VENDOR SYSTEM INTEGRATION TESTING ON MOBILE POINT-OF-SALES SYSTEM

NUR ARIFAH BINTI ZAINAL

UNIVERSITI TEKNOLOGI MALAYSIA

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NUR ARIFAH BINTI ZAINAL

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ABSTRACT

The purpose of this report is to study and identify the suitable test strategy and software testing methodology for Mobile Point-of-Sales (MBPOS) system, develop the test plan for Vendor System Integration Test (VSIT), design the test cases by implementing all MBPOS requirements and perform the VSIT and report the result of testing. The Software Test Plan, Software Test Description and Software Test Report are the deliverables of this report. The issue of this report is MBPOS system does not implement the field validations such as the field length and the maximum and minimum value needed for each field during the VSIT phase. So, this report is important which the deliverables of this report implementing all the requirements of MBPOS system during testing to avoid or minimize any defect raised by the user during the following phases. The software testing methodology used in this report is systematically covers Planning, Executive, Monitoring and Closing phases. In future, hope that MBPOS can implement the Requirement Traceability Matrix to avoid any requirements miss out in the test cases during the testing and become the most quality system produces from this organization.

ABSTRAK

Tujuan laporan ini adalah untuk mengkaji dan mengenal pasti strategi ujian dan metodologi pengujian perisian yang sesuai untuk sistem *Mobile Point-of-Sales* (MBPOS), membangunkan pelan ujian untuk *Vendor System Integration Test* (VSIT), mereka bentuk kes-kes ujian dengan melaksanakan semua keperluan MBPOS dan melaksanakan VSIT dan melaporkan hasil ujiannya. *Software Test Plan, Software Test Description* dan *Software Test Report* adalah hasil bagi laporan ini. Isu laporan ini ialah sistem MBPOS tidak melaksanakan pengesahan medan termasuklah panjang medan dan nilai maksimum dan minimum yang diperlukan untuk setiap medan semasa fasa VSIT. Jadi, laporan ini penting di mana hasil daripada laporan ini melaksanakan semua keperluan sistem MBPOS semasa ujian untuk mengelakkan atau mengurangkan apa-apa kecacatan yang dilaporkan oleh pengguna semasa fasa-fasa berikutnya. Metodologi pengujian perisian yang digunakan dalam laporan ini adalah secara sistematik meliputi *Planning, Executive, Monitoring* dan *Closing* fasa. Pada masa akan datang, MBPOS boleh melaksanakan *Requirement Traceability Matrix* untuk mengelakkan apa-apa keperluan tercicir di dalam kes-kes ujian semasa ujian dan menjadi sistem yang paling berkualiti yang dihasilkan dari organisasi ini.

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AIS	–	Advanced Informatics School
FSD	–	Functional Specification Documents
JAD	–	Joint Application Development
MBPOS	–	Mobile Point-of-Sales
PDS	–	Product Disclosure Sheet
QC	–	Quality Control
RAD	–	Rapid Application Development
RUP	–	Rational Unified Process
SIT	–	System Integration Test
SRS	–	Software Requirement Specification
STD	–	Software Test Description
STEP	–	Standard Technical Evaluation Process
STP	–	Software Test Plan
STR	–	Software Test Report
UAT	–	User Acceptance Testing
UFIP	–	Unified Insurance Portal
VoIP	–	Voice over IP
VSIT	–	Vendor System Integration Test
XP	–	Extreme Programming

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CHAPTER 1

PROJECT OVERVIEW

1.1 Introduction

In Mobile Point-of-Sales (MBPOS) project, we were involved in Vendor System Integration Testing. During this phase, as the Quality Control (QC) tester, we need to fully understand the functionalities and requirements documented in signed-off Functional Specification Documents (FSD) that is used as a basis for testing to make sure all the requirements are implemented. While, Test Scenario and Test Cases documents are used as the guideline for us to do the testing. The result of the testing will be recorded in Test Execution Result document.

As attached in Appendix A, those documents which are Test Scenario, Test Cases and Test Execution Result will be uploaded into the Confluence system as the reports of testing. Confluence is team collaboration software that changes how modern teams work, (Atlassian, 2016). Confluence is where the team collaborates and shares knowledge in terms of create, share and discuss the files, ideas, minutes, specs, mockups, diagrams and projects.

