**SOFTWARE REQUIREMENTS SPECIFICATION**

**OF**

**BANK LOAN SYSTEM**

LoanManager 1.0TM

# Table of Contents

1. [Introduction 3](#_TOC_250017)
   1. [Purpose 3](#_TOC_250016)
   2. [Intended Audience 3](#_TOC_250015)
   3. Project Scopes 4
   4. [References 4](#_TOC_250014)
2. [Overall Description 5](#_TOC_250013)
   1. [Product Perspective 5](#_TOC_250012)
   2. [Product Modules 5](#_TOC_250011)
   3. [Product Features 7](#_TOC_250010)
   4. [User Characteristics 8](#_TOC_250009)
   5. Constraints 9
   6. [Assumptions and Dependencies 9](#_TOC_250008)
3. [System Features 10](#_TOC_250007)
4. [EXTERNAL INTERFACE REQUIREMENTS 12](#_TOC_250006)
   1. User Interfaces 12
   2. Hardware Interfaces 13
   3. Software Interfaces 14
   4. [Memory Constraints 14](#_TOC_250005)
5. [Other Non-Functional Requirements 14](#_TOC_250004)
   1. [Performance Requirements 14](#_TOC_250003)
   2. [Software System Attributes 15](#_TOC_250002)
   3. [Business Rules 16](#_TOC_250001)
6. [Other Requirements 17](#_TOC_250000)

# Introduction:

Loan Management System (**LoanManager 1.0T**M) is the most practical application developed to keep record of all the customer lending records, fund flows, customer records and cash flow. A detailed report on the customer’s financial position is maintained by the loan processing system. All types of loans including balloon payments, standard mortgages, and interest only loans, etc. are handled by it. A loan management software system manages the loan information and the store or database. This data stored is used for cash flow information, tracking current installment payment status, loan servicing and other accounting tasks.

## Purpose:

This is the Software Requirements Specification (SRS) for the Bank Loan System. The purpose of this document is to convey information about the application's requirements, both functional and nonfunctional, to the reader. This document provides**:**

* + 1. A description of the environment in which the application is expected to operate.
    2. A definition of the application's capabilities.
    3. A specification of the application's functional and nonfunctional requirements.

## Intended audience:

The document is intended to serve several groups of audiences:

* Developers for the purposes of maintenance and new releases of the software.
* Management of the BANK.
* Customer and Public User: Customers first got registration to login into the site. The Registered Customers login to the site with their username and password. Customers after login into the site they can see all the Loan schemes available and their interest rates in that bank. By observing those Customer can select the loan type if required. Customers can do loan calculations by using loan calculator available in the site. By using this calculator user can calculate how much monthly amount he has to pay for his required loan amount.

## Project Scope:

The purpose of this software development project is to create a new application called: **LoanManager 1.0T**M. The client for this project wishes to enter the PC- based internet environment. The scopes of this project are as follows:

* It’s a web-enabled project. This project offers user to enter the data through simple and interactive forms. This is very helpful for the client to enter the desired information through so much simplicity.
* User is provided the option of monitoring the records he entered earlier. He can see the desired records with the variety of options provided by him.
* The software takes as input the login Id and that bank account number of the user for login purposes. The outputs then comprise of an interactive display that lets the user select the desirable function that he wants to perform.

## REFERENCES:

1. [www.codeproject.com](http://www.codeproject.com/)
2. [www.w3schools.com](http://www.w3schools.com/)
3. [www.stackoverflow.com](http://www.stackoverflow.com/)
4. [www.winkipedia.com](http://www.winkipedia.com/)
5. <https://www.lovelycoding.org/loan-management-system/>

# Overall Description

## Product Perspective

* + - This software allows the customers to open a new bank account.
    - This software allows the customers to see the bank information like loans provided by that bank and their interest details.
    - This software allows customers to apply for loan in online and they can verify their application status.
    - This software stores the user information in centralized database.
    - User information can also be maintained by the software.
    - Bank Loan System software can give the good security for user information.
    - Authentication is provided for this software thus only registered Users can access.
    - After getting the loan customer can pay term payment with debit card using this software.
    - The admin can control all the transactions.
    - The mortgage can be calculated using the built-in calculator in the software.

