COS 301 Mini Project Phase 1 - SRS Assignment

Matthew Evans 16262949
Ethan Lindeman 16233574
Himal Rama 16050607
Tristan Sander-Hughes 17071390
Christiaan Nel 16323883

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1 Introduction

FNB is set to overhaul its digital banking offering to compete with new entrants into the digital banking market as well as to reinvent client-bank interactions by means of digital transactions/services and on-site transactions at existing branches and ATMs. A critical element of this overhaul is to implement 'next generation' ATMs that are accessible from clients' smartphones.

1.1 Purpose

The purpose of this document is to present a detailed description of the requirements for a *next generation ATM* (Automated Teller Machine).

The purpose of this 'next generation' ATM is to reduce the overhead and inefficiencies of traditional ATMs and FNB's current digital banking offering. This includes reducing long queues and improving maintenance of ATMs. This in turn adds more convenience and utility to the client's experience as time-consuming tasks of transacting is transferred from traditional ATMs to the client's smartphone. This ATM and digital banking service align with the increasing digitisation of point-of-sale payments, thereby eliminating cash as much as possible. However, the ATMs will still function as traditional ATMs, providing functionality to withdraw and deposit cash but aims to innovate on these functions as much as possible.

1.2 Scope

The ATM system is a mobile-based application, free for all clients of the bank using the system.

2 User Characteristics

Intended users and what purposes the system fulfills for each class of user:

1. Client - Uses the front-end system to create a bank account, manage their bank account (e.g. cancel cards), withdraw cash, deposit cash, print statements and view transactions, make transactions and communicate with their bank.

2. Administrator - Uses the back-end system to monitor which ATMs need to be refilled with cash, are in need of maintenance/are off line, and then perform actions based on those measurements.

3. Support staff - uses the back-end system to communicate with clients to assist them with technical issues, help managing their account or using the system, and general inquiries. Support staff will use the system to view and manage individual client account details on client authorisation.

4. Auditor - Uses the back-end system to generate reports and provide audit logs in a way that adheres to minimum government regulation.

5. Analysts - use the back-end system to gather information regarding ATM use, and aggregated non-personal information regarding customers.

3 Functional Requirements

R1 The system shall allow a client to create a bank account

R2 The system shall allow a client to deactivate their bank card.

R3 The system shall allow a client to withdraw cash

R4 The system shall allow a client to choose the denominations of the notes they withdraw.

R5 The system shall allow a client to deposit cash

R6 The system shall allow a client to view a statement of their bank account

R7 The system shall allow an administrator to view the status of all ATMs

R8 The system shall allow an administrator to add and remove ATM machines from the system

R9 The system shall allow an auditor to generate and save audit logs

R10 The system shall allow support staff non-editorial access to user's accounts, for the purpose of assisting clients only.

R11 The system shall allow analysts to gather data from ATM's regarding the manner in which they are used (such as average amounts withdrawn, and average number of customers serviced per day).

R12 The system shall provide the customer with information regarding the closest functional ATM or cash vendor.

R13 The system shall allow the user to view congestion of nearby ATM's.

R14 The system shall provide the user with budgeting and financial planning tools such as an interactive financial calendar.

R15 The system shall allow the user to directly purchase electricity or mobile data.

R16 The system shall allow two users in personal contact to transfer money directly through the app.

3.1 Use Cases

UC1 Create Account (Actor: Client, Module: Account Management)

UC2 Edit Account (Actor: Client, Module: Account Management)

UC3 Deactivate Card (Actor: Client, Module: Account Management)

UC4 View Financial Calendar (Actor: Client, Module: Account Management)

UC5 Make Purchase (Actor: Client, Module: Account Management)

UC6 Transfer Money (Actor: Client, Module: QR Scanner/Generator)

UC7 Withdraw Cash (Actor: Client, Module: ATM)

UC8 Deposit Cash (Actor: Client, Module: ATM)

UC9 View Statement (Actor: Client, Module: ATM)

UC10 View ATM Status (Actor: Admin, Module: ATM)

UC11 Add ATM (Actor: Admin, Module: ATM)

UC12 Remove ATM (Actor: Admin, Module: ATM)

UC13 Generate Audit Logs (Actor: Auditor, Module: Analysis)

UC14 Seek Account Support(Actor: Client, Module: Account Management)

UC15 Generate Traffic Statistics(Actor: Analyst, Module: Analysis)

4 Quality Requirements

4.1 Performance

1. The system shall work on low-end smartphones
2. The system shall be faster than using a traditional ATM
3. The system shall support multiple simultaneous transactions
4. The system shall be USSD compatible.

