What Went Well

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Introduction

The point for this document is to perform a basic review of the work performed in the project. The document will contain a summation of what went well during the development of the game engine. Also, if there was more time for polish, what would I do to improve the functionality of this project. Finally, if there was an opportunity to redux this project what would I do differently to make it better.

What Went Well

The project, in the end, went quite well. I have a functioning game engine which in its current state can easily be improved upon to make a working game 3D game. In my opinion, the best part of the game engine is the Renderer class which I made to render game objects passed into it, it works by finding the game object's model component and renders it into the game world using the current engine core.

Another good example of my work is with the game object class itself, I added a lambda function into an update method which when called will loop through the map of components the game object currently has and calls each components update function. The only downside to this is I was unable to pass the dt (delta time) into each individual update method.

Finally, I am proud of how the input handler class turned out, I have edited each of the action classes to have an id which can be referenced. This makes the inputting and outputting of the key commands far easier for the engine and it surprisingly works really well.

Improvements

If I were to improve the game engine in its current state I would start by adding a way to import a level from a JSON file this is one of the big things I have left out from my game engine but due to bot a lack of experience with Python and Maya I thought that it would be better to work on other aspects of the engine.

The next improvement I would make would be to take more time to familiarise myself with how the orientation (glm::quat). This was one of my biggest setbacks as whenever I wanted to change the rotation of any of the game objects they never seemed to change as I expected or wanted them to. For example, the camera and player object rotating in opposite directions despite setting the camera's orientation to that of the player's.

The next improvement I would make would be to create a model manager, this would link to the first but with a manager, a map could be created with an id and model linked to that id and it would allow for the level to reuse models for levels. It would also make it easy to load models into the engine from a .txt file in a similar way to how key inputs are loaded.

What Would be Done Differently

The first thing I would do would be to dedicate more of my time to understand the ins and outs of how the code works and ask more questions to this end. This was one of my biggest problems, due to working with the unfamiliar and mostly uncommented code it was hard to get started; so, if more time was dedicated to this the overall implementation would probably have been better.

The second thing would be to work harder on figuring out an exporting Maya to JSON method, this would have made the game engine look more well rounded. While I have a basic loading system, all it does is place a couple boxes seemingly randomly around the world so, this could have been implemented far better.

The next thing I would do would be to add more components to the engine, all which would be used to add more utility to the engine like maybe a collision component which uses shapes to detect if an object is touching another object with a collision component, or a gravity component which will like it sounds, add gravity to an object making it fall until it lands on a surface.