## Product Modules

The major modules that **LoanManager 1.0T**M contains are described as follows:

1. Administrator: Administrator is owner of the site. She/he Can view the existing Division details. Administrator can see the customer’s details of their bank account. If He want he can block the customers into that site, at the same time admin can unblock the blocked customer and make him allow to login into the site. Admin adds the new Mortgage schemes providing by the bank. She/he can see all the mortgage schemes now available in their bank, select individual scheme update the details if percentage of interest changes. Admin can see the payment details of all Customers who have taken loan from the bank and mortgage scheme wise. Admin can do the Mortgage calculations by using mortgage calculator available in the site. This calculator takes details of loan like loan amount, percentage of interest, No. of terms then it gives the monthly payment amount.
2. Credit Manager: Credit Manager gets the credentials from Administrator, with those they can login into the site. Credit Manager can verify the loan

applications and approve/reject those applications. The applications which are approved those customers can get loan from that bank. After the Application is approved they have to go the bank and submit the required documents then get the loan amount. Credit Manager can see the Loan payment reports of customers who have taken loan from that Branch. He gets reports based on Loan types (Mortgage Scheme).

1. Customers: Customers first got registration to login into the site. The Registered Customers login to the site with their username and password. Customers after login into the site they can see all the mortgage schemes available and their interest rates in that bank. By observing those Customer can select the mortgage type if required. Customers can do mortgage calculations by using mortgage calculator available in the site. By using this calculator user can calculate how much monthly amount he has to pay for his required loan amount.
2. Authentication: After selecting the required mortgage type customer has to fill the application with the details like Mortgage type, loan amount, no of terms, property for security etc. Once the application is submitted customer get application id for further verification. Application of customer is approved by Credit manager then only customer will get the loan. By using application id customers can verify their applications status.
3. Registration: After getting loan customers has to pay the term amount within the specified date.

Customer can login into site to see the term amount details and last date to pay. By using their credit card or debit cards they can pay directly in this site.

1. Reports: Both Administrator and Credit manager get the Loan payment report of customers who has taken loan from their bank.
2. Communication: In this module all the user, administrator, customer, credit manager can communicate through mails or phones.

## Product Features

Some major features that **LoanManager 1.0T**M contains for different Modules are described as follows:

1. For Customers:
   * Account creation: A new user can create an account by filling a form and providing required documents such as NID Card, Passport Size photos, Mobile Number etc. Each user will have a distinct user\_ID and has to set a Password for that user\_ID.
   * Login: This module represents how a registered user enter the banking application and doing there transactions details.
   * Account Maintenance:

The various functions that a user can perform with his account are as follows:

* + - Balance Enquiry: Balance enquiry for any existing account can be performed by user.
    - Balance Transfer: Balance transfer shall be facilitated between any two accounts.
    - Bill Payment: Bills can be paid by using a user account.
    - Deposit: The amount user wants to deposit in his account.
    - Withdraw: The user can withdraw any existing amount from his account.
    - Loan: The user can take loan from the bank by fulfilling some conditions.
    - Loan Payment: The user can pay the loan he took from the bank.
    - Calculate Mortgage: The user can calculate his total mortgage by using this feature.
  + Logout: This module represents logout the banking organization.

1. For Administrator:
   * Login: This module represents how a admin can enter the banking application and do all the necessary things.
   * Appoint Credit Managers: The admin can appoint Credit managers from the bank employees.
   * Blocking/Unblocking a User: The admin can block any potentially harmful user.
   * Updating any mortgage schemes
   * Check the account information of any customer.
2. For Credit Manager:
   * Login: This module represents how a Credit Manager can enter the banking application and do all the necessary things.
   * Verify the loan application: Credit Manager can approve/reject the loan applications of the users.
   * Keep Track of the loan payment report of customers
   * Maintaining regular contact with the customers who has taken loan from the bank.

## User Characteristics

There are different kind of users that will be interacting with the system. The intended user of the software are as follows:

* User A: A novice customer. This user has little or no experience about opening or maintaining his account. User A will find the product easy to use due to simple user interface models and the descriptions of each steps stated elaborately. He is also assisted by an interactive teaching mechanism at every step of the procedures and transactions, with the visual help sessions.
* User B: An experienced customer. This user has used the site before for various purposes. There is only a little help session that too at the beginning of the transaction, thus making the transaction procedure faster.
* User C: An Administrator. An Administrator knows all the functions properly. He can make any changes to the software or post any update according to the bank policies. He can check if everything is working properly.
* User D: The Credit Managers. A Credit Manager keeps track of all the customers who have taken loan from the bank and there billing record. He notifies the customers who hasn’t paid their mortgage in time and also checks the other transaction occurring in the bank.

