
Software Requirements Specification

for

Bank Management System

Version 1.0

Prepared by

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1 Introduction

This project is a prototype for Bank Management System, an application with the intent to facilitate various operations performed in a bank including fund transfer between user accounts, requesting loans, checking bank details etc. This section provides a basic overview of the aim of the project, significance and utility of the software product to be formed, along with focussing on the targeted set of users.

1.1 Document Purpose

The main purpose of this document is to provide a detailed analysis of the Bank Management System project. This document reflects on both the functional and non-functional requirements needed for achieving the objectives of the product. The project offers a convenient and easy circulation system for establishing an efficient channel between users and the bank administration with regard to maintaining records of users, fund transfers, loan requests and other operations being performed. The document also focuses on the external interface requirements involving both hardware and software interfaces. It also looks into the functionalities of the system along with the interaction between the system and the users with the help of use case diagrams.

1.2 Product Scope

The Bank Management System provides a better productive environment for bank customers as well as the bank admins reducing the cost of various operations than the existing system, which involves physical visits to the bank. The application to be developed will be beneficial in giving an easier user interface as any user can login to their account which contains basic information regarding the user along with their account status, perform transactions and request the bank for loans. The admin has the privilege to create new user accounts, approve user loans and to update the database when physical transactions happen in the bank. The Bank Management System thus delivers a secure and reliable platform for handling bank information providing additional flexibility and convenience to the bank's customers and admins.

1.3 Intended Audience and Document Overview

The document is intended to serve several groups of audience members.

- Firstly the SRS will be referenced by the system designers to create the design of the application.
- Secondly, the developers and testers shall view to ensure if the requirements have been met.
- Thirdly, the bank admin and customers who are the client for the project shall review the SRS to get an understanding of the basic product functionalities.
- The application maintenance staff can also review the document for future modifications to get clarity on the present functionality.

The next section of the document, the Overall Description, gives an overview of the functionality of the product with the help of a high-level description diagram of the product. It describes the informal requirements, which is then used to establish a context for the detailed technical and functional requirements and the use case diagrams of the third section, Specific requirements. The fourth section lays importance on the non-functional requirements of the production, including performance and safety and security requirements.

1.4 Definitions, Acronyms and Abbreviations

S.No	Abbreviation/Term	Definition(s)
1	Admin	Bank Administrator
2	Customer/Client	A person who has an account in the bank
3	HTML	HyperText Markup Language

1.5 Document Conventions

This document follows the IEEE formatting requirements.

