# Software Engineering Group Project 20
# Test Specification

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# 1. INTRODUCTION

### 1.1 Purpose of this Document
This document's purpose is to provide a clear set of guidelines to aid the production of a high-quality program for Group 20 in CS22120.

### 1.2 Scope
This document lays the groundwork for the standards that must be followed when testing the program that group 20 will be creating. This document also outlines the main stages of testing to be followed.

This document must be read in full by all members of the Group 20 team. It is assumed that all members of group 20 are already clearly familiar with the QA Plan [1].

### 1.3 Objectives
The objectives of this document are to outline a clear plan for testing, as well as supplying a general approach to testing, the test plan and the test specification.

# 2 RELEVANT QA DOCUMENTS

This Test Specification and the following Test Report are to be produced in full to the quality standards outlined within the QA Plan [1]. These files must also be stored and maintained within the configuration management system following the guidelines given in Operating Procedures and Configuration Management Standards [3]. The basic layout of the documents along with all the information within them must also follow the structure and guidelines given within General Documentation Standards [4].

# 3 GENERAL APPROACH TO TESTING

It is important to remember that testing is used to detect and outline, but not correct errors that are found within the program. As a result, this document can be used to detect but not correct any issues or faults within the program. Once all the tests have been conducted and a writeup has been completed, the correct procedures must be followed as outlined within "Operating Procedures and Configuration Management Standards [3]." Once the program is amended, according to this procedure, the test can be exercised again where items can be tested further to ascertain whether the faults have been addressed correctly. This is referred to as Regression testing.

Testing boundary situations are important. Tests for both the expected values and illegal values should be conducted to see if the tests outputs are the correct values, and that the correct errors are thrown when illegal values are entered. Testing boundaries are also useful to stop unwanted behaviour within the application.

Software should be subjected to three levels of testing, module, system and acceptance testing. Module testing is testing individual parts of the program in isolation from the rest of the system. For our project a module will probably consist of a single class. System testing tests all the modules together as one complete system. Acceptance testing tests the software against criteria set by the client with the aim that once all acceptance tests are passed then the client agrees to accept the product as complete. The full and completed tests will be stored within the Final Report which can be accessed and read in full by the client.

# 4 TEST PLAN

For this project our testing plan will consist of:

Module testing is to be completed by the programmer, in which they will use the list of tests that has already been created to test each module along with the functional requirements it contains.

System testing: A system testing specification will be written during the design phase; all major functionality should be covered by this. Once the system is complete, a test report will detail of all the tests along with their information on weather or not they have passed.

# 5 TEST SPECIFICATION

| Test Reference | Requirement Being Tested | Test Content | Input | Output | Pass Criteria |
|---|---|---|---|---|---|
| GR20-001 | FR1 | Check that words shown are arranged alphabetically by their English words. | N / A. | English words shown in ascending order alphabetically. | Correct data displayed. |
| GR20-002 | FR2 | Selecting the language option should reorder the list to alphabetically show Welsh words over English. | Clicking the language button. | Welsh words shown in ascending order alphabetically. | Correct data displayed. |
| GR20-003 | FR3 | Typing an English word in the search bar while the list is sorted by English should only show words starting with those letters. | Typing "ap" | Words displayed should be words starting with the written input. E.g. "Apple" | Correct data displayed. |
| GR20-004 | FR3 | Typing a Welsh word in the search bar while the list is sorted by Welsh should only show words starting with those letters. | Typing "af" | Words displayed should be words starting with the written input. E.g. "Afal" | Correct data displayed. |
| GR20-005 | FR4 | Highlighted words should all be placed in a practice list. | Select word with left click to highlight. | Word should be added into the practice list. | Word correctly added to practice list. |

| GR20-006 | FR4 | Words deselected should be removed from the practice list. | Select word with left click to remove highlight. | Word should be removed from the practice list. | Word correctly removed from practice list. |
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| GR20-007 | FR5 | Trying to add a new word to the dictionary without supplying a translation. | Add "Apple" [Leave translation field blank.] | An error message warning of incorrect input should be shown. | System displays input error message. |
| GR20-008 | FR5 | Trying to add a word that is already in the program. | Add "Apple" [Afal] | An error message warning of duplicate data attempt should be shown. | System displays duplicate data error message. |
| GR20-009 | FR6 | Welsh words should show weather they are masculine or feminine nouns. | Select a word from the list. | Word information is given. | Word information matches the data stored within the stored file. |
| GR20-010 | FR7 | Clicking the "Practice List" menu should show all practice words the user has highlighted. | Navigate to "Practice List" menu option. | All practice words should be shown in alphabetical order. | Practice words shown in alphabetical order. |
| GR20-011 | FR8 | Flash cards should randomly show either Welsh or English for the user to answer. | Navigate to "Flash Cards" menu option. | Flash cards correctly show Welsh or English word with the correct counterpart word when flipped. | Flash card shown to user correctly. |
| GR20-012 | FR9 | Starting a "Options" test should show a word followed by six words in the opposite language. (One of which being correct.) | Navigate to Tests. Select "Options" as a test type. | Test word must be shown along with six possible answers (One of which must be correct.) | Correct data displayed. |
| GR20-013 | FR9 | Starting a "Translate" test should show a word followed by a text box where the translated word can be entered by the user. | Navigate to "Tests." Select "Translate" as a test type. | Test word must be shown along with a text box, where inserting the correct translation must show as correct. Inserting an incorrect | Data shown correctly. Correct prompts shown on pass or failure of the translation. |