MBPOS system is a mobile application to assist user to perform end-to-end sales that contain nine modules which are Dashboard, Customer Management, Customer Fact Find, Quotation, Proposal, Proposal Management, Resources, e-Payment and Recruitment App module. We were involved in most of the modules but for this report, we will focus more on Quotation module because we were fully assigned to execute all the test cases in this module. Based on our experience testing in Vendor System Integration Test (VSIT) phase, we found that it is important to implement all requirements during VSIT phase to avoid or minimize any defect raised by the user during the following phases which indirectly will drop the software quality and user’s expectation to the organization.

1.2 Company Background

Hokenso Sdn. Bhd. is a subsidiary of the Hitachi eBworx, set up in the first half of 2015 to extend the success of Hitachi eBworx. It is located at Unit TA-9-2, Tower A, Level 9, Unit 2, Plaza 33, No. 1, Jalan Kemajuan, Seksyen 13, 46200, Petaling Jaya. Hokenso Sdn. Bhd. and Hitachi eBworx shares the same goal as a leading regional consulting and technology solutions firm that focused in delivering high performance solutions to the banking and insurance industry.

Company’s vision is to be the most trusted and recognized global financial IT solution partner. However, Hokenso Sdn. Bhd. is more focus on the digital insurance solutions as its core business to make insurance more accessible, affordable and transparent to society. It manage to grow the company to a good size and secured two major projects which are Mobile Point-of-Sales (MBPOS) and Unified Insurance Portal (UFIP) system.

These two projects are important to company because the user of this project is one of the main customers for Hokenso Sdn. Bhd. MBPOS system is a mobile application to assist user to perform end-to-end sales. It starts from creating new customer to performing customer fact find, generating a quote, submitting a proposal, routing for manager’s approval, to capturing image of documents and all the way to payment and notifications. The application supports multiple mobile operating platforms such as Apple, Android and Microsoft. The solution is an intuitive, user friendly, highly interactive mobile sales tool which provides convenience and speed to insurance agents to close a sale whilst increasing process automation, compliance and security.

UFIP system is an internet portal to engage and service multiple stakeholders. The policyholders will have a single portfolio view of all protection and investment policies while user can access a working dashboard to get an overview of the number of cases in approval, pending and rejected by managers. It provides user with lead generation up-sell or cross-sell opportunities with online customers. UFIP also serves the corporate customer such as HR Administrator to have a single portfolio view of all policies, perform some self-service inquiries and service requests.

We were involved in MBPOS project as one of the QC tester. The organizational chart of this project is shown in Figure 1.1. In testing, there are three test phases conducted in this project which are Vendor System Integration Testing (VSIT), System Integration Testing (SIT) and User Acceptance Testing (UAT). VSIT is focused on testing all the test scenarios required to validate enhancements signed off in MBPOS system and traced any requirements directly to use cases or business functions and business rules. While, SIT/UAT is end-to-end business cycle testing which test cases that is created by user using real business scenario in realistic conditions to test the system. This report will further discuss on how to make the VSIT have more quality to avoid or minimize any defect raised during SIT/UAT.

