Software Requirements Specification

Global Warming

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Introduction

Global Warming is an online real time strategy game in which players battle for supremacy on a shrinking continent. This document shall outline the specifications for Global Warming as a system and it provides a definition of the behaviors as well as the features that users can expect from the final product.

Document Overview:

1. User Stories: provide short descriptions of what the system shall do
2. Non-Functional Requirements: define the constraints of the system's features
3. Use Cases: define how the system shall behave under certain circumstances

User Stories

Army Movement

- As a user, I want to have armies occupy nodes that I own - Sprint 1
- As a user I want there to be set paths between certain nodes - Sprint 1
- As a user I want to be able to move my units on paths between nodes - Sprint 1
- As a user I want to move an army across a path of nodes with a single swipe - Sprint 2

Singleplayer with Bots

- As a user I want to be able to play against simple AI opponents - Sprint 4
- As a user I want to be able to play a story mode to help hone my skills and play when I can't find a match - Sprint 4
- (Spike) Learn how to develop a simple AI.

Accounts

- As a user I want to log in to an account and play the game with this account - Sprint 2
- As a user I want be able to create an account - Sprint 2
- As a user I want my account data stored in a secure database - Sprint 1
- As a user I want to be able to play without logging in - Sprint 1
- As a user I want to see who I am playing against - Sprint 2
- (Spike) Learn Phaser.io, the tool the team will use for graphics
- As a user I want to see a grid with dots to represent castles - Sprint 1
- As a user I want to see army counts in castles - Sprint 1
- As a user I want to see my armies moving in real time - Sprint 2
- As a user I want to view only my territory on the map - Sprint 3

- As a user I want a simple to use menu to navigate the game - Sprint 2
- As a user I want to be able to add other players of the game to a friends list - Sprint 3

Multiplayer

- As a user I want to be able to play a match against other people who have the game - Sprint 1
- As a user I want to be able to make a private match so that I can play with people on my friends list - Sprint 3
- As a user I want to play against other people at similar skill levels to me so that the game isn't too easy or too hard - Sprint 3
- As a user, I want my armies to engage in battles against other players armies - Sprint 2
- (Spike) As a user I want battles to conclude in an intuitive manner.

Miscellaneous

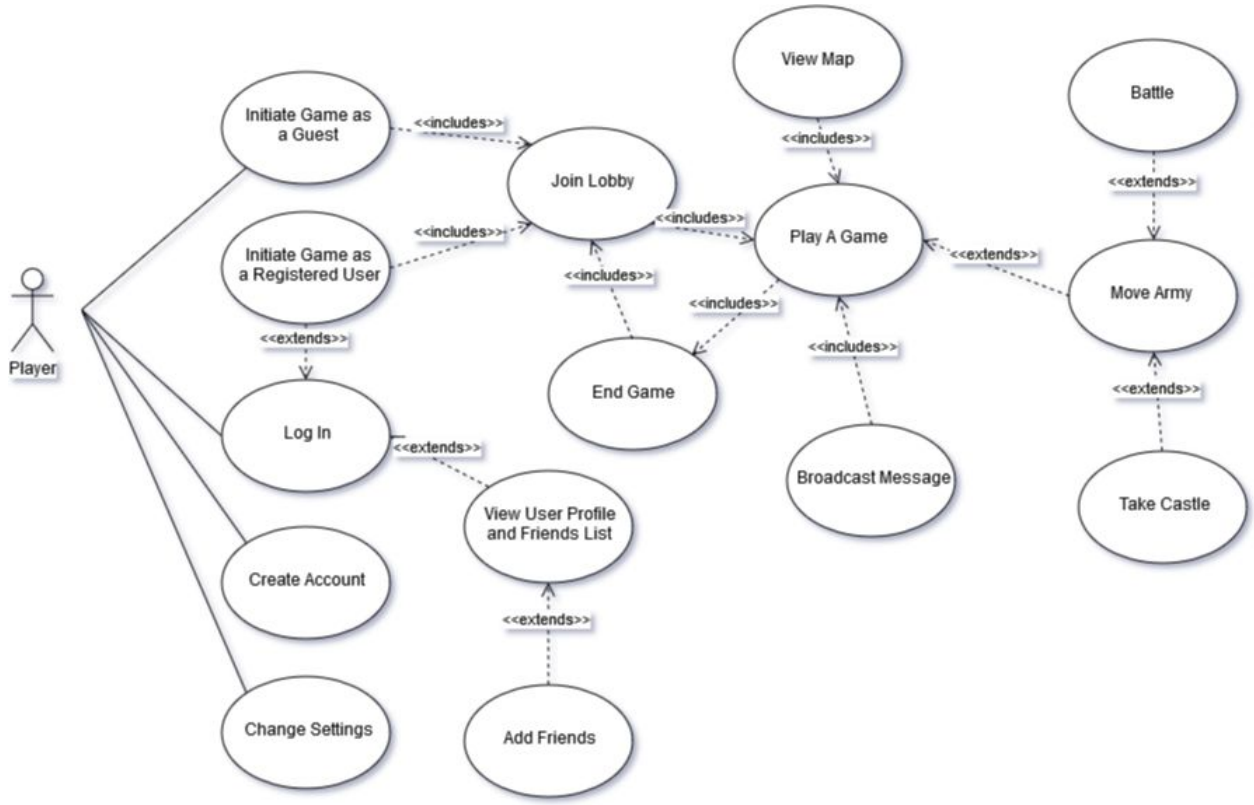
- As a user I want to be able to turn sound on and off - Sprint 4
- As a developer I want a tool to edit and create maps - Sprint 2

