Master Test Plan (MTP)

Aerial Imagery Feature Extraction

Version Information

Version	Date	Remarks	Author
1.0	5-4-2021	Initial Version	D. Sheehan

Management Summary

Project Objective

To develop a machine learning platform that can aid in the rapid response or recovery from floods. The system will use the SageMarker Machine Learning tool on the Amazon Web Services cloud infrastructure to process flood imagery which is provided in JPEG format.

Test objective and assignment

The objective of the testing is to ensure the accuracy and standards described in the

1. Introduction

a. Project and project objective

To develop a machine learning platform that can aid in the rapid response or recovery from floods.

The system will use the Ground Truth data labeling services within the SageMarker Machine Learning tool on the Amazon Web Services cloud infrastructure to process flood imagery which is provided in JPEG format.

Ground Truth has the ability to identify and label items based on a model or previous manual identification to train a model. Unidentified objects can optionally be flagged for manual identification to be added to the model.

While the environment will be created by Intellify, It is anticipated the project will include research of approaches and techniques, review of data, the loading of images and proof of concept of the model in stage 1. Stage 2 will encompass creation of an API for the stage 1 developments.

b. Objective of the master test plan

The objective of the Master Test Plan (MTP) is to inform all who are involved in the test process about the approach, the activities, including the mutual relations and dependencies, and the (end) products to be delivered for this project.

The master test plan describes this approach, the activities and (end) products that need further elaboration in the other system test plans. These system test plans need to be abstracted from this master test plan.

c. Involved in creating the Master Test Plan

The Master Test Plan is a document which will be continually reviewed and updated through the course of the project as more information is provided by stakeholders.

Name	Function	Responsibility
Darren Sheehan	Group 5 Team	Write Initial Version of MTP
		Review MTP
		Approve MTP

2. Assignment Formulation

a. Client

The client for the project is the Spatial Services, a division of the NSW Department of Customer Service. Project details and requirements are provided by this division for which Dr David Tien is our liaison.

b. Supplier

As the supplier, Group 5 will formulate test cases to ensure techniques and approaches used are appropriate to meet requirements set by the Spatial Services Division.

c. Assignment

Testing of the project will be documented and delivered as detailed under 5. Approach.

d. Scope

i. Within scope

- Testing of models within Sagemaker Ground Truth.
- Assessment of suitability of techniques and approaches against requirements.

ii. Out of scope

e. Preconditions and assumptions

- Amazon SageMaker using Jupyter Notebooks will be appropriate for a test environment.
- Appropriate images are loaded into the system.
- A machine learning model has been developed or in the process of development.
- Testing can be completed within time allocated in Project Plan.
- Resources are available to complete testing when required.

f. Reviewers and acceptance criteria

i. Reviewers

The people listed here are reviewers of the test system

Name	Function
Darren Sheehan	Group 5 Team

ii. Acceptance criteria

What acceptance criteria there is for the test system and to which standard they apply:

Description	Standard

3. Documentation

a. Basis for the master test plan

The following documents are used as basis for this Master Test Plan

Document name	Version	Date	Author
Project Plan	1.0	2021	

b. Standards

The following conventions and standards are applied for this test plan.

Document name	Version	Date	Author

c. Test basis

Documentation that serves as basis for the tests to be executed. These are to be developed as the project progresses.

Document Name	Version	Date	Author

4. Test Strategy

The Test Strategy for the project will be based upon a Risk Analysis to focus testing and ensure time allocated for testing is used efficiently. Large defects in the solution will aim to be found early as possible to provide time for a resolution with a minimum of disruption to the overall project.

a. Product risk analysis

Product risk analysis assists in determining test goals. Risks are categorised dependent on the chance of failure and extent of damage they may cause. Risk class A is the highest with risk class C being the lowest.

Risk table

Characteristic	Risk Class	Description
Functionality	A	Project is required to meet requirements and will be used in critical situations.
User Friendliness	C	Current scope of project indicates that a documented API module is all which is needed, no User Interface at this stage.
Performance	B	While speed of image processing is not critical, processing still needs to be completed within 4 hours. The processing may be batch driven, depending on the technique and EC2 Instance type.
Security	B	While security is paramount, the images and data for this project does not contain customer specific data, but does contain data which is publicly available (TBC).
Suitability	A	Project is required to meet requirements, scenarios will be provided by DCS to assess suitability of the product.

b. Test Strategy

Testing will focus on high risk aspects as early as possible in the project.

Characteristic	Risk Class	High Level Test Case Descriptions.	Test Level					
			SR	UT	IT	FAT	UAT	ST
Functionality	A	Does the project Plan Meet Requirements. Does demonstration code work as intended. Does the model work across a number of scenarios / images.	***	**	**	**	**	**
User Friendliness	C	Does the plan meet requirements?	*					
Performance	B	Does the system meet time / speed requirements? Does the system work appropriately with chosen Architecture ie. instance type. If expansion is built in for high processing times, does it work correctly?	**		**	*	*	*
Security	B	Is access controlled by MFA? Does the project follow security best practice (OWASP)?	***			**	*	*

		Is the solution secured at all layers? Is data protected in Transit and rest?						
Suitability	A	Does the project meet requirements & scenarios provided by DCS.	***	**	**	**	**	**

Test Levels	**Test extensiveness**
SR - Static Review UT - Unit tests IT - Integration Tests FAT - Functional Acceptance Test UAT - User acceptance test ST - System test	* - Limited ** - Medium *** - High

5. Approach

a. Test levels

The following test levels will be used for testing this project:

Test Level	Goal
Static Review (SR)	Review of documentation and techniques to ensure suitability for the requirements.
Unit Tests (UT)	Verify each piece of software using isolated tests.
Integration Tests (IT)	Testing parts of the system in

	combination once integrated.
Functional Acceptance Test (FAT)	Check that the system complies with requirements for functionality.
User Acceptance Test (UAT)	Ensure the solution can handle required tasks in actual scenarios.
System Test (ST)	Test all components as a whole to ensure.

b. Evaluation
c. The <name test level>
    i. Goal
    ii. Short description
    iii. Responsible
d. Phasing per test level
e. Test Products
f. Review plan
g. Entrance and Exit criteria for each test level
h. Go / No go

6. Organisation

a. Organisation structure

b. Roles, tasks and responsibilities

c. Structure of meetings

d. Structure of reporting

e. Completion

7. Infrastructure

a. Test environments
b. Test tools
c. Office setup

8. Management

a. Test process management
b. Test infrastructure management
c. Test product management