## TEST PLAN

## Test Plan for a AIUB Bank ATM Systems

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**Software Quality and Testing**

**Section: D**

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1. **Test Plan Identifier**

MTP\_AIUB\_BANK\_ATM\_SYSTEM\_1.0.0

1. **References**

* TEST PLAN OUTLINE (IEEE 829 FORMAT):

<http://www.fit.vutbr.cz/study/courses/ITS/public/ieee829.html>

* <https://dzone.com/articles/top-10-automated-software-testing-tools>

1. **Introduction**

This is the Test Plan for the AIUB Bank ATM Systems which allows customers to complete basic transactions without the aid of a branch representative or teller. This plan will address only those items and elements that are related to the AIUB Bank ATM system, both directly and indirectly affected elements will be addressed. The main objective of this plan is to ensure that the functionalities of AIUB Bank ATM system application perform correctly and fulfill user requirements.

The project will have four levels of testing and they are- Unit, Integration, System and Acceptance. The details for each level are addressed in the approach section and will be further defined in the level specific plans. We will also perform the white box, black box testing and system-testing paradigm. This paradigm will include the testing criteria, testing methods and the test cases of overall design.

The estimated timeline for this project is very short around 6 months. Any delays in the software development process or installation and validation of the other software may have significant effects on the whole test plan. In this project, each level of testing will be done carefully and the acceptance testing is expected to take one month from the date of application delivery from system test and is to be done in parallel with the current application process. The document also introduces:

**Test Strategy:** rules the test will be based on, including the givens of the project (e.g.: start / end dates, objectives, assumptions); description of the process to set up a valid test (e.g.: entry / exit criteria, creation of test cases, specific tasks to perform, scheduling, data strategy).  
 **Execution Strategy:** describes how the test will be performed and process to identify and report defects, and to fix and implement fixes.

**Test Management:** process to handle the logistics of the test and all the events that come up during execution (e.g.: communications, escalation procedures, risk and mitigation, team roster)

1. **Test Items**

The major functionalities of the system are as follows:

* 24/7 service
* card readers
* touch screen display
* Touch screen menu selection
* Transfer fund from one account to another
* Issue the card by an authorized bank
* Check the Card number, the start date, the expiration date
* Check the sufficient fund exit in the requested account, the maximum daily limit that will not be exceeded, sufficient fund available at the local cash disperser
* Detect the lost or stolen card
* Enable to start up or shut down an ATM for routine maintenance, add cash to the cash dispenser

1. **Software Risk Issues**

When assessing software risk there are a number of factors that can impact on the risk profile and need careful consideration, such as:

* Third party product delivery
* New or uplifted interfaces
* If the Automation tools we are going to use may contain bugs, which is a big risky issue
* Ability to use and understand a new package/tool, etc.
* Complexity of functionality
* Modifications to components with a history of failure
* Poorly documented modules or change requests
* Proper installation of the automation tools as well as its use are another risky issue
* Mandatory rules such as safety, data protection
* As it is a banking system, government rules and regulation is another risky issue
* Regulatory requirements such as financial governance
* Communication between the system and server is another risk

All factors need to be risk assessed in terms of Impact of failure and the businesses attitude to risk. The output of the assessment then needs to be signed up to be the business stakeholders.

1. **Feature to be tested**

* The software will support interface to touch screen monitors as well as keyboard interface.
* Three types of transaction.
* Card is valid or invalid.
* Customer enters correct PIN.
* For Invalid card show an error message.
* Communication between sever and system.
* The software will support credit transaction and validation.
* ATM operator.
* The software will use Oracle database server.
* Limit the number of transaction issue at the same time .
* Credit/Debit card transaction.

1. **Feature not to be tested**

* 24/7 service.
* Cancellation of transactions any time during transaction.
* Printing Transaction slip.

1. **Test Approach**

Various approaches are taken to test the AIUB Bank ATM system project which includes different levels of testing, usage of different testing tools etc. So, the ways which are taken to test the whole project are given below.

**8.1 Testing levels**

The testing of the AIUB Bank ATM system consists of four testing level such as Unit, Integration, System and Acceptance testing. There is a Professional tester who will perform the system testing and other levels of testing will be done by the developer, end users.

Unit Testing will be done by the programmer and it will be approved by the development team leader. In Unit testing every time one single feature will be tested. In this level, white box testing is done. White box testing is done by the programmer and it is also known as structural testing.

Integration Testing is the testing of more than one module combined. It is also done by the developer and it will be approved by the developer team and the test lead. Gray box testing is done in this level.