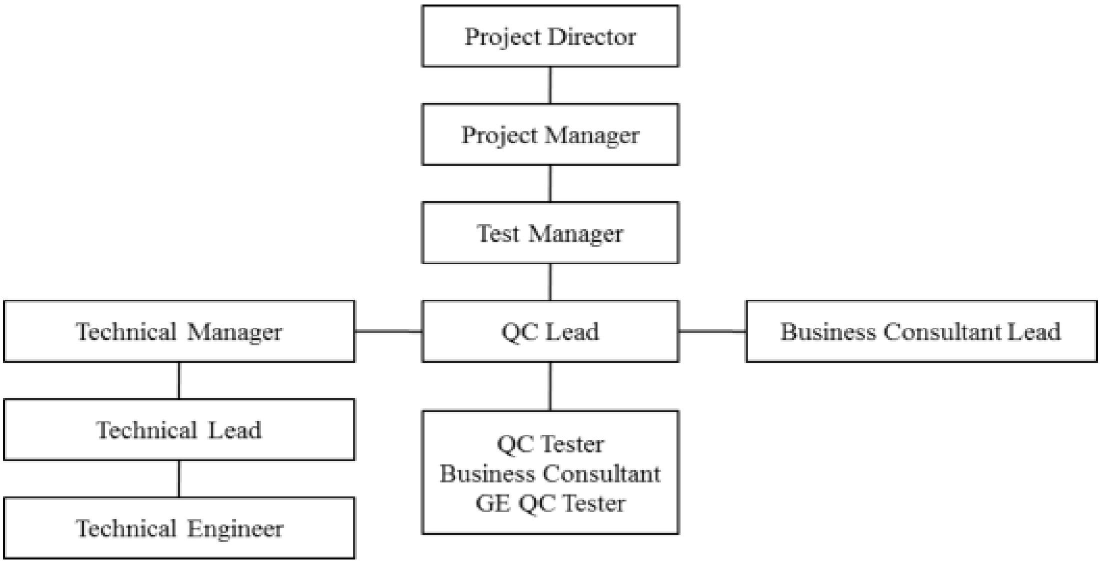
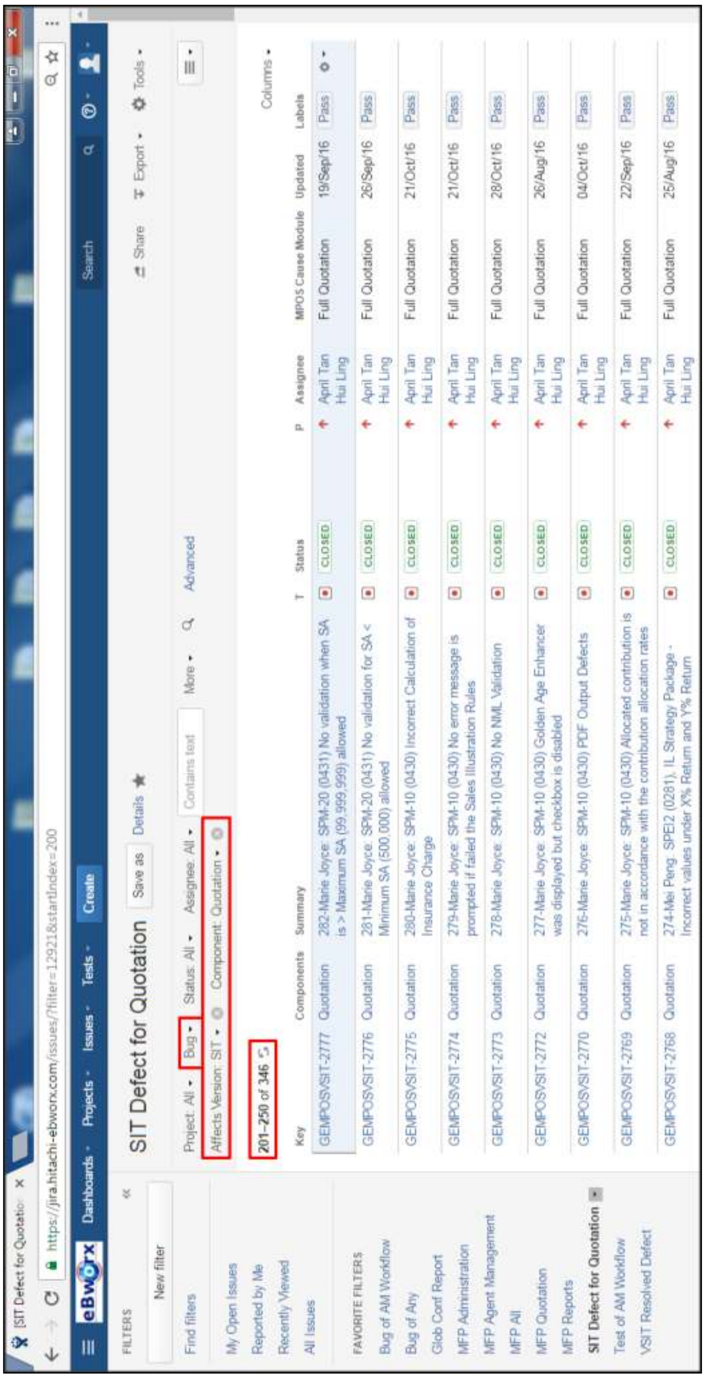


Figure 1.1 Organizational Chart

1.3 Background of the Problem

During VSIT, the functionalities and requirements documented in signed-off FSD and Test Plan are used as a basis for testing. Compare to what we have learned along the two semesters before, FSD and Test Plan document can be known as Software Requirement Specification (SRS) and Software Test Plan (STP). During this phase, we need to update the Test Scenario and Test Cases documents as the guideline for testing as attached in Appendix C. Test Scenario and Test Cases documents can be known as Software Test Description (STD). We are responsible to record the result in Test Execution Result document as the reports of testing. The Test Execution Result document attached in Appendix D is known as Software Test Report (STR).

