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SWE 585 In Class Practice #7

(Object Pooling)

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Group #: Room 3

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Definition:

In this ICP you will explore the built-in Object Pooling capabilities of Unity 2021

STEP 1: Download the unity project provided in the class slack workspace -> unity.zip

STEP 2: Run the project, you should see the scene given below. Play with Pooling on and Pooling off options.

STEP 3: Discuss with your group how you can play with the limits of this scene. Change the attributes from the inspector and/or change C# scripts to make the changes you aim. Try out more than one setting.

STEP 4: Use profiler to see how object pooling helps the performance. To do this, first select the settings that you found out in Step 3. Later run the scene with pooling=on and pooling=off. Use profiler to monitor the performance in both cases.

Fill in group's summary on the results of step 4

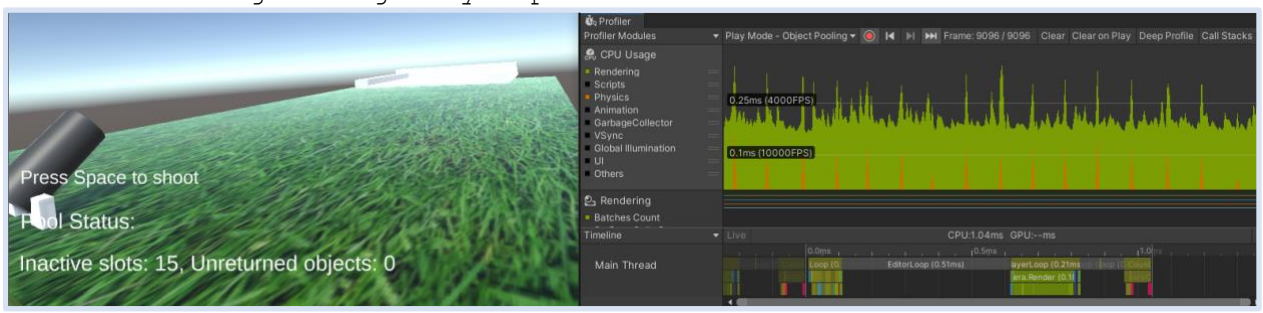
To understand how the pooling system works, we have first started by playing with the values attached to the pool manager. We have understood the way to start capacity and max size work.

Afterwards, we changed the input type, and instead of "getkeydown", we experimented with "getkey". This way there was a drastic change between pooling enabled or disabled. In the images provided at the end of the document, one can see the game scene and the associated data of the profiler.

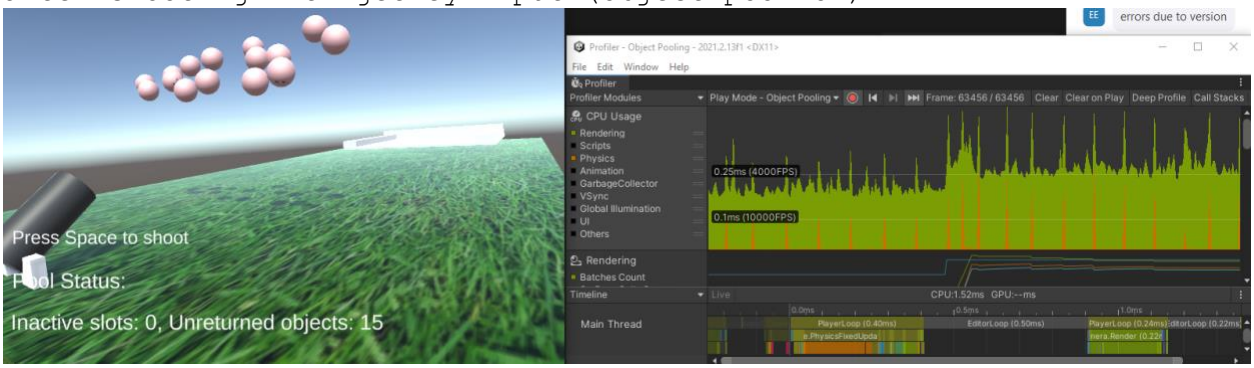
If we do not use pooling, there is less control in terms of the gameobject count. Therefore, a drastic increase and spikes related to the physics and rendering data can be observed. When we look at the CPU usage, we can see that before giving any input, the average is 4000 FPS. When we give an input, where the pooling is enabled and the maximum size is 15, we see that 4000 FPS suddenly drops down to 2000 FPS. Lastly, if we give an input (of approximately 1 second)and the pooling is disabled, we see a linear decrease in time from 4000 FPS to 1000 FPS (Spikes that reach 500 FPS).

Provide necessary screenshots to support your conclusion.

before shooting with getkey input



after shooting with getkey input (object pool on)



after shooting with getkey input (object pool off)