



American International University - Bangladesh

Faculty of Science and Technology

Developing a Test Plan for AIUB Bank ATM Systems

Course

Software Quality and Testing

Section: D

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Faculty

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Project Title:

Developing a Test Plan for AIUB Bank ATM Systems

Problem Statement:

Suppose your software firm DataSoft, Inc. has been awarded a contract to develop software for AIUB Bank ATM Systems. You are the Test Lead of the project. Based on the requirements and functionalities of the system, you have to develop (write) a software test plan.

General description and specifications of the software application are as follows:

AIUB Bank Limited has automated teller machines (ATMs) which are geographically distributed and connected via a wide area network to a central server. Each ATM machine has a card reader, a cash dispenser, a touch screen display, and a receipt printer. By using the ATM machine, a customer can withdraw cash from either checking or savings account, query the balance of an account, or transfer funds from one account to another. A transaction is initiated when a customer inserts an ATM card into the card reader. Encoded on the magnetic stripe on the back of the ATM card is the card number, the start date, and the expiration date. Assuming the card is recognized, the system validates the ATM card to determine that the expiration date has not passed, that the user-entered PIN (personal identification number) matches the PIN maintained by the system, and that the card is not lost or stolen. The customer is allowed three attempts to enter the correct PIN; the card is confiscated if the third attempt fails. Cards that have been reported lost or stolen are also confiscated.

If the PIN is validated satisfactorily, the customer is prompted for a withdrawal, query, or transfer transaction. Before withdrawal transaction can be approved, the system determines that sufficient funds exist in the requested account, that the maximum daily limit will not be exceeded, and that there are sufficient funds available at the local cash dispenser. If the

transaction is approved, the requested amount of cash is dispensed, a receipt is printed containing information about the transaction, and the card is ejected. Before a transfer transaction can be approved, the system determines that the customer has at least two accounts and that there are sufficient funds in the account to be debited. For approved query and transfer requests, a receipt is printed and card is ejected. A customer may cancel a transaction at any time; the transaction is terminated and the card is ejected. Customer records, account records, and debit card records are all maintained at the server.

An ATM operator may start up and close down the ATM to replenish the ATM cash dispenser and for routine maintenance. It is assumed that functionality to open and close accounts and to create, update, and delete customer and debit card records is provided by an existing system and is not part of this problem.

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1. Test Plan Identifier:

MTP_AIUB_1.0.0

2. References:

The software has the following set of specific requirements:

- The AIUB Bank Limited can have many automated teller machines (ATMs), and the new software system will provide functionality on all ATMs.
- The system will enable the customers of AIUB Bank Limited, who have valid ATM cards, to perform three types of transactions
 1. Withdrawal of funds
 2. Query of account balance
 3. Transfer of funds from one bank account to another account in the same bank
- An ATM card usage will be considered valid if it meets the following conditions:
 1. The card was issued by the authorized bank
 2. The card is used after the start date (i.e., the date when the card was issued)
 3. The card is used before the expiration date (i.e., the date when the card expires)
 4. The card has not been reported lost or stolen by the customer, who had been issued that card
 5. The customer provides correct personal identification number (PIN), which matches the PIN maintained by the system
- The system will confiscate the ATM card if it detects that a lost or stolen card has been inserted by a customer. The system will also display an apology to the customer.

- The system will allow the customer to enter the correct PIN in no more than three attempts. The failure to provide correct PIN in three attempts will result in the confiscation of the ATM card.
- The system will ask for the transaction type after satisfactory validation of the customer PIN. The customer will be given three options: withdrawal transaction, or query transaction, or transfer transaction.
- If a customer selects withdrawal transaction, the system will prompt the customer to enter account number and amount to be dispensed.
- For a withdrawal transaction, the system will determine that sufficient funds exist in the requested account, that the maximum daily limit has not been exceeded, and that there are sufficient funds available at the local cash dispenser.
- If a withdrawal transaction is approved, the requested amount of cash will be dispensed, a receipt will be printed containing information about the transaction, and the card will be ejected. The information printed on the receipt includes transaction number, transaction type, amount withdrawn, and account balance.
- If a customer selects query transaction, the system will prompt the customer to enter account number.
- If a query transaction is approved, the system will print a receipt and eject the card. The information contained on the receipt includes transaction number, transaction type, and account balance.
- If a customer selects transfer transaction, the system will prompt the customer to enter from account number, to account number, and amount to be transferred.
- The system will check if there are enough funds available in the 'from account', which are being requested for transfer to the 'to account'.
- If the transfer transaction is approved, a receipt will be printed and the card will be ejected. The information printed on the receipt includes transaction number, transaction type, amount type, and account balance.
- The system will cancel any transaction if it has not been completed if the customer presses the Cancel button.

- The customer records, account records, and debit card records will all be maintained at the server and will not be the responsibility of the system.
- The system will enable an ATM operator to shut down or start up an ATM for routine maintenance.
- The system will enable an ATM operator to add cash to the cash dispenser.
- The system will not be responsible for opening or closing of accounts, and to create, update, or delete customer and debit card records. These tasks are performed elsewhere by the bank.
- The system will be linked with the bank server through communication systems, which are beyond the scope of the current system. It is assumed that this facility is always available.
- The system will not be responsible for the maintenance of the hardware devices of the ATM or network facilities.

