

OpenGL Assignment

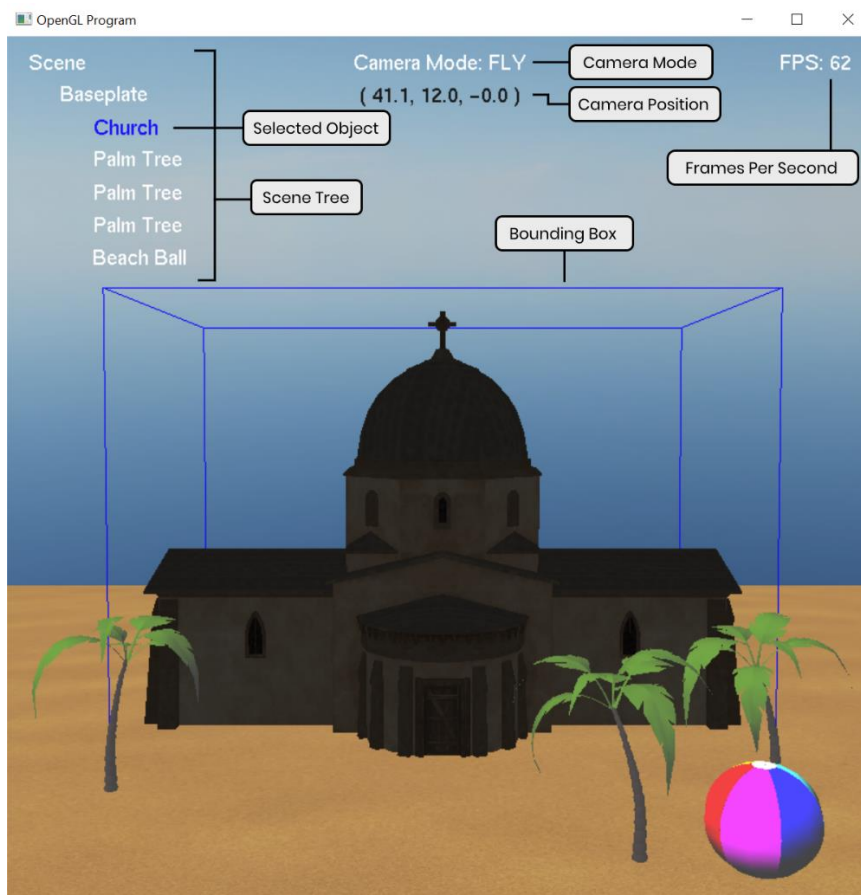
Instructions Document

Functionality

Overview

This application can load and display multiple scenes in which the user can look around with the camera and modify the objects.

Interface

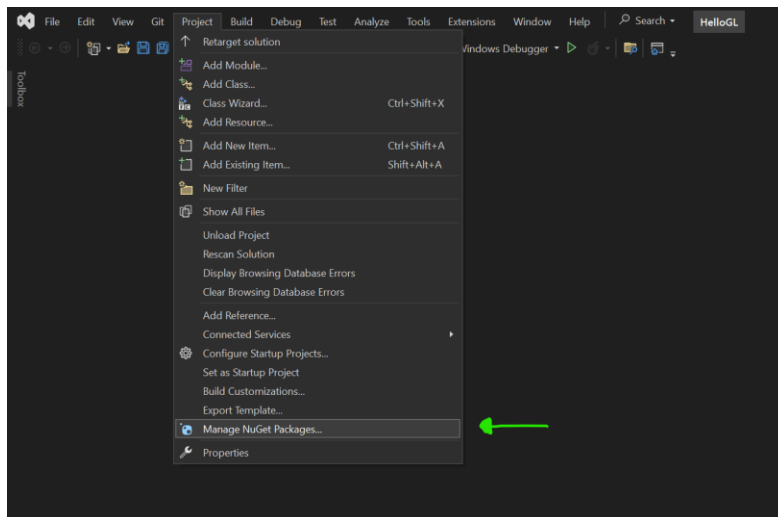


Project Setup

Before you run the project, you first just need to install the required packages. This can be done by following the steps below:

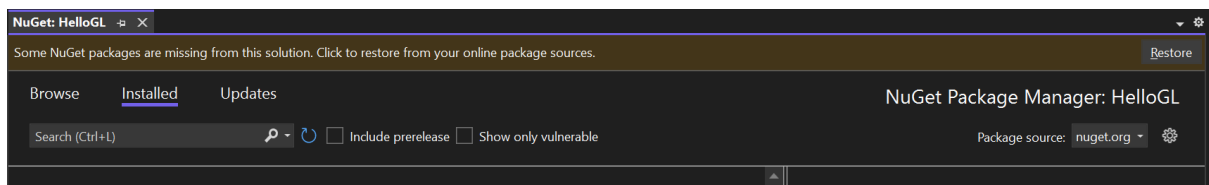
Step 1

The first step is to go into the NuGet Packages Manager by going to Project -> Manage NuGet Packages:



Step 2

Once in this package manager a warning should come up at the top that looks like the following:



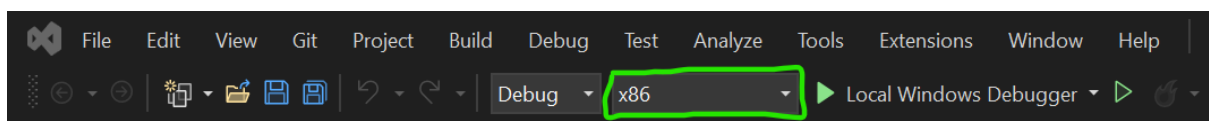
To install the required packages, just click the “Restore” button. This will take a short while as it installs the packages.

Step 3

Once NuGet has finished installing the packages, close out of Visual Studio and then reopen the solution again. This is so that Visual Studio can recognise the new packages and properly link them when building.

Step 4

The final step is to make sure that the platform selected is x86.



After this, the project is ready to run.

Controls

Camera Control

To move around with the camera, you use the **WASD** keys: **W** moves you forwards; **A** moves you to the left; **S** moves you backwards; **D** moves you to the right. You can also press **E** and **Q** to move up and down.

To look around, you can **hold right click and drag**. The camera will look in the direction you drag your mouse towards.

To change the camera mode, you can use the **V** key. There are three camera modes: FLY where you can freely fly around; LOCK which locks the camera's view onto the selected object but allows free movement; ORBIT which locks the camera's view and movement to an orbit around the selected object. **The LOCK and ORBIT modes cannot be accessed unless you are selecting an object.**

Selecting Objects

To select an object in the scene, you click on the object using the **left mouse button**. To deselect an object, you click on a part of the screen where there is no object (the void).

Pop-up Menu

To bring up the pop-up menu you press the **middle mouse button**. This will bring up a menu. **The second menu option, "Set Object Texture" cannot be accessed unless you are selecting an object.** To close the menu, you can click off it, press the middle mouse button again, or select one of the options.

In the "Set Object Texture" sub menu, the Default option sets the texture back to its original texture. The other options change the objects texture to another texture. Objects that do not have texture coords will not show textures.

Moving Objects

To move an object in the scene, first select an object. You can then move the object using the **arrow keys**. The direction each arrow key represents is calculated by projecting arrow keys into 3D space based on the camera's view and then calculating which movement vectors are best. However, it should be intuitive enough to use without too much understanding.