Team Banana

Debugger (Game)

Request for Proposal

Version 1.0

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1.0 Problem Description

The professor of Software Engineering at the University of Idaho, Doctor BC, needs a way to increase her confidence in gaming. She needs a computer science-related game that is easy to pick up and challenging enough to be rewarding. She is willing to pay top dollar for this software.

2.0 Project Objectives

Develop Unity software which simulates hordes of software bugs trying to reach and destroy an important piece of hardware.

The features will include:

- An interesting level with
    - Multiple points where enemies may be instantiated
    - A region to which enemies will flock, containing an important piece of hardware
- A character who:
    - Is controllable via keyboard inputs
    - Uses multiple methods of attack and/or defense to stop the bugs
    - Interacts with the level
- Enemies which:
    - Imitate bugs from software
    - Attempt to reach and destroy the important piece of hardware
    - May be destroyed by the playable character
    - Come in more-and-more difficult waves
- Several intuitive menus:

    - Initial start menu
    - Pause menu
    - Help screen which describes current goal and game controls
    - There will be a scoreboard menu which saves and displays high scores
- A scoring system:
    - Doing actions in the game grants the player points, which are displayed in-game and on the pause menu
- Actions and events should result in appropriate sounds being heard
- A "Doctor BC" mode will be available in which the player can almost never lose, and the score increases much more quickly.
    - There can be fireworks and fanfare; things of this nature

3.0 Current System(s) - if any or similar systems

Desktop Tower Defense *- Flash-based Browser Game*

Desktop Tower Defense is a flash-based browser game developed by Paul Preece in 2007. The goal of the game is to prevent a random number of enemies from reaching a specified point on the playing field. The player can prevent attack by upgrading or building towers to kill or weaken the wave of enemies. The game has three different complexity levels of game play: easy, medium, and hard, game play continues with more waves of enemies until the player runs out of lives.

Plants vs. Zombies *- Multiplatform Game*

Plants vs. Zombies is a multiplatform game originally designed for Microsoft Windows by PopCap Games in 2009. In this tower defense game, the players goal is to protect their house from the zombies by placing different types of plants in the lanes around the house. Each plant provides different offensive or defensive abilities used to prevent the zombies from making it to the house.

4.0 Intended users and their interaction with the system

Users:

- People who enjoy playing tower defense games with beginner to advanced gaming abilities

Uses:

- A challenging and fun gaming experience
- Tactical defensive and offensive strategy building

5.0 Known interactions with other systems inside/outside the client organization

- Steam
- Origin
- Discord

6.0 Known Constraints to Development

- The game must be developed in the Unity environment
- All code must be written in the C# programming language
- The game must use a control system that is straight forward and easy to learn

7.0 Schedule

Team Meetings
Due Dates

Date	Objective	Description
24-Jan-19	Team Meet and Greet	Team will hold initial meeting and assign responibilities to each team member.
29-Jan-19	Team Meeting (Project Start)	Team will determine team name and game design and goals.
31-Jan-19	Team Meeting (SA/RFP)	Team Banana will start discussion for it's system analysis and RFP project.
1-Feb-19	Team Meeting (SA/RFP)	Team Banana will determine responsibilities for each team member for the system analysis and RFP project and set goals for completion.
4-Feb-19	Team Meeting (SA/RFP)	Team Banana will discuss progression on it's system analysis and RFP project.
6-Feb-19	Team Meeting (SA/RFP)	Team Banana will review and complete it's system analysis and RFP and have it ready to present.
7-Feb-19	SA/RFP Presentation	Team Banana will present it's system analysis and RFP.
8-Feb-19	Team Meeting (Repository and Diagrams)	Team Banana will review it's peformance for it's SA and RFP presentation. Team Banana will discuss it's code repository and team member responsibilities for the team diagrams (Class Diagram, Sequence Diagram, and Gantt Chart).
14-Feb-19	Status Report 1 (Repository and Diagrams)	Code repository and diagrams (Class Diagram, Sequence Diagram, and Gantt Chart) will be completed for Team Banana.
15-Feb-19	Team Meeting (Skeleton Code)	Team Banana will disuss team members responsibilities to start coding for the Debugger game.
21-Feb-19	Status Report 2 (Skeleton Code)	Team members skeleton code and a makefile will be complete. All team members code must compile and run "something".
22-Feb-19	Team Meeting (Testing)	Team Banana will discuss progression for the Debugger game and team member responsibilities to test the code.
28-Feb-19	Status Report 3 (Testing)	All team member's test plans will be completed and merged together.
1-Mar-19	Team Meeting (Game Progression)	Team Banana will discuss progression of game devolpment and team member responsibilities.
8-Mar-19	Team Meeting (Game Progression and Second Gantt Chart)	Team Banana will discuss progression of game deveolpment and team member responsibilities for the second team Gantt Chart.
21-Mar-19	Status Report 4 (Game Progression and Second Gantt Chart)	Game should look nearly complete. Second team Gantt Chart should be completed.
22-Mar-19	Team Meeting (Game Completion 1 and Coding Standards)	Team Banana will discuss progression of game development, Gantt Chart updates, and coding standards.
28-Mar-19	Status Report 5 (Game Completion 1 and Coding Standards)	First trial run of completed Debugger game. Coding standards will be set. The team Gantt Chart will be updated.
29-Mar-19	Team Meeting (Game Completion 2 and User's Manual)	Team Banana will discuss progression of game development, Gantt Chart updates, and the user's manual.
4-Apr-19	Status Report 5 (Game Completion 2 and User's Manual)	Second trial run of completed Debugger game. User's manual will be finished. The team Gantt Chart will be updated.
5-Apr-19	Team Meeting (Game Presentation)	Team Banana will discuss progression of game development and team member responsibilities for the final presentation of the Debugger game.
1-May-19	Team Meeting (Game Presentation)	Team Banana will prepare for the final presentation of the Debugger game.
2-May-19	Final Presentation	Team Banana will hold it's final presentation for the Debugger game.
5-May-19	Grades	Dr. BC will assign each team member and the team as a whole an "A" for the final grade.

8.0 How to Submit Proposals

9.0 Dates

10.0 Glossary of terms

Control system – The means by which the player will perform actions in the game using an input device.

Instantiated – To create an instance of an object.

Multiplatform – A software program developed for multiple operating systems.

Tower defense – A genre of video game where the goal is to defend a player's territories of possessions by obstructing the enemy attackers, usually achieved by placing defensive structures on or along their path of attack.

Unity – A cross-platform game engine developed by Unity Technologies, which is primarily used to develop both three-dimensional and two-dimensional video games and simulations for computers, consoles, and mobile devices.