

# Case Study #3 - Exercise Solutions

## Exercise #1

### Assumptions:

1. We are going to trigger the explosion sound in the Bullet class by checking if the bullet hit the boundary of the screen, using our Utility class from previous exercises.
2. We are also going to add a visual effect to accentuate the explosion by creating a camera shake.
  - a. We will use the `camera.shake(...)` method to achieve this effect. We will set the parameters as follows:
    - i. The duration of the shake will be **0.25 seconds**
    - ii. The intensity of the shake will be **5 pixels** (which is the displacement distance in pixels)
3. For the sound of the missile/bullet shot we will be using this sound:
  - a. <https://freesound.org/people/Mrthenoronha/sounds/397702/>
4. For the sound of the explosion we will be using this sound:
  - a. <https://freesound.org/people/Robinhood76/sounds/273332/>

### Solution:

1. We will check the condition of the bullet being outside of the screen boundary using our Utility class method:
  - a. `bool isPositionOutOfBounds(Vector2 bounds, Vector2 position)`
2. Once the condition is triggered we will play the explosion sound and we will also trigger the camera shake for added visual effect.:
  - a. `gameRef.camera.shake(duration: 0.25, intensity: 5);`
3. We needed to add the `HasGameRef` mixin to the `Bullet` class to get access to FlameGame API as well as the screen size.

You will find the code solution in the directory:

*"Exercise Solutions\component\_003[Sound]\component\_003\_001"*

## Exercise #2

### Assumptions:

1. We will layer another sound on top of the missile shot sound. By simply triggering it at the same time.
2. The sound we will use is this one:
  - a. <https://freesound.org/people/Robinhood76/sounds/324137/>
3. Note that we do not currently control the sound levels and the amount of mixing of the sounds. The layering is just playing the sounds at the same time, so when you choose your sounds to layer make sure that they do not clash sonically.

### Solution:

1. We will simply play the layered sound on top of the original missile shot sound.

You will find the code solution in the directory:

*"Exercise Solutions\component\_003[Sound]\component\_003\_001"*