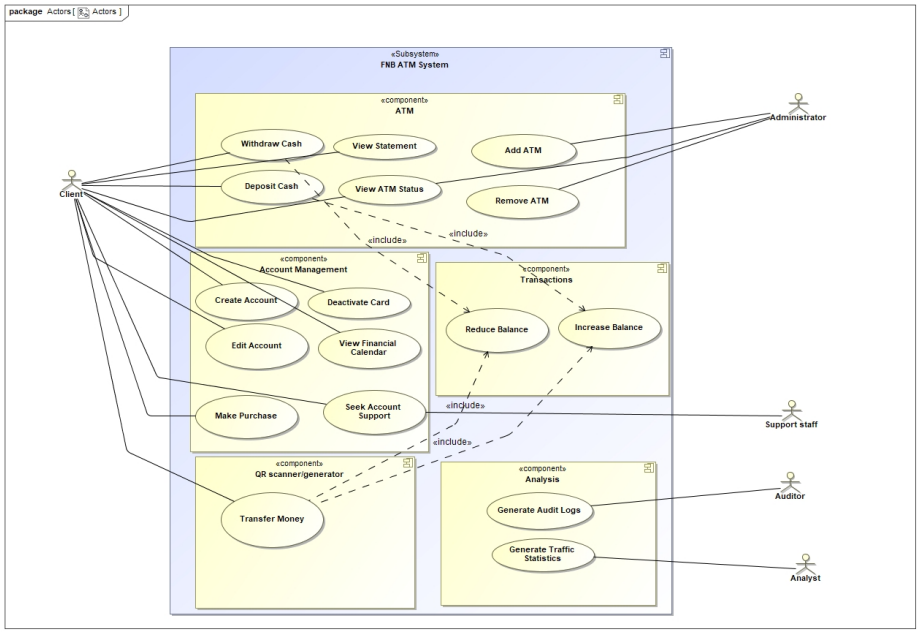

Figure 1: Use Case Diagram

4.2 Reliability

1. The system shall work on an unstable internet connection without causing catastrophic failure
2. The system shall allow users to report errors

4.3 Scalability

1. The system shall allow the addition of an unlimited number of users
2. The system shall allow for the upgrade of hardware to meet demands
3. The system shall allow for the addition of more ATM machines
4. The system shall allow for at least 6000 ATM machines
5. The system shall be designed to work with cloud-based solutions

4.4 Security

1. The system shall require authentication to be used
2. The system shall use two-factor authentication

3. The system shall not allow any user aside from the client to alter their own account information
4. The system shall store user information in accordance to regulations
5. The system shall not allow users to withdraw more money than allowed by specified overdraft amount
6. The system shall not allow users to make modifications to any database entries
7. The system shall not allow any users access to personal, or identifying information contained within customer accounts, other than the customer who holds the account.
8. The system shall allow users to report fraud or suspicious account activity.

4.5 Flexibility

1. The system shall be as unconstrained to any specific platform as possible
2. The system shall work cross-platform
3. The system shall provide customisation to the client and administrator

4.6 Maintainability

1. The ATMs shall remotely indicate to administrators that they are online/offline
2. The system shall indicate to administrators when the total cash in the machine is low

4.7 Auditability/monitorability

1. The system shall log all transactions in an immutable fashion
2. The system shall indicate to administrators when ATMs are offline
3. The system shall indicate to administrators when ATMs are in need of maintenance

4.8 Integrability

1. The system shall be backwards compatible with legacy systems at the bank until they have been phased out and the new system is fully tested and operational.

4.9 Cost

1. The system shall incur a smaller electricity cost than traditional ATMs
2. The system shall incur a smaller cost for ATM space

4.10 Usability

1. The system shall be intuitive to the client and require no training
2. The system shall support multiple languages
3. The system shall be usable by the visually impaired
4. The system shall be usable by those with motor function control disabilities
5. The system shall provide the location of the next closest cash provider, should the closest cease functioning.

5 Trace-ability matrix

	Account Management	Analysis	QR scanner/generator	Transactions	ATM
R1	x				
R2	x			x	x
R3					x
R4	x			x	x
R5	x				
R6	x				x
R7					x
R8		x			
R9	x				
R10		x			x
R11					x
R12		x			x
R13	x				
R14	x			x	
R15	x		x	x	