Test Cases documentation did implement the functionalities and requirements of MBPOS system including the business rules, validation rules, buttons, error messages, list of values and calculation during the VSIT phase. However, we found that it does not implement the field validations such as the field length and the maximum and minimum value needed for each field as attached in Appendix C. When testing move to the next phases which are SIT and UAT that involved user, user raised a lot of defects related to field validations because of the shortage of the Test Cases documentation. Figure 1.2 shows the list of 346 SIT defects raised by user for Quotation module.



SIT Defect for Quotation

Project: All · Bug · Status: All · Assignee: All

Affects Version: SIT · Component: Quotation

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Key	Components	Summary	T	Status	P	Assignee	MPOS Cause Module	Updated	Labels
GEMPOSVSIT-2777	Quotation	282-Marie Joyce: SPM-20 (0431) No validation when SA is > Maximum SA (99,999,999) allowed	▣	CLOSED	↑	April Tan Hui Ling	Full Quotation	19/Sep/16	Pass
GEMPOSVSIT-2776	Quotation	281-Marie Joyce: SPM-20 (0431) No validation for SA < Minimum SA (500,000) allowed	▣	CLOSED	↑	April Tan Hui Ling	Full Quotation	26/Sep/16	Pass
GEMPOSVSIT-2775	Quotation	280-Marie Joyce: SPM-10 (0430) Incorrect Calculation of Insurance Charge	▣	CLOSED	↑	April Tan Hui Ling	Full Quotation	21/Oct/16	Pass
GEMPOSVSIT-2774	Quotation	279-Marie Joyce: SPM-10 (0430) No error message is prompted if failed the Sales Illustration Rules	▣	CLOSED	↑	April Tan Hui Ling	Full Quotation	21/Oct/16	Pass
GEMPOSVSIT-2773	Quotation	278-Marie Joyce: SPM-10 (0430) No NML Validation	▣	CLOSED	↑	April Tan Hui Ling	Full Quotation	28/Oct/16	Pass
GEMPOSVSIT-2772	Quotation	277-Marie Joyce: SPM-10 (0430) Golden Age Enhancer was displayed but checkbox is disabled	▣	CLOSED	↑	April Tan Hui Ling	Full Quotation	26/Aug/16	Pass
GEMPOSVSIT-2770	Quotation	276-Marie Joyce: SPM-10 (0430) PDF Output Defects	▣	CLOSED	↑	April Tan Hui Ling	Full Quotation	04/Oct/16	Pass
GEMPOSVSIT-2769	Quotation	275-Marie Joyce: SPM-10 (0430) Allocated contribution is not in accordance with the contribution allocation rates	▣	CLOSED	↑	April Tan Hui Ling	Full Quotation	22/Sep/16	Pass
GEMPOSVSIT-2768	Quotation	274-Mei Peng: SPEI2 (0281), IL Strategy Package - Incorrect values under X% Return and Y% Return	▣	CLOSED	↑	April Tan Hui Ling	Full Quotation	25/Aug/16	Pass

Figure 1.2 SIT defects for Quotation module

This case effect the software quality and user's expectation to the organization. The consequence of this, the project has been delayed and the QC Tester needs to work closely with Technical team to close the defect as soon as possible. Furthermore, MBPOS team members need to work seven days a week in order to support the project back to on track. So, it is importance to implement all requirements during VSIT phase to avoid or minimize any defect raised by the user during the following phases.
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1.4 Project Objectives

The objectives of this report are:

1. To study and identify the suitable test strategy and software testing methodology for MBPOS system.
2. To develop the test plan for VSIT.
3. To design the test cases by implementing all MBPOS requirements.
4. To perform the VSIT and report the result of testing.

