



DEPARTMENT OF BASIC SCIENCE AND HUMANITIES
INSTITUTE OF ENGINEERING AND MANAGEMENT,
KOLKATA

“LIBRARY MANAGEMENT SYSTEM”

Submitted by:-

Name of the Student: Soumyabrata Mondal

Enrolment Number: 12022002003132

Registration Number: 221040110736

Section: I

Class Roll Number: 15

Stream: Electronics and communication Engineering (ECE)

Subject: Programming for Problem Solving

Subject Code: ESC-103 (Pr)

Under the supervision of:-

Prof. Swarnendu Ghosh

Academic Year: 2022-26

**(PROJECT REPORT SUBMITTED IN FULFILLMENT OF
THE REQUIREMENTS FOR THE SECOND SEMESTER)**



CERTIFICATE OF RECOMMENDATION

We hereby recommend that the project prepared under our supervision by **Soumyabrata Mondal** ,
entitled “**ATM simulator**” be accepted in fulfilment of the requirements for the degree of fulfilment of
the second semester.

Head of the Department
IEM, Kolkata

Project Supervisor
Basic Science and Humanities

1. Introduction:

The purpose of this project is to design a program in C that simulates an ATM machine. The program allows users to perform basic banking operations such as deposits and withdrawals, check their account balance, and change their PIN.

The program was developed using the C programming language and runs on a command-line interface. It is intended for educational purposes only and does not include advanced security measures or error handling

2. Project Scope:

The scope of this project includes the following features :

- User authentication using a PIN code
- Check account balance
- Deposit money
- Withdraw money
- Change PIN code

3.Program Design:

The program is designed using a simple menu-based interface. When the program is started, the user is prompted to enter their PIN code. If the PIN code is incorrect, the user is prompted to try again. If the PIN code is correct, the user is presented with a menu of options.

The menu options are as follows:

- 1.Check Balance
- 2.Deposit Money
- 3.Withdraw Money
- 4.Change PIN
- 5.Exit

4. Program Implementation:

The program consists of three files:

- **main.c:** This file contains the main function that controls the flow of the program and implements the menu-based interface.
- **atm.c:** This file contains the implementation of the functions used in the program.
- **atm.h:** This file contains the function prototypes for the functions used in the program.

The program uses the following functions:

```
int authenticate_user(int pin)
```

This function takes an integer argument `pin` and returns an integer value. It checks if the entered PIN is correct and returns 1 if the PIN is correct, otherwise it returns 0.

```
void check_balance(int balance)
```

This function takes an integer argument `balance` and returns nothing. It simply prints the user's account balance to the console.

```
void deposit_money(int *balance)
```

This function takes a pointer to an integer argument `balance` and returns nothing. It prompts the user to enter an amount to deposit and adds the amount to the user's account balance.

```
void withdraw_money(int *balance)
```

This function takes a pointer to an integer argument `balance` and returns nothing. It prompts the user to enter an amount to withdraw and subtracts the amount from the user's account balance.

```
void change_pin(int *pin)
```

This function takes a pointer to an integer argument `pin` and returns nothing. It prompts the user to enter a new PIN and updates the `pin` variable.

5.Variables:

pin - an integer variable that stores the user's PIN number.

balance - an integer variable that stores the user's account balance.

deposit - an integer variable that stores the amount to be deposited.

withdraw - an integer variable that stores the amount to be withdrawn.

new_pin - an integer variable that stores the new PIN entered by the user.

choice - an integer variable that stores the menu option selected by the user.

is_authenticated - a boolean variable that stores whether or not the user has been authenticated.

6.Files:

main.c - the main file that contains the main function and implements the menu-based interface.

atm.c - the implementation file that contains the functions for various ATM transactions.

atm.h - the header file that contains the function prototypes for the ATM functions.

7.Functions:

`int authenticate_user(int pin)` - a function that takes the user's PIN as an input and returns an integer value indicating whether or not the user is authenticated.

`void check_balance(int balance)` - a function that takes the user's account balance as an input and displays it on the screen.

`void deposit_money(int *balance, int deposit)` - a function that takes the user's account balance and the amount to be deposited as inputs and updates the account balance.

`void withdraw_money(int *balance, int withdraw)` - a function that takes the user's account balance and the amount to be withdrawn as inputs and updates the account balance.

`void change_pin(int *pin, int new_pin)` - a function that takes the user's current PIN and the new PIN as inputs and updates the user's PIN.

8.Databases:

The ATM machine program does not use any external databases to store user information. Instead, the program stores the user's PIN number and account balance as variables in memory.

9.Features:

User Authentication - The program prompts the user to enter their PIN number to authenticate them.

Check Balance - The program allows the user to check their account balance.

Deposit Money - The program allows the user to deposit money into their account.

Withdraw Money - The program allows the user to withdraw money from their account.

Change PIN - The program allows the user to change their PIN number.


```

#include <stdio.h>

int main()
{
    int balance = 1000;
    int pin = 1234;
    int option, amount, new_pin;

    printf("Welcome to the ATM machine.\n");

    // Loop until user chooses to exit
    while (1)
    {
        printf("Please enter your PIN: ");
        scanf("%d", &pin);

        if (pin != 1234)
        {
            printf("Invalid PIN. Please try again.\n");
            continue;
        }

        printf("1. Check Balance\n");
        printf("2. Deposit Money\n");
        printf("3. Withdraw Money\n");
        printf("4. Change PIN\n");
        printf("5. Exit\n");
        printf("Please select an option: ");
        scanf("%d", &option);

        switch (option)
        {
            case 1: // Check balance
                printf("Your balance is %d.\n", balance);
                break;

            case 2: // Deposit money
                printf("Enter amount to deposit: $");
                scanf("%d", &amount);
                balance += amount;
                printf("Your new balance is %d.\n", balance);
                break;

            case 3: // Withdraw money
                printf("Enter amount to withdraw: $");
                scanf("%d", &amount);

                if (amount > balance)
                {
                    printf("Insufficient funds.\n");
                    break;
                }

                balance -= amount;
                printf("Your new balance is %d.\n", balance);
                break;

            case 4: // Change PIN
                printf("Enter new PIN: ");
                scanf("%d", &new_pin);
                pin = new_pin;
                printf("PIN changed successfully.\n");
                break;

            case 5: // Exit
                printf("Thank you for using the ATM machine.\n");
                return 0;

            default:
                printf("Invalid option. Please try again.\n");
                break;
        }
    }

    return 0;
}

```

PT x ATM Simulator Design. x Online C Compiler x +

Google x Star x x x x

Interactive C Course

Output Clear

Welcome to the ATM machine.
Please enter your PIN: 1234
1. Check Balance
2. Deposit Money
3. Withdraw Money
4. Change PIN
5. Exit
Please select an option: 1
Your balance is \$1000.
Please enter your PIN: 1234
1. Check Balance
2. Deposit Money
3. Withdraw Money
4. Change PIN
5. Exit
Please select an option: 4
Enter new PIN: 12345
PIN changed successfully.
Please enter your PIN: 12345
Invalid PIN. Please try again.
Please enter your PIN: 1234
1. Check Balance
2. Deposit Money
3. Withdraw Money
4. Change PIN
5. Exit
Please select an option: 3
Enter amount to withdraw: \$10
Your new balance is \$990.

Get Started!