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Department of Computer Science and Engineering

Software Requirements Specification for

ATM Simulator

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Table of Contents

1. Introduction

1.1 Purpose :-

The software ATM version1.0 is to be developed for Automated Teller Machines (ATM). An automated teller machine (ATM) is computerized telecommunications device that provides a financial institution's customers a secure method of performing financial transactions, in a public space without the need for a human bank teller. Through ATM, customers interact with a user-friendly interface that enables them to access their bank accounts and perform various transactions.

1.2 Intended Audience :-

This SRS defines External Interface, Performance and Software System Attributes requirements of ATM version1.0. This document is intended for the following group of people:-
Developers for the purpose of maintenance and new releases of the software. Management of the bank.
Documentation writers.
Testers.

1.3 Product Scope :-

This document applies to Automated Teller Machine software ATM version1.0. This software facilitates the user to perform various transactions in his account without going to bank. This software offers benefits such cash withdrawals, balance transfers, deposits, inquiries, credit card advances and other banking related operations for customers. It also allows the administrator to fix the tariffs and rules as and when required. The software takes as input the login Id and the 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.

1.4 References :-

We have used Google Search for research purpose, Other Google search Images for the use case diagrams, and other websites for the info related to our project.

The references for the above software are as follows:-

i. www.google.co.in

ii. www.wikipedia.com

1.5 Overview :-

Section 1.0 discusses the purpose and scope of the software.

Section 2.0 describes the overall functionalities and constraints of the software and user characteristics.

Section 3.0 details all the requirements needed to design the software

2. Overall Description

2.1 Product Perspective :-
- The ATM is a single functional unit consisting of various subcomponents.
- This software allows the user to access their bank accounts remotely through an ATM without any aid of human bank teller.
- This software also allows to perform various other functions apart from just accessing his bank account such as mobile bill clearings etc.
- The ATM communicates with the bank's central server through a dial-up communication link.

2.3 Product Functions :-

The major functions that ATM performs are described as follows:-

- Language Selection:- After the user has logged in, the display provides him with a list of languages from which he can select any one in order to interact with the machine throughout that session. After the language selection the user is prompted with an option that whether he wants the selected language to be fixed for future use so that he is not offered with the language selection menu in future thus making the transaction a bit faster. User also has the freedom to switch to a different language mentioned in the list in between that session.
- Account Maintenance:- The various functions that a user can perform with his account are as follows:-
  - ➢ Account Type:-The user has the freedom to select his account type to which all the transactions are made, i.e. he can select whether the account is current account or savings account etc.
  - ➢ Withdrawal/Deposit: The software allows the user to select the kind of operation to be performed i.e. whether he wants to withdraw or deposit the money.
  - ➢ Amount:- The amount to be withdrawn or deposited is then mentioned by the user.
  - ➢ Denominations:- The user is also provided with the facility to mention the required denominations. Once he enters his requirements the machine goes through its calculations on the basis of current resources to check whether it is possible or not. If yes, the amount is given to the user otherwise other possible alternatives are displayed.
  - ➢ Money Deposition:- Money deposition shall be done with an envelope. After typing the amount to be deposited and verification of the same, the customer must insert the envelope in the depositary.
  - ➢ Balance Transfer:- Balance transfer shall be facilitated between any two accounts linked to the card for example saving and checking account.
  - ➢ Balance Enquiry:- Balance enquiry for any account linked to the card shall be facilitated.

2.3 User Classes and Characteristics :-

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

➢ User A: A novice ATM customer. This user has little or no experience with electronic means of account management and is not a frequent user of the product. User A will find the product easy to use due to simple explanatory screens for each ATM function. He is also assisted by an interactive

teaching mechanism at every step of the transaction, both with the help of visual and audio help sessions.

➢ User B: An experienced customer. This user has used an ATM on several occasions before and does most of his account management through the ATM. There is only a little help session that too at the beginning of the session thus making the transaction procedure more faster.

➢ Maintenance Personnel: A bank employee. This user is familiar with the functioning of the ATM. This user is in charge of storing cash into the ATM vault and repairing the ATM in case of malfunction. This user is presented with a different display when he logs in with the administrator's password and is provided with options different from that of normal user. He has the authority to change or restrict various features provided by the software in situations of repairing.

2.4 Operating Environment :-

Since this Software is going to be a ATM simulator this application will operated on the Any Desktop Computers with a stable internet connection.

2.5 Design and Implementation Constraints :-

This project will be implement using the Web Development Framework MERN Stack and due to this User will be able to use the product using Web browser only.other than the above mentioned points there no constraints for this project.

The major constraints that the project has are as follows:-

✓ The ATM must service at most one person at a time.

