
LGE SDET Team Project

Test Master Plan

SDET4 Team

Document Information

Issuing authority	LGE SDET 4 Team
Status of document	In Progress
Purpose	This document contains all the information about the SDET 4 Team Project.
Scope	<ul style="list-style-type: none">• Test Strategy• Test Scope• Quality Objectives• Role and Responsibilities• Test Methodology• Test Schedule• Test Deliverables• Measurements• Regression Test• Test Criteria• Test Environment• Test Risk
Related Documents	<ul style="list-style-type: none">• LG 2025 Project Description (SDET_Security)• PI_Setup.txt• Remote User Interface Set Up.pdf• ADS-B Hub Account Set Up.pdf• BigQuery Setup• Pulling and Pushing Message Data.pdf

Revision History

Version	Date	Comment	Author	Remark
0.1	2025-05...	Initial draft	chulman.park	
1.0	2025-06...	First Revision	chulman.park	

1. Overview

1.1 Project Overview

The goal of this project is to design or improve a system that meets the objectives and requirements of the Federal Aviation Administration (FAA) issued request for proposal (RFP). The provided test environment and project description must be analyzed in order to derive requirements and create corresponding test cases. Based on this analysis, the requirements must be derived and corresponding test cases created. Furthermore, developing new features and applying a range of testing techniques are essential for enhancing the overall quality of the product.

1.2 Test Item

Test items must cover all elements, including the provided execution environment (Flight Agent System) and all new features. If there are constraints such as limited manpower or time, testing items should be selected based on priority. Since testing needs to be efficient, it should also include CI/CD integration and automated verification. Unit Tests ensures that each module operates correctly and System Tests verify that the integrated software functions correctly.

1.3 Test Scope

The test scope includes all situations provided in the guide document and description.

Functions	Sub Function	Test Scope	Description
Flight Agent System	ADSB-PI	O	
	Remote User Interface (RUI)	O	
	Dump1090-main	O	
	Raspberry Pi Flight Tracker	O	
	BigQuery	O	
	ADS-B Display	O	

(The existing module view should be presented as a diagram.)

(Present the module view of the new feature as a diagram.)

2. Project Management

2.1 Team Building

Role	Owner	Job	Responsibility
Team Leader	Chanki Jung (chankij@andrew.cmu.edu)	Project leader	Project Management CI/CD Setup SW Automation Testing
Test Manager	Chulman Park (chulmap@andrew.cmu.edu)	Test Management	Overall Test Strategy Testing Management
Developer	Yunkeun Kim (yunkeunk@andrew.cmu.edu)	Development	Development Env Setup Implementation New feature
Developer	Inkyung Park (inkyungp@andrew.cmu.edu)	Development	Implementation New feature

3. Project Strategy

The provided execution environment is set up, and a software implementation and testing plan is established through a thorough review of relevant documentation. The software structure of the target system is reviewed to assess its components, and priorities are determined based on the results of this review.

Requirements for newly developed software are analyzed and documented.

Development proceeds according to these analyzed requirements.

A unit test verification scope is defined, covering both the newly developed software and the existing provided components. Test cases are created accordingly. The CI/CD environment is configured using Jenkins to enable continuous verification.

Requirements with high priority are mapped to corresponding modules, and system test cases are written based on these requirements. Where possible, these system tests are automated by building an automated testing environment.

Testing does not cover the entire system but focuses on high-priority features identified in collaboration with the development of the new software.

