

Automated Teller Machine (ATM)
CC103 – Computer Programming 2
Midterm Project

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Introduction

This C program simulates an ATM system with functions for withdrawal, deposit, balance inquiry, and transaction cancellation. It requires users to enter a correct PIN to access their account, locking the account after three failed attempts. The program follows a menu-driven approach and includes basic security and validation checks. While functional, it can be improved with features like dynamic PIN updates and data persistence.

Function Description

1. showMenu()

- Displays the main menu with options for withdrawal, deposit, balance inquiry, and transaction cancellation.
- Takes user input and calls the corresponding function based on their choice.

2. withdraw()

- Prompts the user to enter an amount to withdraw.
- Checks if the balance is sufficient before deducting the amount.
- Displays the updated balance or an "insufficient balance" message.

3. deposit()

- Prompts the user to enter an amount to deposit.

- Adds the amount to the balance and displays the updated total.

4. balanceInquiry()

- Displays the current account balance.

5. cancelTransaction()

- Cancels the transaction and exits the program.

6. validatePin(int enteredPin)

- Checks if the entered PIN matches the stored PIN.
- Returns 1 if the PIN is correct, otherwise returns 0.

7. main()

- Prompts the user to enter their PIN.
- Allows up to three attempts before locking the account.
- Calls showMenu() if the correct PIN is entered.

Code Implementation

```
#include <stdio.h>
```

```
float balance = 123456789;  
int pin[] = {123};  
int attempts = 0;
```

```
// mao ni ang function declaration  
void showMenu();  
void withdraw();  
void deposit();  
void balanceInquiry();  
void cancelTransaction();
```

```
void showMenu() {  
    int choice;  
  
    while(1){
```

```

printf("\nWelcome to your account... Please Select Your Transaction:\n");
printf("\n1. Withdraw\n");
printf("\n2. Deposit\n");
printf("\n3. Balance Inquiry\n");
printf("\n4. Cancel Transaction\n");

printf("\nEnter your choice: ");
scanf("%d", &choice);

switch (choice) {
    case 1: withdraw();
        break;
    case 2: deposit();
        break;
    case 3: balanceInquiry();
        break;
    case 4: cancelTransaction();
        break;
    default: printf("Invalid choice!\n");
}
}
}

void withdraw() {
    float amount;
    printf("\nEnter the amount you want to withdraw: ");
    scanf("%f", &amount);

    if (amount > balance) {
        printf("Insufficient balance!\n");
    } else {
        balance -= amount;
        printf("\nYou have successfully withdrawn %.2f from your account.\n", amount);
        printf("\nYour remaining balance is: %.2f\n", balance);
    }
}

void deposit() {
    float amount;
    printf("\nEnter the amount you want to deposit: ");
    scanf("%f", &amount);

    balance += amount;
    printf("\nYou have successfully deposited %.2f into your account.\n", amount);
    printf("\nYour new balance is: %.2f\n", balance);
}

```

```

}

void balanceInquiry() {
    printf("\nYour current balance is: %.2f\n", balance);
}

void cancelTransaction() {
    printf("\nTransaction has been cancelled!\n");
    exit(0);
}

int validatePin(int enteredPin) {
    for (int i = 0; i < 3; i++) {
        if (enteredPin == pin[i]) {
            return 1; // return 1 sija kay mao man ag valid pin
        }
    }
    return 0; // then return 0 if invalid pin, nya 3 times nakang try
}

int main() {
    int enteredPin;

    while (attempts < 3) {
        printf("\nEnter your PIN code: ");
        scanf("%d", &enteredPin);

        if (validatePin(enteredPin)) {
            showMenu();
            return 0;
        } else {
            printf("Wrong PIN! Try again.\n");
            attempts++;
        }
    }

    printf("Your account has been locked!\n");
    return 0;
}

```

How it Works

1. User Authentication

- The program starts by prompting the user to enter their PIN code.
- The validatePin() function checks if the entered PIN matches the stored PIN.
- If the correct PIN is entered, the user gains access to the main menu.
- If the user enters the wrong PIN three times, the account is locked, and the program ends.

2. Main Menu

- Once authenticated, the user is presented with four options:
 1. Withdraw Money
 2. Deposit Money
 3. Check Balance
 4. Cancel Transaction
- The user selects an option, and the corresponding function is executed.

3. Transaction Execution

Withdraw: The program checks if the user has enough balance before allowing the withdrawal.

Deposit: The entered amount is added to the balance.

Balance Inquiry: Displays the user's current balance.

Cancel Transaction: Ends the program.

4. Loop and Exit Conditions

- After each transaction, the menu is displayed again, allowing the user to perform multiple transactions.
- The user can exit by selecting "Cancel Transaction", which terminates the program.

Sample Output



```
Enter your PIN code=
```

```
Enter your PIN code= 123

Welcome to your account... Please Select Your Transaction:

1. Withdraw
2. Deposit
3. Balance Inquiry
4. Cancel Transaction

Enter your choice=
```

```
Enter your choice= 1

Enter the amount you want to withdraw= 500

You have successfully withdrawn 500.00 from your account.

Your remaining balance is= 123456288.00

Welcome to your account... Please Select Your Transaction:

1. Withdraw
2. Deposit
3. Balance Inquiry
4. Cancel Transaction
```

```
Enter your choice= 2

Enter the amount you want to deposit= 500

You have successfully deposited 500.00 into your account.

Your new balance is= 123456784.00

Welcome to your account... Please Select Your Transaction:

1. Withdraw
2. Deposit
3. Balance Inquiry
4. Cancel Transaction
```

```
Enter your choice= 3

Your current balance is= 123456784.00

Welcome to your account... Please Select Your Transaction:

1. Withdraw
2. Deposit
3. Balance Inquiry
4. Cancel Transaction
```

```
Enter your choice= 4

Transaction has been cancelled!

[Process completed - press Enter]
```

This is the output if you entered wrong pin in three times:

```
Enter your PIN code= 134
Wrong PIN! Try again.

Enter your PIN code= 234
Wrong PIN! Try again.

Enter your PIN code= 456
Wrong PIN! Try again.
Your account has been locked!

[Process completed - press Enter]
```

