This is a development log that I am creating to keep you guys updated on the changes that I make in this game.

27/05/2021

First, I started with learning what are design patterns as I thought it was necessary in every project in some way. Then spend some time finding how to correctly use Github along with Unity, because now I am working with a team. While before I have just worked alone, solo on a project. Honestly it wasn't that different, but just wanted to be clear how Github is exactly in GameDev Organizations.

Then, I created a new repository and started a new 3D project in Unity. Then Mailed you the link for the same.

At first, I started with changing the projects settings to Android and making the resolution changes. Then I started with placing the models provided then tried connecting those Computers to the server model by drawing a line using a Line Renderer. But this is where I spend most of my time today.

The line rederer was not drawing the lines from computer to server position properly. Then after searching for the reason on the internet, I realised that you can solve that by setting the World Space property in the Line Rederer on. But still in my case it wasn't drawing the lines properly from A to B. I have used Line Rederer before so I knew what I was doing was correct but it wasn't happening as intended.

Finally, I came to conclusion that probably the models don't have their origins shifted or they have a offset from origin. Then now I had to create a empty object place it at the position I want the line to start drawing from. Then, make the model a child of this empty game object. Now, the lines are drawing properly.

Then, I started working on Client script which take care of sending a particular packet along the connection line. Here, for now I have written a basic logic of 0 and 1, which randomly generates one goodpacket or virus packet after a delay of 3 secs after the starting game and sends it along the direction of the line connection.

After that I started working on taking input and now I can detect the taps and detect if you tapped on the good packet or virus packet. But what happens after that the code needs to written still.

After that I realized that what packets are reaching the server needs to be counted so I added a box collider to the server and added rigidbodies to the packets(which are spheres for now,i.e., placeholder objects) with gravity unchecked. Now Added a server script to the server object, which for now just detects collision and displays the tags of the collided packet.

I didn't get a lot of time to work today because of college work and also I was stuck at that silly line rederer problem for very long. But I worked total 7 hrs today.

28/05/2021

Today, I started working on the detecting the collisions of packets with the server and thus if it is a good packet the antivirus count increases by 5(out of 100) and if it is a virus packet then it reduces the server health by 5(out of 100).

Now the UI also responds to the counter and sliders which are managed by a new script that I created called GameUIScript.

After the antivirus bar is full, the shield effect is also working properly as the server doesn't take any damage from virus packets during the time period of 5 secs.

Today's problems were mainly collision based. Like sometimes the trigger colliders were not detecting collisions and were not responding properly. But those were just silly mistakes of not putting a rigidbody on some packets.

Then I implemented a Singleton pattern for the Game UI Script as many of the UI elements are being updated by the server object which has the health and antivirus information. So, the functions to change the UI text and sliders are directly called from server script.

Then also added a game over situation after the server health goes down to 0 and a restart button to help the player restart the game.

For now the game's base mechanics are working properly. And now tomorrow I would start working on randomly spawning new client and increasing the game's difficulty by changing the speed of the packets.

Today I worked almost 8 - 9 hrs on this project.

29/05/2021

Today, I started with creating a Game Manager script which is also a singleton. Which is responsible for adding more clients to game.

I decided that I wanted it to have a pyramid structure all connected directly to the server. So I started writing a logic that would help me instantiate a client in that pyramid by keeping a default origin spawn position and spawning the clients according to it by subtracting or adding the Vector3 to it.

Thus, I was able to achieve it, but the first problem that I faced was some of the clients were spawning on top of one another. So I realized the problem was that I wasn't considering multiple clients on the left and right of the default spawn position. So I had to put counters which increment themselves and multipy the offset so the clients don't overlap. These counters reset after the code moves to new level of pyramid.

Then, the other problem that I faced was that when the pyramid had odd number of client it would spawn half the clients and the rest wouldn't spawn. But after taking a close look at the code I realized that I made mistake in a greater than operator in one of the if-else statements.

Then added a 3D plane in the background below and added a blue color material to it. So it would look a bit better.

Then, added a blink effect for the last second of the shield effect so now the player would know that the shield is about to reset.

Added a Tap to start full screen button at the beginning which also informs the players what they are suppose to do in the game.

Today, Again I had some college work to complete so couldn't work to my fullest. Still I managed to work, 7 hrs on this project.

Email:

Hello Sir,

Thank you for giving me this opportunity to prove myself and considering my application. The Google Drive link is :

<https://drive.google.com/file/d/1QvrNtmWHQHZjDgXAcOLlbIHWWvZqHGKb/view?usp=sharing>

I have also attached the development log, which is a very long essay of how I spent my time working on this project. I also have this log in the GitHub repository.

Honestly I want to do more with this project like I even downloaded a envelope model from Google Poly to replace the sphere(placeholder for packets) but the problem I am facing with that is the mesh of the model has a offest from the actual origin so when I replaced it is away from the actual collider and changing this would mess up with the game logic and it would break.

My code is dynamic logic that can create an un-ending pyramid of clients and the camera would keep zooming out. But, I had to limit the maximum number client to 12 i.e., 3 rows of pyramid, because after this the line connections become confusing as they are joining at the same point to server. And even the packets sent by the clients are at a insane speed as I have kept just 1 sec delay for packets sending and 1 sec delay for restarting the line connection after closed down because otherwise in early game the game becomes boring as the delays would be too long.

But anyways I am submitting what I was able to achieve at the end of the time alloted to me. I tried my best to complete what I was asked to do. I hope you like it.