The second project for the course is open-ended. Projects must be completed individually. You must implement a program using WebGL and JavaScript that showcases what has been learned in the class. In general, I would like these projects to include perspective projection, lighting, and texturing (which we will cover as our next topic). In some cases, I may allow programs that do not include all of these aspects if they are sufficiently complex in one particular aspect. Here are some suggested categories for potential projects:

* Simulations: One example I have seen assigned in other Graphics classes involves roller coaster simulations. However, this also involves modeling curves, which we will cover late in the course (it will likely be our final topic). You could also implement a simulation of a scenario related to physics; for example, something that includes gravity or collisions.
* 3-D exploration: You could implement a virtual 3-D environment and let the user explore it. One example would be an explorable 3-D maze.
* Games: For example, you could implement a first-person perspective game (think Doom) or something not exactly first person but where you see your character (think Temple Run). Of course, I would not expect the game to be as complex as either of those.
* Complex modeling: You could model a very complex structure, landscape, or object (or set of objects), and allow the user to view the image from different angles and under different lighting conditions.
* Analysis: You could implement a single application using two or more different approaches (e.g., different shading techniques, putting code in a shader vs. the application, etc.). You could apply each approach to multiple cases involving images of varying complexities. I would expect the code to be reasonably complex, and you would need to perform a detailed analysis comparing the various methods to arrive at some sort of conclusion.

You are also welcome to think about projects that do not fall into any of these categories.

You must e-mail me (CarlSable.Cooper@gmail.com) a proposal before the start of class on Thursday, April 6. The purpose of the proposal is so that I can give you feedback. The projects will be demoed during our final exam slot, which starts at 2 PM on Wednesday, May 3. I also want each student to e-mail me their code before midnight on the night of Wednesday, May 3. Include a brief write-up detailing your project, including a summary of the basic concept, descriptions of non-obvious implementation details, instructions on how I can run and use your system, conclusions that you reached (if appropriate), etc. The write-up can also include any additional information that you want me to be aware of. Please limit your write-up to three pages maximum. Grading may consider the complexity of the project, creativity, whether or not you satisfied what you stated in your proposal (in conjunction with my feedback), your code, the quality of your write-up, etc.; your demo will be a major factor. Note that each student will be limited to approximately 10 minutes for their demo, including setup and Q&A. If you want to spend more time demoing to just me, you can arrange a meeting with me on Monday, May 8.