Project Plan Summary

Project Name:	Surface for 3D Printer
Project Scope:	Create a program that takes a valid name, user equation, resolution, and bound and outputs a file readable by a 3D printer.

Spiral Descriptions

#	Name	Scope
1 9/12	Research, Plan, and Start UI	Become more familiar with project scope by meeting with customer and researching. Use this research to more clearly define project plan, requirements, and design. Start with a simple user interface to get user equations and bounds with input validation.
2 9/19	Research Equation Validation and Tessellation Algorithm	Research ways to validate the user's 3D equation. Finish researching the tessellation algorithm.
3 9/26	Input Validation and Storing Data	Implement input validation for the user's 3D equation and bounds (Requirements 1.2, 1.4), then test. Research and implement ways to store bounds in Model.
4 10/3	Octant Rule (RULE 1)	Implement the Octant Rule for tessellation (only deal with equation and bounds in the first all-positive octant) then test.
5 10/20	Tessellation and Resolution of Tessellation (RULE 2)	Implement the 2D tessellation algorithm on the user's bound (Requirement 2) and test. Enable the user to change the resolution of the 3D print (how close it approximates the surface) (Requirement 1.3).
6 10/31	Solid Name, Controller Remodel, Bound/Surface Normal Vectors, and Orientation Rule (RULE 3,4)	Implement naming of solid (Requirement 1.1). Separate Controller into multiple classes for separation of concern. Find the normal vectors for the bound and surface that satisfy the orientation rule.
7 11/10	Tessellating Sides (RULE 2) and ASCII STL File Formatting	Develop algorithms for estimating the sides with triangles. Implement algorithm to create ASCII STL file (Requirement 3) then test triangulation.
8 11/28	Normal Vectors for Sides (RULE 4) and RULE 5	Find normal vectors for the sides. Implement listing of triangles in ascending z order in the STL file.
9 12/8	Test Tessellation, Remove GUI Graph, Third Party Triangulation API	Extensively test the tessellation algorithm using the STL files. Remove the GUI graph showing the 2D bound tessellation that was used for testing. Make an API to communicate with the third party code.