2022

TEST PLAN

PUSL2020 – RELEASE 1.0

GROUP 77

ChangeLog

Version	Change Date	By	Description
1.0	29/04/2022	Galaketiye Hasan	Initial Write
1.1	30/04/2022	Dedugala Bandara	Test methodology

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1. Introduction

1.1 Overview

The website is to be developed is a traffic accident reporting system for Sri Lankan general public. Clients of this project include, the Road Development Authority (RDA) of Sri Lanka, the Sri Lankan Police and Insurance Companies.

This test plan has been tailored to fulfil the customer requirement by implementing adequate test strategies in different stages of the development.

1.2 Scope

1.2.1 In Scope

Following functional requirements have been chosen and will be tested upon the first release of the application.

Functional Requirements

ID	Requirement under Test
Reporter User	
RF_1	A guest user should be able to register to the system by providing identity details and login information
RF_2	Should be able log in to the system using their login credentials
RF_3	Should be able to add their vehicle details
RF_4	Should be able to view list of vehicles they have added previously
RF_5	Should be able to report an accident
RF_6	Should be able to manage previously submitted accident reports
RF_7	Should be able to attach images to accident
RDA / Police / Insurance Employee User	
EF_1	Should be able to log in to back-office portal
EF_2	Should be able to view list of reported accidents
EF_3	Should be able to view a single accident in detail
EF_4	Should be able to approve or reject an accident

Police Employee	
EPF_1	Should be able to view graphical representations of approved accidents
Webmaster User	
WF_1	Should be able to log into admin panel
WF_2	Should be able to view list of employee users
WF_3	Should be able to add new employee by institution
WF_4	Should be able to manage and exiting employee

Non-Functional Requirements

ID	Requirement under Test
Authorization	
AU_1	The reporter dashboard should only be accessible to logged in reporters
AU_2	A reporter should not be able to view another's accident report
AU_3	The back-office dashboard is only accessible to employee users
AU_4	Admin panel is only accessible to webmaster users
AU_5	Uploaded images should only be visible to reported user and relevant employees
Validation	
VAL_1	Web forms must be validated according to data types and format
VAL_2	System should display error messages when a form validation fails with reasoning

Navigation	
NAV_1	Table views should display 10 records per page
NAV_2	Table should be sortable by columns

Target of the current release is to develop the application adhering to above critical requirements. At the end of the development, user acceptance testing will be carried out by domain users.

Application Tests

- Validation of NIC and Vehicle license format
- Image uploads to Minio object storage instance
- Every public method invocation of service layer representing a command in the domain logic.

1.2.2 Out of Scope

Requirements listed below will be not tested under current release.

1. Employee and Webmaster authentication pages are excluded from UI testing These interfaces are generated by framework defaults.

2. Identification information validation against government databases for authenticity

3. Browser compatibility testing

4. Volume including simultaneous users, database and file storage

5. Availability of the system

1.3 Quality Objectives

- The developed application must fulfil all the user-stories, functional and non-functional requirements documented in the requirement specification document.

- The team should be confident in the quality of the product. Stakeholders should be able make informed decisions regarding the quality of the application based on tests results.

- Ability to find defects and failures of the system as much as possible in order to reduce the level of risk.

- Bugs / issues are identified and fixed before customer sign off.

- Reduce the possibility of failure under specific condition(s)

- Avoid possible legal issues with the customer.

1.4 Roles & Responsibilities

Role	Responsibility
Business consultant	• Document requirements and build user acceptance test cases • Communicate test results, bugs and status of them with the client • Conduct UAT with the client
Project Manager	• Validate test reports before customer hand off • Track defects throughout the bug life cycle • Prioritize issues by severity
Technical Lead	• Allocate appropriate testing tools • Review code coverage and code quality • Communicate bugs/defects with developers
Developer	• Write unit tests • Make sure new source code (commit) would not brake previously written tests
DevOps Engineer	• Run unit and integration tests as part of continues integration • First configure and deploy application to UAT environment • Share system error log with development team for analysis
QA Analyst	• Develop functional test cases with test tools • Review UAT report • Develop test strategies for legal and ethical requirements

2. Test Methodology

2.1 Overview

The application under development is to be developed by V-model software development life cycle. It has been chosen due to following reasons.

