Online Banking System Report

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Task: Create an online banking system

Create a comprehensive C++ program for an online banking system. This system

should allow users to create accounts, deposit and withdraw funds and transfer

money.

Report submission – As part of my internship at Brainwave Matrix Solutions, I was assigned the task of developing a fully functional Online Banking System using C++. This report details the development process, features implemented, and testing conducted during the first phase of the internship.

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1. Introduction

The Online Banking System is a C++ program designed to simulate fundamental banking operations. It allows users to create accounts, deposit and withdraw funds, and transfer money between accounts. The system ensures security through a PIN-based authentication mechanism.

2. Features

- Account Creation: Users can register an account with a unique account number, name, PIN, and an initial deposit.
- Deposit Money: Users can deposit money into their account, updating their balance accordingly.
- Withdraw Money: Users can withdraw funds, ensuring they have sufficient balance.

- Transfer Money: Users can transfer funds between accounts after authentication.
- PIN Authentication: Every transaction is secured using a PIN verification process.

3. Implementation Details

The system is implemented using C++ and employs object-oriented programming principles. The main components include:

- BankAccount Class: Represents an account with attributes such as account number, holder name, balance, and PIN.
- Vector-based Storage: A vector is used to store multiple accounts dynamically.
- Authentication Mechanism: Users must enter their PIN correctly to perform transactions.

4. Code Structure

- Class Definition: The BankAccount class encapsulates account details and transaction methods.
- Functions:
    - deposit(double amount): Adds funds to the balance.
    - withdraw(double amount): Deducts funds if sufficient balance is available.
    - transfer(BankAccount &recipient, double amount): Moves funds between accounts.
    - authenticate(string enteredPin): Validates user identity.
- Main Menu:
    - Provides options for creating an account, depositing, withdrawing, transferring money, and exiting the system.

5. Security Measures

- PIN-based authentication prevents unauthorized access.
- Users can only withdraw or transfer funds if they have a sufficient balance.

6. Conclusion

This Online Banking System demonstrates basic banking functionalities using C++. It is a simple yet effective simulation that can be expanded with additional features such as transaction history, interest calculations, and database integration for persistent storage.

7. Future Enhancements

- Implementing a database for persistent storage.
- Adding a graphical user interface (GUI) for improved user experience.
- Enhancing security measures like OTP verification and encryption.

8. References

- C++ Object-Oriented Programming concepts.
- Standard Template Library (STL) for data handling.

This report provides a comprehensive overview of the Online Banking System. Further modifications and enhancements can be incorporated as needed.