Non-Functional Requirements

1. The game shall never take longer than 100 milliseconds to run a tick.
2. The game server shall be resistant to players attempting to gain an advantage via changing the game state in an unintended way.
3. A player shall be able to get into a game within 30 seconds of going to our website.
4. Players shall not gain an explicit competitive advantage due to past games played.
5. The game shall be generated with a random pre-made map.
6. The game shall have maps that do not give an inherent advantage to a player’s initial position.

Use Cases

Use Case Diagram



Moving Armies

1. Specification for the movement of armies between nodes based on swipes.

2. Actors

- Current user: the user who has an army that occupies the starting node and is attempting to move it.
- (optional) End node owner: the user who has an army that occupies the ending node

3. Preconditions

- There is a valid start and end node selected
- The current user must control the army in start node
- The game is in progress

4. Basic Flow of Events

1. The use case begins when current user swipes from one node to another.
2. Current user's army moves along the path between start and end nodes.

3. Current user's army arrives at the end node.
4. Current user's army occupies the end node.
5. The use case ends.

5. Alternative Flows

5.1 Path Battle: the current user's army encounters another army along the path. (after step 2)

1. This will be resoled in the battle case.
2. The winning army continues at step 5.

5.2 Node Battle: the current user's army encounters another army at the end node. (after step 3)

1. The user's army enters a battle with another user's army.
2. This will be resolved in the battle use case(below).
3. The winning army continues at step 8.

Battles

1. Specification for enacting a battle

2. Actors

- Current user who owns armies engaged in a battle
- Other users in the same game as the current user who also control armies engaged in the same battle

3. Preconditions

- There are at least two armies of different users on the same node or path
- The game is in progress

4. Basic Flow of Events

1. The use case begins when the current user's army encounters another user's army.
2. The two armies enter a battle
3. The armies will deliver damage to each other over time
4. The other user's army's troop count will be reduced to 0 and the army is destroyed
5. The current user wins the battle
6. The use case ends successfully

5. Alternative Flows

5.1 Another user's army enters the battle (after step 2)

1. Damage done each tick will be recalculated to include the new army
2. The use case continues at step 3

3. After the completion of step 4 the use case repeat to step 3 until only two armies are in the battle
4. The use case continues at step 5

5.2 Another army owned by the current user arrives at the battle (after step 2)

1. The two armies owned by the current user are merged with the troop count of the second army being added to the first army
2. The use case continues at step 3

5.3 Another army owned by the other user arrives at the battle (after step 2)

1. The two armies owned by the other user are merged with the troop count of the second army being added to the first army
2. The use case continues at step 3

5.4 The armies in the battle have the same size (at step 4)

1. The troop counts of both armies are reduced to zero and both armies are destroyed
2. No user wins the battle and the use case ends

5.5 The other user wins the battle (at step 4)

1. The current user's army's troop count is reduced to zero and the army is destroyed
2. The other user wins the battle
3. The use case ends