# **Test Conduct And Data**

## **Development Testing**

**TDD Unit Testing**

Test-Driven Development (TDD) is used as a practice in the development process to ensure the program meets requirements, preventing big bug and ensure the possible solution is the minimum amount of code to pass the test. This help to avoid duplicating in writing code, clearer and better design of program. TDD process is followed by steps: (Rais, 2016)

* Write the test firstly and its result will fail. (Figure 3)
* Implement or update the code function until it passes the test. (Figure 4)

A screenshot of a computer

Description automatically generated with medium confidence

Figure 3: Write the test and its result will be fail at the first run. (TDD – step 1)

Text

Description automatically generated

Figure 4: Implementing the code until passing the test (TDD – step 2)

**Integration Testing**

To test the system modules after they are integrated, End-to-End testing used the Jest testing framework is run to test the functionalities of system before each version release for client testing.

Graphical user interface, application

Description automatically generated

Figure 5: Results of integration testing on the developed interface.

**Usability Testing**

The versions released after the development will be tested and feedbacked based on requirements by Eric Le Ferrand. The test is the usability testing with assessment type which is to test the features during the implementation (Goodman, 2012). The testing environment for the interface is as following:

• Google Chrome browser, running on Window 10.

• Safari browser, running on IOS 14.7.1 through Firebase hosting.

The design of interface with participatory design is testing through some iterations:

Phrase 1: Playing the recording and playing syllables

Feeback: adding search a recording by name.

Phrase 2: testing drag and drop syllable.

Feeback: adding “space” syllable in display-area.

Phrase 3: Playing created words in drop-area

Feeback: switching to see between the text of words and the block of buttons to play syllables.

Phrase 4: Adding syllables from database into the display-area.

Feeback: sorted syllables are disappeared after adding a syllable from syllable list.

The interface is implemented following by the received feedbacks and the changes from client. The progress of development and testing on window and iPhone is showed in Traceability Matrix in table 2 below:

Table 3: Traceability matrix

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| User Story | Requirement | Status | Test result | Feedback |
| 1 | R1 | Done | Passed |  |
| 2 | R2 | Done | Passed | Add space syllable for display-area |
| 3 | R3 | Done | Passed |  |
| R4 | Done | Passed |  |
| 4 | R5 | Done | Passed | Add switching text& buttons |
| 5 | R6 | Done | Passed |  |
| 6 | R7 | Done | Passed | Add handle exception and error for Python scripts |
| R8 | Done | Passed |  |
| R9 | Done | Passed |  |
| 7 | R10 | Done | Passed | Add syllables search |
| R11 | Done | Passed |  |
| 8 | R12 | Done | Passed |  |