| | | | | translation must show as incorrect. | |
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| GR20-014 | FR9 | Starting a "Match" test should show four practice list words along with four matching (unordered) meanings. The four meanings can be matched with the words. | Navigate to Tests. Select "Match" as a test type. | Four test words must be shown along with their four jumbled meanings. Matching them correctly must be shown as correct while matching them incorrectly must be shown as incorrect. | Data shown correctly, Pass or Fail correctly shown upon the matching of words and meanings. |
| GR20-015 | FR9 (SPECIFICALLY GR20T12) | The "Match" test option must not be available unless there are at least FOUR words added to the practice list. | Navigate to "Tests." Select "Match" as a test type. | The user must be shown an error message if there are less than FOUR words added to the practice list. Otherwise the test will begin. | If less than FOUR words are present within the test list. An error message is shown. If FOUR words are present the test will proceed without an error message following test parameters outlines within (GR20T12.) |
| GR20-016 | FR10 | When the user starts a test, the words loaded should be from the practice list. | Navigate to Tests. | Words shown must only be those that were added to the practice list by the user. | Correct data displayed. |
| GR20-017 | FR10 | With each answer the user gives, a score counter should reflect the number of questions answered along with how many the user has answered correctly. | Start one of the tests within the "Test" menu. | A score table must be shown. This counter must show the number of questions that have been answered along with the number that the user has entered correctly. | Data, correct questions and number of questions shown and counted correctly. |
| GR20-018 | FR10 | At the conclusion of the test the user should be shown clear feedback of | Navigate to "Tests" and complete one of them using both known correct and | Feedback shown at the end of each test must be the correct outcome along | Data shown correctly in feedback text field. |

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| | | praise if they are correct. Otherwise the feedback should be information on what the correct answer is. | incorrect answers. | with showing the correct assistance feedback if required. | |
| GR20-019 | FR10 | Selecting the "Random" game button should start one of the games at random. | Navigate to the "Random" option in the "Games" menu. | One of the games must be selected and started at random. | All games accessible from the menu and a random game is selected each time. |
| GR20-020 | FR9 / FR10 | Random game type should not select "Match" as a game type if there are less than four words in the practice list. | Navigate to the "Random" option in the "Games" menu. | Any of the games (aside from "Match") will start with less than four words in the practice list. | "Match" game is not accessible with less than four words in the practice list. |

# 6 TEST RESULT REPORTING

All details appertaining to test results must be maintained and kept within the test folder stored within the group project repository on GitLab. Two folders must be present with one being labelled "Module Tests" and the other being labelled "System Tests."

Each section must contain a dated report which is added and updated whenever a new version of the software is built. This test must include all information of tests that have failed within said build.

When the project is completed with all tests able to be run and all tests have passed. All results must be submitted within a final report as a Test Report following the guidelines set within "Producing a Final Report [2]".

# REFERENCES

[1] QA Document SE.QA.01 - Quality Assurance Plan.

[2] QA Document SE.QA.10 - Producing a Final Report.

[3] QA Document SE.QA.08 - Operating Procedures and Configuration Management Standards.

[4] QA Document SE.QA.02 - General Documentation Standards.

# DOCUMENT HISTORY

| Version | CCF No. | Date | Changes Made to Document | Changed by |
|---------|---------|------|--------------------------|------------|
| 0.1 | N / A | 2020-02-15 | Initial Creation | NCW |
| 0.2 | N / A | 2020-02-17 | Updates to TEST SPECIFICATIONS | NCW |
| 0.3 | N / A | 2020-02-19 | Updates to TEST SPECIFICATIONS and FORMATING | NCW |
| 0.4 | N / A | 2020-02-21 | Minor grammatical chances | NCW |
| 0.5 | N / A | 2020-02-25 | (3 GENERAL APPROACH TO TESTING) and (4 TEST PLAN) designed incorrectly and are to be redone. | NCW |
| 0.6 | N / A | 2020-02-27 | Sections 3 and 4 | HJD3 |
| 0.7 | N / A | 2020-02-28 | Minor Grammatical changes. | NCW |
| 0.8 | N / A | 2020-03-01 | New test added. Change notes listed by (OSP1) have been addressed. Test names updated. | NCW |