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Advanced games programming ae2

cgp600

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Mechanics

Movement

Simple movement with WASD and space, for activating the jetpack

Enemies - they terrible

Graphics

Textures – multi

I developed a system to allow models to have either one or two textures where the second texture will appear on top of the primary texture. Which is what was planned, this works by multiplying the two textures together.

This worked together with the texture manager which would store all the textures to prevent loading duplicates. Which makes use of a map to store both a texture and a sampler using the file name as a key, this was more complicated when it came to handle two textures on the same model. I did this by passing in to file names and concatenating them together to form the key for the map. Which involved using the string stream to concatenate them.

The model manager was much easier to implement as all that needed to be stored was the objFileModel class and the file name it was the key.

Lighting :’( #hlsl cookbook pg15 – phong equasision

I implemented diffuse, ambient and spectural lighting following phong princiables to calculate colours based on the pixel shader. ( insert PHONG here )

Text – alpha blending

I use text to display the FPS using a custom font I created which is intended for use with alpha blending which I also implemented. Which is simply implemented by changing the blend state for when then the text is draw.

Design patterns

OOD - classes n

The previous class design that I did for AE1 ended up being completely ignored, as once I had done most of the tutorials the structure of my project was vastly different from what I’d intended prior to learning Dx11 and I no longer felt this design would work without having to entirely redo everything to allow for it to partially match this naive design.

Double buffering – we did do that right?

Game loop

Time ? singleton – DX11 handbook page 200 or something.

Texture and model manager

Both the model and texture manager follow the singleton design pattern along with the game timer class.

Logic

Loading a level with a text file.

A simple level creation system where strings are passed into a vector and they looped through character at a time, and compared against cases of a switch and then the defined

Collision - tri and sphere no AABB #insert plane collision

Collision changed a lot from how I intended to do it originally, as after looking at the assignments marking scheme I realised a lot of the marks were locked behind implementing triangle collision. In attempting to implement it I spent a solid three-four days struggling to implement it. To end up with it working inconsistently and to arguably look like sphere collision.   
which it isn’t   
as sphere collision only allows the triangle collision to be checked.

Design Changes

New Things that weren’t planned

Triangle collision x

Things that changed

Collision – from planned to tri collision + sphere collision x

Things That weren’t implemented

Aabb box collision X

Psudeo bsp

My entire class diagram concept entirely scrapped x

Procgen :’(

Use of the pixel shader for lighting :’( x

Geometry shader being used ( what a idiot I was thinking I’d get that in)

Lighting stretch goals point spot attenuation ( I just basically don’t understand lighting in the slightest ) x

AI steering

AI stretch goal – A\*

Menu’s

Pausing

Music

Game flow

Mipmapping

Texture filtering

Things that stayed the same

Loading a level with a text file.

Ambient lighting & directional lighting

Design patterns - double buffering

Game loop

Testing

Black Box Test Plan

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ID | Feature | Test | Predicted Outcome | Actual Outcome | Actions Taken |
|  | Movement | Press ‘W’ |  |  |  |
|  | Sphere Collision |  |  |  |  |
|  | Triangle Collision |  |  |  |  |
|  | Lighting |  |  |  |  |
|  | Enemies |  |  |  |  |
|  | textures |  |  |  |  |
|  | Level loading |  |  |  |  |
|  | jumping |  |  |  |  |

White box Test Plan

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Function Name | Syntax & form | logic | outcome | Actions to be taken |
|  | Is it good? does it need to be clearer? | Does it provide the right answers | Does it need improving? | What to improve? |
|  |  |  |  |  |
|  |  |  |  |  |

Conclusion

Discussion on problems and how they were solved