the state of the account shall be "new" and the user will always be asked every time to change their temporary pin. The account will be blocked after 5 incorrect attempts and the state of the account will be changed to "blocked". Once an account is blocked, you cannot login nor fund transfer to the account. It can be unblocked by giving the correct pin or by giving correct personal information. Once the user changed the temporary pin or the user is unblocked, the state of the account will be changed to "old. The program should also handle logic errors such as deleting/updating/unblocking not-existing accounts, entering wrong pin, entering wrong choice, and other logical errors. The program should show what is the error for the user to understand his/her mistake and the process should be repeated.

This program should be available for all users who wants an account in order for them to use the functions of an ATM such as withdrawal and deposit of money. If there are problems with the account, there is always a bank choice wherein they can update or unblock their accounts.

### **Algorithm Definition:**

(Sorry sir but I separated the flowchart in a new file since the flowchart is too big and it is not visible inside this document)

## Code Discussion:

- In Line 4, library `stdlib.h` is needed for `system("cls")` or `system("clear")` to work.
- In Line 5, we used `#define` for shortcut in using clearing the terminal using `system("cls")` to `cls`.
- In Line 6, `system("clear")` should be used for Linux distribution, while line 5 is for windows.
- In Lines 21-26, these are global variables that are needed by functions in basing on how to create the menu (Line 22: `BSize`), to check if the account should be blocked (Line 23: `maxRetry`), the container of all records (Line 21: `record`), the current menu that the user is currently in (Line 24: `currentMenu`), and the number in the vector on where the current account is indexed (Line 26: `currentAC`)
- In line 69, function `void mcout()` is a function used to display a text between 2 characters depending on the size of the menu. Example is "`| hello |`".
- In line 75, function `void border()` is used to create a border for the separation in menus.
- In line 80, function `displayChoices()` is a choices menu generator where in you will have to pass a vector of choices and it will return a displayed menu with choices depending on the size of the menu.
- In line 107, function `displayMenu()`, creates a whole menu and it also calls the function `displayChoices` and checks whether they have inputted correct values for the choices (error checker).
- In line 146, function `showError()`, is used for displaying errors inside the menu.
- The rest of the functions can be understood by its function name.
- Some of the algorithms used in the code is linear search in finding information of the account.
- The data structure that I have used to store the data is a vector of struct.
- In every process that the user has done, the data will immediately be saved to avoid data loss if there are scenarios like loss of power.

## Sample Run:

```
=====
Welcome to ATM++
=====
Where do you want to go?

[1] Bank                                [2] ATM
[3] Exit

=====
Input:
```

```
=====
ATM++ Login
=====
Account #: 00000001
Enter Pin #:

=====
Input: 1235
```

```
=====
ATM++ ATM
=====
Welcome to the ATM

Please select your choice

[1] Balance Inquiry    [2] Withdraw
[3] Deposit            [4] Change Pin
[5] Load Mobile        [6] Fund Transfer
[7] Exit

=====
Input:
```

```
=====
Successfully Registered
=====
Welcome to ATM++

Christian Dia
Account #: 00000004
Temporary Pin: 1467

Note: You can change your temporary
pin upon logging in your account.

[1] Back to Menu

=====
Input:
```

```
=====
Failed to Login
=====
Account is blocked

Please unblock the account
before logging in

[1] Retry                [2] Back to Menu

=====
Input:
```

### Unlock Account

Select method in unblocking account

- [1] Using Pin                      [2] Verifying Info
- [3] Cancel

Input:

### Delete Account

Are you sure you want to  
delete this account?

First name: Christian

Middle name: Aid

Last name A

Contact Number: 09123123

Balance: 0.00

Note: Upon deleting account, you  
can get your remaining balance.

- [1] Yes                                      [2] Cancel

Input:

### ATM++ BANK

Welcome to the Bank

Please select your choice

- [1] New Account                      [2] Update Account
- [3] Delete Account                      [4] Unblock Account
- [5] Exit

Input:

### Account Verification

First Name: Christian

Middle Name: Aid

Last Name: Dia

Verify Contact #:

Input: 0032131

### New Account Form

What do you want to change?

First Name: Christian

Middle Name: Aid

Last Name: Dia

Contact #: 09991119911

- [1] First Name                      [2] Middle Name
- [3] Last Name                      [4] Contact Number
- [5] Cancel                              [6] Back To Menu

Input:

### ATM++ ATM

This Account is New

Do you want to change your temporary pin?

We recommend to change your pin.

- [1] Yes                                      [2] Next time

Input: