**Dev Diary**

**Research**

To start my research section of my work I wanted to find out as much about the location and type of game I wanted to make first, so to begin I started with looking up existing architecture that looks similar to what I wanted to make. So I looked up the theme and what I wanted and started to search for anything close, the first thing I saw was Leptis Magna which is an old style theatre located in north west Africa I chose this map for my game as I think it would add diversity compared to other games like it with the scenery.

I then started to research about the different types of PEGI ratings all the way from PEGI 3 – 18, I found out what you could do with each rating and how they were rated, I discovered how much you can push the boundaries of games and how much graphic content can be displayed in such young PEGI ratings.

Then I started to research about the different game genres and their definitions, which showed me what genres mean what and how they change a whole games story just by changing the genre. After researching about all of this I started to look into the enemies and players that I wanted to create in the game I researched about fictional zombies and who created them the best then I tried to mimic this into my own game and make it bigger and better than they did it. I discovered how they made them move so realistically and how they made them so perfect that nobody could create them better. After this I wanted to create NPC’s and characters you can see inside of the game I researched about the dialogue that I could add into the game which would give slight hints how to progress further into the game. They could tell a side story which you would have to piece together yourself this would further add depth to the game and increase popularity.

Conclusion

In conclusion to my research I have gained a lot of knowledge about the place I am basing my main design from and it showed me a lot of things that I didn’t know before, this helps my project as it gives me a clear understanding of why certain things were built and lets me add things to my game which will increase its possibilities for lore and other additions. Other things that I gained from my research was my look into the different game genres, this helps me as it gave me a clear view of what I wanted my game to be rated and how I think it should be rated, this is useful as before I did not know anything about what the certain PEGI ratings meant, which helped me a ton with my game. I did end up choosing PEGI 7 for my game as I think it would fit it best and I believe that it should be the rating for the game, this helped me as it told me my boundaries at the very beginning so I knew what I would be capable of doing and what I couldn’t without breaking the boundaries of the game and ruining it. Lastly, for my research into genres I believe that this helped me because it showed me all of the different genres and gave me a different view on what I actually wanted to choose, some of the genres that I looked into were things that I had not heard of before and they gave me a different view on the project than what I had on it before, in the end I ended up choosing the shooter genre, specifically the FPS(first person shooter) type of the genre, this helped my project as I knew how I wanted the camera to be like so I could set it early on into the development of the game. In conclusion my research was a big help to my project and it definitely helped with the production and the making of the game.

**Unreal Engine**

For Unreal Engine I started by looking for assets in the game design that I wanted, I looked at different packs all across the website www.fab.com and found ones that I liked these consisted of very low-poly cartoony game assets (which means assets that have very few details to them while still keeping their original look they are mainly used for games which consist of minimal detail and higher performance.) I tried to look for specifically low-poly assets in the Egyptian theme which was surprisingly harder than I thought due to the fact that not a lot of low-poly assets exist for specific themes, however I found a few packs that could fit my theme eventually.

A screenshot of a computer game

Description automatically generatedA screenshot of a video game

Description automatically generated

I used all of these assets to create my main part of the game. I had more packs however I didn’t use any of them and I over-anticipated how many packs I would need.

**Landscaping + map making**

For my landscaping I went into the landscape mode on the top left of the screen and I and I selected the sculp tool to drag the landscape up to a level where I needed it, this made a border like mountain range, which I wanted to have so players couldn’t leave the map or game. This would increase the players ability to explore the main area before trying to leave the area of mountains.

A sand hills with a blue sky and clouds

Description automatically generatedI then textured this land which I created using the landscaping tool, I made it by initially creating a plane of land with the same tool, and I used the sculpt mode to create the hills, for the larger hills I increased the radius of the area affected (from where I click) and I shaped them up until I was happy with the shape of them from a standing view. To texture this land I had to create a texture for asset, this is done by dragging and dropping the original texture into the texturing tool, after it had registered the texture, it was easy as painting with my mouse over every area of land, this didn’t take me very long as all I needed to do was cover the land in one texture, and as my land is a desert it was mostly the same texture for the whole of it. I then went over and double checked the land to make sure I didn’t leave any obvious mistakes in landscaping and texturing, when I finished that I moved onto the next part of the project.

After this I wanted to do the background of the scene first to try and get a better image of where to place the main attraction of the map.

A statue of an egyptian person in front of a pyramid

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I used these statues as the background as they fit the theme of the project. They served as a side attraction and added lore to the actual stand of the project, they also invite you to go inside of the pyramid which would make the player get more ideas to enter the pyramids. For placing these statues it was as simple as using the asset that came with the main pack that I downloaded earlier, I then placed the pyramid in the back and greatly enlarged it by using the scale tool that is built into unreal, I enlarged it by almost double to add something major into the background, for the statues I drag and dropped them from the content drawer into the map close to the pyramid and scaled them down to a more reasonable size, I didn’t want to make them too big as I wanted the pyramid to seem more enticing rather then scary or conflicting which would decrease the chances that the player wanted to venture into the pyramid.