## Design and Implementation Constraints

The major constraints that the project has are as follows:

* + - The size of the database increases day-by-day, increasing the load on the database back up and data maintenance activity.
    - Training for simple computer operations is necessary for the people working on the system.
    - Security of this system has to be very high or else hacking/spamming may occur.
    - The system should not have any unscheduled down time during Bank operation hours. Any down time in operation hours has significant impact to the operation and cause inconvenience to everyone in Bank.

## Assumptions and Dependencies

The requirements stated in the SRS could be affected by the following factors:

* One major dependency that the project might face is the changes that need to be incorporated with the changes in the bank policies regarding different services. As the policies changes the system needs to be updated with the same immediately. A delay in doing the same will result to tremendous loss to the bank. So, this should be changed as and when required by the developer.
* The project could be largely affected if some amount is withdrawn from the user’s account from the bank at the same time when someone is accessing that account from the internet and doing any transactions online.
* At this stage no quantitative measures are imposed on the software in terms of speed and memory although it is implied that all functions will be optimized with respect to speed and memory.

It is furthermore assumed that the scope of the software will increase considerably in the future.

# System Features:

The comprehensive loan management solution stimulates banks and financial institutions to automate the procedures for accomplishing cost savings and better customer experience. **LoanManager 1.0T**M can provide technology-enabled lending processes that enhance productivity and customer service through the whole loan lifecycle.

### There are some prime critical features of the Loan management system:

* 1. **Managing Account Remotely:**

The system is designed to provide a user-friendly interface where user can access the system from everywhere, because this is a web-based system. A user can have a loan and repayment the loan at any time from anywhere using their own accounts.

### Payment Collection:

Our system is connected with a lot of banks so the user can collect their loan from the nearest bank where they have an account.

### Managing information for a wide variety:

**LoanManager 1.0TM** will have all the important information of their users when they create their accounts. The information about the users and their

account should be entered into the database prior to any of the transactions and the backup be maintained for all account information.

### Facility to direct debit handling:

A user can take loan and repay the loan with the help of his debit card. It would be a great facility for the users.

### Validity Checks:

In order to gain access to the system, the user is required to enter his/her correct user id/pin no and account no failing which his card may be blocked. The user can access only one account at a time and can enter only one account no. Also, if the user is an administrator, he is required to enter his login id in order to access and change the facilities provided by the system.

### Sequencing Information:

The information about the users and their account should be entered into the database prior to any of the transactions and the backup be maintained for all account information.

### Error Handling/ Response to Abnormal Situations

If any of the above validation/sequencing flow does not hold true, appropriate error messages will be prompted to the user for doing the needful.

### Receipt Generation:

After each transaction of loan or repay user has performed, a receipt is generated that contains all the information about the transaction.

# EXTERNAL INTERFACE REQUIREMENTS

## User Interface:

The **LoanManager 1.0T**M System will have a user friendly and menu based interface. Following screens will be provided:

### Login Screen:

This is the first screen that will be displayed. It allows user to access based upon the user's role.

### Listing Screen:

This screen would provide functionality for listing out of client information. This screen is available to all users. Users have to provide search fields in order to filter the data.

### Dial Screen:

This screen would provide historical data of a particular client. The screen is also available to all users.

### Reference Screen:

This screen is used to view all loan products on that given day. This screen is also available to all users.

### Search screen:

This screen is used for searching a particular client or a set of client based on search criteria. It will be accessible to all users.

### Insert Screen:

This screen is only available to administrators. It will facilitate adding a new record.

### Update Screen:

It will be used to modify or delete an existing record and will be accessible to Administrators and Credit Managers only.

## Hardware Interface:

An extensive network base system as the system will be accessed by over 10000 FAs and expected concurrent users are in the range of 7C0-1000.

Screen resolution of minimum 1024x768 is required for proper screen view.

