

Test Plan Document: The Pixel Wizard

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12/05/2020

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1 – Introduction

- The game that we are testing is called “The Pixel Wizard”. It is a 2D side-scrolling platformer game where the player who controls a wizard where they must complete through the different levels and eliminate various enemies including bosses to progress. Each level contains items to use in-game such as health for the player to use.
- We then test out different functions such as movement, shooting while in game. We will also test the menus such as pause menu in game and the sub menus in-game also, the main menu with the various sub menus in that also and test the items.
- The gameplay mechanics are done using the right key or D to move forward, left key or A to move backwards, up key or W to jump and the c key to crouch. To shoot the user uses left mouse click or R to attack.
- There are different menus in the game from Play and exit game to a setting menu and a pause menu. The buttons for the menu must work or the game is not going to direct correctly to the different sections. There's also a load game function to reload previously saved games and that must work to bring the saved game data to replay that game again.
- The user also can pick up in game items to use such as health drops which can replenish the user's health when enemies damage them. If health drops don't work when the user goes to interact with them then the users can get annoyed with this if they come across a boss and the health wont refill and then the user has to restart again which wouldn't be a good way for the game to react.

2 – Objectives and Tasks

2.1 – Objectives

- In the objectives section we find out what must be tested and separate the people into groups to test the certain parts. The goal of the testing is to check every feature within the game and see if it works as intended by the game's designers before selling to the public.
- The objectives that must be tested are split between three groups with each group doing different testing on the game to be certain the game works as said by the developers. All Groups involved in the testing of the game has a Leader who oversees the objectives in the group and looks over his groups work and takes the info they get back to the project's manager. We will use a communications application such as Microsoft teams or discord to talk to all members in the team and put info up while also using GitHub to push work for everyone to see.
- Organizing Meeting on a weekly basis or daily basis helps with meeting goals in the project for deadlines. The meetings will be made by the Manager between the Groups on and they will pick a day to organize it in advance. Any Issues that arise in

the groups are brought to the group manager to be brought to the Project Manager to debrief.

2.2 – Tasks

- For my groups they will be doing different testing on the game using different testing strategies.
- Group 1 is set out to do Unit Testing on the different functions of the game such as “Play Game” “Exit Game” and “Settings” and more. This groups main objective is to test the functionality of the different parts of the game from functions on home page to pause menu and making sure you don’t come across any errors or bugs while doing it. If any issues are found, then they are reported to the group leader (Aaron Dillon) who then reports it to the Project Manager (Jack Haugh).
- Group 2 will use the Beta Testing strategy to test the game from top to bottom to find any bugs and errors in the game. They will check gameplay and test the mechanics to see if the game that has been sent by developers is working the way they want it to be. They will be testing player and enemy movement, shooting mechanics, Player drops etc. This group is considered very important as it tries to find every bug and error in the game to report back to the developers to fix before game is released to the public. If any issues are found, then they are reported to the group leader (James Stephens) who then reports it to the Project Manager (Jack Haugh).
- Group 3 will be assigned to do Performance and stress testing to put the program under pressure to see if it will crash or have any unexpected errors that weren’t seen coming. This testing method is great as it puts the game into a tough process of seeing will it be able to run when maxed out and pushing the game to the limit. If any issues are found, then they are reported to the group leader (Thomas Owen) who then reports it to the Project Manager (Jack Haugh).
- We then will have all Groups be involved in Batch Testing to do tests on all the game in one go when they have finished their individual testing. We use this method of testing to get all groups to test in one go and find any issues to be fixed then. If any issues are found, then they are reported the Project Manager (Jack Haugh).

3 – Scope

- General: From this Software Testing Plan, the goal of it is to test all functions we are testing in our assigned teams. The tests will be what is outlined in the tasks section above and the purpose is to find anything in the game that will affect it when it goes on sale such as glitches, bugs and errors.
- Tactics: For the group to achieve its goals for this test we created three groups that will have different parts to work on the testing of the game. It's important that they work together at their part and when they finish their testing, they give feedback to their group leader to send to the project manager then and if any issues arise then they must report them also.

