



Unity Piscine - d09

First Person Shooter

Staff staff@staff.42.fr

Summary: Here is the subject for the D09 of the Unity Piscine of [42](#).

Contents

I	Preamble	2
II	Instructions	3
III	Today's specific instructions	4
IV	Exercise 00: Armed and dangerous	5
V	Exercise 01: This ain't no place for no hero	6
VI	Exercise 02: Endless Arena	7
VII	Exercise 03: Who's the boss	8

Chapter I

Preamble

This Piscine is almost over. I hope you've learned a lot and made a lot of cool games. No video, today, but a top notch game that will victoriously take you to the Rush! Good luck and enjoy!

Chapter II

Instructions

- Only this page will serve as reference. Do not trust rumors.
- The exercises have been ordered from easiest to most difficult. Under any circumstance you can submit or take into account an exercise if a previous one has failed.
- Be careful with the access rights of your files.
- You should follow the submit procedure for all you exercises.
- Your exercises will be corrected by your piscine peers.
- You cannot leave any extra file on your repository except the ones explicitly specify on you subject.
- Got a question? Ask your peer on the right. Otherwise, try your peer on the left.
- Everything you need can be found on the `man` or out there on Google.
- Read carefully the exercises: they may contain some features you should implement that are explicitly mentioned on the subject.
- Think about discussing on the forum Piscine of your Intra!
- Use your brain!!!


Chapter III

Today's specific instructions

- Don't waste time trying to manage the character's movements. Import the First Person Controller included in Unity's Characters package in the Standard Assets.

Chapter IV

Exercise 00: Armed and dangerous

	Exercise : 00
Exercise 00: Armed and dangerous	
Turn-in directory : <i>ex00/</i>	
Files to turn in : Anything relevant	
Forbidden functions : None	

Weapons are key in achieving a good FPS shooter, so this is where you'll begin. Implement them observing the following rules:


- You can identify two types of weapons. One is accurate and will only hit one enemy. The second is a heavy damager that will hit several enemies in a given range.
- Both weapons differ in speed and damage.
- When you shoot, you can see the tracing of your shot and the hit triggers a particle. The weapons don't have the same tracing and particles.
- You can switch weapons pressing 1 and 2 keys. Of course, you can shoot with the left click of the mouse.
- The weapons don't have the same sounds and they're slightly animated (see today's demo).



If you have hard time completing the second exercise, set up still targets to test the weapons' operations. You must be able to take "life" off your targets.

Chapter V

Exercise 01: This ain't no place for no hero

	Exercise : 01
Exercise 01: This ain't no place for no hero	
Turn-in directory : <i>ex01/</i>	
Files to turn in : Anything relevant	
Forbidden functions : None	

Weapons. Great. Now we need something to shoot or this game is gonna be a bore. Add enemies with a remotely interesting artificial intelligence that will make the game a worthy play.


Once again, here are a few instructions for the AI. Feel free to add anything you like to enhance it:

- An enemy starts at one corner of the map and goes toward the center.
- The AI will have a relatively large detection area. If the player enter it, the AI starts running after them. If the enemy loses track of the player, it returns to it last known position.
- If the enemy is hit, it goes where the player was when they shot. When the enemy's life reaches 0, it dies and disappears.
- Once the the player is in the enemy's range, the latter attacks and the player loses X life points for each hit.
- The enemy must always use the shortest path to reach its destination.
- The enemy is completely animated whether it runs, walks, attacks or gets hit and dies.

Set a few enemies in the map so we can have a little fun.

Chapter VI

Exercise 02: Endless Arena

	Exercise : 02
Exercise 02: Endless Arena	
Turn-in directory : <i>ex02/</i>	
Files to turn in : Anything relevant	
Forbidden functions : None	

It's time to add a little gameplay to our game. Let's set a relatively simple system that's already proved its worth over and over: the arena.


In order to make it work, we're gonna need several key elements. First, create spawners at the 4 corners of the map. They will spawn enemies in a random and non simultaneous interval. There must never be more than 20 enemies on the map.

You will also have to design a wave system. With each wave, enemies grow stronger. Add a progression factor that will define your game's global difficulty. Set the difficulty so the game is still playable after 5 waves. You will also give the player a short rest between each wave. Enemies will stop spawning for a few seconds. Waves are set in time, but enemies remain alive even if their wave is over.

Let's create a GUI that will display the player's life and remaining time of the current wave. It will also display a message for each pause/new wave. When you die, the GUI displays a message and the number of waves defeated.

Chapter VII

Exercise 03: Who's the boss

	Exercise : 03
Exercise 03: Who's the boss	
Turn-in directory : <i>ex03/</i>	
Files to turn in : Anything relevant	
Forbidden functions : None	

The cherry on the cake of your game will be... its boss! Add an enemy physically different from the others (you can identify it in the distance). It will have a more developed AI.

The boss always knows where the player is and will ALWAYS come after them, wherever they are. It's significantly stronger and has much more life points. To spice the epic battle, the boss will shoot energy balls to the player (they won't be homers, though. See the demo). You will represent balls with a particle. If the ball hits the player, they block him for 2 s.

Of course, this special boss will only show on special times. Thus, it will only spawn every 3 waves. Unlike the other waves, the boss waves only end when the boss dies. Classic enemies don't spawn during the boss waves.

As always, if you made it to this point, congratulations! You can rest, but you can also try to enhance what you've done and add all the details you like to make your game more personal. Think of ambient sounds, enemy voices and so on...