System Testing will be done by the professional tester. System testing is done when all the modules are combined and the whole system is formed. Programs will enter System/Integration test after all critical defects have been corrected. Black box testing is done in this level of testing as it is known as functional testing.

Acceptance Testing will be performed by the actual end users with the assistance of the test manager and development team leader. The acceptance test will be done in parallel with the existing manual process for a period of one month after completion of the System testing.

**8.2 Test tools**

As it is a complex and large project after doing the manual testing automated testing is done. For automated testing various tools are used for testing the whole system. HP Quick Test Professional, Selenium, IBM Rational Functional Tester is used for the automated testing.HPE Unified Functional Testing (UFT) software, formerly known as HP Quickest Professional (QTP) provides functional and regression test automation for software applications and environments. Selenium is a portable software-testing framework for web applications.Rational Functional Tester is a tool for automated testing of software applications from the Rational Software division of IBM. It allows users to create tests that mimic the actions and assessments of a human tester.

**8.3 Meeting:**

The test team will meet once every two weeks to evaluate progress to date and to identify error trends and problems as early as possible. The test lead will meet with developer and the project manager once every two weeks as well. These two meetings will be scheduled on different weeks. Additional meetings can be called as required for emergency situations

1. **Test Item Pass/Fail Criteria**

**Entry and Exit Criteria**

The entry criteria refer to the desirable conditions in order to start test execution; only the  
migration of the code and fixes need to be assessed at the end of each cycle.

The exit criteria are the desirable conditions that need to be met in order proceed with the  
implementation.

Entry and exit criteria are flexible benchmarks. If they are not met, the test team will assess the  
risk, identify mitigation actions and provide a recommendation. All this is input to the project  
manager for a final “go-no go” decision.

Entry criteria to start the execution phase of the test: the activities listed in the Test planning  
section of the schedule are 100% completed.

Entry criteria to start each cycle: the activities listed in the Test Execution section of the schedule  
are 100% completed at each cycle

1. **Suspensions Criteria and Resumptions Requirements**

If any defects are found which seriously impact the test progress the test lead may choose to suspend testing.

The criteria which are considered for suspension or resumption are:

* Hardware / software not available at the time indicated in the project schedule
* The build contains many serious defects which seriously prevent or limit testing progress
* Assigned test resources are not available when needed by the test team

1. **Test Deliverables**

Planned date of delivery, along with where the responsibility for delivery lies, can also be included. Items to consider for inclusion are:

* Test Plan
* Test Environment
* Test Suite
* Test Data Sets
* Test Scripts
* Test Defect Reports
* Test Results
* Test Evaluation Report

**12.0 Remaining test tasks**

Retesting for fixed bugs will be done by respective QA once it is resolved by respective developer and bug/defect status will be updated accordingly. In certain cases, regression testing will be done if required

**13.0 Environment Needs**

**13.1 Hardware Needs**

Include the minimum hardware requirements that will be used to test the Application.

Testing will have access control to one or more application/database servers separate from any used by non-test members of the project team. Testing will also have access control to an adequate number of variously configured PC workstations to assure testing a range from the minimum to the recommended client hardware configurations listed in the project’s Requirements, Functional Specification and Design Specification documents.

**13.2 Software Needs**

In addition to the application and any other customer specified software, the following list of software should be considered a minimum:

* NT Workstation 4.0 or Windows 2007.
* MS Office 2007 Professional
* MS Exchange
* TCM (Testing Tool Server)
* Task Manager (Testing Tool Server)

**14.0 Staffing and Training needs**

The purpose of this section is how to approach staffing and training the test roles for the project. This is a detailed breakdown of the roles required to execute the project. Staffing is fixed for the duration of this project. It includes number of staff required to fulfill the responsibilities of the project. It is likely most of the staff will assume some testing role that will be discussed in detail in responsibilities section below.

**15.0 Responsibilities**

The whole project team will participate in the review of the system and detail designs as well as review of any change requests that are generated by the user or because of defects discovered during development and testing

The development team will be responsible for the verification, acceptance, and execution of all unit test plans and documentation and execution.

The Test Manager will be responsible for the overall test plan (this document) and test resources throughout the course of the project. He needs to be assigned to the project to review the requirements analysis, system architecture design, and object design of the system. From those specifications, he will generate the Test Plan. He will also generate Test Cases. He will generate the list of test specifications and a brief description of each one in this document. He will generate and communicate the test strategy for the project to the test team and the rest of the project team as well as locate, acquire, and/or allocate the proper resources. He will provide periodic updates to the project manager on the progress of test execution versus the plan as well as the metrics on the quality status of the product, focusing on key issues that need immediate attention from the Project Office.