1.6 References and Acknowledgments

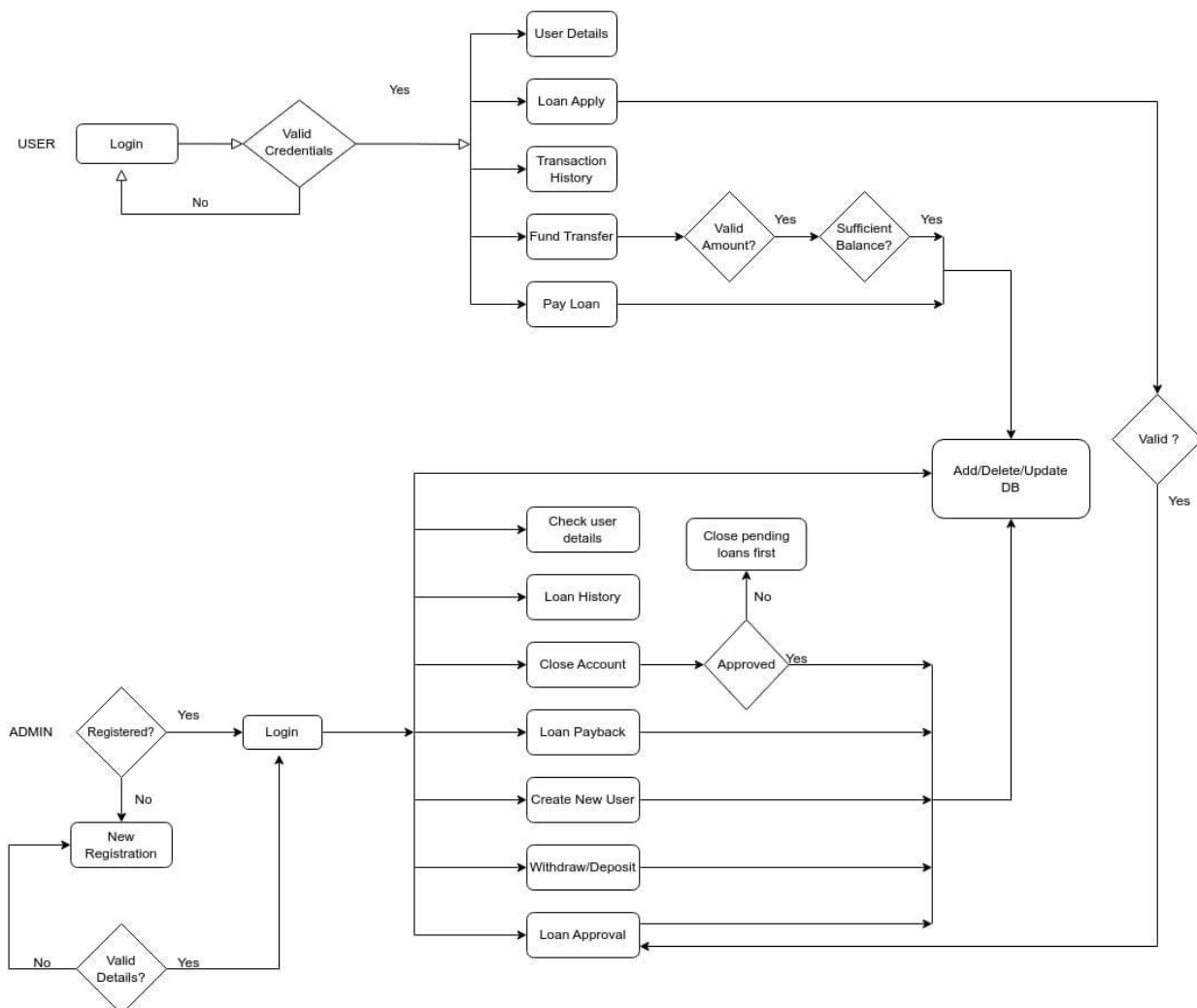
- Fundamentals of Database Systems by Ramez Elmasri
- [Use-Case Diagram- Tutorialspoint](#)
- IEEE. IEEE Std 830-1998 IEEE Recommended Practice for Software Requirements Specifications. IEEE Computer Society, 1998

2 Overall Description

2.1 Product Overview

This Bank Management System will serve as an interface between the customers of the bank and the bank management. The registered users will have the facility to check their bank details, perform account to account transactions, request new loans, pay existing loans and view their transaction history. Real-time information about the accounts present in the bank will be presented upon search.

The bank admin will have direct access to the database to add/delete/update. In order to validate these privileges, there will be a separate login for the admins.



2.2 Product Functionality

The Bank Management System will permit:

- Any customer of the bank who has been registered by an admin to login this system using their account number
- The registered admins to log in to access the facilities and register new users.

The customers to

- View their account details including balance
- Perform account to account transactions
- Request for loans
- View transaction history
- Pay loans

The admins to

- Register new customers
- Approve loans
- View customer details and loan history
- Close customer accounts
- Add/Delete/Update the database

2.3 Design and Implementation Constraints

Any transaction happening via the application or physically via the bank must be updated in the database. The total loan amount must be calculated correctly. The users will be able to access this via any computer with Internet connectivity. In order to enter the system, the customers, as well as the admins, must enter valid credentials.

2.4 Assumptions and Dependencies

The assumptions are:

- Presently there is only one branch with multiple admins
- In order to register a new customer, the admin must verify the customers credentials physically at the bank.
- A customer can only have one personal account in the bank.
- The system will be available at all times
- The admin must verify necessary details before updating an offline transaction in the database
- To close an account the customer must visit the bank and give a closing request physically

3 Specific Requirements

3.1 External Interface Requirements

3.1.1 User Interfaces

- The design or layout of every form will be very clear and very interactive to the user.
- User when opening the application, it opens to a login page where the user can choose between a customer login and admin login
- In the customer login page, the user can enter the password and account number and then log in to the application.
- In the admin login page , the user can enter the required credentials and login
- Then it will give the successful login message.
- The user will be able to search any data from the record by using proper guidelines shown on the webpage.
- The design is simple and all the different interfaces follow a standard template.
- This software will be easily understandable and operable by the user.
- Different tasks are made available to the user depending upon their role as customer or admin.

