Deliverable 5 - Final Submission

Optimization:

One area I optimized is enemy weapon instantiation. Since enemies instantiated the same hitscan weapon as the player, the gun would be on a certain layer used for the FPS cam setup and were then visible through walls. Originally this system instantiated a new prefab, then looped through each child and then each child’s children in order to swap the gun prefab to another layer. Since this was done through a nested for loop, it wasn’t very efficient and I would define it as O(n2).

I changed both the layer swap system and the prefab in order to fix this issue. For the prefab, I positioned the target child (and its children) to be at index 0 for the parent empty gameobject. This allowed me to call the child by index and then loop through only its children to execute the layer swap. Because of this prefab setup and the system change, I believe the system is a bit more efficient, since only one loop is performed. I would define this optimized system as O(n).

Another area I optimized would be the explosive barrel trigger systems. The system had a trigger for the barrel explode range, and on either an enemy or player entering, would add their gameobject to an inRangeColliders list(of GameObjects). This was originally done with OnTriggerStay and then on update the script would loop through the list and clean up any game objects that were either destroyed or had left the trigger range. I changed the system to instead only add gameobjects to the list on trigger enter and on trigger exit, and to only clean up the list before the barrel exploded or if an enemy had died. This allowed for a lot less looping through the list and should be a bit more efficient. I think before the optimization I would define the system as O(n), and O(log n) afterwards.

Postmortem:

Unfortunately I didn’t learn much about working in a team for this project, but I did learn a lot throughout the development process. One of the first things that went poorly was that most team members didn’t pull their weight. I did what I could to make sure the team could communicate well by making a discord server with everyone and posting info about the current deliverables. In the future I will likely do something similar as far as communication, and hope any future team members will put in equal effort.

Another thing that went somewhat poorly was bug fixing, specifically not planning enough time to thoroughly test everything. There were always more issues than I expected with each system, even if they weren’t too complicated to start with. I planned a bit better for this over the course of the project by spending a lot of time revisiting old systems and trying to streamline them as best as I could. This worked pretty well and I ended up making a lot of systems simpler and it also helped to keep them fresh in my mind for when I created new systems .

About half-way through the project I started to get a little lost with all of the system interactions and connections. I decided to make a large diagram of all of the game systems and how they connected, which helped me a lot with visualizing script interactions. I will definitely be doing that more in the future as it helped me to streamline a lot of systems and plan out new ones.

Overall I am fairly happy with how I planned out tasks for each deliverable. In the future I will definitely allot more time for bug fixing and revisiting old systems. I had a few systems get pushed to the side for a lot of the development process and will plan better so that wont happen again. I really enjoyed this process and I plan to work on this project more in the future to make it into something I can be proud of

Aftermath Asset Credits

Starter Pack - Synty POLYGON - Stylized Low Poly 3D Art by Synty Studios

-used for environment building, and weapon models

-grabbed off of unity asset store

Particle Pack by Unity Technologies

Premium Weapon Pack by WilkinGames

-used for gun SFX

-grabbed from itch.io

The Alerted NPC (Male) - Voice Pack by VOICEBOSCH

-used for player and enemy SFX

-grabbed off of unity asset store

Be Not Afraid UI by Atelier Magicae

-used for heal SFK

-grabbed from itch.io