**CS152A Final lab proposal**

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Overview

We are going to replicate the game worms, where two players will take turns shooting at each other from across a map full of obstacles. Buttons will control the aiming of the projectile, movement of characters, and firing projectiles. There will be power-ups the players can shoot for upgraded projectiles and abilities.

Game Mode

Two players will occupy each side of the map, with obstacles and walls between them. The game will be turn based, meaning each player will take turn shooting at each other. Each player can only shoot once during his turn. The shooting mechanics will be based on projectile motion (ie. arrows). The shooting power of the projectile will be determined by how long the shoot button is held down before releasing. When the button is held down, the power bar will increase and decrease linearly between 0 and max power. The shooting power is the value of the power bar when the button is released.

Each player will has a health bar, which decrements by ⅓ of maximum health if the opponent arrow hits the body. If hit in the head, the player will die immediately, even if he has maximum health.

Besides blocking obstacles, there will also be power up items that players can shoot to acquire. Once acquired, the player can use it on his next turn. These power up items will randomly appear on the map every turn. Players can decide if he wants to shoot at the opponent, or waste a turn and try to get the power up.

During a player’s turn, before he decides to shoot, he can also choose to move left and right in a given range.

When a player dies, the game will reset and start over.

Controller

The players will be controlled by a 5 button joystick.

Up and down - choosing the angle of projectile

Left and right - moving the player left and right

Middle - hold down and release to shoot (shooting power depends on how long the

button is pressed before releasing)

Score Mode

The score mode displays the health bars of each player on top of them. It is updated every turn to reflect change, if any, caused by the opponent. The first player’s health bar that reaches 0, loses the game.

Rubric

Shooting (20%)

* Aiming (5%) : Change in buttons correctly adjusts aims
* Release (5%): Projectile released from player
* Projectile Physics (10%): projectile moves in an arc path, as if there is gravity in game

Movement of Players (10%): players will move left and right, though limited in how far they can go

Power-Ups (15%)

* Hit Detection (5%): hitting power-ups and registering that the player has them
* Functionality of Power-Ups (10%): the power-ups meet their intended functionalities and give the player an advantage

Collision Detection (20%)

* Hitting Obstacles and blocking (10%) - projectiles are canceled when they hit parts of the map
* Hitting Other Player and registering damage - projecticles correctly cause health damage when hit opponent. (10%)

Display/Graphics (25%)

* Health bars (5%) : Health Bars are correctly rendered and updated.
* Players (5%) : Players are correctly rendered on their respective sides.
* Map (10%) : Map is correctly rendered with obstacles.
* Power-Ups (5%) : Power Ups are correctly rendered.

Reset/Game Ends (10%) - Reset button/switch correctly resets the game and when a player runs out of health the winner (player 1 or 2) is declared to be the winner, the game is reset