3.1.2 Hardware Interfaces

Processor: Pentium(R) Dual-core CPU
Hard Disk: 50GB
RAM: 2GB or more

3.1.3 Software Interfaces

Software Used	Description
Operating System	Windows
Database & Backend	Backend - Flask Database - PostgreSQL
HTML & CSS , JS(React)	HTML, CSS and JavaScript

3.2 Functional Requirements

F1 : The system shall only permit an admin to register a new customer/admin into the database to ensure integrity.

F2 : The system shall allow the customer or admin to log in after verifying the credentials. The person is logged into the system if the entered credentials are found to be valid.

F3 : The system shall display the customer's details upon login.

F4 : The system shall a customer to view their transaction history, from the home page.

F5 : The system shall allow a customer to transfer money to another valid account, provided the sender has sufficient balance.

F6 : The system shall allow a customer to apply for loan through the app, provided they are eligible for the same.

F7 : The system shall allow a customer to pay back their active loans through the app, with their balance in the account.

F8 : The system shall allow an admin to register a new customer into the database, after the customer has opened up an account in the bank. The database is updated accordingly.

F9 : The system shall allow an admin to register into the database themselves by entering the master key code provided by the bank. The database is updated accordingly.

F10 : The system shall allow the admin to check the user details of a customer upon giving the relevant id of the client.

F11 : The system shall allow an admin to withdraw from or deposit money into a customer account, upon the customer's request.

F12 : The system shall give authority to an admin to close a user account, after relevant paperwork and verification, and upon the customer's request.

F13 : The system shall give authority to an admin to approve or reject a loan request put up by the customer through the app, after thorough verification.

F14 : The system shall allow an admin to pay back into a customer's loan, after the customer brings money to the bank.

F15 : The system shall allow an admin to check a customer's loan history.

F16 : The system updates the database accordingly, if a loan is closed I.e., completely paid back by the customer.

F17 : The system shall allow the admin to add/delete/update database for customer registration, closing of an account, updating loan or for a transaction

3.3 Use Case Model

3.1.1 Login – U1

Author – Saurav S

Purpose – To log in to the system.

Requirements Traceability – F2

Priority - High

Preconditions – The user must have valid login credentials.

Post conditions - The user successfully logs into the system.

Actors – Client / Admin

Extends – none

Flow of Events

Basic Flow -

The user enters valid login credentials.

The user successfully logs in to the system.

Alternative Flow –

- The user enters invalid login credentials.
- The system shows a message indicating invalid credentials.
- The user is again asked to enter login credentials.

Exceptions –

- A registered user enters invalid login credentials.

Includes : None

Notes/Issues - None

3.1.2 Register - U2

Author – Saurav S

Purpose – To register a new user into the system.

Requirements Traceability – F1

Priority - High

Preconditions – The user must not be already registered.

Post conditions –

- The admin successfully completes the registration.
- The user login credentials are added in the system database.

Actors – Client / Admin

Extends : None

Flow of Events –

Basic Flow -

- The admin enters relevant details for registration.
- A new user is created in the database.

Alternative Flow –

- The admin enters the existing user's data.
- The system shows a message indicating User already exists.
- The user is asked to enter login credentials.

Exceptions –

- The user enters invalid data during registration.

Includes : None

Notes/Issues – Only admin has the privilege to register a new customer

3.1.3 Fund Transfer – U3

Author – Saurav S

Purpose – To transfer money from one account to another.

Requirements Traceability – F2, F5

Priority – High.

Preconditions –

- The client must be logged in.
- The client must select the *Online Money Transfer* option.

Post conditions – Money is transferred successfully.

Actors – Client

Extends – none

Flow of Events

Basic Flow -

- Client enters the recipient's account number; recipient's name shows up.
- Client enters the amount to be transferred.
- Amount is transferred successfully.

Alternative Flow –

- Client enters invalid account number; asked to try again.
- Client enters an amount more than their balance or the limit.
- Transaction fails.

Exceptions –

- Client sends money to a different person's account.

Includes : U10

Notes/Issues - None

3.1.4 Loan Apply – U4

Author – Saurav S

Purpose – To facilitate the client to apply for a loan.

Requirements Traceability – F2, F6

Priority – Medium.

Preconditions –

- The client must be logged in.
- The client must select *Apply for Loan* option.

Post conditions – Loan Request is submitted successfully.

Actors – Client

Extends – U5

Flow of Events

Basic Flow -

- Client selects one among the given loan types.
- Client enters the Request button.
- Loan request is submitted successfully.

