Client Story:

The subject of this project was selected out of interest. It should be a 3D first-person shooter with multiple levels or areas selected through a menu. There should be several varieties of weapons and enemies, and at least one type of ammunition. There should also be sound effects and music, and the aforementioned menu. The game should receive input through the keyboard and the mouse.

Backlog:

There is an environment with the ability to support the player character and other characters and objects

The player character exists in-game

There are enemy characters

The character may be moved through the use of the keyboard and mouse (Standard WSAD configuration for walking, movement of mouse left and right controls horizontal camera angle, movement of mouse up and down controls vertical angle)

The character has guns

The character may shoot and kill the enemies

Sprint Tasks:  
Load test environment

Create camera

Move camera based off of pressing of W, S, A, and D

Turn camera horizontally and vertically based off of pressing of left and right arrow keys (for testing)

Move camera based off of pressing of W, S, A, and D and camera angle

Turn camera horizontally and vertically based off of mouse movements

Optimize and reorganize code

Make character unable to walk through solid objects

Responses to Questions:  
 My program is a simple demonstration of a first-person game in a 3D environment. I wrote this program in Python using the IDLE development environment. I also used the Panda3D game engine/library, by Carnegie Mellon Entertainment Technology Center (<https://www.panda3d.org/>), to manage the camera, player, and environment; to create and render the window and screen; and to, essentially, complete all other aspects of the program specific to a 3D game. As a game, it has no objective, however as a program, its purpose is the demonstration of the capabilities of Python concerning a 3D environment. The video demonstrates the basic mechanics of the program—the fact that the player can walk around the screen and that his direction may be controlled through the movement of the mouse—and therefore successfully identifies the key features—also the only features—of the program.

The relative complexity of the program allowed for a large number of both opportunities, and challenges. Some of the challenges were causing the character to move based off of the pressing of W, A, S, and D and the current angle of the camera; and getting the movements of the mouse to successfully control the angle of the camera.