



American International University-Bangladesh (AIUB)

Department of Computer Science and
Engineering
Spring 21-22

Section: F
Software Quality and Testing

Banking Web Application System

A Report
Submitted by
Group - 5

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Software Test Plan

For

Banking Web Application System

1.0 INTRODUCTION

The Test Plan specifies the scope, approach, resources, and timing for building a banking software.

The plan identifies the things to be tested, the features to be tested, the types of testing to be done, the persons responsible for testing, the resources and timetable needed to accomplish testing, and the plan's risks.

- **OBJECTIVES AND TASKS**

- **Objectives**

The test objectives are to validate the functionality of the banking website. The project should focus on testing financial operations such as account management, withdrawals, and balances, among others, to ensure that all of these operations can function normally in a real-world business context.

- **Tasks**

In this test plan, different kind of testing technique will be used to complete the test process. Such as unit testing, system and integration testing, performance and stress testing, user acceptance testing, beta testing etc.

After completing all the testing techniques, we will be able to launch the software for use. Then for problem reporting, we will have a feedback option from the users to get daily reports and maintain the software properly.

3.0 SCOPE

Module Name/ General	Application Role	Description/ Tactics
Balance Enquiry	Manager-Customer	Customer: A Customer can have more than one bank account. Only he has access to his account balances. Manager: A manager has access to all of the customers' balances fall under his authority.

Fund Transfer	Manager-Customer	<p>Customer: A customer has the option of transferring money from his "own" account to any other accounts.</p> <p>Manager: A manager has the ability to move money from any bank account to any other bank accounts.</p>
Change Password	Manager-Customer	<p>Customer: Only the customer's own account password can be changed by him/her.</p> <p>Manager: A manager can only change the password for his or her own account. He is unable to alter his customers' passwords.</p>
New Customer	Manager	<p>Manager: A new customer can be added by a manager.</p>
New Account	Manager	<p>There are now two types of accounts available in the system.</p> <ul style="list-style-type: none"> • Current • Current <p>A customer can have many savings accounts (one in his name, another in a joint name, and so on).</p> <p>He is allowed to have many current accounts for the various businesses he owns.</p> <p>He can also have many current and savings accounts.</p> <p>A manager has the ability to create a new account for an existing customer.</p>
Delete Account	Manager	<p>Only customers with no active current or savings accounts can be removed.</p> <p>Manager: A manager has the ability to remove a customer.</p>

• TESTING STRATEGY

As a general guideline, it's ideal to test bank applications and websites early and regularly in order to detect flaws and fix them before they have an impact on the end-user.

It's common to run a range of tests throughout the software development lifecycle, depending on the project's stage and requirements.

We'll go through a few critical tests to perform and areas that QA teams should focus on to improve the overall quality of freshly upgraded applications and websites before they're deployed to clients in this post.

- **Unit Testing**

Definition:

A unit test is a method of testing a unit, which is the smallest amount of code in a system that can be logically separated. That is a function, a subroutine, a method, or a property in most programming languages. It's crucial to focus on the solitary component of the term.

Participants:

Programmer, Subject Matter Expertise, Technical Experts, Specialized Testers with good domain expertise (new or formerly part of the System Testing phase),

Methodology:

Customer Validation's first round of testing. Performed in a testing environment at the developer's facility. As a result, the activities can be managed. Only the functionality and usability of the product are evaluated. In most cases, reliability and security testing are not carried out thoroughly.

- **System and Integration Testing**

Definition:

System testing refers to the process of ensuring that a system meets its requirements. System testing aids in the login of the system interface in this project. Furthermore, this testing aids in the creation and editing of an entry, followed by summary processing.

Integration testing shows how to check component interfaces against a software design. This testing aids in the discovery of flaws in project interfaces. This testing also includes developing the project's architectural design and testing the project code.

Participants:

Specialist integration tester, Developer.

Methodology:

There could be various different modules in a banking application, such as transfers, bill payments, deposits, and so on. As a result, a large number of components have been developed. All of the components are integrated and validated during integration testing.

