One Bank Proposal - Banking System

Software Requirements Specification

Revision History

Date	Revision	Description	Author
06/11/21	0.9	Initial Version	Garten, Le, Odumosu
06/23/21	0.99	Added Requirements from Client	Garten, Le, Odumosu
06/29/21	1.0	Updated Requirements	Le
07/07/21	1.1	Updated ATM & Overview SR, Constraints	Garten, Odumosu
07/21/21	1.2	Complete update	Garten

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1. Purpose

This document outlines the requirements for a Banking System..

1.1. Scope

This document will catalog the user, system, and hardware requirements for the Banking system. It will not, however, document how these requirements will be implemented.

1.2. Definitions, Acronyms, Abbreviations

1.2.1 User - Customers of the bank

1.2.2 Teller - Bank employee which helps the customers with their transactions

1.2.3 ATM - Automatic Teller Machine which lets customers have remote access to their accounts

1.2.4 Supervisor - Bank employee with more credentials to initiate or shut off server as well as manage employee accounts.

1.2.5 .csv - Comma Separated Values, common file type for saving data.

1.3. References

1.3.1 SRS Document
1.3.2 Use Case Diagram
1.3.3 Use Case Specifications
1.3.4 Class Diagram
1.3.5 Sequence Diagram
1.3.6 Design Document
1.3.7 Gantt Schedule

1.4. Overview

Banking system is designed to handle customer transactions through an ATM, or employee using a Teller interface, to a dedicated server. All Customer account information will be stored into a separate CSV file for future use. Employee accounts will be similarly stored in a different file.

2. Overall Description

2.1. Product Perspective

2.2. Product Architecture

2.2.1 Three modules will be made. ATM module, Teller Module, Server Module

2.2.2 System communicates over TCP/IP.

2.3. Product Functionality/Features

2.3.1 View Balance, and limited history
2.3.2 Perform:
    2.3.2.1Transfer between same customer accounts
    2.3.2.2 Deposit: by check or cash
    2.3.2.3 Withdrawal, if balance is positive

2.3.3 Add/Remove Accounts, Customers, and Employees.
2.3.4 PIN & passcode for Customers. Login & passwords for Employees and Supervisors.
2.3.5 Unique ID for Savings, Checking accounts, Customers, and Employees.

2.4. Constraints

2.4.1 Must use Java only.
2.4.2 Must connect over TCP/IP.
2.4.3 No outsource funding.
2.4.4 All development will be conducted with GitHub and Eclipse IDE.
2.4.5 Server must be Online for a ATM or non-supervisor to have service
2.4.6 System will be not in service with corrupted files

2.5. Assumptions and Dependencies

2.5.1 Multiple simultaneous clients at ATM and Teller

2.5.2 Customer ATM cards can only be tied to upto one Savings and/or upto one Checking account

2.5.3 Teller employees require Customer passcodes and photo id to access their accounts

2.5.4 Teller employees are not allowed be involved in a Customer overdraft from their accounts

2.5.5 ATM can count cash properly and knows what cash/checks looks like.

2.5.6 Overdraft fee is $25.00.

2.5.7 Checking dividends happen at the end of the month.

2.5.8 Checking accounts receive 0.1% interest dividend.

2.5.9 Savings accounts receive 0.5% interest dividend.

2.5.10 Customers can have multiple accounts of any type.

2.5.11 Customers can have only two types of accounts: Checking and Savings.

3. Specific Requirements

3.1. Functional Requirements

3.1.1. Common Requirements:

3.1.1.1 Each user will have an account with a unique id..

3.1.1.2 All data will be saved to the hard disk for reliability and reloading.

3.1.1.3 Account balances can be negative.

3.1.1.4 Balances are accurate to 1/10 of a penny.

3.1.2. ATM Module Requirements:

3.1.2.1 Customers should be able to use their unique issued id and 4 digits PIN to log in.

3.1.2.1.1 Reject cards if not valid.

3.1.2.2 Customers should be able to view their balances.
3.1.2.3 Customers should be able to withdraw/transfer from an account if the balance is positive.

3.1.2.3 Customers should be able to deposit to their account.
3.1.2.4 Customers should be able to log out.
3.1.2.5 Only dispense cash if there's enough cash locally available.
3.1.2.6 Customers will accrue an overdraft fee if they withdraw more than their positive balance from an account.
3.1.2.7 UI will have buttons.

3.1.3. Teller Module Requirements:

3.1.3.1 Tellers should be able to use their unique login and password to sign in. Login and password will be an alphanumeric string and the password will be an alphanumeric string between 7 and 20 characters long.

3.1.3.2 Tellers should be able to view any Customer account.

3.1.3.3 Tellers should be able to view a customer account's last transactions and their fees accrued.

3.1.3.4 Tellers should be able to transfer funds between customer accounts with their verbal permission.

3.1.3.5 Tellers should be able to open an account for a user as well as close a user's account with User's permission.

3.1.3.6 Tellers should be able to withdraw money from the account only if the amount is less than the balance.

3.1.3.7 Tellers should be able to deposit money into an account only with the User's permission.

3.1.3.8 Tellers should be able to sign out.

3.1.3.9 Tellers should be able to dismiss a customer's information upon finishing their business.

3.1.3.10 Supervisors should be able to change an employee Tellers password.

3.1.3.11 Supervisors should be able to add and remove an employee.

3.1.3.12 Supervisors should be able to bring a Server Online and in service as well as shutdown.

3.1.3.13 Supervisors should be able to have the Server save and load to/from the hard disk the days' data for employees and customers.

3.1.3.14 Supervisors should be able to have all the abilities of Tellers.

3.1.3.15 UI will have buttons and text boxes.

3.1.4. Server Module Requirements:

3.1.4.1 Can accept messages from both ATM and Teller Clients over TCP/IP.

3.1.4.2 Generates unique ID for customers, accounts, and employees.

3.1.4.3 Ensures uniqueness of employee logins.

3.1.4.4 Tracks overdraft fees separately.

3.1.4.5 Validates login/pin information for customers.

3.1.4.6 Validates login/password information for employees/supervisors.

3.1.4.7 Validates customer id and passcode information for customers conversing with a Teller.

3.1.4.8 The last transaction for every account will be logged to that account.

3.1.4.9 All account, employee, and customer data will be saved to the hard disk.

3.1.4.10 Startup and shutdown protocols.
3.1.4.11 Threads will be doing the authentications
3.1.4.11 Adds fee to accounts when their balance becomes negative. Applies fee to account balance.
3.1.4.12 Calculates dividend upon file load at the end of the month for each account based on type if the account was open for at least 1 month.

3.2. Internal Interface Requirements

3.2.1 Users will have their accounts stored into a csv file.
3.2.2 Customers with attached ATM cards will have that information put into their file by another system. Accounts filed as having an ATM card attached can be accessed through the ATM client.

4. Non-Functional Requirements

4.1. Security and Privacy Requirements

4.1.1 ATM will hold very limited information.

4.2. Environmental Requirements

4.2.1 System has to work on MacOS and WindowsOS.
4.2.2 System has to work over TCP/IP.