1.5 Project Deliverables

The deliverables of this report are:

1. Test Strategy and Software Testing Methodology
2. Software Test Plan
3. Software Test Description
4. Software Test Report

Test Strategy

The purpose of Test Strategy is to describe the approach for software testing and sets the standards for testing processes and activities for MBPOS system during VSIT phase.

Software Testing Methodology

Software Testing Methodology for MBPOS systematically covers Planning, Executive, Monitoring and Closing phase during VSIT.

Software Test Plan

The purpose of Software Test Plan is to document and track the necessary information required to effectively define the approach to be used in the testing of the project's product.

Software Test Description

The purpose of Software Test Description is to describe the test preparations, test cases and test procedures to be used to perform testing for MBPOS system.

Software Test Report

The purpose of Software Test Report is to document the results of testing and evaluates the test item based on these results.

1.6 Project Scopes

This section will describe the scopes of this report.

1.6.1 QC Tester

QC tester is the one who defines the Test Plan and needs to understand the functionalities and requirements documented in FSD for MBPOS project as the guideline of testing. Furthermore, they have to prepare the Test Scenario and Test Cases documents, perform Test Execution Result and report the defect to Hokenso Defect Logging System (JIRA).

1.6.2 MBPOS Project

MBPOS is a mobile application to assist user to perform end-to-end sales. It starts from creating new customer to performing customer fact find, generating a quote, submitting a proposal, routing for manager's approval, to capturing image of documents and all the way to payment and notifications. MBPOS system contains nine modules which are Dashboard, Customer Management, Customer Fact Find, Quotation, Proposal, Proposal Management, Resources, e-Payment and Recruitment App module.

1.6.3 Quotation

This report will focus on Quotation module. Quotation module allows user to have an option to do a quick quotation during pre-sales demonstration or full quotation for a proposal with minimum customer's information collected. In addition to that, user can provide an after sales service to customer via MBPOS to generate a Product Disclosure Sheet (PDS) for inclusion of riders to an existing policy.

1.6.4 Platform

MBPOS system supports multiple mobile operating platforms such as iPad Pro and iPad Air 2 with iOS: 8.x and 9.x for VSIT. It used Hokenso VSIT Environment as the network to perform the testing for online mode.

1.6.5 Type of Testing

VSIT is one of type of testing for MBPOS system that related to this report. VSIT is focus on testing all the test scenarios required to validate enhancements signed off in MBPOS system and traced any requirements directly to business functions and business rules.

1.7 Importance of the Project

According to Bentley (2005), a primary cause of failed software development is lack of requirements during testing process. So, it is importance to implement all requirements during VSIT to avoid or minimize any defect raised by the user during the following phases. If the entire test scenarios required is validate during VSIT phase, it benefits for QC tester, MBPOS project and organization.

1.7.1 Benefits for QC Tester

This report is important because it can minimize the number of defect raised during SIT and UAT phase. So, the QC tester no needs to do a lot of retest during this phase as it already done in VSIT phase.

1.7.2 Benefits for MBPOS Project

MBPOS project can be known as one of the quality project. The project can remain on track and follow the timeline prepared by the Business Consultant. Furthermore, other project can use MBPOS as a guideline in order to get achievement as MBPOS.

1.7.3 Benefits for Organization

As the MBPOS project is in good quality, the user will have high expectation to the organization. The user will have high confidence to the organization to cooperate with for the next project. In consequence of this, the organization manages to grow the company to a good size not just in insurance field but can also get involved to other field.

1.8 Project Scheduling

According to Rusen (2009), project scheduling is the discipline to express on how to complete a project within a certain timeframe with defined stages and designated resources. The project scheduling can be implemented in Gantt chart. The attached Gantt chart as in Appendix E is the outline activity of this report across VSIT phase for MBPOS system.

1.9 Chapter Summary

This report is about the importance to implement all requirements during VSIT in order to avoid or minimize any defect raised by the user during the following phases. Failure to do this, it will affect the software quality and user's expectation to the organization because the user will raise a lot of defects during the following phases. So, the deliverable of this report is to develop the STP, STD and STR that implement all requirements including the business rules, validation rules, buttons, error messages, list of values, calculation and field validations for MBPOS system during VSIT.

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