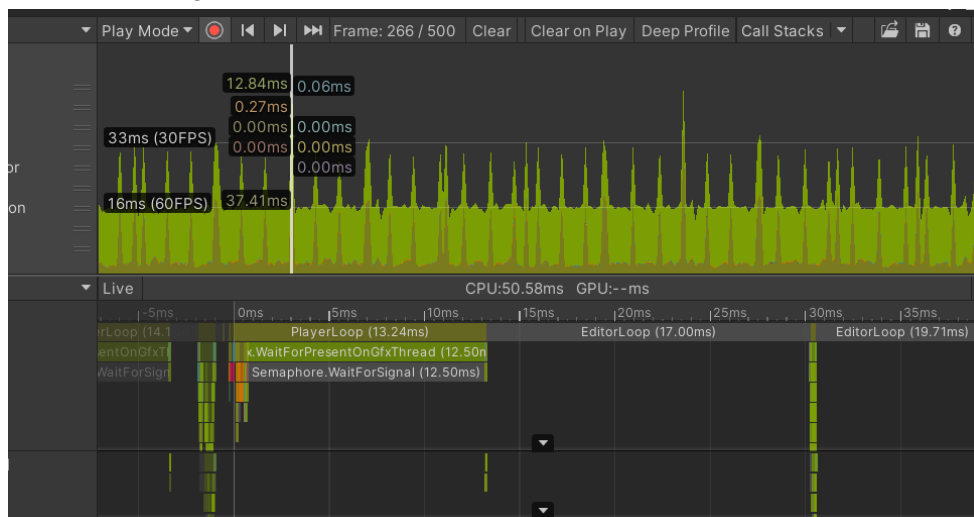


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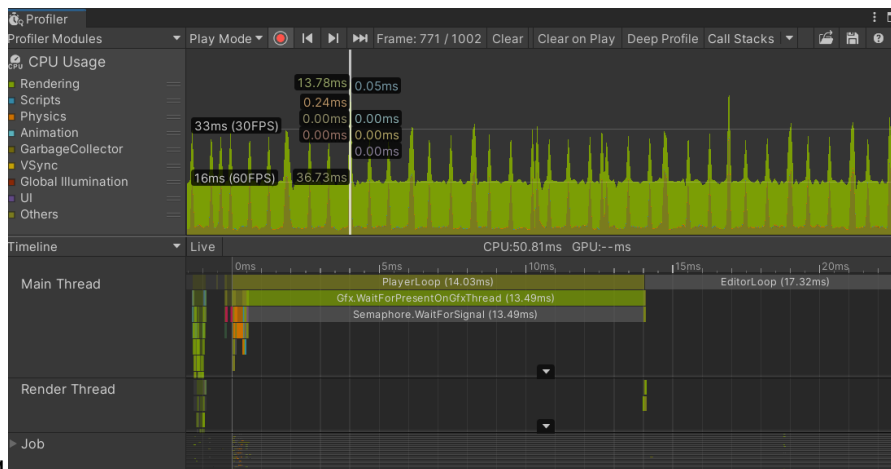
The game is very simple. Use WASD to move the target around and intercept the ducks on their path of flight. If you hit they will fly out of the sky and if two make it to the right in a row it will mess up your controls. The ducks will spawn at random heights and will keep spawning forever. The ducks also have a difficulty variable built in that is tied to the amount that have been shot down, so as you succeed the game will get more difficult.

5.I implemented object pooling to give the illusion that there were infinite ducks flying across the screen when in fact there are only 3 ducks because that is the maximum that is ever on the screen. When a duck flies off to the right it will not despawn it will instead be teleported slightly off screen to the left and held there for a little bit of time before it is allowed to fly again. When a duck is shot they will fall out of the air and off the screen, instead of deleting them when they are off screen we do the same thing where we teleport them to the left and have them wait to come out and fly across the screen again. This means if we got 10 points without pooling we would create and destroy 10 objects but if we get 10 points with pooling we only had to teleport 10 objects which is alot easier. Below is the profiler data it is hard to see a difference because we are working on such a small scale but if it was done with more than 10 actions we would see significant time save.

Without pooling



Pooling



6. For command we have a function on the script for the target's controls and whenever a miss or a hit is recorded it will be sent from the duck which checks the collision to the target to be logged. If two misses happen in a row we create a command that is placed in a queue. The command swaps the variable for vertical movement which means that up is now down and down is now up. The queue can only have an item cleared from it every time a timer reaches 0 from 160 which equates to roughly 2 seconds. This benefits the game cause it is an easy way to see if any commands to change the controls are in play by checking to see the function. Having all the data done in the target also means we can keep track of data from all the ducks as they all feed back into the target.

7. My unity game was made from scratch not using code, assets, or scenes from the laboratory work.