Banking System – Final Report

Title

Simple Banking System using C

Abstract

This project presents a simple banking management system implemented in the C programming language. It has simple functions like withdrawal, deposit etc. It also has employee specific functions which makes it versatile.

Problem Description

The Banking systems now are very complicated and requires a lot of backend to keep up with all the data coming in every second

This project is a simplified version which allows:

-to create and manage bank accounts.
-Allowing login verification
-Providing an employee-only powers

Implementation Details

- User accounts are stored in an array of structures.
- Sorting is done to keep account numbers in order using Bubble Sort
- Searching is implemented using Binary Search on sorted account numbers.(only linear search could have also been used as the data input is less).
- Deleted accounts are stored in a separate array for employee access.
A simple hardcoded employee login system is provided for administrative access.

Data Structures Used

- Structs - has all the data elements like name etc of account and employee
- Arrays : arrays are used to store account and employee data:

Challenges Faced

1. Password Security:
   - Limited to plain-text comparison and does not use encryption.

2. Buffer Flushing Issues:
   - Mixing `scanf` and `fgets` required careful flushing of the input buffer to avoid input skips.

3. Error Checking:
   - Extra effort was needed to validate edge cases like invalid amounts, age range, and input lengths.

4. Time:
 - The amount of time required to think was severely underestimated

5. Features:
 - The amount features which were required to be added was always short

Conclusion and Learnings

The project successfully demonstrates how a basic banking system can be implemented in C using fundamental data structures.

Learnings:
- Using structs and arrays effectively to model real-world entities.
- Implementing and understanding sorting and searching algorithms..
- The importance of secure and user-friendly design even in basic systems.
- Importance of authentication in a digital world