Team 15 Product Backlog

Project Name: Crater Clash!

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Problem Statement

This project will be a multiplayer, two-dimensional turn-based strategy game that can be played locally (hotseat style, on one computer). Players will take turns buying units and then moving them around the map attempting to capture resource stations that allow them to purchase more units and eventually destroy their opponent. Some units will do more damage against specific enemy units, increasing the strategy involved with the game. The game will be won when a player's base has been captured.

Background Information

Many games created that are strategy games are very complicated, can take a very long time to play, and are in general hard to pick up. Our goal for this game is to make a fun strategy game that is easy to anyone to start playing but at the same time has enough flexibility so that no two games feel identical. This will involve having easy to manage units and actions that when comprised together will create a very dynamic 1v1 game.

Environment

We will be developing the game using the Unity game development engine. The engine allows an executable of the game to be built for Windows, and we will probably build the game for Mac OS also without any major modifications. Unity makes use of the object oriented language C#. In the engine, the C# scripts that we can make are directly integrated into the engine's controlling framework allowing us to create scripts to manipulate/create 2D/3D objects in a 3D world, create menus, and create all the functionality behind those objects and menus. You may think of the engine as a toolbox, and the C# scripts as the tools. We will also create our own art assets such as two-dimensional "sprites" which will be the units you can select and move around. We will use separate tools for this process, and import them into the engine to be used and animated. We will also be making use of an external web-hosted database such as MongoDB. We simply need a database to store user high-scores, but we will need to create a secure way for only our distributed game-clients to fetch and modify the data in the database.

Functional Requirements

Backlog Id	Functional Requirement	Hours	Staus
1	As a user, I would like to click on "Host Game" to set the properties for a game.	6	Planned for sprint 1. **COMPLETED**
2	As a user, I would like to click on "Start" from within the "Host Game" menu to begin hosting a hotseat game session.	6	Planned for sprint 1. **COMPLETED**
3	As a user, I would like to select a pre-built map from the "Host Game" menu.	4	Partially complete. Can load in maps, but no preview available from menu. **Moved to sprint 2**. **COMPLETED.**
4	As a user, I would like to play the game instance I created when I clicked on the "Start" button.	40. *Revisded*, took approx. 70 hours to complete.	Gameplay logic about 60% completed. **Moved to sprint 2**. **COMPLETED.**
5	As a user, if I have completed a game (if I was the winning player), I would like to submit my score to the online database.	10	In-progress: **moved to sprint 2**. **COMPLETED.**
6	As a user, I would like to click on the "Scores" button from the main menu to see the list of scores from matches people have played.	6	In-progress: **moved to sprint 2**. **COMPLETED.**
7	As a user, I would like to be able to conquer resource tiles around the map that will give me more points to spend on units.	6	Resource tiles are almost completed in gameplay. **Moved to sprint 2**. **COMPLETED.**
8	As a user, I would like there to be a variety of units to spend points on, each with their own	6	Unit creation is completed, and

	strengths and weaknesses		variety can be easily implemented just not done yet, **moved to sprint 2**. **COMPLETED.**
9	As a user, I would like to click on "Host Online" from within the "Host Online/Local Game" window to host an online game.	30	Planned for sprint 2* * possibly not going to implement online version due to time constraints. **REMOVED.**
10	As a user, I would like to click "generate map" to procedurally create a new map for an online game.	12	*By creating multiple tile types and transitions between them, procedural generation of maps becomes overly complex and due to time constraints we are cutting it from all sprints. **REMOVED.**
11	As a user, I would like to click "find game" for a list of online games I can join	8	Planned for sprint 2. **REMOVED.**
12	As a user, I would like the game environment to be in a pixel art style and be formatted to flow together in a 2D grid tileset	20	Planned for sprint 1. **COMPLETED.**
13	As a user, I would like the game pieces to be in a pixel art style and have basic animations	20	Planned for sprint 2. **COMPLETED.**
14	As a user, I would like the UI to be in a pixel art style and have basic animations	15	Planned for sprint 1. **COMPLETED.**
15	As a user, I would like to be able to build buildings that could aid in my resource generation or military strategy	8	Planned for sprint 2. **REMOVED.**
16	As a user, I would like to have a main menu to serve as a hub from which I can access different parts of the game	4	Planned for sprint 1. **COMPLETED.**
17	As a user, I would like to be able to exit current	4	Planned for sprint 2.

	game		COMPLETED.
18	As a user, I would like there to be sounds in the game for the gameplay and the UI	5	Planned for sprint 2. **COMPLETED.**
	Total:	200	Project Complete

Non-Functional Requirements

Backlog Id	Non-Functional Requirement
1	As developers, we want the user interface to be easy to use and to display all necessary information to the user
2	As developers, we would like our art to be polished and fit well with our theme
3	As developers, we want the application to run at a reasonable speed without lag
4	~~As developers, we want to be able to use "cheat codes" to make it easier to test our game.~~ **NEVER IMPLEMENTED.**
5	As developers, we want to be able to remove and add data to databases when necessary

Use Cases

Backlog Id: 1 - **Setting Properties**	
Action: User clicks on "Host Game" from the main menu when the executable is first opened.	**System Response:** System shows new menu that allows player to pick from a set of pre-made maps, ~~set map size, or allow an option to procedurally generate a map to the players liking.~~ The system will also show a button called "Start" that starts the game. The system will also show a "Back" button which when pressed, will take the user back to the main menu.