1. Requirements of the application is clearly defined and fixed.
2. Test designs are made before the development phase
3. Product testing is clearly defined for each step, thereby allowing QA analysts to measure quality metrics during the entire life cycle of the project

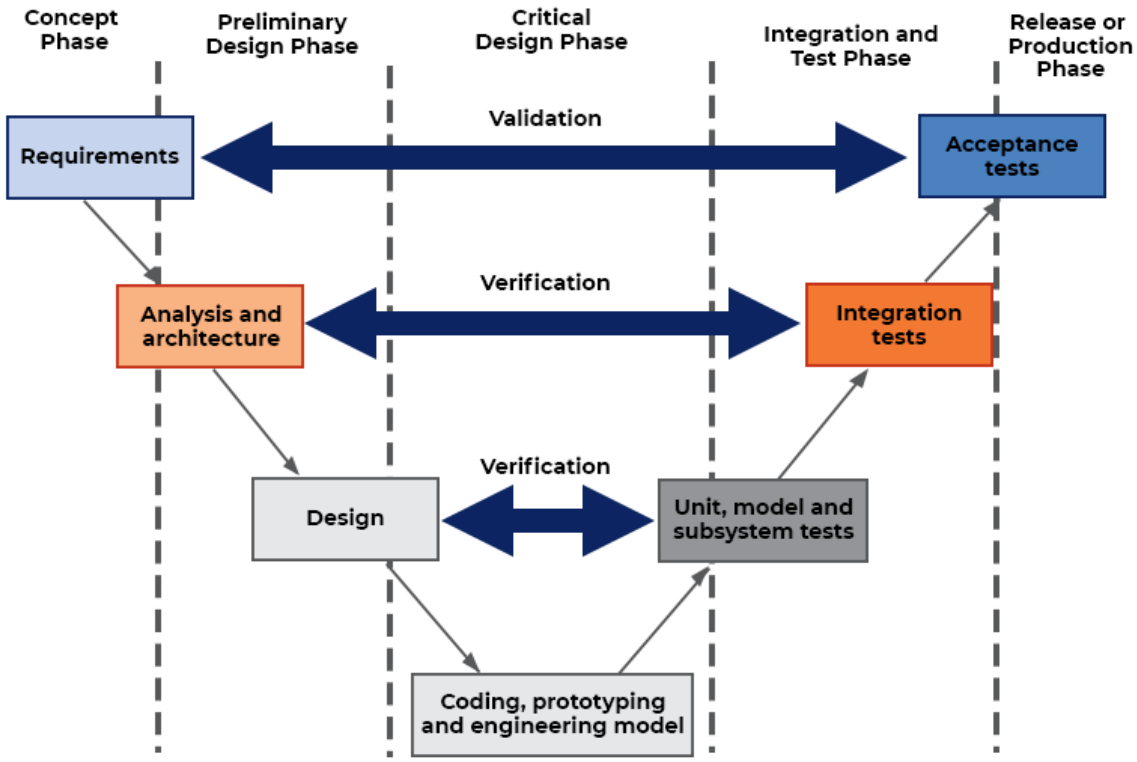

Figure 1 V-model

As seen in the Figure 1, User acceptance test cases are derived from requirements specification created at the beginning of the system. Analysis of the system, including

database and file storage are tested through integration testing. Domain and service layer is tested through unit tests.

However, team has agreed to incorporate agile practices to the above model by using SCRUM framework.

Doing so

- Each issue/bug raised will be added to the backlog.

- During a sprint meeting agile team can discuss the severity of the issue with product owner and project manager. Then the team will be able to identify critical issues and choose them for development in the upcoming sprint.

- QA analyst can provide insight into product quality and test metrices to customer and development team during sprint retrospective.

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2.2 Test Levels

2.2.1 Unit Tests

xUnit

Test, Fact, Theory

Mock Objecys

2.2.2 Integration Tests

Test Containers

Image Upload

2.2.3 Functional Tests

Gherkin syntax

2.2.4 User Acceptance Tests

Test case document

2.3 Bug Triage

2.4 Suspension Criteria and Resumption Requirements