Python Project – Team 2

Requirement Specification

* The main aim of the game is to produce different kind of plants in order to stop the zombies from reaching the plant side.
* From the right side of the screen the zombies will enter and move forward from the random rows(4 or n) of the screen at a regular interval of time with an increasing number of zombies.
* A kind of shooter plant which shoots the zombies to kill them and will try to stop them from reaching their side.
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* A kind of flower which gives the coins for every regular interval. These coins are used to get more shooters and another kind of plant, something like a barrier plant to stop the zombies.
* Initially, the user will be given a fixed number of coins as a start up.
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* On increasing the level of the game, the number of zombies invading the plants will also increase.
* By getting the required number of coins for the planting of more shooters, coin flower and barrier plants, we can plant it in space.
* When the zombies reach the left side, the game ends and the user has to restart the level.
* The main motive of the user is to stop the zombies from reaching the left side of the screen, to achieve this the user has these 3 kinds of plants i.e shooter, currency and barrier plant.

Plan

* For implementing this, we will use the pygame library. First, we will be making the plant and then the zombie. The next step would be to create a row with set spaces to place our plants. Initially we will start with one row.
* The next step would be to make it so that the plant starts shooting as soon as it sees a zombie in front of it. The plant will shoot bullets (peas in case of a peashooter) which will decrease the health of the zombie (the health of the zombie will be indicated on top of its head).
* The zombies will keep appearing at regular intervals on the right side of the map. In cases there are more number of rows, the zombies will appear on randomly chosen rows.
* The tree will keep attacking at regular intervals, which will be done using a timer which counts up from 0 to maximum value. Whenever the timer reaches this max value, it will reset to 0. The plant shoots every time the timer attains the value zero.
* If the zombie reaches the plant, it will destroy the plant and will keep moving leftwards. As is the case with a zombie, the plant will also have some health which will decrease when the zombie starts attacking it. The attacks of the zombie work on a timer similar to that of a plant.
* After implementing this, we plan to introduce a currency (like coins or sun) which can be spent on placing more plants. As soon as a plant is placed, the total currency with the player decreases by the price of the plant, if the currency available is not sufficient, the plant won’t be placed and the player will be informed so.
* This currency will occur naturally appear regularly over time (as sun falling from the sky or coins appearing on the ground). This will be done using a timer, such that whenever this timer reaches zero, the currency will appear and the timer resets to the max value.
* After this is done, we hope to scale to more rows, that is, multiple rows to place our plants and multiple rows for the zombies to invade.
* As the difficulty of the game increases (with an increase in level), we plan to add a plant which can generate sun (or coins) faster than the normal rate of generation, so that sun (or coins) is available quicker resulting in more number of shooters to be placed. This is again done with a timer similar to that of the normal currency generation.
* One more plant that needs to be added is a plant which is used to stall the incoming zombies. This can be done by giving this plant a large amount of health (so that the zombies require a lot of time destroying). This tree will be passive, that is, it won’t perform any active tasks like shooting or generating.
* As the level of difficulty increases, the intervals between the appearing zombies will decrease, so that more zombies will appear, making the game more difficult.

Resources

1.) GIT Command Line Fundamentals:

<https://youtu.be/HVsySz-h9r4?list=PL-osiE80TeTuRUfjRe54Eea17-YfnOOAx>

2.) Fixing Mistakes and Bad Commits:

<https://youtu.be/FdZecVxzJbk?list=PL-osiE80TeTuRUfjRe54Eea17-YfnOOAx>

3.) Idea for the Topic of the Project:

<https://zone.msn.com/en/plantsvszombies/default.htm>

4.) Information regarding Pygame:

<https://en.wikipedia.org/wiki/Pygame> (Wikipedia)

<https://www.geeksforgeeks.org/introduction-to-pygame/>(GeeksForGeeks)