COMPUTER GRAPHICS (CISC 4/640) Fall '05

Final Project

The following project is mandatory for CIS 640 students, optional (extra credit) for 440 students. All the students need to email the professor and TA once finished, before the end of the semester (Dec. 16th will be the last day you can turn-in).

The final project consists of 3 parts; maximum grade that can be earned for each part is specified next to the description. Note that one cannot design part 2 without having implemented part 1, etc.

Your code should be able to run on the data provided in the "Data" directory of the home-page. You may want to add your own object data if you like.
If you are using PC, copy the files.

1. Implement back-face culling for identifying all the back-face polygons of the given object. (A--)

2. Implement the Scan-line Z-buffer algorithm. Your code should identify and display the wire-frame of all visible surfaces of a given 3D object in any user-specified projection type and transformations. (A-)

3. Implement the basic illumination model using a single point light source, and use Constant shading. Input values include all the required constants such as ambient intensity, light-source intensity and other coefficients, and choice of light source vector and view vector. Keep in mind that the view vector should be consistent with the view specified in the projection.
Display the shaded visible surfaces of a given 3D object in any user-specified projection type and transformations. (A)

4. Extend the system to include multiple light sources, Goraud and Phong Shading options. (A+)