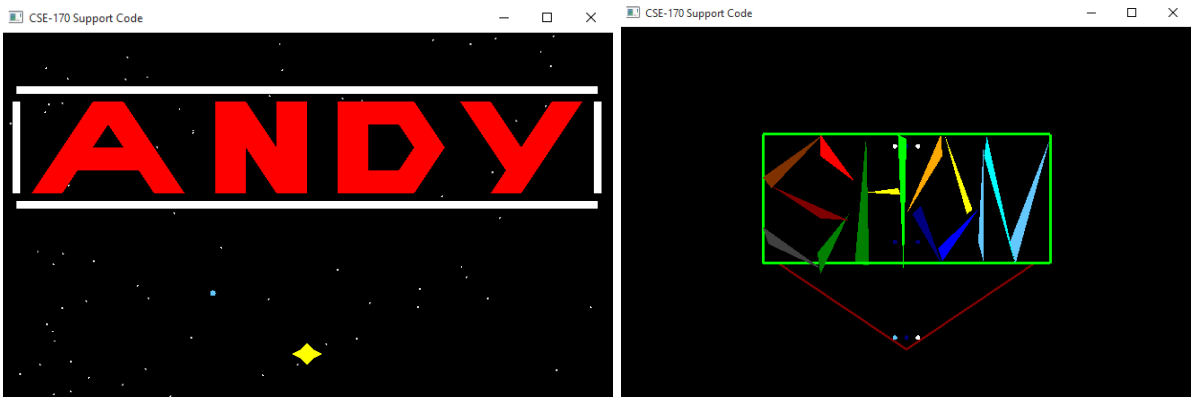
Programming Assignment #1

In this assignment you will draw your name with OpenGL.

Below are two examples from previous years:



First follow these steps:

1) Download PA1_support_code.zip from CatCourses, along with freeglut.zip and glm.zip (or download them from the official sites) and unzip them all in the **same folder**. It is important that they are in the same folder, as the support code solution is linked with relative paths.

2) Double-clicking on BasicOpenGLProject.sln should open Visual Studio. If you then press F5 or Ctrl+F5 you should see the project compile and run without any issues. However, a variety of problems may occur: be sure to have the latest drivers for your graphics card, and if you are running a different version of Visual Studio you may need to retarget the project. Your TA will be helping with these steps. Go to lab as that is the best way to get help with this!

3) When you are able to run the application, you will see two lines and a white triangle in the window. Take some time to familiarize yourself with the example code. If there is anything you do not understand, refer to the lecture slides or any one of the other OpenGL resources suggested, or ask your TA for help.

4) When you are ready, implement the requirements below.

Requirements:

Requirement 1 (40%): Draw at least the first 4 letters of your name using triangle primitives. You might want to first draw the letters on a piece of paper and write down the 2D coordinates of each point that you will need to use to decompose the letters of your name in triangles. The letters can be simplified but they have to be legible. The

support code shows how to send vertex and color information to the GPU using OpenGL's immediate mode (glBegin/glEnd). **This will be the only assignment where you will be allowed to use immediate mode.**

Requirement 2 (40%): Interactive shape parameterization. Use the callback functions to allow the user to control your letters in some way, via parameters. Include at least 3 parameters, with at least one using the keyboard and at least one using the mouse. For example, parameters to control the size of the letters, change the color or orientation, click and drag a letter to move it around, etc. Be creative.

Requirement 3 (10%): User friendliness. Add functionality to make it possible for the user to press a certain key (for example, 'h' or '?') to print in the console a list of all the keys that control your application.

Requirement 4 (10%): Overall quality. Everything counts here: if requirements are well implemented, creativity, source code organization, etc. There is no need to do anything complex, just make sure your project looks good and you will get the full points here!

Notes:
- Many details will become clearer with the explanations and interactions that you will have during the labs. Plan to attend the labs and participate. Be sure to ask questions whenever you feel stuck somewhere.

Submission:

Please follow the instructions in parules.txt (uploaded to CatCourses). In particular: please do not include any third-party support code and do not forget to Clean Solution before preparing your project for submission! Also, check for hidden folders (such as .vs) which can sometimes balloon to hundreds of megabytes!