

# Test Plan of

## Ventilator Weaning Assistant System (VWAS)

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### 1. Scope and Objective

#### 1.1 Scope

In this section, we will define the features, functions that will be tested. Since the ventilator weaning assistance system (VWAS) needs to read from a public FHIR server, communication between the application and a public FHIR server needs to be tested. Also, VWAS takes advantage of machine learning, thus the machine learning module needs to be tested. The major three components are listed below:

- a. Uploading Synthea generated JSON files to a public FHIR server and read the uploaded data from the FHIR server
- b. Patient vital signs update from the FHIR server
- c. Checking the model accuracy and compare the results of machine learning prediction and rule-based prediction

#### 1.2 Quality Objective

The objectives of the test are:

- a. Ensure the Application Under Test (UAT) can successfully read uploaded JSON file from the public HAPI FHIR server
- b. Ensure the AUT conforms to functional requirements
- c. Bugs/issues are identified and fixed before go-live

### 1.3 Roles and Responsibilities

The designated QAs will be in charge of the test, but due to time constraints, the whole team will participate in the test.

## 2 Test Methodology

### 2.1 Overview

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Since this is a small project, Agile testing is selected as the testing method. Using this method allows us to make changes in the project at any time to comply with the change of requirements.

### 2.2 Test Levels

Table 1 provides the level of test and the major test content.

Table 1 Major Test Task

Level of Test	Test Content
Unit Test	Test user interface, machine learning module, FHIR server communication module
Integration Test	Test integration of different modules with interface
System Test	Test the entire system to deliver the required functions

### 2.3 Bug Triage

Due to the size of the project, not too many bugs are expected. Thus, no specific plan for Bug Triage is prepared.

### 2.4 Test Completeness

The criteria of test completeness include:

- 100% test coverage
- AUT can perform the required function without any issue

### **3 Test Deliverables**

Three major deliverables are:

- a. Test Plan
- b. Test Cases
- c. Bug Reports (if applicable)

### **4 Resource & Environment Needs**

#### **4.1 Testing Tools**

IntelliJ IDEA is needed to test Javascript. No other special tools are needed for the testing purpose.

#### **4.2 Test Environment**

Following **software's** are required in addition to Testing Tools.

- Windows 10 and above
- Office 2013 and above