✓ The number of invalid pin entries attempted must not exceed three. After three unsuccessful login attempts, the card is seized/blocked and need to be unlocked by the bank.

✓ The simultaneous access to an account through both, the ATM and the

   bank is not supported.

✓ The minimum amount of money a user can withdraw is Rs 100/- and the maximum amount of money a user can withdraw in a session is Rs.10,000/- and the maximum amount he can withdraw in   a day is Rs 20,000/-

✓ Before the transaction is carried out, a check is performed by the machine

   to ensure that a minimum amount of Rs 1000/- is left in the user's account

   after the withdrawal failing which the withdrawal is denied.

2.6 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 through the ATM machine. Such a condition shall be taken care of.

✓ 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

3. External Interface Requirements

User Interfaces :-

The interface provided to the user should be a very user-friendly one and it should provide an optional interactive help for each of the service listed. The interface provided is a menu driven one and the following screens will be provided:-

- ✓ A login screen is provided in the beginning for entering the required username/pin no. and account number.
- ✓ An unsuccessful login leads to a reattempt (maximum three) screen for again entering the same information. The successful login leads to a screen displaying a list of supported languages from which a user can select any one.
- ✓ In case of administrator, a screen will be shown having options to reboot system, shut down system, block system, disable any service.
- ✓ In case of reboot/ shut down, a screen is displayed to confirm the user's will to reboot and also allow the user to take any backup if needed. In case of blocking system, a screen is provided asking for the card no. By entering the card no of a particular user, system access can be blocked for him.
- ✓ Administrator is also provided with a screen that enables him to block any service provided to the user by entering the name of the service or by selecting it from the list displayed.
- ✓ After the login, a screen with a number of options is then shown to the user. It contains all the options along with their brief description to enable the user to understand their functioning and select the proper option.
- ✓ A screen will be provided for user to check his account balance.
- ✓ A screen will be provided that displays the location of all other ATMs of same bank elsewhere in the city.
- ✓ A screen will be provided for the user to perform various transactions in his account.

Software Interfaces :-

- ✓   This project is built using the MERN Stack framework and as we are using MongoDB for database, express for the server, React.js for the UI and Node for the Server environment

Communications Interfaces :-

- ✓ Since this is a web based software application we are going to use some network protocols such as https and socket programming for communicating with server and getting the data that user needs.
- ✓ The machine needs to communicate with the main branch for each session for

  various functions such as login verification, account access etc. so the

  following are the various communication interface requirements that are

  needed to be fulfilled in order to run the software successfully:-

- ✓ The communication protocol used shall be TCP/IP

4. System Features

5. Other Nonfunctional Requirements

5.1 Performance Requirements :-

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

5.1.1   Capacity

- ➢ The ATM shall provide customers a 24 hour service.

5.1.2 Dynamic requirements

- ➢ The card verification time must not exceed 0.8 sec. under normal server workload and 1 sec. under peak server workload.
- ➢ The pin number verification time must not exceed 0.3 sec. under normal server workload and 0.5 sec. under peak server workload.
- ➢ Account balance display time must not exceed 2 sec. under normal server workload and 3 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.
- ➢ Cash withdrawal transaction time must not exceed 4 sec. under normal server workload and 5 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.
- ➢ Receipt printing time after must not exceed 3 sec. under normal server and peak server workload.

Security Requirements :-

The system shall have two levels of security i.e. ATM card and pin verification both authenticated. The Encryption standard used during pin transmission shall be triple DES. The password shall be 6-14 characters long. 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 card needs to be blocked.

Software Quality Attributes :-

- ✓ Reliability :
  - ■ Software will reliable has we are adding some extreme measures and encryptions during the transaction to maintain the integrity.
- ✓ Availability:
  - ■ Software will be up and running as we are going to deploy the software sever in the best possible way to reduce any distruptions.
- ✓ Security :
  - ■ Software will be secure with all the authentication process and all the data transacted will be encrypted in the best possible way.
- ✓ Maintainability :

- Software is easily maintained and we can patch up any issues by adding new features.

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 as and when required. The staff at the bank performs the following:

a. Making the entries in the system regarding all the details of the bank account of the user.

b. Keeping the bank account of the user updated as soon as changes are encountered so that the data is in consistent state.

c. Blocking or seizing of the account of user on discovery of any illegal transaction.

d. Unblocking of ATM card that got blocked due to more than three unsuccessful login attempt.

e. Blocking of a lost/stolen ATM card on complaint of the user, only if he presents his verification and a FIR filed for that case.

f. Constantly monitor all the ATMs in the city to check whether any one of them is encountering any fault.

g. Immediately correct any fault discovered in any of the ATM.