Tower Defender: Project Approval Document

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September 25, 2017

1 Software Purpose

Many people around the world are seeking a means of entertainment, and some achieve this through video games. As software engineers, we aim to create an interactive game that stimulate the users intellectually as a way to pass time. We aim to make the tower defense game one of a kind, challenging and fun at the same time.

2 Software Scope

The software is a PC game (Tower Defense).

3 URL to Original Project

https://github.com/kristing400/Pokemon-Tower-Defense

4 Hardware Requirements

The game needs to be running on pc, otherwise no specialised hardware is required for the user. It is simple to run and easy to use.

5 Programming Language

Python (using pygame) will be used to develop this game.

6 Software License

No other software license is required that McMaster does not own.

7 Feasibility of Programming Language

The programming language is feasible. The three of us have background in Python and we aim to further sharpen our skill and challenge ourselves further through this project.

8 Understand-ability of Domain Knowledge

Yes, the team has discussed this.

9 Code Length

1295 lines. While the original game is not too complicated, we aim to introduce upgrades and other features to make the game more fun and challenging. We believe the project scope will be sufficient to challenge us in terms of our coding proficiency while ensuring that we apply best practices in software engineering as taught during lecture.

Moreover, to make the game more fun and enjoyable for the general public, we aim to design the game with middle-earth theme, leveraging on the extreme popularity of fantasy series like Lord of the Rings with people of most generation. While the game mechanics and rules will be largely the same, the main feature of the game will involve defending a tower using dragons of different attributes. Different types of dragon will have a type advantage over certain type of enemies, dealing more damage to the enemies by a designated multiplier. As the difficulty increases, the dragons can be upgraded by using the gold that the user earn from the enemies.We believe this theme will make our game unique and interesting for our users.

10 Compilation of Original Code

Yes, the project has been compiled successfully.

11 Some Test Cases for the Existing Software

- Test if users can only add new towers in designated areas;

- Test if tower attack power increases upon upgrade;

- Test if the tower only shoots enemies within range;

- Test if the enemies health is deducted when the towers attack hits;

- Test if the user can only upgrade the towers if there is sufficient resources (money);

- Test if the user can only buy items in between rounds;

- Test if damage is amplified due to type advantage (for example, water attack will be amplified to fire type enemies);

- Test if one health is deducted every time an opponent enters the safe zone;