3. Introduction:

It is the master test plan for "AIUB Bank ATM Systems". This document defines our testing strategy of automated teller machines (ATMs). It provides test items, features, approaches, responsibilities, and schedules. The main objective of this test plan is to ensure the system works proficiently and precisely as per the given requirement.

4. Test Items:

- Software Performance
- Software Functionality
- Every Card should have Unique PIN
- Checking PIN
- Balance Transfer
- Transfer/ withdraw Transaction System

- Daily limit of transaction
- Printing receipt with correctness
- ATM card validation
- Check funds
- Stolen/lost notification

5. Software Risk issues

- Checking correct information
- Checking PIN number
- Validation of the card
- Transaction safety issue
- Stolen/lost notification
- Check 3rd party deliveries

6. Features to be tested

- The system linked with the bank server
- Enable an ATM operator to shut down or start up an ATM for routine maintenance
- Enable an ATM operator to add cash to the cash dispenser
- User can use the card if the card id issued by authorized bank
- All card information recognized by system
- The card is used after the start date and before the expire date
- Customer can withdraw money with correct PIN and check balance.
- Customer allowed only three attempt to enter correct PIN
- If fails three attempts card has not been reported lost or stolen card

7. Features not to be tested

- Server maintenance
- Types of users
- Opening and closing Account
- Create, update and delete records of customer
- Network facilities
- Hardware Maintenance

8. Approach

Implementation of a test strategy for a particular project is known as the test approach. The test approach is usually defined in all test plans and test designs. All the requirements should be tested and we can get the expected results for each test. Recheck the test data and test cases to ensure that the unit has been thoroughly verified and the test data and test cases are acceptable to validate the proper procedure of the unit. In case the system fails to fulfill the testing requirements it requires a bug report form to be generated. This documentation shall describe in the test case. List all the risks that we envision. Provide a clear plan to mitigate these risks along with a contingency plan in case you see these risks in reality A summary of the review changes should be tracked at the beginning of the document along with the approver's name, date and comment.

9. Item Pass/Fail criteria

- If the test step was executed and the expected result is functioning 95% indeed without any major defects, then that test step can be considered to have passed.

- If the test step could not be executed or was executed and the expected result did not occur, or cannot be confirmed from the record, then that test step must be considered to have failed and that requirement not verified.
- All of the deathtraps should be avoided and checked correctly for the software to pass the testing.

10. Test Deliverables

- Test Deliverables play an important role in Software Testing. This article discusses all Test Deliverables in detail.
- System Test Plan
- Test Cases
- Test strategy
- Test cases and test data
- Exit Report
- Summary of all Reports
- Project Metrics
- 8.Daily Test Execution Report
- Defect Log

11. Environmental Needs:

The table below contains the minimum required hardware and software specifications list to operate the program in the test environment:

Software and Hardware	Minimum specifications details
Keyboard	-
Card reader	-
Display	-
Operating system	Intel core i5 processor 3.60GHZ
Receipt printer	-

Memory	2GB
Hard Drive	500GB
Web browser	Google Chrome, Firefox, internet explorer
Network interface card	100mbps
URLs	AIUB Bank Limited Bangladesh version-1.00 'https://localhost'
Application	Microsoft Office/WPS office

12. Staffing and training needs:

To build and deliver a project successfully skilled workers and teams are most important. In this project to complete it successfully a team of skilled workers is needed. Because with skilled workers and staff, the project can be completed with budget and time otherwise lack of skilled workers can hamper a lot to deliver the project on time. So, it should be tested properly that the staff and workers are worthy enough for the project. To improve and ensure that various training sessions based on skills can be arranged. We have a staff team including the Project manager, senior test engineer (test lead), junior test engineer, testing manager, database analyst also other staff. Who is handling a particular part of the project and if a senior test engineer is unavailable for a certain time project manager can take responsibility or he can replace junior engineer with skills?

13. Responsibilities:

- Tester's responsibility is finding bugs.
- Test Leader writes the test plan.
- Test Manager prepare the test cases.
- Developer's responsibility is to fix the bugs.

- Project Manager verifies the test results.
- The entire project team will review the system.

14. Schedule:

For every project, Testing is the most important part to make the system useable to users. And this takes time to test each and every stuff and ensure the system is working flawlessly. For this, we need approximately six months in total. Each of Black and White box testing will get three months to finish the task.

15. Approvals:

Name	Designation	Date	Comments	Signature
Nahid Hassan Niloy	Project Manager	05 - 12 - 2021		
Shihab Hossain Shuvo	Senior Test Engineer – Test Leader	03 - 12 - 2021		
Abdullah Al Akib	Junior Test Engineer	02 - 12 - 2021		
Azizul Hoq Naife	Testing Manager	01 - 12 - 2021		
Farah Mohona	Database Analyst	01 - 12 - 2021		