# Unity Practical Assessment

# Simple Game Manager

## Design Specifications

This practical example consists of a new 3D Unity project, created in a version of Unity *2020 LTS* containing a single simple scene.

This scene should consist of:

- A flat square 20m by 20m platform for a player character to run around on. ✓
- A 1m sphere at each corner of the platform. ✓
    - Each sphere should be a different solid color, for example one Red, one Green, one Yellow, and one Blue. ✓
- A single UI button in the bottom center of the screen. ✓
- A "Game Manager" with a script attached that is defined further below. ✓

## Game Manager

The "Game Manager" script should work as follows:

Maintain references to a variable number of player "Controller" prefabs, exposed through the editor, similar to the following image:



✓
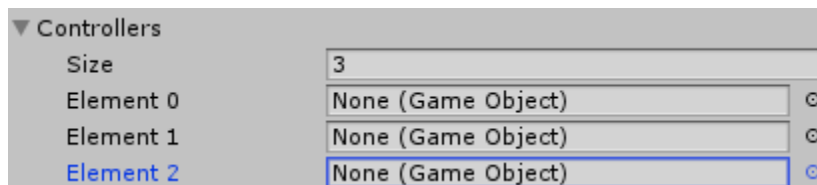
- These player controller prefabs will be based on controllers within the Unity Standard Asset "Characters": **FPSController** and **ThirdPersonController** ✓

At runtime, instantiate the first controller in the center of the scene, 1m above the platform, with zero rotation. ✓

~~When the user clicks the UI button, or presses down the default "Fire1" input, the current controller advances one step, for example 1st → 2nd → 3rd → 1st.~~ ✗

Since Fire1 Button triggers switching to next PlayerController, it will also be triggered when clicking the botton, so no extra step is required

The UI button should always display the name of the next controller that will be switched to. ✓

Each controller prefab should only be instantiated a single time. When switching to a new controller, the current controller should be deactivated. When switching back to a deactivated controller, it should be reactivated, rather than instantiating a new copy. ✓

- When switching between controllers, the position and rotation of the player should be **!** maintained.
- The manger should reset the player to the default starting position and rotation if they are ever 5 meters or more below the platform, for example if they walk off the side. **!**

## Initial Scene Setup

The scene should be set up to use the Game Manager as follows:

- The Game Manager should have references to two Controllers: a version of **✓** **ThirdPersonController** and a version of **FPSController**.
- At runtime, a version of **ThirdPersonController** is instantiated from a prefab. It uses **✓** the standard controls, with a view similar to the following image:
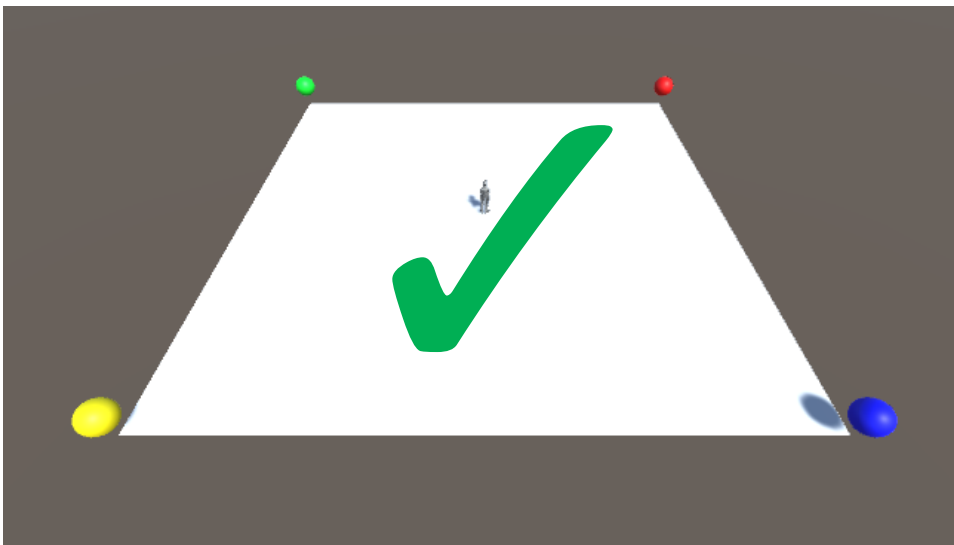


- On ~~clicking the UI button or~~ activating Fire1, the user switches to a version of **✓** **FPSController**, instantiated via prefab.
- On ~~clicking the UI button or~~ activating Fire1, the user switches back to the **✓** **ThirdPersonController**.

## Important Notes

You may use and modify the Standard Assets in any way you want or need, but please do not **✓** import any other assets!

Some Game Manager functionality may not fully work with the Standard Asset controllers. A notable example is that the standard **FPSController** will maintain the rotation it had when **✓** last disabled. You do not need to correct this, so long as the Game Manager attempts to set the correct rotation when activating this controller.

Once you have completed this project, please export the scene with all dependencies and deliver the unitypackage back to us via email.