For the final project of this course, you are requested to develop the following mini first-person shooter game by applying the knowledge you have gained so far throughout the semester.

**Game Engine Foundations**

**Final Project**

**Due Date: Dec. 5 @ 11:59 PM**

**Tank**

The game consists of some tanks that are spawned every two seconds in random locations of the scene. A tank consists of a body (box) and four wheels (hexagon) attached to it. When a tank moves, the wheels should be rotating. You are requested to apply distinct textures to body and wheels.

Once spawned, a tank moves toward the center of the world (0, 0, 0). Further, a tank is destroyed (wiped out from the scene) if at least one of the following conditions is satisfied:

1. Vehicle has reached to the center of the game scene
2. Vehicle has collided with another vehicle
3. Vehicle is collided by a bullet (shot by the player)

**Player**

As for the player, use the same controls that we have used in class (mouse & keyboard). Also, provide shooting functionality using ‘F’ key on the keyboard, just the same as what you did in lab seven.

**Bullet**

You can use any kind of 3D geometry to represent the bullet, but scale it down. A bullet should get wiped out from the scene (removed from the gameScene) 2 seconds after spawning. So, the life span of a bullet is **only** 2 seconds.

**Game Over**

The game is over under one of the following conditions:

* Ten vehicles are shot by the player (Victory)
* The player collides with a vehicle (Loss)

**Rubrics**

Tank

* Model (20 marks)
* Spawn(15Marks)
* Destroy (10Marks)
* Motion:(15Marks)

Collision

* + Vehicle-vehicle (10Marks)
  + Vehicle-Bullet (10Marks)
  + Vehicle-Player (10Marks)

Bullet: Correct spawning and removing from the scene (5 marks)

Game Over: (5Marks)

**Submission**

* You are required to submit your work through blackboard.
* You are requested to submit:
  + The screen capture (.mp4) format that demonstrate all functionalities you developed for your project.
  + The CPP file that you have modified as well as texture images you used.
* Please do NOT upload the whole project folder.