GAME3121 – Game Engine Development I

Assignment 2

Assignment 2: Part1

Create a 3D project and import Challenge 3 starter files from the Github (https://github.com/hsalamat/GAME3121)

Attention: You must use the new Unity Input System manager for all inputs (keyboard/mouse/etc.) and new Unity.Mathematics for all mathematics data types and functions (vectors, matrix, distance, magnitude, power, etc.) !!!

Overview:
Apply your knowledge of physics, scrolling backgrounds, and special effects to a balloon floating through town, picking up tokens while avoiding explosives.
You will have to do a lot of troubleshooting in this project because it is riddled with errors.

Outcome:
The balloon floats upwards as the player holds spacebar.
The background seamlessly repeats, simulating the balloon's movement.
Bombs and Money tokens are spawned randomly on a timer.
When you collide with the Money, there's a particle and sound effect.
When you collide with the Bomb, there's an explosion and the background stops.

Note: When you import the challenge into your project, it is supposed to have bugs. The purpose of the challenge is for you to fix those bugs:

1. The player can't control the balloon, The balloon should float up as the player presses spacebar.
2. The background only moves when the game is over, The background should move at start, then stop when the game is over.
3. No objects are being spawned, Make bombs or money objects spawn every few seconds.
4. Fireworks appear to the side of the balloon, Make the fireworks display at the balloon's position.
5. The background is not repeating properly, Make the background repeat seamlessly.
6. The balloon can float way too high, Prevent the player from floating their balloon too high.

7. The balloon can drop below the ground, Make the balloon appear to bounce off of the ground, preventing it from leaving the bottom of the screen. There should be a sound effect when this happens, too!

Assignment 2: Part2

Create a 3D project and import Challenge 4 starter files from the Github (https://github.com/hsalamat/GAME3121)

Attention: You must use the new Unity Input System manager for all inputs (keyboard/mouse/etc.) and new Unity.Mathematics for all mathematics data types and functions (vectors, matrix, distance, magnitude, power, etc.) !!!

Overview:
You will control a ball by rotating the camera around it and applying a forward force, but instead of knocking them off the edge, your goal is to knock them into the opposing net while they try to get into your net. After every round a new wave will spawn with more enemy balls, putting your defense to the test. However, almost nothing in this project is functioning! It's your job to get it working correctly.

Outcome:
Enemies move towards your net, but you can hit them to deflect them away
Powerups apply a temporary strength boost, then disappear after 5 seconds
When there are no more enemy balls, a new wave spawns with 1 more enemy.

When you import the challenge into your project, it is supposed to have bugs.
The purpose of the challenge is for you to fix those bugs, which are listed below:

1. Hitting an enemy sends it back towards you: When you hit an enemy, it should send it away from the player.
2. A new wave spawns when the player gets a powerup: A new wave should spawn when all enemy balls have been removed.
3. The powerup never goes away: The powerup should only last for a certain duration, then disappear.
4. 2 enemies are spawned in every wave: One enemy should be spawned in wave 1, two in wave 2, three in wave 3, etc.
5. The enemy balls are not moving anywhere: The enemy balls should go towards the "Player Goal" object.
6. The player needs a turbo boost: The player should get a speed boost whenever the player presses spacebar - and a particle effect should appear when they use it
7. The enemies never get more difficult: The enemies' speed should increase in speed by a small amount with every new wave.

Record your work:

1. Set up your scene to prepare it for recording.
2. Install “Recorder” Package in the Package Manager
3. Open the Recorder from the Unity menu (Window > General > Recorder).
4. In the recorder list, select then set up the recorder to use.
5. Set the Record Mode and Frame Rate properties.
6. Add a “movie” recorder
7. Prove all the bugs have been fixed in your movie
8. Add the movie in a folder named “movie” in your project folder (GitLab!!!)

Team and Presentation:

1) You can have a partner, or you can do this assignment by yourself.
2) Your code should be placed in a repository in GitLab and add me as a contributor (my username is @hoomansalamat)!
3) Last but not the least, you have to “record” your assignment in Unity, copy the entire project in GitLab. I should be able to “pull” the project and run it with no problem. You will “demo” your “recording” in the class to get marked. No demo, No mark!!! See the mark breakdown for the details of the marking scheme.

Marks: 10% of your grade

Task	Mark	Possible Marks
Challenge 3 (Old Input manager or mathematics = 0 mark!!!)		5
Challenge 4 (Old Input manager or mathematics = 0 mark!!!)		5
Create a GitLab repo and me (@hoomansalamat) (Hooman.Salamat@GeorgeBrown.ca) as a contributor		0
TOTAL:		10