Alternative Flow –

- Client is not eligible for the selected loan type.
- Client enters the Request button.
- A message appears indicating Non eligibility.

Exceptions –

- Client requests for an eligible loan type, but irrelevant for them.

Includes : None

Notes/Issues - None

3.1.5 Loan Approve – U5

Author – Saurav S

Purpose – To facilitate the admin to approve/reject a submitted loan request.

Requirements Traceability – F2, F6, F13

Priority – High.

Preconditions –

- The client should submit a loan request beforehand.
- Client should produce relevant documents before the bank.

Post conditions –

- The loan is either approved / rejected by the admin.
- The new active loan is added in the system database, if approved.

Actors – Admin

Extends – None

Flow of Events –

Basic Flow -

- Admin verifies the documents submitted by the client.
- The admin selects the submitted request from the client's page.
- Loan is approved.

Alternative Flow –

- Admin verifies the submitted documents, and concludes that loan cannot be provided.
- Admin selects the request from the client's page.
- Admin rejects the application.

Exceptions –

- The client submits forged documents.

Includes : U10

Notes/Issues - None

3.1.6 Loan Repayment (Client) – U6

Author – Saurav S

Purpose – To facilitate the client to repay their active loans from their account balance.

Requirements Traceability – F2, F6, F13, F7

Priority – High.

Preconditions – The client selects the active loan, and clicks Repay button.

Post conditions - The client successfully repays the desired amount.

Actors – Client

Extends – none

Flow of Events

Basic Flow -

- The user enters the amount they are repaying.
- The user clicks Pay button.
- Successful repayment.

Alternative Flow –

- The user enters an amount greater than their savings or an invalid amount.
- The user clicks Pay button.
- Unsuccessful repayment followed by a message.

Includes : U10

Notes/Issues – None

3.1.7 Loan Repayment (Admin) – U7

Author – Saurav S

Purpose – To facilitate the admin to repay a loan a with cash provided by the client.

Requirements Traceability – F2, F6, F13, F14

Priority – High.

Preconditions – The client should bring cash to the bank.

Post conditions – The admin successfully repays the given amount for the client.

Actors – Admin

Extends – None

Flow of Events –

Basic Flow -

- Admin evaluates the amount given by the client.
- The amount is paid back into the client's active loan.

Exceptions –

- The client brings in fake currency.

Includes : U10

Notes/Issues - None

3.1.8 Loan History – U8

Author – Saurav S

Purpose – To facilitate the user to view active and closed loans.

Requirements Traceability – F2 , F6, F13, F15

Priority – Low.

Preconditions – none.

Post conditions – none.

Actors – Admin / Client.

Extends – None

Flow of Events –

Basic Flow -

- Admin enters the account number of the client.
- Admin selects Loans option in the client's page.

Alternative Flow –

- Client logs in.
- Client selects Loans option.

Includes : None

Notes/Issues - None

3.1.9 Offline Fund Transfer – U9

Author – Saurav S

Purpose – To facilitate the admin to transfer money between accounts.

Requirements Traceability – F2, F11

Priority – Medium.

Preconditions –

- The client should request for a fund transfer.
- The client should have enough balance in their account.

Post conditions – Money is successfully transferred from sender's account to recipient's account.

Actors – Admin

Extends – None

Flow of Events –

Basic Flow -

- Admin withdraws the requested amount from the sender's account.
- Admin deposits the withdrawn amount into the recipient's account.
- Successful fund transfer.

Alternative Flow –

- Client gives a non-existing, invalid account number.
- Admin deposits the withdrawn amount into the sender's account.
- Unsuccessful fund transfer.

Exceptions –

- The client gives a wrong existing account number as recipients.
- Withdrawn amount deposited into wrong account.

Includes : U10

Notes/Issues – None

3.1.10 Update Database – U10

Author – Saurav S

Purpose – To facilitate the admin to update the database depending upon the operation performed

Requirements Traceability – F2, F17

Priority – High

Preconditions –

- The admin should login with valid credentials to update the database

Post conditions – The database is successfully updated

Actors – Admin

Extends – None

Flow of Events –

Basic Flow -

- The admin logs into the system using valid credentials.
- The admin performs the required update in the database
 1. depending upon the required operation

Alternative Flow –

- Admin tries to login with invalid credentials and encounters an error message

Exceptions –

- The admin ignorantly performs a wrong update which can lead
 1. to loss/corruption of data.

