Engineering 1

Group Assessment 2

Software Testing Report

Cohort 2

Team 11

a) Briefly summarise your testing method(s) and approach(es), explaining why these are appropriate for the project. (5 marks, ≤ 1 page)

Testing Methods and Approaches

Our chosen testing methodology is a combination of dynamic testing and analysis using JUnit5 as a testing framework, and some static testing. As we have full access to the source code, this is the most appropriate testing methodology as it provides as much coverage as required, including for niche internal cases and cases only encountered during gameplay.

Using JUnit 5, we have created a number of unit tests for a majority of the game's classes and functions. These allow for simple testing, such as checking that a value can't exceed its maximum or minimum, as well as more complex testing such as two objects colliding which invokes multiple functions where all must pass in order for the test to succeed. This allows us to ensure that the quality of code is high across the whole codebase, and that adding a new feature won't break some core functionality by accident. Additionally, it allows us to detect errors in the code that may not be apparent in a quick gameplay test, but would become much more apparent given further testing.

As well as unit testing to test our algorithms and functionality, we also use gray-box testing wherein a developer or someone with some knowledge of the source code and internal workings of the game plays it to ensure that the actual gameplay experience is what we expect. This can pick up errors that unit testing cannot detect as whilst the algorithms may all execute properly, there may be a logical error somewhere in the code or some sort of numerical error that grows exponentially as it's used in the code. Furthermore, it allows us to tweak the gameplay to ensure it is as engaging and enjoyable as possible for the end user.

b) Give a brief report on the actual tests, including statistics of what tests were run and what results were achieved, with a clear statement of any tests that are failed by the current implementation. If some tests failed, explain why these do not or cannot be passed and comment on what is needed to enable all tests to be passed. If no tests failed, comment on the completeness and correctness of your tests instead. (12 marks, ≤ 3 pages)

Test Results

c) Provide the precise URLs for the testing material on the website: this material should comprise your testing design and evidence of testing, and is marked here (5 marks).