Final Project Preliminary Description

1)Description:

A game where 2 characters are chosen from a list of characters, and then fight in unique stages.

Characters: At least 4 characters. They have some generic attacks and some special moves.

Combat: A character has basic mobility like running and jumping. There are 2 classes of attacks. Melee attacks are physical attacks where the sprite moves through different fighting forms to land attacks in different directions. These will be generic. Special attacks include stuff like projectiles. Landing attacks may increase the damage the opponent has accumulated or cause special effects like slowing down an enemy or disabling an attack.

The goal of the fight is to knock the other player off the stage. This becomes easier as the other player accumulates damage because their resistance to attacks proportionally decreases. Basically, each attack has an amount of damage it inflicts on the opponent as well as base impulse that changes the momentum of the opponent in the direction of the momentum of the attack. As the opponent accumulates damage, the base impulse an attack inflicts on them is multiplied by a multiplier. i.e., they get sent flying off the stage more easily. Hence, there is a sense of progression to the fights.

Stages: Different stages have unique graphics and different platform arrangements that players can stand on. Failure to be on the platforms would of course entail that the player falls off the stage and loses the match.

Furthermore, each stage has unique properties that affects the combat. The idea is to simulate rare and extreme physics scenarios in our universe which are implausible or not observed commonly. The players would have to adjust to the unique properties of the stage during the combat.

For example, a possible stage may be ‘2 planets in a solar system’. Each would have its own gravitational field, and players would have to adapt to how the direction of gravity changes as they move, as well as how the concept of ‘sending your opponent flying off the stage’ changes in such a situation.

Another stage may have wormholes that act as essentially portals. Another stage may have almost elastic collisions, so basically everything would be super bouncy. The total number of ideas implemented for stages will be a factor of time, but at the very least, there will be 2 ‘normal’ stages and 2 ‘weird physics’ stages.

2)Implementation:

The game will primarily be developed using the library pygame. Other utility libraries such as random will be imported if needed. This will take care of the game engine described in the description.

Now, for the combat, we have three options. The first is that both players play on the same keyboard, with different key bindings for each. This will be implemented. The second is allowing real-time online multiplayer, which was pointed out to me as unfeasible. The third option is AI. This will be implemented to a basic extent, like avoiding attacks and trying to hit the player.

3)User Interface: There will be a main menu from which we can select options like ‘start game’, and ‘quit’. ‘Start Game’ takes the user the next screen, which has a graphical list of all the characters from which they can choose one and proceed by clicking ‘Select Stage’.

In the stage selection screen, the player will choose a stage and proceed to start the match.

In the match, combat is simply done by movement with arrow keys, physical attacks with ‘X’, and special attacks with ‘Z’. These key bindings are not final and may be changed as the project progresses, but that doesn’t change the core idea.

4) Features by November 24:

The basic interface described above.

The combat system (melee attacks, special attacks, movement, and jumping)

Physics that work (gravity, collisions, and hitboxes)

5)Features by December 2:

The unique stages with special physics as described above.

The AI, who can dodge attacks and chase the player and attempt to attack.

The game, in general, fully polished and fluid.