### User Machine Requirements:

* + Support for the printing devices is required. Appropriate drivers should be available and installed. Printers (deskjet/dot-matrix etc.) are connected properly for printing reports.
  + Operating System: Windows 9x/XP or above/MAC/Unix
  + Processor: Pentium 3.0 GB. or higher
  + RAM: 512 or more
  + Hard Drive: 10 GB or more
  + Internet Browser: IE 6.0 or above

### Server Machine Requirements:

* + Operating System: Windows 9x/XP or above
  + Processor: Pentium 5.0 GHz or higher
  + RAM: 4 GB or more
  + Hard Drive: 500GB or more
  + Internet Browser: **IE** 6.0 or above

## Software Interface:

* + - Any Windows based operating system.
    - Database: IBM DB2
    - Application: ASP (Active Server Pages)
    - Web Server: HS (Internet Information Services WS) is a power Web server that provides a highly reliable manageable. and Web application infrastructure.

## Memory Constraints:

Minimum memory requirement is 512 MB RAM and 10 GB space on hard disk for smooth running of this application.

# Other Nonfunctional Requirements

## Performance Requirements

The following list provides a brief summary of the performance requirements for the software:

### Capacity

The **LoanManager 1.0T**M shall provide customers a 24-hour service.

### Dynamic requirements

* + - * The user account login time must not exceed 1 sec. under normal server workload and 3 sec. under peak server workload.
      * Account balance display time must not exceed 3 sec. under normal server workload and 5 sec. under peak server workload.
      * Account balance transfer time must not exceed 3 sec. under normal server workload and 4 sec. under peak server workload.
      * Bill payment time must not exceed 5 sec. under normal server workload and 6 sec. under peak server workload.
      * Deposit transaction time after insertion of the deposit envelope must not exceed 5 sec. under normal server workload and 6 sec. under peak server workload.
      * Mortgage calculation must not exceed 5 sec. under normal server workload and 7 sec. under peak server workload.
    1. **Quality** – The primary objective is to produce quality software. As the quality of a piece of software is difficult to measure quantitatively, the following guidelines will be used when judging the quality of the software:

1. Consistency – All code will be consistent with respect to the style. (This is implied when adhering to the standard).
2. Test cases – All functionality will be thoroughly tested.

## Software System Attributes

### Reliability

* + - * The data communication protocol shall be such that it ensures reliability and quality of data and voice transmission in a mobile environment. For example, CDMA.
      * The memory system shall be of non-volatile type.

### Availability

* + - * The product will have a backup power supply in case of power failures.
      * Any abnormal operations using an account shall result in the temporary shutting down of the account activity.
      * After abnormal shutdown of an account, the account shall have to be manually reactivated by a maintenance personnel.
      * There should be no inconsistency introduced in the account during whose transaction the system is abnormally shut down.

### Security

* + - * The system shall be compatible with AIMS security standards.
      * The system shall have two levels of security i.e. a distinctive user id and a unique password both authenticated by the CMS software.
      * The Encryption standard used during pin transmission shall be triple DES.
      * The password shall be 6-14 characters long and contain at least one character and an uppercase.
      * Passwords shall not contain name of customers as they are easy to be hacked.
      * Passwords can contain digit, hyphen and underscore.
      * User should be provided with only three attempts for login failing which his account needs to be blocked.

### Maintainability

* + - * The system data i.e. used details, balance details, loan amount, mortgage amount shall be easy to update.
      * The system should have the mechanism of self-monitoring periodically in order to detect any fault.
      * The system should inform the bank automatically as soon as it detects any error or unusual login activity. The kind of fault and the problem being encountered should also be mentioned to the bank automatically.

## Business Rules

The business rules for the software are as follows:

* The Administrator has the authority to fix the rules and regulations and to set or update the policies, mortgage rates, loan giving requirements as and when required.
* The staff at the bank performs the following:

1. Making the entries in the system regarding all the details of the bank account of the user.
2. Keeping the bank account of the user updated as soon as changes are encountered so that the data is in consistent state.
3. Blocking or seizing of the account of user on discovery of any illegal transaction.
4. Unblocking of user accounts that got blocked due to more than three unsuccessful login attempt.
5. Helping customers with forgotten passwords with proper authentication.
6. Immediately correct any fault discovered in any of the accounts.
7. Maintain the backup of all the accounts for reliability purposes.
8. Rollback all the changes made in an account during whose transaction an account getting suspended.
9. Informing any changes made in mortgage rates and loan policy to the user either via email or text msg.
10. Any delay at loan payment should be informed to the user with required penalty warning.

* In case of loss of forgetting the password, the user has to submit an application and verify the facts in person going to the bank.
* User bank account details.
* Updates made in the user account along with date, time and the changes made.
* Schedule of loan payments.

### Other Requirements:

None.