

Existing Program vs Updated Program (With Details)

1 Existing Program (Before Update)

- Uses **random access file (credit.dat)**
- Allows:
 - Add new account
 - Update account balance
 - Delete account
 - Generate formatted text file (accounts.txt)
- Uses **structure (struct clientData)**
- File handling using:
 - fopen(), fread(), fwrite(), fseek()
- Menu-driven program
- **No security / authentication**
- Any user could access and modify bank records

👉 Limitation:

There was **no restriction** on who could use the system. Data security was missing.

2 Updated Program (After Enhancement)

The **updated program** includes **password authentication and file initialization**.

🔒 Newly Added Features

a) Password Authentication

- Username and password verification added
- User must log in **before accessing the menu**
- Uses:
 - strcmp() for credential validation
 - Limited login attempts (3)
- Prevents unauthorized access

b) File Initialization

- Automatically creates credit.dat if not present
- Initializes **100 empty records**
- Avoids file-not-found error

c) Improved User Validation

- Checks:
 - Account existence before update/delete
 - Duplicate account prevention
 - Displays meaningful error messages
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3 Modules Added in Updated Program

Module	Purpose
login()	Authenticates user
initializeFile()	Creates and initializes data file
Password logic	Improves security

4 What Should Be Added (Enhancement Summary)

To convert the **existing program into an updated program**, the following were added:

- Password authentication before menu access
 - Limited login attempts
 - File initialization logic
 - Improved input validation
 - Secure control flow
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5 Conclusion

The updated program improves the existing system by adding authentication, secure file handling, and validation mechanisms, making the application more reliable, secure, and suitable for real-world banking operations.