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# Group 14 Mini Project: Software Requirements Specification

February 21, 2019

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# 1 Introduction

The vision of this project is to improve on the already existing Automated Teller Machine (ATM) by improving the amount of time spent using these machines and adding additional functionality to minimise time spent in retail banks. These objectives will be achieved by adding functionality such as basic administration, improved support with service issues, 24/7 monitoring, and features such as two factor authentication will be added to this new design.

Features such as being able to do EFT's will be added to improve functionality and remove the need of having to go into a bank to do so. Users will also be able to request money via the mobile app in advance then only need to use the NFC at the ATM to get the money without any longer process.

The business need for the application is to better compete with currently existing ATMs and improve upon them. This project seeks to impact all future and current ATMs by providing better features as well as integrated features on mobile.

**Intended audience, ranging from:**

- Average clients such as normal individuals.
- Power clients such as small business owners and entrepreneurship.
- Corporate clients and accounts owned by medium to large businesses.

| Acronyms | |
|---|---|
| ATM | Automated Teller Machine |
| EFT | Electronic Funds Transfer |
| NFC | Near Field Communication |
| FNB | First National Bank |
| KYC | Know your client |
| FAQ | Frequently Asked Question(s) |

# 2 Overall Description

## 2.1 User characteristics

The expected average users are as such:

**Clients**

- The ATM would be used frequently by clients seeking to do transactions. Therefore the client must find the ATM easy to use through a simple interface and functions. Clients can do most of their account management through the machine. There are also audio and video help sessions.

**Employees**

- Maintenance Personnel - The maintainer of the ATM system is someone who works for the FnB bank (an employee). This personnel is in charge of making sure that the ATM functions properly. This user must log in with the administrator's password and is provided with options different from the normal customer. He/she has the authority to change or restrict different features provided by the software in situations of repairing.
- Video Assistant - Another bank employee that will be introduce to the new generation level ATM system. This user will be available for video assistance anytime of the day. He/she will help customer A/B with queries that they have without the need to go into the bank.

User characteristics would include:

- Users will need to have a basic education and be literate in order to understand instructions.
- Users can have minimal to no experience with an ATM but should be familiar with the transactions that can be done on a bank account.
- No expertise in a field is required for the use of an ATM.
- Users' technical skills include being able to comprehend and instruct the ATM.
- Users that use the withdraw/deposit money would have daily use of cash.
- Users that transfer would do so due to time constraints and lack of access to other means.

## 2.2 Product Functions

- Language Selection - When a particular uses the system, they will be provided with a list of available languages that he/she can choose from. This language that he/she selects will be the one used throughout the session. The user can also choose to set to default or change the language for future use.
- Locating other machines- This new generation level machine will also have a map that marks the locations of FNB machines near the user, also showing which are functional.
- Exit/Cancel - The customer will be provided a button to abort a transaction with just a press; this will cancel the entire sessions.
- Choose account type - The user will be asked to choose the account type where all the transactions are going to be performed. i.e. Savings account or Cheque account
- Statements - All the transactions will be recorded in the form of a receipt/slip and the same receipt will be dispensed to the customer. Statements can be for single transactions or over a period of time.
- Withdraw/Deposit money - The user will be asked if he wants to withdraw or deposit money.
- Choose Withdraw/Deposit method The user can choose withdraw/deposit using either NFC/digital ticket/QR code/traditional deposit or withdraw method.
- Amount Withdraw/Deposit - The amount to be withdrawn or deposited is selected by the user.
- Transfers - The transaction is facilitated between any two accounts linked to that particular card or transferring money to an external account.
- Balance Inquiry - The user will be able to inquire their account balance for their specified account. i.e. cheque or savings.

## 2.3 Assumptions and dependencies

- Users are assumed to have a bank account in order to interact with certain features on the ATM other than requesting account creation.
- Users need their bank card on hand or another means of authentication e.g. phone in order to interact with ATM

# 3 Requirements

## 3.1 Functional requirements

The following section lists the functional requirements of a next generation Automatic Teller Machine System:

R.1 The ATM system has 4 basic functions [4]:

- It must allow a client to withdraw and deposit cash
- It must allow for balance inquiries for clients
- It must allow clients to a print mini statement
- It must allow clients to be able to transfer cash

R.2 The ATM system must allow the client to be able to change their pin

R.3 The ATM system must manage customers data and allow for CRUD operations [4]

- The systems database should allow for storage of users' personal, banking and fingerprint details.

R.4 The ATM system must allow for audit logging functionality to log all transactions [4]

R.5 The ATM system must use 2 factor authentication for the clients' transactions [4]

- It must make use of the NFC cards
- It must make use of a biometrics system
- It must make use of push notifications and OTP's

R.6 The ATM system could have a map feature

- This feature should show the user The ATM system closest to them
- This feature should show the features The ATM system has
- This feature should also show the user ATM's that are not working

R.7 The ATM system must allow clients to be able to get help at any time if issues occur at the ATM after the bank has closed.

- The system should enable video calling for acquiring help from bank personnel
- The system should have FAQ's and the answers to help with any problems that the user has pertaining to the ATM or their account

R.8 The ATM system should allow for cash availability to be outsourced and provide alternative payment options

- Users should be able to make payments and withdraws using QR codes at supported retailers.
- Users should be able to make payments and withdraws using their NFC enabled card or phone at supported retailers.
- Users should be able to make payments using NFC "tap and pay" at supported retailers.