Includes : None

Notes/Issues – None

3.1.11 View Transaction History – U11

Author – Saurav S

Purpose – To facilitate the customer to view their transaction history

Requirements Traceability – F2, F4

Priority – Medium

Preconditions –

- The customer should login with valid credentials to view history

Post conditions – The customer successfully views their transaction history

Actors – Customer

Extends – None

Flow of Events –

Basic Flow -

- The customer logs into the system using valid credentials.
 1. Customer views transaction history

Alternative Flow – None

Exceptions –

- Customer tries to login with invalid credentials and encounters an error message

Includes : None

Notes/Issues – None

3.1.12 View Details– U12

Author – Saurav S

Purpose – To facilitate the customer/admin to view customer details

Requirements Traceability – F2, F3, F10

Priority – Medium

Preconditions –

- The customer/admin should login with valid credentials to view history
- The admin must login and enter account number of the required customer

Post conditions – The customer successfully views their transaction history

The admin views details of a customer

Actors – Customer, Admin

Extends – U11

Flow of Events –

Basic Flow -

- The customer logs into the system using valid credentials and views details
- The admin logs in and enters a customers account number and views their details.

Alternative Flow – None

Exceptions –

- Customer tries to login with invalid credentials and encounters an error message

Includes : None

Notes/Issues – None

3.1.13 Close Account - U13

Author – Saurav S

Purpose – To close a customer account by the admin

Requirements Traceability – F2, F10, F15, F13

Priority – Medium

Preconditions –

- The customer must request account closure physically at the bank(offline)
- Customer must not have any pending loans

Post conditions – The customer's account is successfully deleted

Actors – Admin

Extends – None

Flow of Events –

Basic Flow -

- The admin logs in and views customers details and loan history.
- If there are no pending loans , then the account is closed

Alternative Flow –

The customer has active loans and hence the account cannot be closed

Exceptions –

Admin enters wrong customer details and encounters an error

Includes : F10

Notes/Issues – None

4 Other Non-functional Requirements

4.1 Performance Requirements

The search retrievals depend upon the updates made to the system. This system is designed to interact customers and the bank admins. The system will respond to the user in less than a second of submitting a request. The view of history may take a few seconds extra. Overall, the performance will be fast and accurate. The system will be capable of handling a large amount of data and hence accommodate a high number of accounts, user transaction history, user credentials, etc.

4.2 Safety and Security Requirements

The system will store all the data in a secure database. The customers will be able to view information but will not have the privilege to modify/edit it. This privilege will be given to the bank admin and only they have the right to update the database. Only the admins can create new accounts. These are the two different types of accessors and have varying access constraints.

In terms of the safety aspect, the system does not pose a threat to its users. To combat attacks by malware, backing up the database is advised.

4.3 Software Quality Attributes

4.3.1 Reliability

The system will not lag and will provide instant and accurate results to all the users.

4.3.2 Adaptability

The system can be extended to other organizations as well.

4.3.3 Maintainability

In case of errors, it can be rectified by any developer due to the ease of maintenance.

4.3.4 Portability

The system can be deployed on any machine. The quality of the database is maintained to be user-friendly.

4.3.5 Cost-effectiveness

This system is less in cost and bearable to any organization.

Appendix A – Data Dictionary

Admin	Employee(s) of the bank who deal with customers transactions and loans.They ensure The updation of the database.
Customer	They are people who open an account in the bank and perform various operations such as transactions and loans
Database	A database is an organized collection of data, generally stored and organised on a computer
Account Number	A unique identifier given to each customer in the bank to identify their account
Flask	A python web framework used to develop web-applications

Appendix B – Group Log

Meeting Day	Timings
14/10/2023	07:00 - 08:00 PM
16/10/2023	06:00 - 07:30 PM
18/10/2023	06:00 - 09:00 PM
Name	Contributions
Anudeep S	External Interface Requirements- User Interfaces,Software Interfaces,Flowchart,Use Case #7,#8
Saurav S	Flowchart, Functional Requirements,Other Non-Functional Requirements, Use Case #1, #2, #3,#4,#5,#6
R Gnanadeep	Functional Requirements, External Interface Requirements-Hardware Interface ,Use Case #9, #10,Appendix A ,Appendix B
Afthab Hyder	Document Purpose, Product Scope, Intended Audience and Document Overview, Functional Constraints Use case #11,#12,#13