**Software Implementation and Testing Document**

**For**

**Group 18**

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# Programming Languages

HTML, CSS, JavaScript

# Platforms, APIs, Databases, and other technologies used

* Firebase – user authentication
* GIMP – image manipulation for creating maps and editing spritesheets

# Execution-based Functional Testing

* **Player movement –** tested by using all arrow keys to see if the player could move in all directions, checked for movement when multiple keys are pressed and held at the same time, ensured that movement stopped when attempting to move outside of the boundaries of the map.
* **Attacking enemies –** tested by attacking an enemy from all different directions to make sure hits were registered.
* **Enemy damage calculation –** tested by using alert statements to monitor the enemy’s health and flagging the enemy as dead after its health has reached 0.s
* **Player takes damage –** tested by approaching the enemy from different directions to make sure the player took damage.
* **Player dies –** tested by letting the enemy attack the player until they were flagged as dead and then navigating every screen/menu option to ensure everything functioned properly.
* **Logging in –** tested by logging in with correct credentials, using an invalid password, using an invalid username, and having no internet connection.
* **Signing up –** tested by signing up with correct credentials, using a username that already exists, using a password with too short of a length, and having no internet connection.
* **Logging out** – tested by logging out from every different screen/menu option.
* **Pausing the game –** tested by opening up the menu and ensuring the menu could be navigated and its resume play and exit game function worked properly.
* **Handle keyboard input –** tested by pressing every key that is used by the game in different order at random times to make sure each key press was detected and functioned as it was supposed to.

# Execution-based Non-Functional Testing

* The Chrome, Firefox, Opera, Internet Explorer, and Microsoft Edge browsers were tested with each test case for this iteration to ensure that the game functioned properly on all of them.
* The game was tested on multiple different devices to ensure the graphics looked the same on different screen sizes.
* The game was tested with no internet connection to see if error handlers worked properly and how having no internet connection affected the game.

# Non-Execution-based testing

Non-execution-based testing was performed by having each team member look over the code for any potential bugs or logical inconsistencies. After critiquing the code, changes and alterations were made accordingly to ensure the code was sensible and would function properly under all test cases for this iteration.