Backlog Id: 2 - **Hosting Local Game**	
Action: User clicks on "Start" from within the "Host Game" menu.	**System Response:** System loads the pre-built ~~or procedurally generated map~~ and shows the map on the screen. Each player will see the default values set for points and units displayed on the screen when it is their turn. They will see a set number of starting points, and they will also see no units on the map. The map will appear empty except for two bases representing the players starting locations, and each player will take turns spending their points on units to populate the map and eventually destroy their opponent.

Backlog Id: 3 - **Using Pre-built map**	
Action: User selects a map from the drop down menu in the "Host Game" menu.	**System Response:** System shows an image of the map to the right showing the player what map will be loaded.

Backlog Id: 4 - **Playing the Game**	
Action: After user clicks on the "Start" button from within the "Host Game" menu, the user then takes turns with 1 other opponent player to play the game locally on the same computer.	**System Response:** System should apply the game logic to the players letting them play the game. This means that when a player clicks on a unit from the unit spawn menu, it should appear in their base if their base is empty. If a player clicks on their unit and then clicks on an enemy unit in range and if it is their turn, the system should show their unit attacking the enemy unit and the unit health bars should go down. If a player is able to put a unit on the enemy player's base, then the game should show a victory condition.

Backlog Id: 5 - **Scoring the Game**	
Action: After a game is completed, the	**System Response:** A menu appears asking

players can click "submit score" button to submit their score to the high score database.	the player to give a name to enter the score with. When a name is given, a confirmation appears saying that the score was submitted.

Backlog Id: 6 - **Seeing Past Scores**	
Action: On the main menu, when the "scores" button is clicked, users can see the high scores, starting with the highest and going lower, of anyone who has submitted their score after a match. It will display the scores 10 at a time, with users being able to click arrows to go farther down the high scores.	**System Response:** The scores are then displayed in a table fashion with users on one side and their score on the other. Arrows will be on each side of the screen. When clicked, the next/previous 10 scores are displayed.

Backlog Id: 7 - **Conquering Tiles**	
Action: Leave any one of your units on top of the resource tile for a turn to "capture" the resource tile.	**System Response:** When a user captures a resource tile, at the beginning of every turn from then on the user will see that they receive an extra amount of points from that tile. The enemy player is allowed to capture the same resource tile by putting their unit on top of the tile for a few turns if no unit is present on the tile.

Backlog Id: 8 - **Generating Units**	
Action: While having multiple units to pick from certain classes when selecting a unit to spawn at your base, select that unit.	**System Response:** System should generate the appropriate unit in your base that you selected to spawn.

~~**Backlog Id:** 9 - **Hosting Online Game**~~	
~~**Action:** Click on the "Host Online" button~~	~~**System Response:** This use case will appear~~

~~from within the "Host Online/Local Game" menu, then you should be able to take turns with 1 other opponent player to play the game online between two computers connected through the internet.~~	~~exactly like backlog id use case 2 when it loads the map and shows the default values. This use case will also appear almost exactly like the backlog id 4 use case except the only difference is since this game is taking place over the web, if a player disconnects from the other player for any reason, the game will show a connection error forfeit condition to the other player.~~

~~Backlog Id:~~ ~~10 - **Procedural Map Generation**~~	
~~Action:~~ ~~Click "host online/local game", then you should have the option to procedurally generate a map instead of picking one of the premade maps.~~ **CUT AS OF 3/01/19 DUE TO TIME CONSTRAINTS AND COMPLEXITY INVOLVED TO DEVELOP IT**	**~~System Response:~~** ~~The system asks the user to enter a preferred map size. After the game is started, a random map unlike any pre-made map of the specified size is generated for the game, and resource tiles are randomly placed throughout the map. Afterwards, the game begins.~~

~~Backlog Id:~~ ~~11 - **Direct IP Connection**~~	
~~Action:~~ ~~Click on "find game" from the main menu, then enter the IP address of the host to which game you are trying to connect to.~~	**~~System Response:~~** ~~If the user enters an invalid IP address, the system will ask them to enter it again. If they enter the correct IP address (the host's IP address with an open, paused game to which they can connect to), then the game will start between the host and connected client.~~ **REMOVED.**

Backlog Id: 12 - **Map Tileset**	
Action: The user generates a map to play on or the developer creates a map using tiles.	**System Response:** The tileset created for the map will properly line up tiles so the art will be seamless.

Backlog Id: 13 - **Piece Tileset**	
Action: The user moves or performs an action with a piece on the board.	**System Response:** The piece will perform a basic animation depending on the action that the user chooses for the piece.

Backlog Id: 14 - **UI Sprites**	
Action The user hovers over a button and then clicks on the button.	**System Response:** The button will highlight when hovered over and then have a second highlight to show that the button was pressed. Accompanied by sound effects to notify that the button was properly pressed.

~~**Backlog Id:** 15 - **Placing Buildings**~~	
~~**Action:** The user selects a building to place onto the map and then selects a tile to place it on.~~	~~**System Response:** The proper building is placed if the tile is valid, otherwise and error sound will notify the player of an invalid position.~~ **REMOVED.**

Backlog Id: 16 - **Main Menu**	
Action: The user selects one of the options from the main menu.	**System Response:** The scene will change to the scene which houses the selection the player chooses.

Backlog Id: 17 - **Quitting a Game**	
Action: Create a new game or enter an existing game. Then click on the exit button.	**System Response:** After clicking on the exit button the user should get a confirmation message that they sure want to exit the game. ~~In case of an online game, after the user has successfully exit the game, the other player will receive a victory message saying that your opponent gave up the game.~~ If you exit the game, neither player will be submitting a score.

Backlog Id: 18 - **Game and User Interface Sounds**	
Action: Perform certain actions such as buying a new unit within the game.	**System Response:** based on the action that was made, the system will play different sounds in order to either add clarification or gameplay immersion.