A statue of a person on a stone platform in a desert

Description automatically generated

After making the side attraction I started work on the main attraction. As I didn’t want to steal designs from the person who made it I used the assets to make something else out of them I started off with importing the whole pack under the map so I could use all of the items easily, I did this by dragging and dropping the pack from the content drawer, then I wanted to scale it based off the pyramid (hence me making the side attraction first) I figured out the scale by doing a tenth of what I made the pyramid as I didn’t want to take away from the actual pyramid and the statues, so I based all of the meshes from that scale (1:10), after that I began on the main outline of where I wanted everything would go so when It came to actually making it I already knew where everything was meant to go and it was easy to place everything in, I made the outline using normal blocks from unreal that were stretched out into rectangles I then moved them into place creating the outline, as it was only an outline no texturing was required as I was going to delete it when I was making the actual stand, after finishing the outline and finding a picture online of Leptis magna (the place I’m using for reference) I placed that onto a separate document so I could go back and look at it for reference. I then began creating the stand, I started with dragging and dropping the walls from the asset pack and shrinking them down from their original size, I placed these all around the edge and deleted the outlines for where they were placed. I then did the same for the stairs, dragging and dropping them from the asset pack and resizing them to fit into the walls, I wanted them to be diagonally approaching the main stage as I felt that if it was directly facing you it would make the stage more square than it appears, I did this exactly the same for the other side imported it from the content drawer rotate the stair to the same exact angle as the opposite one and aligned it with the walls. I then started to work on the middle with the 3 arch ways where the zombies would spawn out from, for the arches I had to import them from the same pack, as I needed them to be the same angle as the stairs I had to base it from that, which was found to be quite challenging as they didn’t have pillars on them to connect the texture, which is something I changed later on and will explain in more depth later, however, I aligned all of the arches perfectly up and the middle one was placed facing the way that the character spawned in so you knew that that was the initial starting point of the game, to detail the stage I needed to make all of the textures seem like they were flowing so what I did was I took all of the points where the walls connected and added a support beam in between to give the illusion that it was all one seamless mesh, I then needed to connect the tops, which was relatively easy only using wooden beams all across like I did with the outline at the start of the stage, the stair texture was slightly harder to make seamless as I needed to have something that fit the same texture as the stair and didn’t make it look weird, so I opted for another item in the asset pack which was scaled really far down and placed in between all of the parts of the stairs which connected together. For even further detailing I wanted to add some symbols into the design of the arches as I felt they were lacking in detail, I used the original asset pack and found some meshes that matched what I needed, these were then placed half way into the wall and retextured to have the same texture as the wall, this was done by the texturing tool and dragging and dropping the same texture into the texture mode, I then painted over the designs so they fit, after finishing texturing I placed them back into the empty places on the wall, once this was done I started onto the top of the stage as It needed a floor this was relatively easy as one of the walls inside of the asset pack had a nice texture to them that I wanted to use as a floor so what I did was take the wall and turn it 90 degrees so it would fit, I made sure the grain in the wood was accurate to real life and tried to make it look like a floor, I then moved it over to the stage and placed it down at the top after looking back at the stage I felt it was missing something in the floor and that it needed to be further changed so I decided to add a little dip in the flooring to create this I started with deleting the floor and changing it so the floor was only on the two sides instead of the whole thing I then got some more wooden beams from the content drawer and placed them at the edge of the flooring, after which I copy and pasted the floor again however this time making it bigger and dropping it ever so slightly, after looking at this in game and from above I concluded that this made the stage look like there was a lot more to it than just a flat floor surface. At the end of this I was almost done with the stage, all I needed to do was create something on it that could impact the game in some way, so I immediately thought of an ammunitions box or a box where you could claim something out of, so I used another mesh from the asset pack which was already textured and I placed it onto the top of the stage, this further increased the detail to the stage.

This is what the final design of the project looks like. Based off Leptis Magna using the same type of design and architecture however changing it and adding a spin to it to make it better to play on.

Overall I think that my Unreal engine could have been slightly better if I had better time management which I something I am working on improving for future projects. However I do think that my scene is different from every other project and that mine should stand out in the end.

Foliage – for my foliage I already had an asset, and all I had to do was import the asset into the foliage tool to do this all I needed to do was take the foliage from the asset pack and grad and drop it into the foliage tool this was relatively easy, then I changed the size and density of the brush to make it feel like they were randomly placed across the map, I could easily add the trees with the same method so all I had to do was drag and drop the foliage into the foliage menu which it would then create the actual mesh of foliage then I randomly placed the trees across the map to add density and give the illusion there is nothing else outside, I then changed to a different foliage which was more like a bush and started to scatter them, these were spread across the map to add more detail and make the scene feel more alive. To the person playing.

In conclusion to my dev diary I think that my unreal engine work is alright with little changes needed, this is due to the fact that everything I have placed is for a reason and they have a lore meaning for later on in the games timeline when it further progresses, to add more lore and story into the game, I believe that doing my theme in a post-apocalyptic scene is the best way to stand out over the rest of the projects as most of them are based in a present version of the world, however mine is different and has been changed to fit the theme of post apocalypse.