Game AI Document

This is going to be a document that will contain the information that explains how the A.I in this game works. So starting at the start of the code there are different set states that have been set so that there's an easier workflow. These are the states that are listed: START, PLAYER1TURN, PLAYER2TURN, ENEMYTURN, WON, PLAYER1WON, PLAYER2WON and LOST. We also ended up setting a BattleState as a state because we needed the game to be in fight mode the moment the game started up so we put the state in the Start() method so that each and every time the game it would be put into battle stages.

Next we set up an IEnumerator method which will help set up the battle system. First the system will instantiate the player's game object that they will be taking control, then we also put in a bool for the system to check if the enemy prefab needs to be swapped out with a 2nd player prefab in case the player plans to play with someone if it is active or not. There is also a text box that has been displayed which will allow the players to read the information and the game will only allow the players to take control once the timer for the messages has ended.

The next method is all about the player's attack state which will first check if the player is dead, if the player is dead then the method is accessible. This method is also quite important for multiplayer as it accounts for both players where it will check when you've attacked and it will check if either player is dead and the text box will display the action that you did was successful. The attack will be displayed as none successful if the other player has decided to defend for that turn and they won't do as much damage. There is then an if statement that checks if the enemy died, if the enemy died it changes the state of the game to a win condition and it ends the game however if the enemy is still alive the game state rotates to the enemy and the game continues. This method is then repeated for the 2nd player's turn.

We then decided to implement an IEnumerator for the heal option toward the player. The max amount of health that a player can regain is 5 and it is displayed on the health bar slider on the in-game UI. Once either the player has decided to heal themself it will then end their turn and it will rotate to the other player's or enemy's turn. To show that the healing was successful the phrase "You feel reinvigorated!" will show up in the text box when the button is pressed.

The last state that has been implemented is the guard state, the method made is shown that if you click on the button, the textbox will display "You guard yourself against attacks." will show up. This method works pretty much the same as the healing method where if the button is clicked then the states will rotate to the other player's turn or to the enemy AI's turn. This move will nullify all damage for one round.

So how the enemy AI in this game works is that first it runs through all the actions an enemy can take. First the method checks if the AI is dead or not, if death is equal to false then the AI will have a randomized chance to pick one of the actions. To explain this first the AI will check if it can attack then it will check if the player is one shot away from dying then it will prioritize attacking the player and it will check if that the enemy is able to attack the player since they're

not guarding. There will also be a random chance for the AI to guard itself randomly and the text box will display that the enemy has decided to block themself from an attack. If the player is not guarded then the enemy will choose to attack you however if the player is guarded then the AI will not be able to attack directly. If the enemy is below 50% health then the AI will decide to heal itself, after that the AI will decide what it's next action is going to be randomly. If the AI decides to attack it resets the Guarded status which will bring the player to the state of not guarding anymore.