R.9 The ATM system should allow for multiple currencies

- The system should allow for Crypto and all foreign currencies
- The system should allow the user to choose their preferred currency
- The system should allow the user to change the currency during/ for any transaction

R.10 The ATM system should allow for instant /quick withdrawal of cash

- The system will allow users to specify the cash amount to be withdrawn beforehand on their smart phones
- The feature will allow the user to simply authenticate themselves and receive their chosen amount

R.11 The ATM system should allow for quick depositing of cash

- The system will allow users to send a ticket /pin to people who want to send them money, which contains their account details
- The depositor will simply use the ticket to automatically complete recipients details and then deposit cash

## Use case

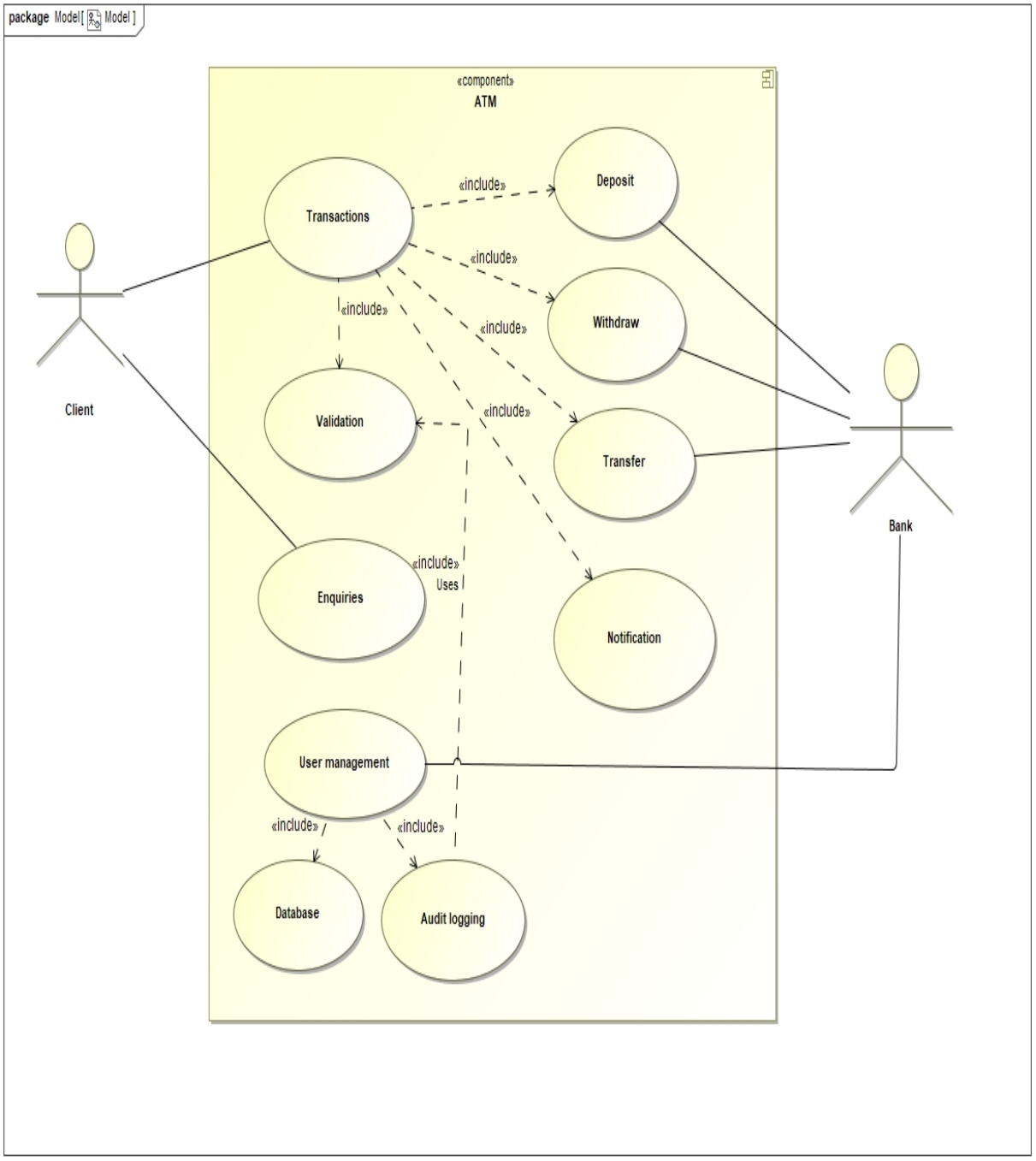


Figure 1: Use Case Diagram

## 3.2 Quality requirements

Q.1 The system must be able to support the banks large customer base

Q.2 The system must be operational 24 hours a day, 7 days a week; [4]

- The system must be monitored consistently to ensure consistency
- The system must alert banks' personnel users in the case of a malfunction to enable maintenance and notify clients
- Logs should be available to provide a trace of all activities within the system

Q.3 The system should be user friendly for all users

- The layout should be intuitive and easy to use
- The user interface should have a help section to help users' navigate the system

Q.4 The clients data should meet industry standards and handled by authorized personnel

- The systems database should allow for storage of users' personal, banking and fingerprint details.
- The ATM system systems' database transactions should all be logged
- The systems database transactions should only be done by authorized personnel
- The users' data must be validated and be compliant with "Know Your Client (KYC)" and FICA regulations. [1] [2] [3]

# 4 Trace ability matrix

| Requirement | Priority | Transactions | Validation | Enquiries | Notification | User management |
|---|---|---|---|---|---|---|
| R1 | 1 | x | | | | |
| R2 | 2 | x | x | | | |
| R3 | 1 | | | | | x |
| R4 | 1 | | | | | x |
| R5 | 2 | | x | | x | |
| R6 | 2 | | | x | | |
| R7 | 3 | | | x | | |
| R8 | 3 | x | | | | |
| R9 | 2 | x | | | | |
| R10 | 1 | x | | | | |
| R11 | 1 | x | | | | |

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