**Requirements**

**Functional requirements**

Functional Requirements describe the service that the banking management system must offer, they are subdivided into three access levels: Admin Mode, Teller Mode, and Customer Mode:

|  |  |  |  |
| --- | --- | --- | --- |
| Req# | Description | Access Level | Rate |
| FR\_01 | User authentication through login and password. | Customer | High |
| FR\_02 | Ability for customers to update personal information. | Customer | High |
| FR\_03 | Capability for customers to change their password. | Customer | High |
| FR\_04 | View account balance. | Customer | High |
| FR\_05 | Access personal transaction history. | Customer | High |
| FR\_06 | Transfer money between accounts. | Customer | High |
| FR\_07 | Apply for and manage loans. | Customer | High |
| FR\_08 | Deposit cash into their accounts. | Customer | High |
| FR\_09 | User authentication via login and password. | Teller | High |
| FR\_10 | Ability for tellers to change their password. | Teller | High |
| FR\_11 | Register new bank customers. | Teller | High |
| FR\_12 | View customer information and account details. | Teller | High |
| FR\_13 | Manage customer accounts (create, update, close accounts, etc.) | Teller | High |
| FR\_14 | User authentication via login and password. | Admin | High |
| FR\_15 | View manager and customer details. | Admin | High |
| FR\_16 | Add or update bank branch details | Admin | High |
| FR\_17 | Add or update manager details | Admin | High |

**Non-Functional Requirements**

Non-functional requirements specify criteria that can be used to judge the operation of a system as a whole rather than specific behaviors. They describe emergent properties like security, performance, and availability and, unlike the functional requirements that can be worked around, are essential to fulfill for a usable system. The estimation of whether the product fulfills the non-functional requirement or not usually reduces to a boolean answer: yes or no.

For a bank management system, the most important non-functional requirements include security, performance, usability, and availability.

**Security**

Bank management systems are notorious for being subject to malicious attacks, so security is the major requirement for the system. Unauthorized access to the data is not permissible. The data must be backed up daily and stored in a secured location, at a distance from different facilities of the system.

Online transactions and stored digital files must be encrypted according to 128-bit or 256-bit AES encryption standards. The system also must employ firewall software as a defense against network attacks.

From the client-side, the system must provide an automatic log-out after an inactivity period, accept only secure passwords that have sufficient length and non-alphabetic characters, and block login attempts after several unsuccessful trials.

**Performance**

The bank management system is a multi-client system that must reach response time targets for each of the clients during simultaneous calls and must be able to run a target number of transactions per second without failure. The system must effectively utilize the hardware and energy resources to minimize operational costs.

**Usability**

The system must provide different graphical interfaces for customers, tellers, and admins. All system interfaces must be user-friendly and simple to learn, including helping hints and messages and intuitive workflow, especially in a client interface: the client must be able to fast learn and use the interface without prior knowledge of banking terminology or rules.

The interfaces must automatically adjust to devices with different screen sizes, and allow to change typeface size and color scheme to improve readability.