FLORIDA POLYTECHNIC UNIVERSITY

Co-Routines

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Game Design 2 – Lab 1
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1. Objectives

This lab will have the following objectives:

a. Learn Co-Routines
b. Learn Different Applications of Co-Routines
c. Study limitation of Co-Routines.

2. Equipment

a. Laptop/Computer Running Unity 2017 or Greater

3. Lab Preparation

a. Study the power point, movies and notes regarding Co-Routines

4. Lab Instruction

Phase 1:

a. Create a cube that has a drop down box labelled team.
b. There should be at least three different color teams.
c. When you select the team an integer variable will be set in the monobehaviour.
    a. Do NOT change the color in the call back for the drop down menu
d. Have a COROUTINE waiting for that variable to change to set the color.
e. You may use an array of materials to hold the different colors.

Phase 2:

a. You will create a prefab sphere that has a “bouncy” physical material.
    a. You can start it in the air so it is always bouncing.
b. The sphere WILL NOT USE the update function.
c. The monobehaviour attached to this prefab will be have a “slow update” co-routine that will function every .5 seconds.
d. You will also have an array of different materials in your Mono-behaviour (Red, Blue, Green etc)
e. Every update cycle you will randomly choose a new material from the array and assign it as the material for the current mesh renderer.
    a. Thus every half of second the sphere should change colors.
f. Test this

Phase 3:

a. Now creating a new co-routine that will wait for .5 second and then create a new sphere
b. Change the “slow-update” in each sphere so it will change colors 10 times a seconds.
c. Create a variable that will count how many spheres there are.
d. Let the program run and watch the CPU, how many spheres were you able to create?
    a. If you hit 3000 spheres you may stop.

Phase 4:

a. Modify the slow update so each sphere will spawn another sphere every .5 second.
b. How many spheres were you able to create before crashing the computer.

5. Lab Rubric

	5	3	0
Create a bouncing Sphere	Perfect	Close, but a few bugs	No effort, or unable to determine if requirement was met.
Sphere uses two co-routines.	Perfect	Close, but a few bugs	No effort, or unable to determine if requirement was met.
Sphere changes color every .1 seconds (for part 3)	Perfect	Close, but a few bugs	No effort, or unable to determine if requirement was met.
Sphere is spawned every .5 seconds.	Perfect	Close, but a few bugs	No effort, or unable to determine if requirement was met.
You display the total number of created spheres.	Perfect	Close, but a few bugs	No effort, or unable to determine if requirement was met.
Total	/25		

6. Lab Report Requirements

Create a 1 page report detailing what your results were. I also would like you to take a screen shot of your computer task manager of the CPU usage as the program was running. Please state how many spheres you were able to get up to while still having decent performance. Please try to get a screen shot of the spheres at max number. I will be grading grammar and spelling. Remember use active voice when you want to emphasize the subject, use passive voice when you want to emphasize the action being taken on the subject.

Please also state if you encountered any problems and if you were unable to finish the assignment.