a. Test Process

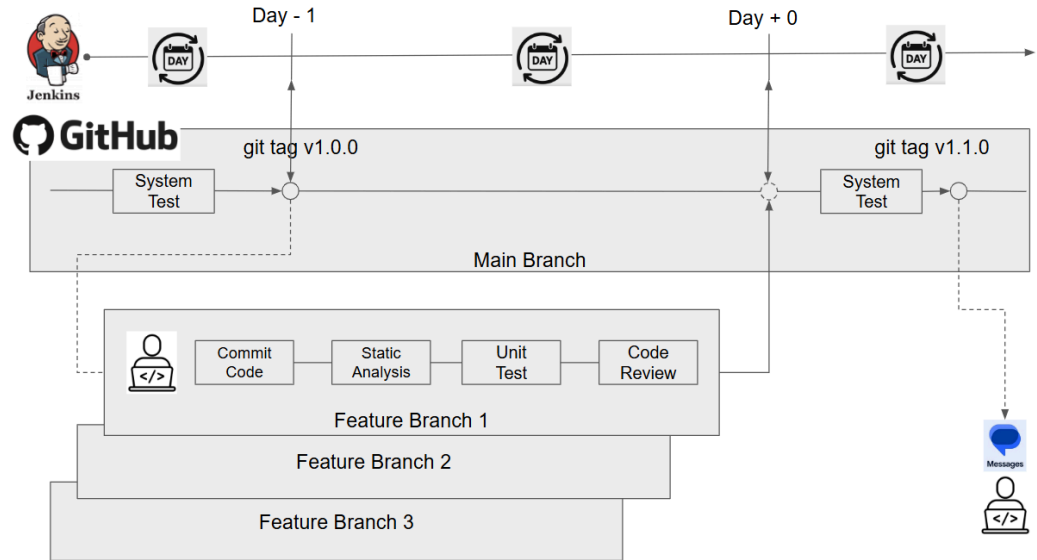


Figure 1. CI/CD Pipeline

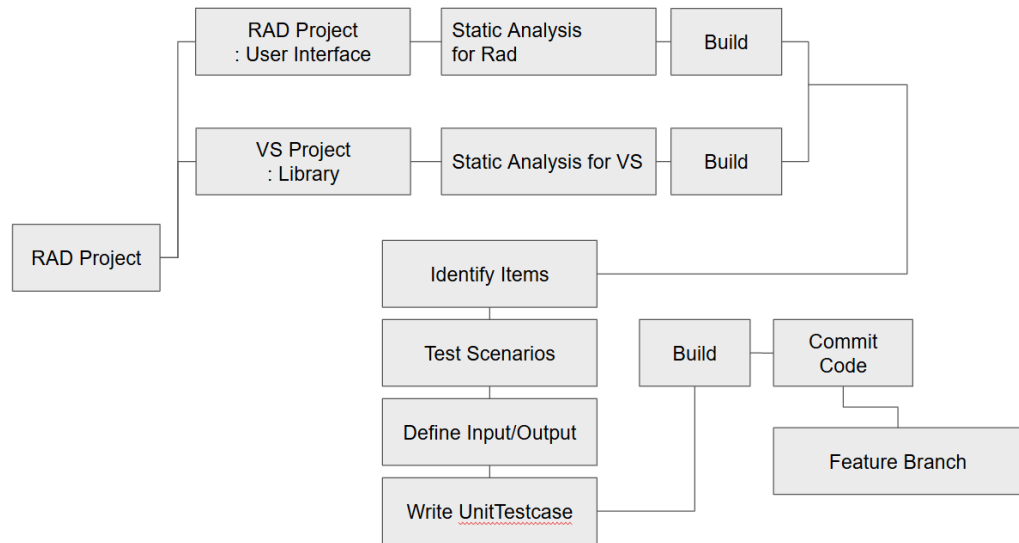


Figure 2. Unit Test Test Case Design Strategy

b. Deliverables

i. Requirements

https://docs.google.com/spreadsheets/d/1RbUWRK_2zHYQrk9xeVQTsHbwPpB41IUgEUt9gl1wRIM/edit?usp=sharing

ii. Testcases

https://docs.google.com/spreadsheets/d/1RbUWRK_2zHYQrk9xeVQTsHbwPpB41IUgEUt9gl1wRIM/edit?usp=sharing

iii. Test Results

https://docs.google.com/spreadsheets/d/1RbUWRK_2zHYQrk9xeVQTsHbwPpB41IUgEUt9gl1wRIM/edit?usp=sharing

c. Test Design Techniques

Category	Test Case Design Methods	Applicable	Remarks
Black-box	Analysis of requirements	Yes	
	Equivalence Class Analysis	Optional	The input data must have a range, and testing is conducted with the minimum number of test vectors.
	Boundary Value Analysis	Optional	Create test cases around boundary values.
	Error Guessing	Optional	During the review process, test cases are created by estimating potential error conditions and exceptional situations
White-box	Function Coverage	Yes	
	Condition Coverage	Yes	

d. Testcase priority

Priority Level	Purpose	Remarks
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P1	Checking a basic function	for the TC for main purpose
P2	Checking a extended function	for the failure, conditional TC
P3	Checking a extended function	for the TC for low usage frequency, or not main purpose

e. Test Environment

4. Issue Management

a. Issue management
(Need to be updated)

ID	Summary	Location	Consequences / Impact	Severity	Proof of Concept
Unique identifier for the issue	A brief description of the defect	Information needed to locate the defect in the system, such as components, file(s), and lines of code.	What are the consequences of the defect ? For example, “deadlock of the Raspberry Pi”	The type of issues based on the project scoring criteria	Steps to trigger the defect, either written in prose or as code to demonstrate exploitation

5. Schedule

