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Final Project

The theme for this final project is a simple Python game between the user that controls humans, and the computer that controls zombies. The object of the game is to survive as long as possible, killing as many zombies as possible.

The program was split into four parts via the main function.

* tileSetup()
* initializeEntities()
* runGame()
* printFinalStats()

Each of these functions splits the actions of the program into smaller parts, which makes it easier to follow the steps of the program to solve errors or learn in general. The runGame function has most of the lines for an obvious reason, however, all parts of this program are important.

The program itself is split up into a few different code blocks based on the functionality of each of the functions. These include:

* Start-Up
* Turn-Based
* Map
* Entity
* End-Game

This makes it easier to locate specific functions, and all functions related to that same idea. All imports and global variables are declared at the top as well, to maintain consistency.

Important Parts of the Program

The most important part of the program was designing the map. I already had made a basic entity-fighting script in a previous discussion, so what I needed to learn was how to make a game map. I already had experience on something similar to this, so it wasn’t too hard, but the basics was I needed to create two variables, x and y, to move my entities on. Based on the inputs, w,s,a,d, I could change the x and y and reprint the map to show the change.

I also had to make the computer move the zombies closer to the player to attack the humans. This wasn’t too difficult either, as I already understood the distance function from mathematics, and was able to implement a similar version via the function xAndYToTotalDistance().

There was nothing specifically that I struggled on during this project. It took me around an hour to complete the grid, during the first submission. Then, it took around four hours to create the entire program. This does not include debugging, however, which took an additional three hours to work out all the kinks. I wrote the entire program in one sitting, so I did not start debugging until it was all complete, because the project I was making was simple enough to do as so. This is one of the many points that is easier to do in a single project versus actual work, where testing should be done consistently and incrementally.

Things I Realized Afterward

* Tile position using an array would have been better (Saved lines) I just got lazy and didn’t want to change the tile position, even though I changed the entity positioning.
* We don’t have a GUI, so we must print one step at a time. This also means it is hard to move more than one tile at a time, because it’s not easy to show all your options.
* O vs o not needed: I originally planned on splitting unmoved humans into O, and moving humans into o, but that was not needed as I developed something better via grid printing.
* Zombie HP would take up too much space, especially as more spawned in later turns, so it was better to just leave it out.

Possible Future Improvements

With the first version of the project complete, I left a lot open for expansion. A list of easy expansion ideas includes the following:

* Regenerating HP
* Player input for different map sizes (which can also lead to a larger number of potential humans that can spawn.)
* Different difficulties by changing zombie spawn rate, zombie hp, and more.

Other Notes

* References left at their respective lines.
* Try/except at lines 132 and 405
* Did not include parent and child classes: More complication than they are worth.