

Programing Assignment #1

In this assignment you will draw basic 2D figures using OpenGL 4 commands and will explore animation and interaction with GLUT.

To start with your assignment download the package called glutapp2d.7z from the course website and extract the files from the package. After extracting the files, rename the base folder to something like cse170-pa1.

The package demonstrates basic OpenGL drawing commands combined with GLUT and other classes to help you organize your code. Use this demo as a starting point for your assignment. With time you should be able to understand the entire source code and its structure.

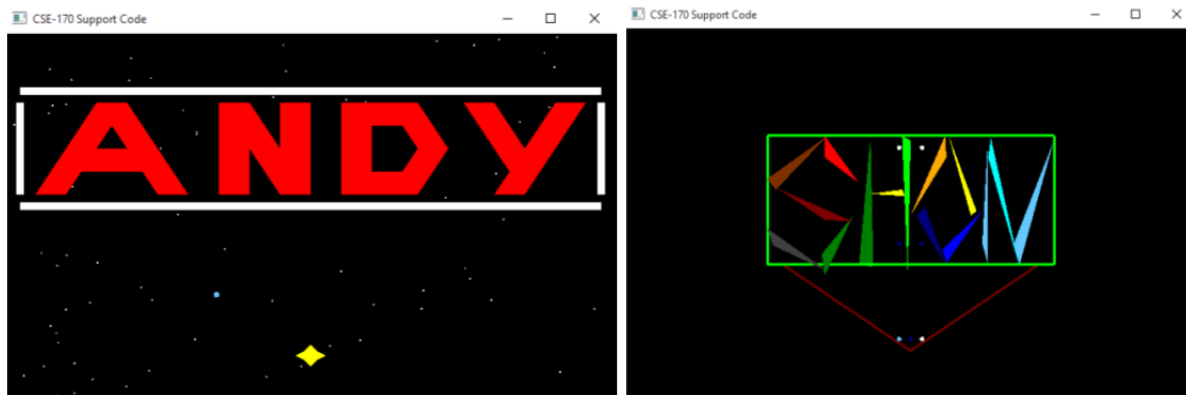
Use the webpage <http://www.opengl.org/sdk/docs/> to read the full description of each OpenGL command used. Make sure to explore this link as you need.

For this assignment you have to accomplish the following:

1) Draw at least the first 4 letters of your name using triangle primitives (40%).

First draw the letters in a piece of paper and write down the coordinates of each point that you will need to use in order to decompose the letters in triangle primitives. The letters can be simplified but they have to be legible. The support code shows you how to organize the coordinates of the vertices in buffers and how to make OpenGL calls for drawing the triangles encoded in the buffers.

Examples from previous years:



2) Add to your scene other objects using the Line and Points primitives (15%).

The objects you will draw here must use different colors and at least 5 points each. You may draw anything, concrete or abstract.

3) Animation (15%). Use the GLUT idle function to change one of the figures continuously while the application is running. For instance, you may make your letters

or any other object to continuously move up and down. In this assignment you will accomplish this by re-defining at every frame the coordinates of the objects that you want to animate. Later you will learn how to use transformations to optimize this process. Note: the animation has to be continuously running by itself, without the need of user intervention.

4) Interaction (15%): Here you will use the arrow keys to control anything in your application: the speed of your animation, the position of your objects, etc. Note that *using the arrow keys is mandatory*.

5) Overall quality (15%): Creativity, source code organization, etc.

Notes:

- You can work on the support code using Visual Studio Express, or Visual Studio Community. After installing one of these packages, just click on the .sln solution file to open the project.
- Using Visual Studio Express is recommended because it loads much faster than the Community version. You can find both versions for free from the Microsoft websites.
- If this is the first time you are using Visual Studio, be sure to seek for our help and to come to our office hours.
- It is highly recommended that you setup friendly Windows settings development. For ex.: do not hide file extensions and show full details of files in Windows Explorer. Search and read recent options related to “Windows Developer Mode”.