Charlie Conneely – G00348887

https://github.com/charlieconneely/SoftwareTesting\_GameTestPlan.git

Test Plan Template: The Pixel Wizard

Prepared by Charlie Conneely

Date: 8/5/20

Table of Contents:

1.0 Introduction

2.0 Objectives and Tasks

3.0 Scope

4.0 Testing Strategy

4.1 Unit Testing

4.2 System and Integration Testing

4.3 Performance and Stress Testing

4.4 User Acceptance Testing

4.5 Automated Regression Testing

4.6 Beta Testing

5.0 Test Schedule

6.0 Control Procedures

7.0 Tools

1. **Introduction**

The Pixel Wizard is a 2D side-scrolling platform game with artwork inspired by games like Shovel Knight, which also use pixel art. The player/wizard will navigate through each round with increasing difficulty.

In each round the player must use magic to defeat the encountered enemies whilst collecting pickups which will replenish the wizard’s health. The “magic” refers to the wizard’s ability to shoot fireballs and freeze spells at the enemy.

Each round will also present a “boss” that the player must defeat to progress to the next round. The player will be able to see the boss’s health status on the screen as well as their own.

1. **Objectives and Tasks**

The main objectives of the testing process are:

* To achieve 100% decision coverage.
* To ensure that the product will be launched with no critical bugs.
* To ensure that all team members are aware of their responsibilities.
* To ensure that all team members are aware of the scope and the location of their tasks within.

The tasks involved:

* Unit Testing
* System and Integration Testing
* Performance and Stress Testing
* User Acceptance Testing
* Automated Regression Testing
* Beta Testing

1. **Scope**

The testing lifecycle will take place between 1/6/20 and 5/8/20.

Throughout the testing lifecycle, the following functions/interfaces of The Pixel Wizard will be tested:

* Start Menu. Ensure that all buttons work correctly (including the sound and music levels inside Settings). We need to ensure that all “back” buttons work correctly i.e. that the user can always swiftly return to the menu.
* In-Game Menu. All buttons inside this menu should work essentially the same as in the start menu. However, in place of the “start game” option, the user should see a “back to main menu option”. All buttons should be thoroughly tested for bugs. The restart option should reset everything and take the user back to the beginning of the round. To open/close the game menu, simply press the escape button.
* Gameplay. All functions need to be tested (shooting fireballs/freeze spells).

-- The player should be presented with instructions at the start of the level.

-- The player should progress to the next round after each level is complete.

-- The game difficulty should increase with the rounds.

-- Upon completion, the user should be presented with the option to restart or exit the game.

1. **Testing Strategy**
   1. Unit Testing  
      Before we begin the testing process, there will be a meeting held on 2/6 at 10 am to conduct a static test of the various functions within the game’s software. An overview of the algorithms used will be presented and time will be allocated at the end to allow for questions and for more in-detail inspections of the code if necessary. Attendance is mandatory for all team members. Dynamic testing of the components will follow.   
        
      Participants: Mary Hanson, John McMahon, Andrew Gordon.  
        
      Each participant will be provided with their test conditions, test basis, test data and testware. All incidents are to be logged to the shared GitHub repository in the “Unit Testing” document along with all details of any incidents encountered. As most functions are only applicable when playing the game, the purpose of this testing is to ensure that there are no critical bugs found, that all areas of the code will be executed at least once and that these functions perform well when given certain test data.
   2. System and Integration Testing  
      During this time we will be testing how the program interacts with the database, how the different components of the program operate together and if the program meets the requirements defined in the scope.  
        
      Participants: Edward Minh, Pat O’Brien, Andrew Gordon.  
        
      This will entail testing:   
      -The load/save/delete game options and if they interact with the database correctly.  
      -How the program performs when navigating between the main menu and the game or game and the pause menu etc.  
      -How does the game hold up under different circumstances pertaining to hardware e.g. monitor with different frame rate.   
      -Does the game satisfy each requirement as specified by the scope and will it be satisfactory to the user.   
      -Are the choices for the control mechanisms consistent across different platforms/hardware.  
      All bugs found should be logged alongside their test case no. and their severity in the shared “System/Integration Testing” document.
   3. Performance and Stress Testing  
      During this period we will focus on the boundaries/limitations of the game and how the system will handle being under such pressure.  
        
      Participants: Edward Minh, Mary Hanson, Pat O’Brien  
        
      Activities involved:  
      -Rapid in-game button bashing – there will be an automated testing application supplied to put the buttons for firing/freezing and moving under stress to find limitations.   
      -Automated main/pause menu rapid decision making. A similar automated testing process will take place to put the navigation of the menu system under stress.  
      -The load function for different versions of gameplay will be tested in order to find the limit in relation to the number of versions that can be saved and to find if any errors occur when such stress testing takes place.  
      All bugs/limitations found should be logged alongside their test case no. and their severity in the shared “Performance/Stress Testing” document.
   4. User Acceptance Testing  
      Alpha testing. The purpose of this is to get as much feedback as possible before the game is distributed to a larger audience.   
        
      Participants: Mary Hanson, Andrew Gordon. Mary will give the presentation. Both Mary and Andrew will assist the users when playing the game. And both Mary and Andrew will take/ask questions. Mary will take notes of any points made.  
        
      -A select number of users will be gathered.  
      -They will sit through a short presentation explaining the game and explaining what sort of feedback we desire from them.   
      -They will play the game for approximately 40 minutes each.   
      -They will then be questioned by two members of our development team. These questions will be supplied for the team members.   
      -Notes will be taken of any other points/complaints made by the users.  
      -Does the game satisfy user requirements? If so, we can progress – if not, what changes need to be made?
   5. Automated Regression Testing   
      Regression testing will take place if changes are made after the user acceptance testing or for other reasons uncovered after the development process has finished. This is done to ensure that any changes made to the system will not directly/indirectly affect other functions in the system that would have previously tested well. For example, if changes were made to the fireball objects fired by wizard, will this effect the collision detection or point system?   
        
      Participants: Edward Minh, Joseph Coll  
        
      Throughout this process, automated testing software will be provided to re-test all the functions covered during the component testing phase.
   6. Beta Testing  
      At this stage the game will be distributed across the platform to a controlled number of participants for testing under real life circumstances by real users. All feedback will be emailed to our team and a meeting will be held to discuss the findings. All team members must attend.

**5.0 Test Schedule**Overall estimated time frame: 1/6//20 – 5/8/20

1/6: Short meetings to discuss objectives/roles.

2/6: Static test meeting.

3/6 – 27/6: Unit Testing

27/6 – 10/7: System and Integration Testing

10/7 – 25/7: Performance and Stress testing

26/7 – 30/7: User Acceptance testing

1/8 – 5/8: Regression Testing

5/8 – To be confirmed: Beta Testing

**6.0 Control Procedures**Problem Reporting  
Throughout the testing process. All bugs should be logged under the correct heading with their test case number in the documentation on GitHub, with information such as the severity of the bug, it’s location in the game, which stage of the test process the tester was in and timestamp.

Depending on the severity of the bug, the tester may need to announce in the teams group chat that the schedule should be re-examined as a result. The developer(s) responsible for this area of the game will subsequently be contacted and the information will be relayed. Then, a meeting may or may not be held to reorganise the testing process going forward.

**7.0 Tools**

Testopia

Bugzilla

Microsoft Teams (for at-home meetings)