File: Pyramid.cpp

Programmer: Unique Chambers

Date: March 31, 2024

Version: 2.0

Description: OpenGL program to render a simple colored triangle. The enhancement will create A rotating 3D pyramid with different colors on each side.

Narrative

The artifact I chose to work on for this assignment was the Module 3 Assignment: Building a 3D Pyramid in my CS 330 (Computer Graphics and Visualization) class. The task was to create a 3D pyramid using modern OpenGL with C++ in Visual Studios. I decided to take this assignment further by displaying my C++ programming skills. I used structs and functions to define structures (like GLMesh) to organize data, and functions (such as URender, UCreateMesh, etc.) to manage rendering. I also applied linear algebra concepts, particularly matrix transformations, to manipulate the object.

My goal was to enhance the code by changing the colors of the pyramid on all sides and making it rotate to display these colors. By employing these skills, I was able to fulfill the course outcome from Module One. I modified the artifact by switching the solid red color to different colors on each side of the pyramid and adding rotation.

The specific course outcome I achieved was the ability to design, develop, and deliver professional-quality oral, written, and visual communications that are coherent, technically

sound, and suitable for specific audiences and contexts. Additionally, I demonstrated an ability to utilize well-founded and innovative techniques, skills, and tools in computing practices to implement computer solutions that deliver value and achieve industry-specific goals, such as software engineering, design, and databases. However, one area I aim to improve upon is developing a security mindset, anticipating potential exploits in software architecture and designs, to identify vulnerabilities, mitigate flaws, and ensure data and resource privacy and security.

Here are the Computer Science program outcomes that align with my work:

- Employ strategies for building collaborative environments:

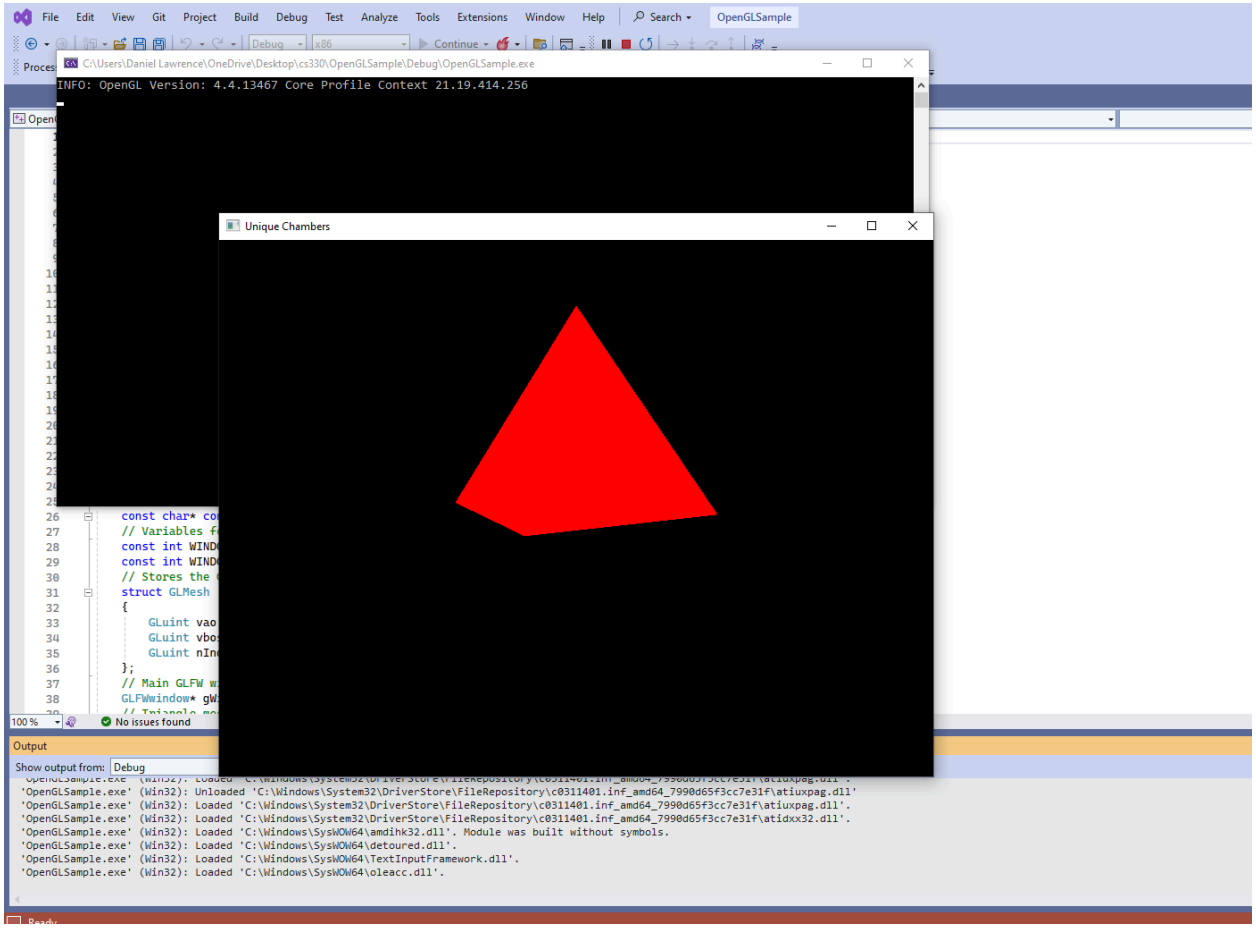
  Demonstrated by the ability to share and explain the enhanced code.
- Design, develop, and deliver professional-quality communications:

