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DOCUMENT

1. Install OpenGL

I installed and set up window toolkit freeGLUT and an OpenGL's extension library which is GLEW in Visual Studio 2022, followed by this link: https://www.wikihow.com/Set-Up-an-OpenGL-FreeGLUT-GLEW-Template-Project-in-Visual-Studio

First, I downloaded FreeGLUT source code and GLEW source code. Then I downloaded CMake to compile these source code. To install FreeGLUT and GLEW compiled files on the project, I configured "Properties pages" of the project. I choose Platform x64, add Additional Include Directories which contains header files for functions that I can use. I also add library directories, dependencies, and system variables. After that, I make this project become a template project so that I can easily create other projects for the next time.

2. Write a program that show a window from OpenGL

First I call the functions **glutInit(&argc, argv);** to pass the command-line parameters and initialize GLUT library.

I call function **glutInitWindowSize(640, 480);** to specify the size of the window.

I call function **glutWindowPosition(10, 10);** to specify the position of the window on the screen.

I call function **glutCreateWindow("Hello World");** to create a window with a caption "Hello World".

To show a window, I register a function that contain my OpenGL rendering code in function **showWindow();** In that, I call function:

- **glClear(GL_COLOR_BUFFER_BIT | GL_DEPTH_BUFFER_BIT | GL_STENCIL_BUFFER_BIT);** to clear buffer.
- Then, I call function **glutSwapBuffers();** to display the back buffer.

Then, I call this function through function **glutDisplayFunc(showWindow);**

Before call **glutMainLoop();** I call function **glClearColor(0.0f, 0.0f, 1.0f, 1.0f);** to set the background color with blue for the screen.

Finally, I call the function glutMainLoop() to let the window stay on the screen until we close it.