CSE 461 Programming Assignment 2
(Double weight point assignment)

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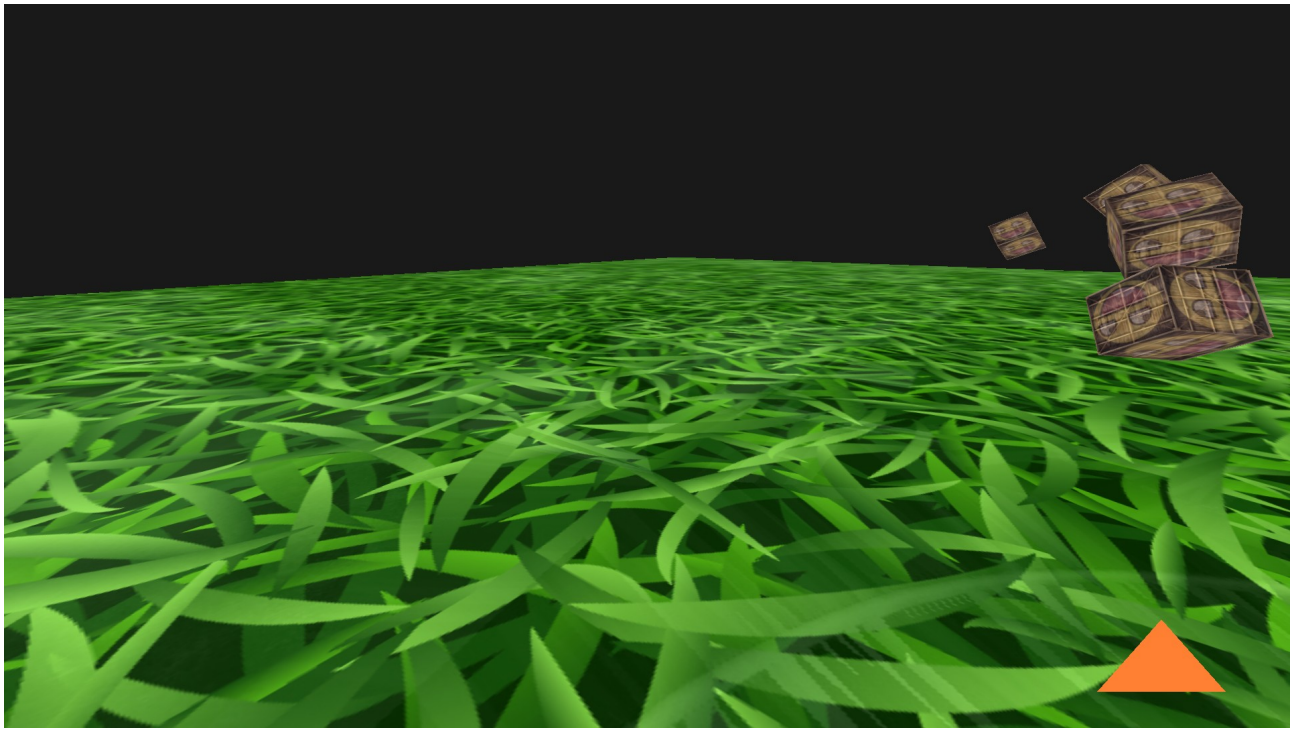
Description:
Project is about the implementation of a bounded 3D World using OpenGL.

I have used C++ as programming language as the tutorial `https://learnopengl.com/ ` suggested. I have go over that tutorial and created a 3d bounded world with its bottom line is completely grass texture.

Project Structure:

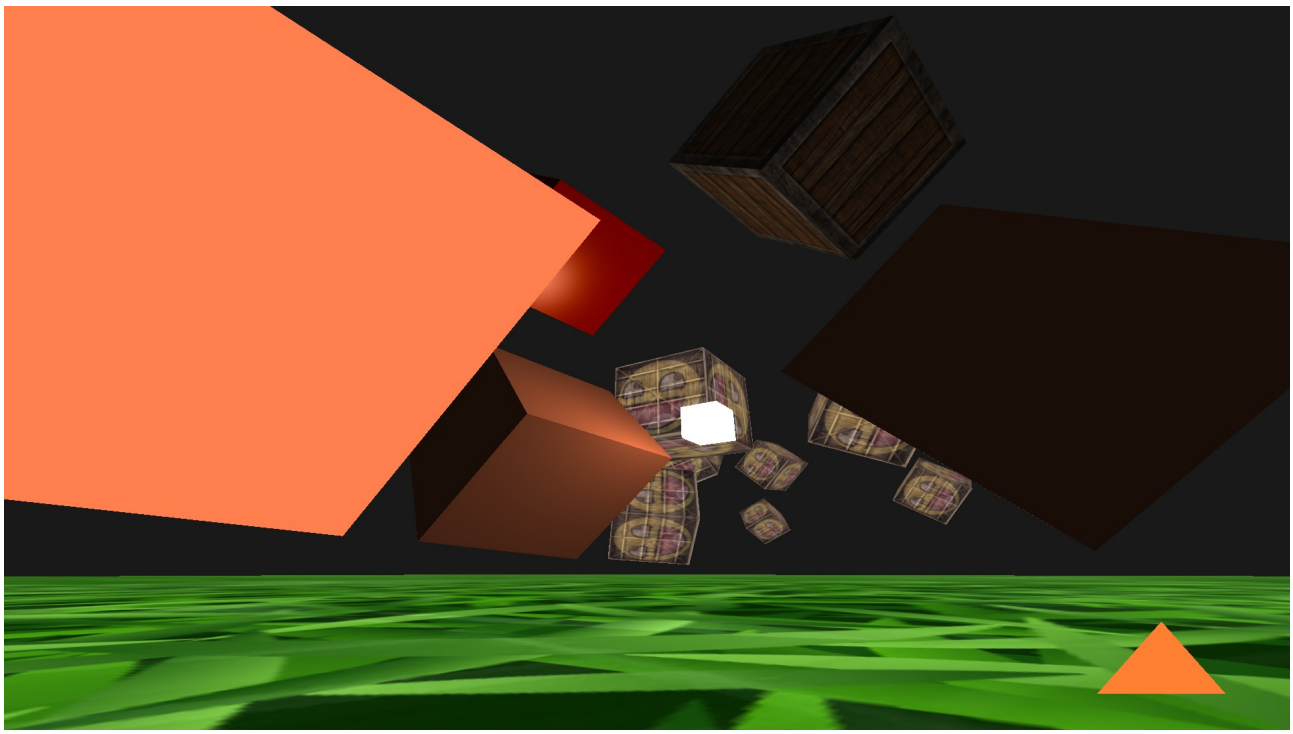
- test.cpp: the main file of the project
- shaders folder: contains the shaders used in the project
- models folder: contains the 3D model used in the project
- assets folder: contains the textures used in the project
- vs folder: contains the vertex shaders
- fs folder: contains the fragment shaders
- makefile: the makefile of the project
- glm folder: the glm library that is used in the project for matrix and vector operations (already included)
- glad.h and glad.c: the glad files
- stb_image.h: the stb_image file that is used to load textures
- camera.h: the camera class
- mesh.h: the mesh class
- model.h: the model class