- **Performance and Stress Testing**

Definition:

Performance testing is a software testing method for evaluating a software application's speed, reaction time, stability, dependability, scalability, and resource utilization under a specific workload. The basic goal of performance testing is to find and remove performance bottlenecks in software applications. It is also known as "Perf Testing" and is a subset of performance engineering.

Participants:

Developer and Performance tester.

Methodology:

Payday, the end of the financial year, and the holiday season are all examples of times when the app's normal traffic may fluctuate or increase. As a result, extensive performance testing should be carried out to ensure that customers are not impacted by performance breakdowns.

The NatWest and RBS cyber Monday IT outage, in which customers' debit and credit card transactions were refused across the country due to performance difficulties, is a notable example of the past where bank consumers were personally impacted by performance failures.

- **User Acceptance Testing**

Definition:

The final stage of any software development or change request lifecycle before go-live is User Acceptance Testing (UAT). Actual users evaluate the program in real-world scenarios to see if it achieves what it was supposed to do, validating updates and determining conformance to their company's business needs.

Participants:

End users, independent testers.

Methodology:

This is accomplished by including end-users in the development process to guarantee that the application meets real-world requirements and will be accepted by users once it goes live.

In today's world, the majority of banking projects include Agile/Scrum, RUP, and Continuous Integration techniques, as well as tools such as Microsoft's VSTS and Rational Tools. RUP stands for Rational Unified Process, and it is an iterative software development technique developed by IBM that consists of four phases in which development and testing operations are carried out.

- **Beta Testing**

Definition:

Beta testing is the last stage of product testing before it is released to the general public. In this controlled environment, the goal is to find as many flaws or usability problems as possible by giving access to test the software to some selected audience.

Participants:

Invited users: They will begin using the app to ensure that everything is working properly. From setting up an account to transferring a particular amount of money and checking for bugs or anomalies. They'll put the system to the test for 4-6 weeks.

Methodology:

Beta testers are "actual" users who test in a live environment with the same hardware, networks, and other features as the final version. Because complete security and reliability testing cannot be performed in a lab or stage setting, this is also the first opportunity for full testing.

5.0 HARDWARE REQUIREMENTS

Because this is an online Web-based application, the most appropriate organizational model for this system is client server. Each actor will require a computer system, and each user will need to be linked to the internet. As a result, it will be necessary to closely observe the hardware.

Interface:

Server side:

- a) Operating System: minimum Windows 7, Windows 9x/xp, Windows ME.
- b) Processor: Pentium 3.0 GHz or higher.
- c) RAM: 256 Mb or more.
- d) Hard Drive: 10 GB or more.

Client side:

- a) Operating System: minimum Windows 7, Windows 9x or above, MAC or UNIX.
- b) Processor: Pentium III or 2.0 GHz or higher.
- c) RAM: 256 Mb or more.

- **ENVIRONMENT REQUIREMENTS**

- **Main Frame and Workstation**

For the test environment, a key area to set up includes

- Applications and the system
- Data from the tests
- Server for databases
- Running environment for the front-end
- Operating system for the client
- Browser
- The server operating system is included in the hardware.
- Network
- Reference materials, setup guidelines, installation guides, and user manuals are all needed documentation.

The following personnel are involved in the setup of the test environment:

- System Administrators,
- Developers
- Testers

Occasionally, users or techies with a penchant for testing.

7.0 TEST SCHEDULE

For creating the test specification, test designers are required to put a total of 170 man-hour of effort. To perform test execution, the testers and the test administrator must spend 80 man-hour of effort. Making the test report is also the duty of the tester and that requires at least 10 man-hour of effort. Lastly, for test delivery, 20 man-hour effort is required.

So, an estimation of total effort of 280 man-hour is required.