4 – Testing Strategy

- This area is crucial for all groups to pull together in their respective groups and get the work done for feedback to return back to the Project Manager so the games developers can find out if anything is wrong with their product before they release to the public. Different testing occurs here to test different parts of the game.

4.1 – Unit Testing

- **Definition:** A type of software testing where individual units or components of a software are tested. The purpose is to validate that each unit of the software code performs as expected. Unit Testing is done during the development (coding phase) of an application by the developers. Unit Tests isolate a section of code and verify its correctness.
- **Participants:** Group A does the most work using this testing strategy, but all groups can use this because of testing their parts of the game to make sure it's working correctly.
- **Methodology:** All groups will use Unit testing to an extent because it's a strategy to test their case so when they give their feedback to the group leader, they have tested what they were set out to do.

4.2 – System and integration Testing

- **Definition:** Is the overall testing of the whole system which is composed of many sub-systems. The main objective of System and integration Testing is to ensure that all software module dependencies are functioning properly, and the data integrity is preserved between distinct modules of the whole system.
- **Participants:** All groups that are assigned to this project undergo System and integration Testing at some points in testing.
- **Methodology:** All groups use System and integration Testing to a point so they can make sure that their game is working as expected from the developers point of view and if not then write up their findings and report back to project manager.

4.3 – Performance and Stress Testing

- **Definition:** **Performance Testing** is a type of software testing that is carried out to determine system performance in terms of sensitivity, reactivity and stability under a certain workload. **Stress testing** is a type of software testing that verifies the stability and reliability of the system. This test particularly determines the system's robustness and error handling under extremely heavy load conditions.
- **Participants:** All groups that are assigned to this project undergo Performance and Stress Testing at some points in testing.
- **Methodology:** All groups use Performance and Stress Testing because if the game is acting out of the usual that group reports their findings to their Project manager.

4.4 – User Acceptance Testing

- Definition: is a type of testing performed by the end user or the client to verify/accept the software system before moving the software application to the production environment. UAT is done in the final phase of testing after functional, integration and system testing is done.
- Participants: This method can only be used after a “customer” tries out the game and the group gather their feedback on the game.
- Methodology: All groups use User Acceptance Testing because this gives the testers and the game developers a very close idea to what the product would be like if released to the public and if the “Customer” finds any faults in the game when testing it themselves the groups and developers take that information and use it to amend any mistakes they have.

4.5 – Batch Testing

- Definition: Group of tests executing sequentially one by one. Every test Batch consists of multiple dependent test cases. In those batches every end state is base state to next case.
- Participants: All groups that are assigned to this project undergo Batch Testing at some points in testing.
- Methodology: All groups use Batch Testing because when each individual group does their testing, they all run the entire test set to see if any issues come forward that didn't show from their own group testing.

4.6 – Automated Regression Testing

- Definition: Is a software testing technique that utilizes computer-based tools and techniques in testing software after it has been changed or updated. It is a test automation process that applies the workflow, plan, scripts and other processes within a regression testing methodology.
- Participants: All groups use Automated Regression Testing at certain parts of testing.
- Methodology: When All groups are testing their sections to check for errors, and they fix it themselves regression testing begins to see if the game is still running as it was originally. The chances of causing a bigger error when fixing a recent error can cause big problems to the game and hinder progress.

4.7 – Beta Testing

- Definition: Is an opportunity for real users to use a product in a production environment, with the goal of uncovering any bugs or issues so they can be addressed before a general release.
- Participants: The testing groups are the first testers which then rolls out to the public interested in testing the product so the developers and testing groups can find out if there's any errors or bugs.
- Methodology: This is for most testing groups the final stage before public release and it's important that any bugs or errors because if a product released to the public

has errors it can prove a costly mistake for the developers and profit can take a big hit.

5 – Test Schedule

- For the following test plan, we should have assembled the people that will be involved in the project and the project manager should have made group leaders to oversee each group and their tasks. The following schedule is a rough timeline that we hope events will be done at their respective times but if problems occur along the way then things will be adjusted to make it work and meet deadlines.

