Physics World – Part I

An experimental 2-dimensional, physics-heavy, sandbox-game-thing.

# Submission Guidelines:

In GitHub, create a branch for your project named “PartI\_Completed”.

Make no further changes to this branch. Make no further branches from this branch. This branch is frozen – a monument to the first step on this project. I will clone that branch, and create a new repo, at the time the assignment is due.

Due at 5PM on Friday 1/30.

# Base Requirements (83)

* Setup a repository for the Physics World project in GitHub
  + Create a new repo named *Sp21-EGAM102-PhysicsWorld-yourname*
  + Make sure you use the appropriate .gitignore file
  + Add me to your repo as a collaborator. Username: TimHandleyAC
* Place an annotated version of this rubric in the root directory of your Unity project. Save it in Word .docx format. When I download your Part1\_Completed branch, I should find the rubric.
* Pick a theme for your project. Is it side-scrolling? Top-down? In space? A platformer? Underwater? In one sentence, outline the premise for your world.
  + Premise: platformer
  + Players can jump back and forth on various platforms. The platform can be moved or rotated.
* Write an AvatarController script that implements physics-based movement. Then, write a few words to explain the controls. What keys do what?
  + Explanation: press A/D to move left and right, press space to jump.
* In the Physics 2D Toolset, there are nine different joint-type components. Use five of them in an interesting manner. Outline the usage below: What joint-component did you use, and what did you build with it?

1. Distance joint 2D: the ball will swing around a little bit.
2. Spring joint 2D: the cube will jump like a spring.
3. Hinge joint 2D: the block rotates around the center upon impact.
4. Relative joint 2D: the block can swing back and forth in the designated area.
5. Slider joint 2D: the object will always point to another object.

* In the Physics 2D Toolset, there are five different effector-type components. Use three of them in an interesting manner. Outline the usage below: What effector-component did you use, and what did you build with it?

1. Surface effector 2D: I made a conveyor belt to move the square to the right.
2. Buoyancy effector 2D: I made a pool at the bottom, and objects will float on top.
3. Platform Effector 2D: Blocks can pass through the platform and land on it.

# Stretch Goals:

* (+2 to +3 pts ea) Interesting usage of different joint-type components. Outline the usage below: What joint-component did you use, and what did you build with it?



* (+2 to +3 pts ea) Interesting usage of different effector-type components. Outline the usage below: What effector-component did you use, and what did you build with it?



* (+2 to +3 pts ea) A more elaborate AvatarController. Your script does more than just physics-based movement. It does unexpected and interesting stuff. What does it do?
  + Feature 1: The cube collides different object and make different sound.
  + Feature 2:
  + etc.
* (+2 to +3 pts ea) A trigger collider with an interesting effect. When the collider is triggered, something happens. How do you trigger the trigger, and what happens?
  + Trigger 1: The cube collides different object and make different sound. Each object has different tags. The cube will identify the cube and call the audio clip. All the audio are edited to form a function. Every time the collision function is triggered, the audio function will be called and give the right audio clip.
  + Trigger 2:
  + etc.
* (+1 to +10) Other. Something nifty related to physics or the Unity physics engine. Explain: What is your nifty thing? What is the physics connection?
  + Nifty thing: I add a trail the cube so there is white light on the path.