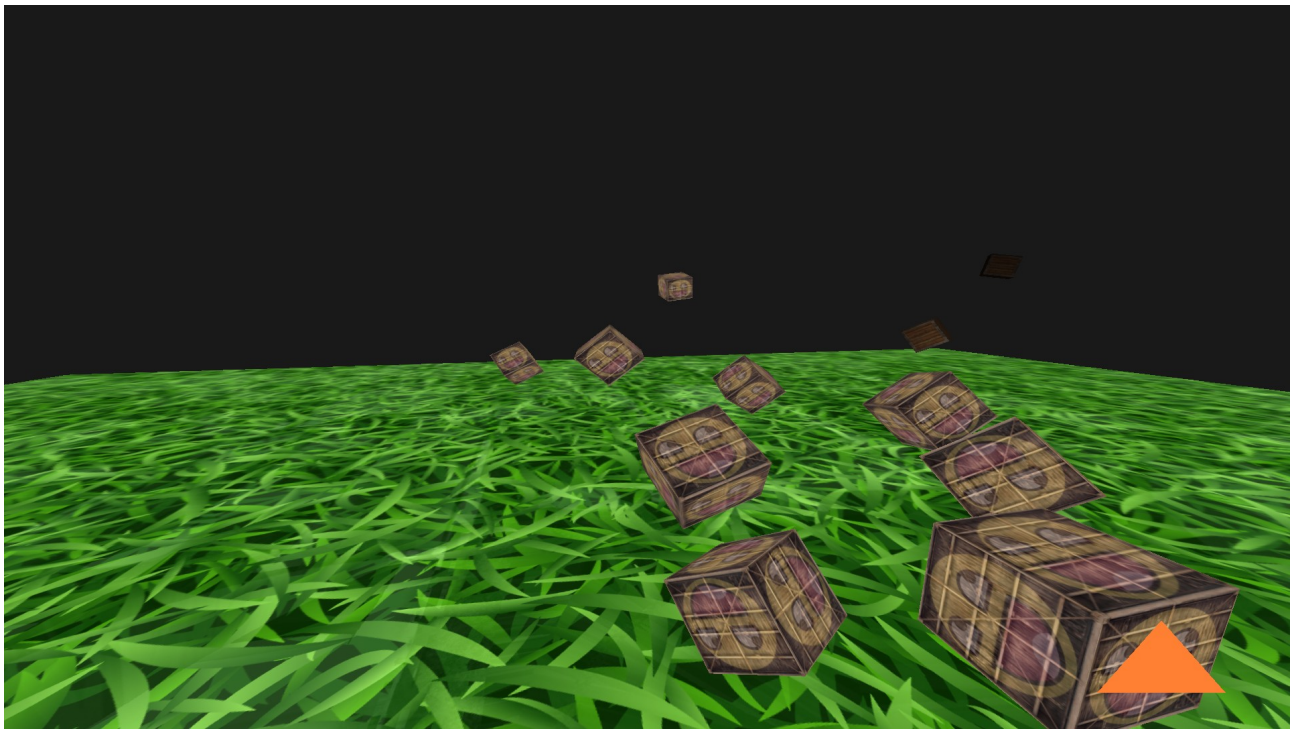
Picture above is from the 3D world that I’ve created. It is bounded with -25.0f and 25.0f.

Parts of the project:

This triangle is created by triangle vertices and indices. I have added this to show this property as well.

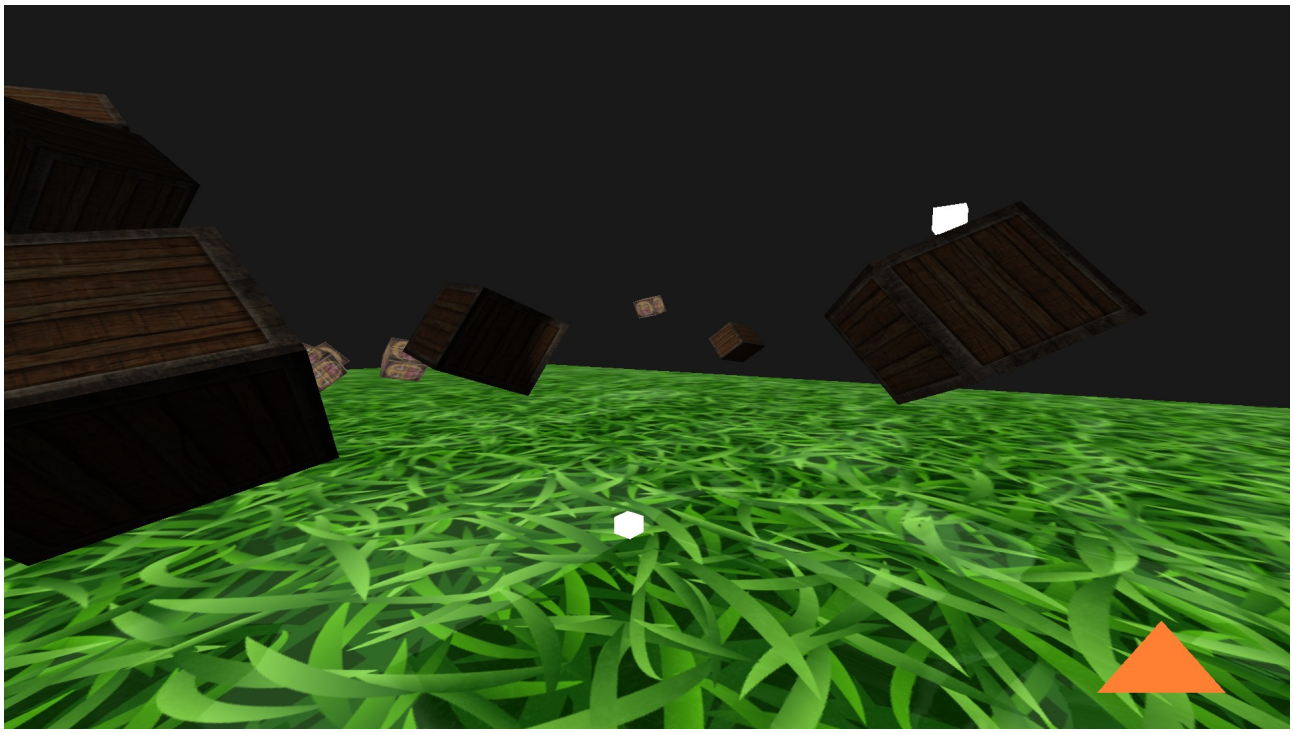


This part includes lightning shader , basic lightning shader, Phong lightning shader and material shader with cube vertices.