The Test Lead will be responsible for the creation of the detailed test specifications and will generate those and revise test cases as needed. He will divide testing activities among different tester of his team. The lead will manage the day-to-day progress of each of their subcomponents, compile, and report the metrics to the test manager. He will also responsible for ensuring the testers make adequate progress and follow the overall strategy defined by the Test Manager.

Testers are responsible for integration testing documentation and execution. Testers are also responsible for documentation and execution of functional testing, performance testing, and use case validation testing during the System Test Phase of the project. They will also perform automated testing. Automated testing will be done for regression testing mainly.

During Beta Testing or acceptance testing, a small group of specially chosen customers will pilot the product to ensure it suits their needs

**16.0 Schedule**

**Planning Phase**: High-level test planning activities, which include preliminary development of Master QA Plan (this document, QA schedule. At this Milestone, the high level planning should be completed. Some of the deliverables are: Project Plan, Program function specifications.

**Design Phase**: Development and Test engineers participate actively in feature design by inspecting and reviewing the requirements and design documents. As the design documents are completed, the test engineers are encouraged to start working on the Test Plan document and test design planning.

**Code Complete-Infrastructure**: The Test Engineers should have completed or in the final stages of their preliminary Infrastructure Test Plan, test cases and other QA documents related to test execution for each feature or component such as test scenarios, expected results, data sets, test procedures, scripts and applicable testing tools.

**Code Complete-Function**: The Test Engineers should have provided Code Complete Assessment Test to Development Engineer one week prior to Code Complete Review date. The Test Engineers should also have completed or in the final stages of their preliminary White Box Test Plan, test cases and other QA documents related to test execution for each feature or component such as test scenarios, expected results, data sets, test procedures, scripts and applicable testing tools.

**Feature Complete**: All bugs verified and QA documentation is finalized. The test Engineers should assess that Binary Tree features are ready for Beta regression and have started their preliminary Test Summary Reports. Regression Test: Complete regression test execution of complete system and update Test Summary Reports for regression. Beta Ready: 2 Weeks regression of Binary Tree features to Beta and preparation for Beta shutdown.

1. **Planning Risks And contingencies**

|  |  |  |  |
| --- | --- | --- | --- |
| **Risk** | **Problem** | **Impact** | **Mitigation Plan** |
| **SCHEDULE:**  Testing schedule is tight. If the start of the testing is delayed due to design tasks, the test cannot be extended beyond the UAT scheduled start date. | High | High | * The testing team can control the preparation tasks (in advance) and the early communication with involved parties. * Some buffer has been added to the schedule for contingencies, although not as much as best practices advise. |
| **RESOURCES:**  Not enough resources, resources on boarding too late (process takes around 15 days. | Medium | High | Holidays and vacation have been estimated and built into the schedule; deviations from the estimation could derive in delays in the testing. |
| **DEFECTS:**  Defects are found at a late stage of the cycle or at a late cycle; defects discovered late are most likely be due to unclear specifications and are time consuming to resolve. | Medium | High | Defect management plan is in place to ensure prompt communication and fixing of issues. |
| **SCOPE:**  Scope completely defined | Medium | Medium | Scope is well defined but the changes are in the functionality are not yet finalized or keep on changing. |
| Natural disasters | Low | Medium | Teams and responsibilities have been spread to two different geographic areas. In a catastrophic event in one of the areas, there will resources in the other areas needed to continue (although at a slower pace) the testing activities. |
| Non-availability of Independent Test environment and accessibility | Medium | High | Due to not availability of the environment, the schedule gets impacted and will lead to delayed start of Test execution. |
| Delayed Testing Due To new Issues | Medium | High | During testing, there is a good chance that some “new” defects may be identified and may become an issue that will take time to resolve.  There are defects that can be raised during testing because of unclear document specification. These defects can yield to an issue that will need time to be resolved.  If these issues become showstoppers, it will greatly impact on the overall project schedule.  If new defects are discovered, the defect management and issue management procedures are in place to immediately provide a resolution. |

**18.0 Approvals**

|  |  |
| --- | --- |
| Project Sponsor |  |
| Development Management |  |
| EDI project manager |  |
| RS Test Manager |  |
| RS Development Team Manager |  |

1. **Glossary**
2. Test Lead(TL)
3. Developer(Dev)
4. Development Team (Dev. Team)
5. Project Manager(PM)

**THE END**