



## **GAME3121 – Game Engine Development I**

### **Assignment 1**

#### **Assignment 1: Part1**

Overview:

Create a 3D project and add Challenge 1 starter files from the Github  
(<https://github.com/hsalamat/GAME3121>)

Use the skills you learned in the driving simulation to fly a plane around obstacles in the sky.

You will have to get the user's input from the up and down arrows in order to control the plane's pitch up and down.

You will also have to make the camera follow alongside the plane so you can keep it in view.

Outcome:

The plane moves forward at a constant rate

The up/down arrows tilt the nose of the plane up and down

The camera follows along beside the plane as it flies

Note: When you import the challenge into your project, it is supposed to have bugs.

The purpose of the challenge is for you to fix those bugs:

1. The plane is going backward, Make the plane go forward
2. The plane is going too fast, Slow the plane down to a manageable speed
3. The plane is tilting automatically, Make the plane tilt only if the user presses the up/down arrows
4. The camera is in front of the plane, Reposition it so it's beside the plane
5. The camera is not following the plane, Make the camera follow the plane
6. The plane's propeller does not spin, Create a script that spins the plane's propeller

#### **Assignment 1: Part2**

Overview:

Create a 3D project and add Challenge 2 starter files from the Github  
(<https://github.com/hsalamat/GAME3121>)

Overview:



Use your array and random number generation skills to program this challenge where balls are randomly falling from the sky and you have to send your dog out to catch them before they hit the ground. To complete this challenge, you will have to make sure your variables are assigned properly, your if-statements are programmed correctly, your collisions are being detected perfectly, and that objects are being generated randomly.

**Outcome:**

A random ball (of 3) is generated at a random x position above the screen. When the user presses spacebar, a dog is spawned and runs to catch the ball.

If the dog collides with the ball, the ball is destroyed.

If the ball hits the ground, a "Game Over" debug message is displayed.

The dogs and balls are removed from the scene when they leave the screen.

**Note:** When you import the challenge into your project, it is supposed to have bugs.

The purpose of the challenge is for you to fix those bugs, which are listed below.

1. Dogs are spawning at the top of the screen, Make the balls spawn from the top of the screen
2. The player is spawning green balls instead of dogs, Make the player spawn dogs
3. The balls are destroyed if anywhere near the dog,  
The balls should only be destroyed when coming into direct contact with a dog
4. Nothing is being destroyed off screen, Balls should be destroyed when they leave the bottom of the screen  
and dogs should be destroyed when they leave the left side of the screen
5. Only one type of ball is being spawned, Ball 1, 2, and 3 should be spawned randomly
6. The spawn interval is always the same, Make the spawn interval a random value between 3 seconds and 5 seconds
7. The player can "spam" the spacebar key, Only allow the player to spawn a new dog after a certain amount of time has passed



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### **Record your work:**

1. Set up your scene to prepare it for recording.
2. Install "Recorder" Package in the Package Manager
3. Open the Recorder from the Unity menu (Window > General > Recorder).
4. In the recorder list, select then set up the recorder to use.
5. Set the Record Mode and Frame Rate properties.
6. Add a "movie" recorder
7. Prove all the bugs have been fixed in your movie
8. Add the movie in a folder named "movie" in your project folder (GitLab!!!)

### **Team and Presentation:**

- 1) You can have a partner, or you can do this assignment by yourself.
- 2) Your code should be placed in a repository in GitLab and add me as a contributor (my username is @hoomansalamat )!
- 3) Last but not the least, you have to "record" your assignment in Unity, copy the entire project in GitLab. I should be able to "pull" the project and run it with no problem. You will "demo" your "recording" in the class to get marked. No demo → No mark!!!



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See the mark breakdown for the details of the marking scheme.

**Marks: 10% of your grade**

Task	Mark	Possible Marks
Challenge 1		5
Challenge 2		5
Create a GitLab repo and me (@hoomansalamat ) (Hooman.Salamat@GeorgeBrown.ca) as a contributor		0
<b>TOTAL:</b>		10