8.0 CONTROL PROCEDURES

Problem Reporting:

Problem	Mitigation
Difficult to get access to production data and replicate it as test data for testing.	Ensure that test data complies with regulatory standards and recommendations. Preserve data confidentiality by employing procedures such as data masking, synthetic test data, and system integration testing, among others.
There may be instances where requirements are not clearly specified, resulting in functional gaps in the test plan.	The test should be involved in the project from the beginning, during the Requirement Analysis phase, and actively review the Business Requirements.
As banking applications are integrated with other applications such as the	Ensure that you have a time budget set aside for integration. If your banking application

internet or mobile banking, the scope and timescales expand.	has a lot of external interfaces, you should test it.
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Change Requests:

A change request is a request from a software development process stakeholder to alter something about a product or process. Defects, product enhancements, and new feature requests are all common change requests. A new feature such as "Online Bill Payment" might be added, for example. Online bill pay allows you to consolidate all of your invoices into one location, eliminating the need to track down several payment accounts each month. Users or testers may discover problems or a feature that has to be updated or amended throughout the product development process, which may be accomplished via a change request.

9.0 FEATURES TO BE TESTED

Feature	Description
Check Account Balance	You may check your account balances anywhere, at any time, with online and mobile banking. This provides you the advantage of knowing how much money you have before you go out and buy something. If your financial institution has a function that allows you to view your balance without logging in to your account, you'll save yourself the step of logging in.
Account-to-account transfer	If you have numerous accounts with your financial institution (for example, a checking and a savings account), it's critical to be able to move money quickly as needed to save or cover expenses. Users who bank online or using their mobile banking app can rapidly transfer funds across internal accounts with just a few taps on their screen, rather than going to the bank and filling out a slip.
Bank-to-bank transfer	If you have many external accounts with various banks, a bank-to-bank transfer allows you to transfer money between them. This is useful if you have multiple accounts or are in the midst of switching financial institutions, especially if you have relocated and are no longer near a physical location of one of the banks.
Account Alerts	You set a reminder when life gets busy. Your financial institution must provide account alerts for occurrences such as low account balances, daily balance alerts, transactions, and others. Account alerts should be sent to you by e-mail or text message if you're banking institution offers it.
ATM and bank locator	Make sure your financial institution's mobile app allows you to find the nearest office location or in-network ATM so you can avoid fees anytime you're out and about in town or traveling.

10.0 FEATURES NOT TO BE TESTED

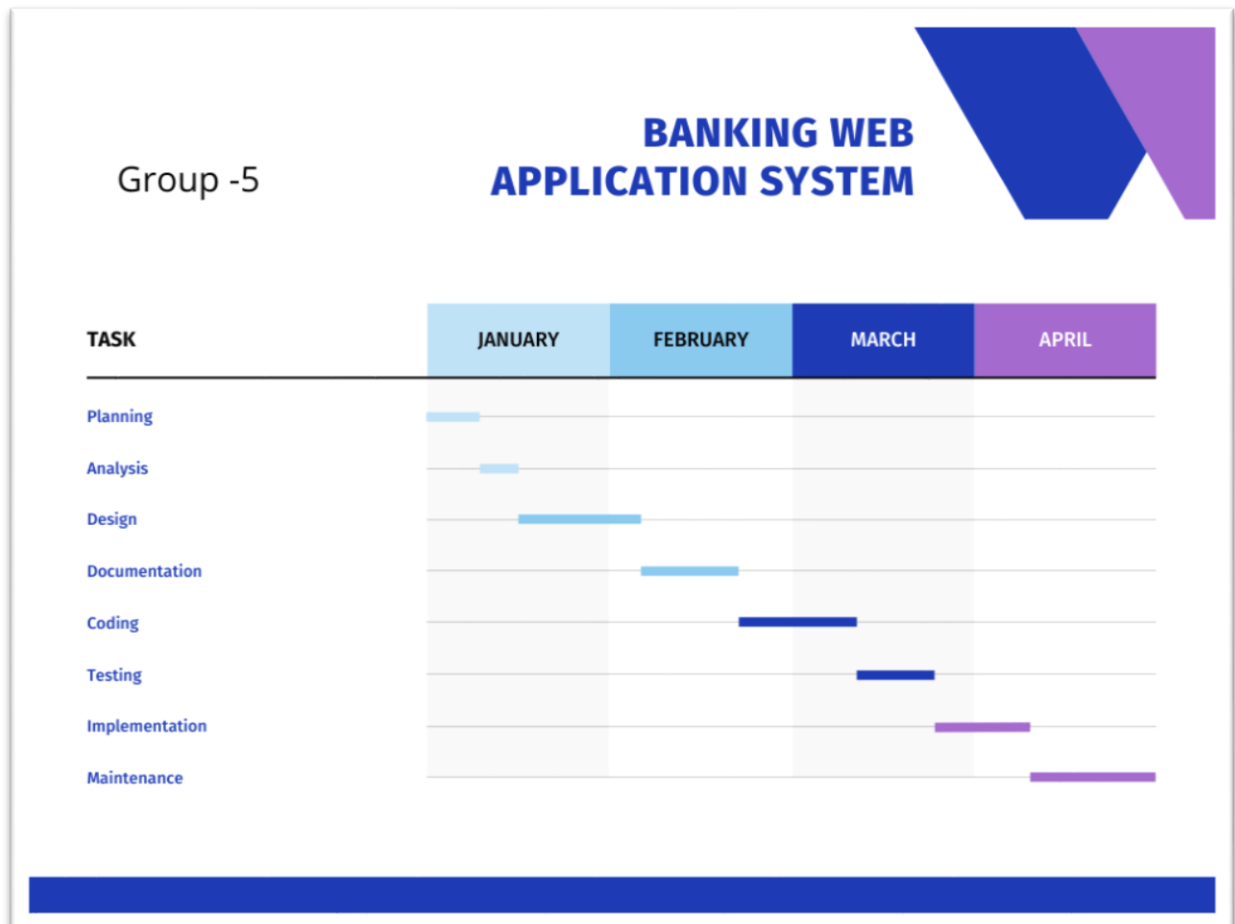
The areas below will not be covered in this project. All testing will be indirect, as with other testing efforts, in this region. This project is for a bank web application where vendor identification will be done by hand. To authenticate the appointment attribute, the project manager must check and justify the vendor's expertise, competence, and validity.