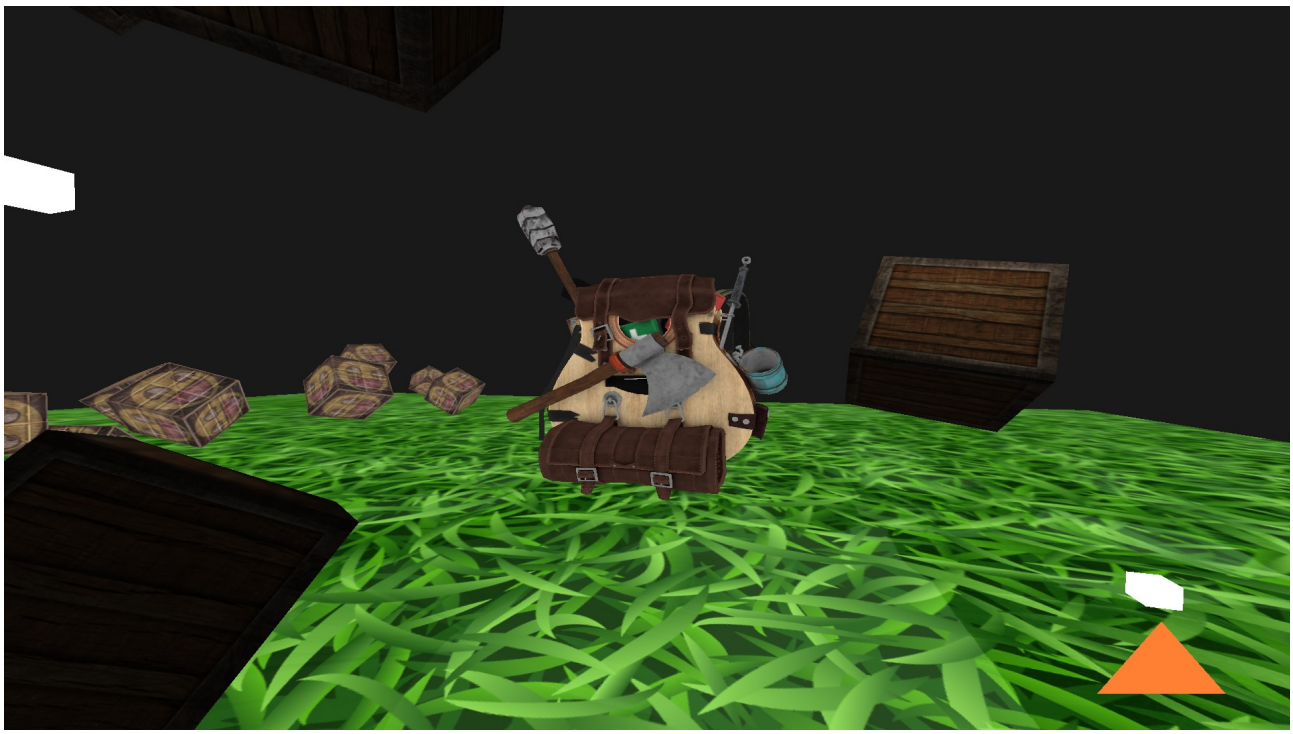


This part includes multiple boxes (number of boxes are 9 and we can change the numbers)

This part shows the 3 different light sources which are directional (left top), point (right top) and spot light (bottom)



This part shows multiple light sources and how effects 4 different cube object with textures.



This part shows the backpack model that is generated by Mesh and Model classes and using Assimp (Mesh Viewer Library).

All models, textures and shadings are specially prepared for collision-detection with the arrangements on the keyboard part.

How to Build:

There is an Markdown Documentation file named “BUILD.md” in the root directory of the project, you can follow these steps to build and compile the program but it is basically installing some libraries needed and running make command, after than “./main” executable will run the program.