Project Summary:

* Summary of all scope changes (since proposal)
  + Originally proposed to do in C++ that was changed to JavaScript with WebGL
  + Changed the lighting form to be ambient with shadow objects to be rendered that will give the illusion of direct lighting
  + Changed lighting angle to be only from directly overhead instead of from multiple different angles
* List of deliverables (from proposal; note any changes)
  + Program
  + Demonstration (not physical deliverable, but done nevertheless)
  + Design
  + Requirements
* Known bugs and recommended enhancements
  + Currently there is no texture rendered. It would be recommended that a texture would be added in the future.
  + Another enhancement would be to add the light angles that were originally proposed using shadow mapping.
  + The objects weren't rendered from the inside looking out. It would be good to add those vertices in order to not see the terrain through insides of objects like the hangar.
* Discussion of how your work satisfies what you proposed

I originally proposed this project for several reasons. These reasons were:

* learning how a project of great magnitude operates
* learning about how graphics work
* demonstrate that I can accomplish my own project of great magnitude for my resume

I satisfied my all of my reasons for working on the project. I was able to experience the frustration of having to redesign a project of greater magnitude than I had previously experienced as well as the satisfaction of finishing a project of that size. I definitely learned about graphics, and about how they work. I have demonstrated that I can do all the research, and coding of a project this size, and can now put that on my resume with a link to Github.

* Summary of what was accomplished

I accomplished:

* create 3 dimensional models of at least 7 different forms of tanks.
* be able to animate each and every tank that was rendered
* attach shadows to all tanks rendered
* be able to control a camera in a 3 dimensional space with code

I created 7 different 3 dimensional models (ended up being rainbow colored). I was able to animate every tank rendered with the code that I wrote. I attached shadows to each and every tank that was rendered (they ended up being black flattened models of the tanks). I was able to animate the scene in order to give the illusion of camera manipulation.

* What you learned from doing the project

I learned quite a few things in making this project. The most important thing I learned is that when designing a project it is good to first have a little experience in coding individual components and examples (if there is a way to do that with the project chosen). This proved essential in planning and design of the project. I learned that in OpenGL the only objects that are actually drawn are triangle. An example of this is that when you see a square in OpenGL it is just two triangle put side by side in order to render what looks like a square. I learned that when drawing the triangles the order in which the vertices are specified will change the side of the triangle that will be rendered. I learned that shadows are not an easy thing to do. I also learned that if you are too anxious to get into the code, and miss research you will regret it, because it may require you to completely redesign the entire project from square 1.