

CH9_002

EXERCISE



RAYCAST VERSUS MESHES

Exercise Files

Starter – "Kit/gpgt/server/scripts/gpgt/chapter9/exercise_002.cs"

Answers – "Kit/gpgt/server/scripts/gpgt/chapter9/answers/exercise_002_f.cs"

Exercise Mission

Chapter 9: "002_ContainerRaycasting: Ray cast versus Meshes"

Synopsis

In this exercise, we will test your knowledge of collision and ray casting rules as learned in chapters 8 and 9 of the guide.

Prerequisites

1. [ch1_001.pdf "Using The Kit"](#)
2. [ch8_001.pdf "Using TST Pro"](#)
3. [ch9_001.pdf "Basic Ray Cast"](#)

Exercises

1. [Ray Cast versus Mesh and Object Types \(pg 2\)](#)

RAYCAST VERSUS MESHES

1 Ray Cast versus Mesh and Object Types

Goal: It is your goal to correctly identify the cases where a ray cast will intersect a given object when you know that object's type and the mesh or meshes it implements.

Starter Code: For this example, all of the functional code has been implemented. Your only job is to make changes to a single global variable that the exercise will use to select the current object to create and cast a ray against.

The rest of the code in this exercise is quite similar to that in the "Basic Ray Cast" exercise. An object will be placed in the center of a ring and a ray will be cast from one marker on the ring to a second marker. The location of second marker will cycle around the ring, meaning that the ray will only sometimes intersect the object in the center.

The code you need to modify is located between two markers "// EXERCISE BEGINS HERE" and "// EXERCISE ENDS HERE".

```
// EXERCISE BEGINS HERE
```

```
$meshVariationsTestNum=0;
```

```
$meshVariationsDB[0]= "StaticShapeEgg";  
$meshVariationsDB[1]= "StaticShapeEggCol";  
$meshVariationsDB[2]= "StaticShapeEggLOS";  
$meshVariationsDB[3]= "BlueGuy";  
$meshVariationsDB[4]= "ItemEgg";  
$meshVariationsDB[5]= "ItemEggCol";  
$meshVariationsDB[6]= "ItemEggLOS";
```

```
// EXERCISE ENDS HERE
```

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Steps:

1. Please answer the questions below FIRST.
2. Once you have answered the questions, please run the mission associated with this exercise seven times, each time selecting a new value for the global "\$meshVariationsTestNum".
 - 0 – Renders a StaticShape using the egg.dts model.
 - 1 – Renders a StaticShape using the eggCol.dts model.
 - 2 – Renders a StaticShape using the eggLOS.dts model.
 - 3 – Renders a AIPlayer using the blueguy.dts model.
 - 4 – Renders an Item using the egg.dts model.
 - 5 – Renders an Item using the eggCol.dts model.
 - 6 – Renders an Item using the eggLOS.dts model.
3. For each mission run, observe the example running and check its behavior against your answers.

Output Goal:

As before, if the object in the center of the ring is hit by the ray cast, it will turn green (figure 1).



FIGURE 1. RAY COLLISION

Otherwise, the shape will remain red (figure 2 on next page).

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Questions:

1. Which of these cases will result in a ray cast collision?

- 0 – StaticShape using the egg.dts model. ==> HIT / NO HIT
- 1 – StaticShape using the eggCol.dts model. ==> HIT / NO HIT
- 2 – StaticShape using the eggLOS.dts model. ==> HIT / NO HIT
- 3 – AIPlayer using the blueguy.dts model. ==> HIT / NO HIT
- 4 – Item using the egg.dts model. ==> HIT / NO HIT
- 5 – Item using the eggCol.dts model. ==> HIT / NO HIT
- 6 – Item using the eggLOS.dts model. ==> HIT / NO HIT

1. Please provide reasons for each of your answers above.

- 0 – _____
- 1 – _____
- 2 – _____
- 3 – _____
- 4 – _____
- 5 – _____
- 6 – _____