11.0 RESOURCES/ROLES & RESPONSIBILITIES

SL No.	Member/Roles	Tasks/Responsibilities
1	Test Manager	Oversee the entire project. Define the project's goals. Obtain the necessary resources
2	Test	Identifying and characterizing suitable testing approaches, tools, and automation architecture Examine and evaluate the Test Approach Execute the tests, keep track of the findings, and report back. Please report any flaws. Outsourced members
3	Developer in Test	Execute the test cases, test program, and test suite, among other things.
4	Test Administrator.	Establishes and ensures that the test environment and assets are properly handled and maintained. Assist the tester in using the test environment to run tests.

12.0 SCHEDULES

Any project's timing is crucial. It establishes explicit guidelines for what should happen before and after a project meeting. To save time, the easiest method to arrange a meeting is to anticipate questions from all attendees. As a result, project scheduling is crucial.



Major Deliverables:

The following are the test deliverables:

Prior to the testing phase

Document containing test plans.
Documents containing test cases
Specifications for test design
During the trials,

- Simulators for test tools.
- Data from the tests

– Error logs and execution logs – Test Trace-ability Matrix

When the testing cycles are completed,

Reports/results of tests

Installation/Test Procedures Guidelines for Defect Reports

Notes about the release

14.0 RISKS/ASSUMPTIONS AND DEPENDENCIES

The assumptions and dependencies for this online banking project are listed below.

- 1) Because this is a stand-alone project, it will have no impact on the system in which it is integrated.
- 2) Because this is a web-based project, and the workforce is accustomed to using traditional methods of data storage and retrieval, they will be trained to make the transition.
- 3) No other module will be used in this system. It will be web-based, allowing anyone to contact it independently.
- 4) It will have no negative impact on the environment.
- 5) Banks will be more willing to adopt it because it will be less costly.

15.0 TOOLS

SL No.	Resources	Description
1	Server	A database server that can run MySQL. Apache Server is a web server that installs Apache Server.
2	Test Tool	Develop a test tool that can automatically generate test results in a pre-set format and execute automated tests.
3	Network	Set up a Gigabit LAN and one internet line with a minimum speed of 5 Mb/s.
4	Computer	At least four computers are running Windows 7, with 2GB of RAM and a 3.4GHz processor.