

Team 15 Product Backlog

Project Name: Crater Clash!

Team : Brendan Raftery, Benjamin Loisch, Mangkorn Yuan, Conner Isaacs, Nada Alnoory

Problem Statement

This project will be a multiplayer, two-dimensional turn-based strategy game that can be played locally (hotseat style, on one computer) or over the internet (potential extra feature, between two computers using direct TCP connection). 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 concedes the match, or the players 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 Online/Local Game" to set the properties for a game.	6	Planned for sprint 1
2	As a user, I would like to click on "Host Hotseat" from within the "Host Online/Local Game" menu to begin hosting a hotseat game session.	6	Planned for sprint 1
3	As a user, I would like to select a pre-built map from the "Host Online/Local Game" menu.	4	Planned for sprint 1
4	As a user, I would like to play the game instance I created when I clicked on the "Host Hotseat" button.	40	Planned for sprint 1 and 2
5	As a user, if I have completed a game (won or lost), I would like to submit my score to the online database.	10	Planned for sprint 1
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	Planned for sprint 1
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	Planned for sprint 1
8	As a user, I would like there to be a variety of units to spend points on, each with their own strengths and weaknesses	6	Planned for sprint 1
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
10	As a user, I would like to click "generate map" to procedurally create a new map for an online game.	12	Planned for sprint 2
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
12	As a user, I would like the game environment to	20	Planned for sprint 1

	be in a pixel art style and be formatted to flow together in a 2D grid tileset		
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
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
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
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
17	As a user, I would like to be able to exit current game	4	Planned for sprint 2
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
	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
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 Online/Local 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 two buttons called "Host Online" and "Host Hotseat". 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 "Host Hotseat" from within the "Host Online/Local Game" menu.	System Response: System loads the pre-built or procedurally generated map and creates a new instance of Player1 and Player2. Variables belonging to Player1 and Player2 such # of units, # resource tiles conquered, how many points each player has to spend etc. are all set to default values.
Backlog Id: 3 - Using Pre-built map	
Action: User clicks on a pre-built map icon (it will look like a miniature map) from within the "Host Online/Local Game" menu.	System Response: System shows a green check mark on the selected map icon and then loads the pre-built map tiles into the game-board the players will be playing on.
Backlog Id: 4 - Playing the Game	
Action: After user clicks on the "Host Hotseat" button from within the "Host Online/Local Game" menu, the user then takes turns with 1 other opponent player to play the game locally on the same computer.	System Response: System keeps track of each players units, score, etc. and applies the appropriate game logic to make what they are playing, well, a game.

Backlog Id: 5 - Scoring the Game

Action: After a game is completed, the players can click "submit score" button to submit their score to the high score database.

System Response: System takes the user's name and score and enters it into a MongoDB database, which keeps track of scores. The correct space to insert the score found, and then inserted in the correct spot.

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: After the scores button is clicked, the system looks up the High Scores in the database and sends it back to the user. The scores are then displayed in a table fashion with users on one side and their score on the other. An offset variable is used to keep track of which 10 scores to fetch and return to the player, which changes when arrows are clicked to go lower or higher in the highscores.

Backlog Id: 7 - Conquering Tiles

Action: Leave any one of your units on top of the resource tile for two turns to "capture" the resource tile.

System Response: When a user captures a resource tile, every turn from then on the user will receive an extra amount of points from that tile. The enemy player is allowed to capture the tile by putting their unit on top of the tile for a few turns.

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 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.

System Response: System keeps track of each players units, score, etc. and applies the appropriate game logic to make what they are playing, well, a game. In this case, the data is synchronized between two computers.

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.

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.

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.

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.

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. (not all actions have sounds)