Month 1

- Week 1: At the beginning of the week we had our first meeting as a collective and explained what was going to happen and we separated the team members into their respective groups. The project manager explains to each group what they are required to do, and the groups separate and start brainstorming to think of their plan. Weekly meeting will be organized to keep groups updated and ideas fresh.
- Week 2: The groups meet with the project manager to discuss progress from the previous week. They proceed with the testing
- Week 3: The groups meet again to discuss their findings from testing the weeks previous. If many issues came forward, then they adjust the time frame.
- Week 4: The groups meet again and if the issues and testing that came forth are fixed, they will move onto next section the following week.

Month 2

- Week 1: Beta Testing begins by gathering the public and their own testers and finding any bugs or errors to report back and fix them after beta session.
- Week 2: At this stage we take the feedback and if any issues from beta testing and fix the issues and have it all sorted before public release.
- Week 3: The groups finalize the last extras before finishing up their end of testing and watch it being released to the public.

6 – Control Procedures

- Problem Reporting: We use problem reporting if we come across any problems while testing the game. Any errors that are found are brought up to the Project Manager by emailing him and letting him know what the error is, what group you're from and a description of the problem. The emails with errors should be saved for checking back later to make sure they have been sorted.
- Change Requests: We use Change Requests if we come across any changes that we think will benefit the game for the good. Any changes that a group want to make to the game they have to let the Project Manager know of the changes they are bringing forward and must get the request accepted before implementing any changes.

7 – Features to be Tested

- The objective of this is to test all features created in the game to make sure they are running as the developers intended by going through it all with different testing method. We will test all the buttons such as “play game, pause, settings, exit game.” We will also test the shooting and movement mechanics to test they are working correctly and no bugs in it.

8 – Features not to be Tested

- Because this game must be bug and error free before public release the whole game must be tested so there will be no stone unturned in the testing of the game and when users have it working as intended.

9 – Resources/Roles & Responsibilities

- The Project Manager oversees assigning the staff to certain groups and putting people in charge of the Groups. The Manager would have the best idea of his team members strengths and weaknesses and would be good at choosing who goes with who. The group leaders oversee their assigned group and they are the middleman between the group and Project Manager with sending feedback and gathering info to give back to their respective group. The Group leaders for the three teams are Aaron Dillon for Group 1, James Stephens for Group 2, Thomas Owen for Group 3 and the Project Manager is Jack Haugh.

10 – Schedules

Document Type	Deliverable to	Due Date
Test Plan	Shane McMahon	18/05/20
Test Cases	Luke Combs	21/05/20
Test Incident Reports	Simon Riley	26/05/20
Test Summary Reports	Sadio Mane	30/05/20

11 – Risks/Assumptions

- Like any group projects a team can encounter errors along the way from delays with time with coding errors and so on. Delays with project could result in a delayed release date which will have reputation and financial drawbacks on the company. If more issues come forward the they must be reported to the group leader and project manager.

12 – Tools

- We used Selenium and TestComplete for the tools to test our cases and check the code and the methods we used to test them.
- Selenium IDE (Integrated Development Environment) is primarily a record/run tool that a test case developer uses to develop Selenium Test cases. Selenium IDE is an easy to use tool from the Selenium Test Suite and can even be used by someone new to developing automated test cases for their web applications. One does not require any special setup to get started with Selenium IDE. You just need to add the extension of your specific browser. Selenium IDE provides you with a GUI (Graphical User Interface) for easily recording your interactions with the website. Selenium IDE allows a user or a test case developer to create the test cases and test suites and edit it later as per their requirements. The development environment also provides the capability of converting test cases to different programming languages, which makes it easier for the user and does not mandate the need for knowing a specific programming language.
- TestComplete is a functional automated testing platform developed by SmartBear Software. TestComplete gives testers the ability to create automated tests for Microsoft Windows, Web, Android (operating system), and iOS applications. Tests can be recorded, scripted or manually created with keyword driven operations and used for automated playback and error logging. TestComplete is used for testing many different application types including Web, Windows, Android, iOS, WPF, HTML5, Flash, Flex, Silverlight, .NET, VCL and Java.[1] It automates functional testing and back-end testing like database testing.