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CS 447/557 - Computer Game Design
Project 2
Game Design Document

Slime Lord Festival

[Game Overview]

Slime Lord Festival will be a turn based strategy game. 2 to 4 players will each control a team of Slime Lords competing in the Slime Lord Festival. The goal at the festival is to conquer the four Arenas located at the four corners of the festival. In their quest to conquer the four Arenas, Slime Lords will battle in fierce slime to slime combat. The outcome of these battles will determine the ultimate victor. Throughout the festival the Slime Lord teams will earn Tokens. These Tokens can be used to buy upgrades for Slime Lords, or to bring back defeated Slime Lords. Having a the necessary

The Overworld:

On the Overworld, Slime Lords will be a able to move and collect slime, capture Arenas and Token Tents, as well as battle other Slime Lords. There will also be a number of different pickups around the Overworld that will either level up Slime Lords, or give them Tokens to spend.

-   **Arenas:**

    The battle arenas will be located in the four corners of the Overworld. To win, one must control all the battle arenas. In order to claim a battle arena you must move to it and defeat any defending Slime Lords. Once you own an Arena, you can either leave a Slime Lord to defend it or leave it undefended. If an Area is left undefended any opposing Slime Lords can simply walk over it to claim it as their own. Arenas will also produce tokens at the beginning of every turn. Tokens can be used at Arenas to bring back defeated Slime Lords, level up visiting Slime Lords, and buy new Factories.

-   **Token Tents:**

    There will be several "Token Tents" placed around the Overworld. Controlling these will give the owner a number of tokens at the beginning of every turn. To conquer a Token Tent a Slime Lord must move to it.

-   **Shops:**

    At shops Slime Lords will be able to level and buy new factories.

- **Navigation:**

    Slime Lords will have a limited amount of movement they can use to navigate the Overworld each turn. There will be different types of terean, that will take different amounts of movement to cross. Using each Slime Lorads limited movement to generate maximum strategic value will be essential to success.

Battles:

Slime Lords will battle each other to prove their supremacy in slime combat. Every turn of a battle each factory will produce a slime. Slimes will be able to combine into larger slimes. As a slime grows its movement speed will reduce and its damage and health will increase. At different sizes, slimes will have the option to upgrade into a 'Special Slime'. Different special slimes will have different special abilities. A battle is won when one of the Slime Lords has destroyed all the other's factories.

- **Special Slimes:**

    There will be a number of different Special Slimes. To create a Special Slime the player will combine a number of regular slimes. Different Special Slimes will require different numbers of slimes and will have different strengths and weaknesses. Different Slime Lord will be able to deploy different types of Special Slimes based on which ones they have unlocked.

- **Slime Lord Abilities:**

    Slime Lord's will have abilities at their disposal. Abilities come in a few flavors: buffs, debuffs, direct damage, and maybe others. Buffs will give beneficial effects to allied slimes, for example increased movement speed, debuffs will give negative effects to enemy slimes, for example reduced damage, and direct damage will simply deal damage to an enemies slimes.

Slime Lords:

Each Slime Lord will have a level and a number of slime factories under his or her control.

- **Leveling:**

    To level a Slime Lord you must spend tokens. Every time a Slime Lord levels up he or she picks a new special slime or ability he or she may deploy in battle. There will be a maximum level that Slime Lords cannot exceed.

The genre of our game is Turn-Based strategy, with each player having a set number of moves per turn. The camera position is Top Down, with a scrolling ability for the player to see all of the map in the Overworld. The Overworld will look similar to that of Heroes of Might and Magic (see Figure 1), except our world will be a festival. Our battle screen will look similar to Figure 2, where each player will have their slimes in their corner.

The visual entities in the game will be the different types of Slimes, where there will be small slimes, bigger slimes, and special slime, each possessing different abilities. There will also be Token Tents entities that produce tokens for the Slime to use however they want, Shop entities that allow the Slime to buy things, Arena entities where the battles will take place, and any obstacle entities that the Slime will encounter along the way to the Arenas.

This idea is interesting because it's an original idea that we have built from scratch, and it would be different from the other games that were suggested in the class. It's strategic and involves putting thought into how the player will attack enemies and conquer the land.

Figure 1.

Figure 2.

[Architecture]

The server will hold a socket open for each client expected to join the game. If it is a 4 player game, the server will hold 4 sockets. The server and client will communicate to each other with JSON data as that is the easiest and most effective way to parse out dynamic data. When a player clicks on some sort of interactive GUI component, if it affects the game, then the client will send a JSON packet to the server. The server will determine if the clients action is valid during the current game state. If the action isn't valid, it will respond to the client and let it know. If the action is valid, it will send the action out to all clients so they can update. The server will hold a state of the game locally that it will use for the single source of truth. If necessary, the clients can be send the game state to synchronize, otherwise they should be able to stay consistent with just inputs.

[Development Strategy]

For this project, we will not be reusing code and will be starting from scratch.

Roles:
- Clay Paris: networking
- Serene Ghazi: game entities, graphics, and animations
- Austin Horjus: level design and game mechanics
- Jonathon Carothers: inputs, updating, and rendering

Milestone - November 20th:
- Some networking basics done
- A rough draft of the Overworld
- A system of tokens
- A basic turn system

Milestone - November 28th :
- Overworld map done that Slime Lords can move around on
- Working Battlefield that Slimes can move around on
- Structure set up for the rest of the game requirements ready to implement

[High Bar Items]
- AI battles
- AI
- Different battle maps for the four Arenas and for open field battles.

[Low Bar Checklist]
Overworld:
- An Overworld with Arenas, Tokens Tents and Shops.
- A system by which players can own Arenas and Token Tents.
- A system by which a player that owns all Arenas is declared the winner.

- A system by which Token Tents and Arenas provide Tokens to the their owner at the beginning of each turn.
- A system by which Slime Lords can be upgraded by spending Tokens at Arenas and Shops
- A system by which a Slime Lord that is defeated in battle is removed from the map.

Battles:
- A Slime Lord battle system.
- Factories that spawn slimes every turn.
- A system by which slimes can be combined into larger slimes.
- An upgrading system for turning large slimes into special slimes.
- A system by which if one Slime Lord destroys all the factories of another slime lord they are declared the winner.

General:
- Pathfinding for slimes in battles and Slime Lords on the Overworld.
- Networked multiplayer supporting up to 4 players.
- X Slime Lord abilities.
- X Special Slimes.