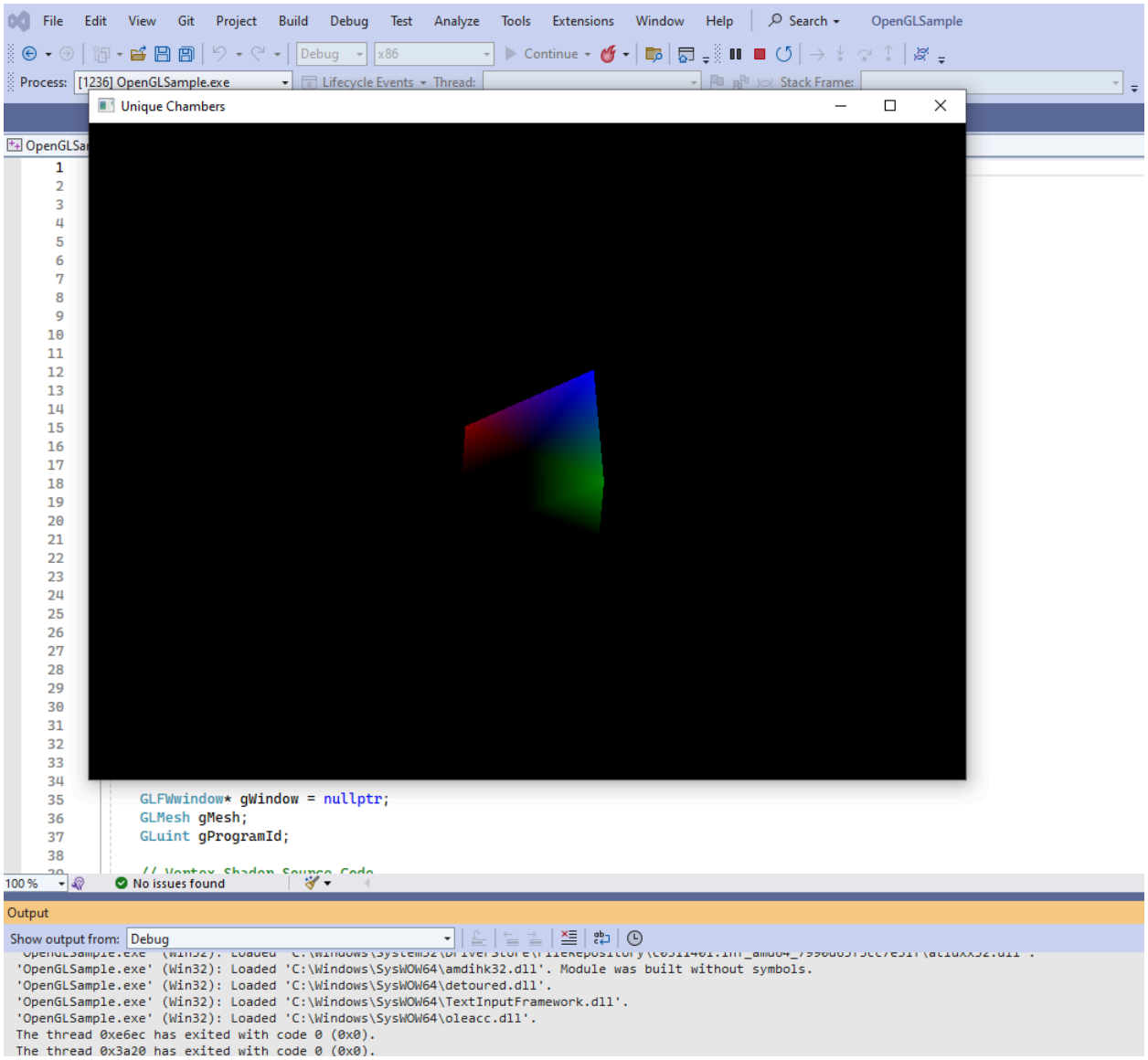
  Shown through the clear articulation of changes made and their purpose.
- Design and evaluate computing solutions:

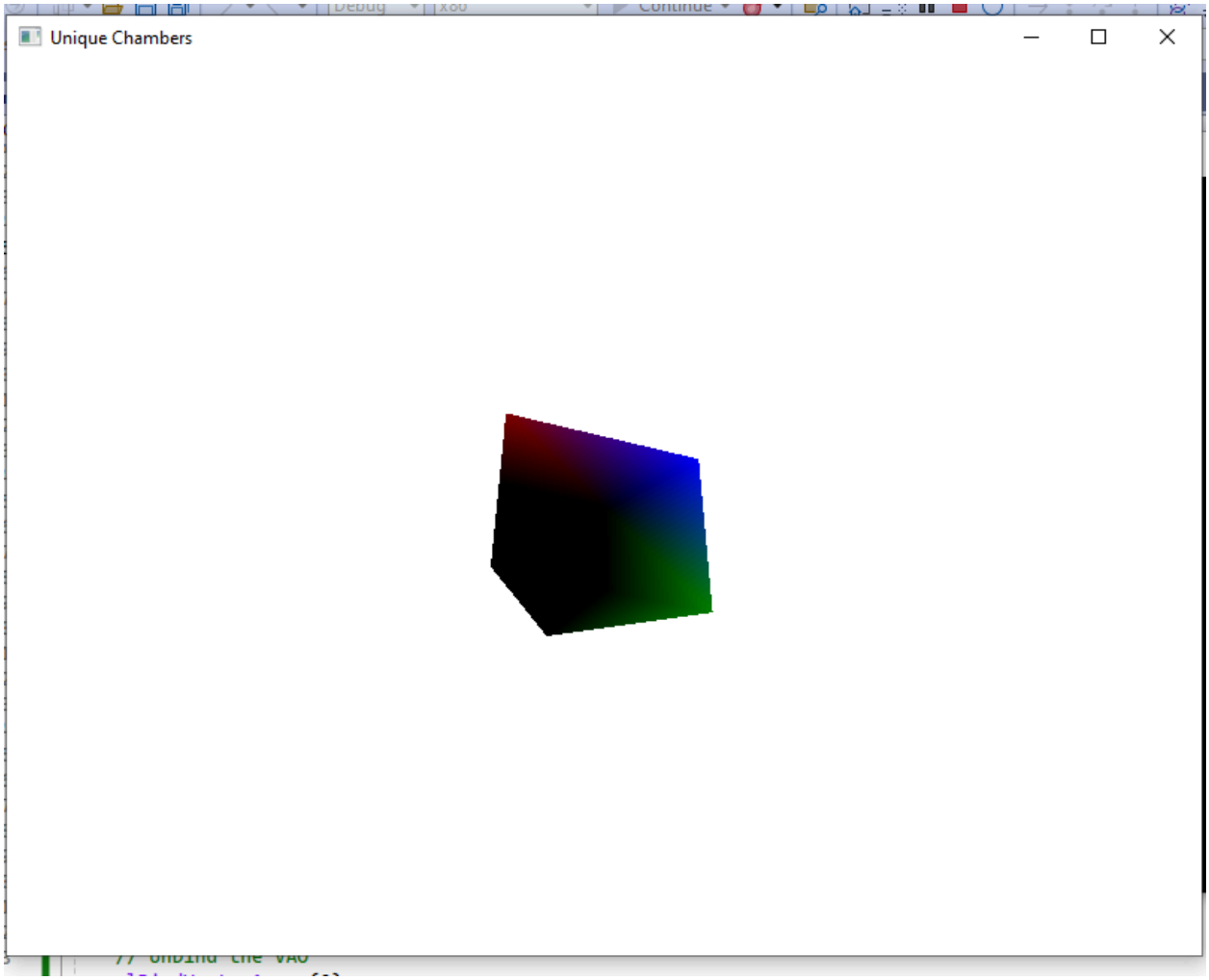
  Addressed through the enhancements made to the rendering and color-changing logic.
- Use well-founded and innovative techniques:

  Utilized by incorporating structs, functions, and linear algebra concepts.

Throughout this process, I did not encounter any major challenges. As I worked on enhancing the artifact, I learned the intricacies of making the pyramid rotate smoothly and how to apply different colors to its sides. This project allowed me to deepen my understanding of C++ programming and OpenGL and demonstrate several key skills and achieve important course outcomes.


File Edit View Git Project Build Debug Test Analyze Tools Extensions Window Help
Search
OpenGLSample
C:\Users\Daniel Lawrence\OneDrive\Desktop\cs330\OpenGLSample\Debug\OpenGLSample.exe
INFO: OpenGL Version: 4.4.13467 Core Profile Context 21.19.414.256
Unique Chambers
No issues found
Output
Show output from: Debug
'OpenGLSample.exe' (Win32): Unloaded 'C:\Windows\System32\DriverStore\FileRepository\c0311401.inf_amd64_7990d65f3cc7e31f\atiuxpag.dll'
'OpenGLSample.exe' (Win32): Loaded 'C:\Windows\System32\DriverStore\FileRepository\c0311401.inf_amd64_7990d65f3cc7e31f\atiuxpag.dll'.
'OpenGLSample.exe' (Win32): Loaded 'C:\Windows\System32\DriverStore\FileRepository\c0311401.inf_amd64_7990d65f3cc7e31f\atidxx32.dll'.
'OpenGLSample.exe' (Win32): Loaded 'C:\Windows\SysWOW64\amdihk32.dll'. Module was built without symbols.
'OpenGLSample.exe' (Win32): Loaded 'C:\Windows\SysWOW64\detoured.dll'.
'OpenGLSample.exe' (Win32): Loaded 'C:\Windows\SysWOW64\TextInputFramework.dll'.
'OpenGLSample.exe' (Win32): Loaded 'C:\Windows\SysWOW64\oleacc.dll'.


File Edit View Git Project Build Debug Test Analyze Tools Extensions Window Help
Search
OpenGLSample
Debug
x86
Continue
Process: [1236] OpenGLSample.exe
Lifecycle Events
Thread:
Stack Frame:
Unique Chambers
GLFWwindow* gWindow = nullptr;
GLMesh gMesh;
GLuint gProgramId;
100 %
No issues found
Output
Show output from: Debug
'OpenGLSample.exe' (Win32): Loaded 'C:\Windows\SysWOW64\amdihk32.dll'. Module was built without symbols.
'OpenGLSample.exe' (Win32): Loaded 'C:\Windows\SysWOW64\detoured.dll'.
'OpenGLSample.exe' (Win32): Loaded 'C:\Windows\SysWOW64\TextInputFramework.dll'.
'OpenGLSample.exe' (Win32): Loaded 'C:\Windows\SysWOW64\oleacc.dll'.
The thread 0xe6ec has exited with code 0 (0x0).
The thread 0x3a20 has exited with code 0 (0x0).


Unique Chambers