Digital Financial Transaction Facilitation and Automation Platform

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***Abstract*—A software system is required by a bank to efficiently manage its accounts and transactions. The bank provides services such as opening new accounts, depositing and withdrawing money, checking account balances, closing accounts, and displaying all existing accounts. The objective of the bank management system is to deliver effective account management and dependable transaction handling while maintaining data accuracy and security**

***Index Terms*—Keywords: Automation, Accessibility, Efficiency.**

I. Introduction

Online banking, also known as internet banking, virtual banking, web banking or home banking, is a system that enables customers of a bank or other financial institution to conduct a range of financial transactions through the financial institution's website or mobile app. With online banking, customers can access banking services in addition to or in place of historic branch banking, significantly reducing the banks' operating cost and offering convenience by lessening the need to visit a branch bank.

Online banking provides personal and corporate banking services offering features such as making electronic payments, viewing account balances, obtaining statements, checking recent transactions and transferring money between accounts. Some banks operate entirely via the internet or internet and telephone without having any physical branches, relying completely on their online banking facilities.

The precursor to the modern online banking services was distance banking electronically and by telephone since the early 1980s. The term 'online' became popular in the late 1980s and referred to the use of a terminal, keyboard, and TV or monitor to access the banking system using a phone line. 'Home banking' can also refer to the use of a numeric keypad to send tones down a phone line with instructions to the bank.

The first home banking service was offered to consumers in December 1980 by United American Bank, a community bank with headquarters in Knoxville, Tennessee. United American partnered with Radio Shack to produce a secure custom modem for its TRS-80 computer that allowed bank customers to access their account information securely. Services available in its first years included bill pay, account balance checks, and loan applications, as well as game access, budget and tax calculators and daily newspapers.

In recent years, online banking has grown significantly with millions of users accessing their bank accounts through the internet or mobile apps. In the United States, for example, the number of digital banking users reached approximately 61 percent in 2018, while in Europe, 93 percent of the Norwegian population access online banking sites, which is the highest in Europe. Across Asia, more than 700 million consumers are estimated to use digital banking regularly.

II. Objective

A. Efficient Account Management

The primary objective of the bank management system is to provide a streamlined process for creating, updating, and managing customer accounts. It should allow for easy retrieval of customer account information and enable efficient account-related operations.

B. Data Security

The bank management system should prioritize data security to protect customer information and transactions. It should implement measures such as encryption, access controls, and secure data storage to prevent unauthorized access and data breaches.

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C. Performance and Scalability

The system should be designed to handle a significant number of customer accounts and transactions efficiently. It should be scalable to accommodate future growth in the number of users and transactions while maintaining optimal performance.

III. Literature Review

A. In recent years, online banking has become increasingly popular due to its convenience and accessibility. According to a study by Chauhan, Akhtar, and Gupta (2022), customer experience (CE) is a significant factor influencing the adoption and continued use of digital banking services. CE is determined by functional clues such as functional quality, trust, and convenience, as well as mechanic clues such as website attributes, website design, and perceived usability.

B. Another study by Al-Qaysi and Khalid (2016) found that perceived usefulness and perceived ease of use are important predictors of online banking adoption. The study found that these factors were positively associated with the intention to use online banking services.

Overall, the literature suggests that CE, perceived usefulness and ease of use, security and trust, and the use of gamification are important factors influencing the adoption and continued use of online banking services. As online banking continues to evolve, it is important for banks to consider these factors in order to provide a positive customer experience and increase customer loyalty.

IV. Methodology

- Classes: The code defines two classes, Account and Bank, which are the building blocks of the banking system. Classes encapsulate data and behavior related to their respective entities.
- Encapsulation: The Account class encapsulates the data members (account Number, firstName, last Name, and balance) and member functions (Deposit, Withdraw, etc.) within a single entity. The data members are declared as private, and member functions provide controlled access to these members.
- Abstraction: The Account class provides an abstraction for a bank account. It hides the internal details and provides a simple interface (member functions) to interact with the account, such as depositing, withdrawing, and getting account information.

V. Flow chart

The banking system flowchart begins with entering personal details to register as a user. Once registered, users can view their accounts, which offer three key functions. First, users can deposit money into their accounts. Second, they can view their account details, which likely include transaction history and account information. Lastly, users can check their account balance to see how much money is currently in their account. These functions are essential for users to manage their accounts efficiently and perform basic banking operations. The flowchart simplifies the process, ensuring that users can easily navigate through the system to access the services they need.

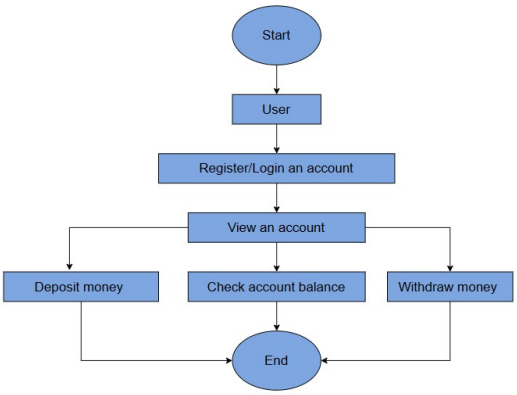
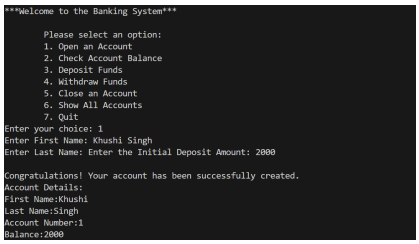
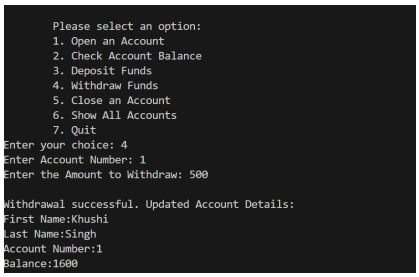
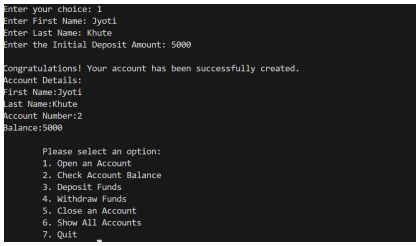


Fig. 1. Flowchart

VI. Results







Conclusion

In summary, the banking system project establishes a basic structure for managing bank accounts that allows its users to open new accounts, deposit and withdraw money, check balances and close them. This project demonstrates the fun-

damental concepts of object-oriented programming and file handling. Though functional in its current state, there is a lot of room for improvement. Future enhancements could involve user authentication, transaction history recording, interest compu- tation and different types of account support. Additionally, designing an e-banking interface that has advanced account management features would make it more appealing to con- sumers.

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