**Worksheet – Interactive Lab Project #1**

*Provide concise sentence-form answers to the questions below.*

*Include cropped screenshots, diagrams or illustrations to help clearly communicate your answers.*

| **Score** | | **Out of** | | Question |  |
| --- | --- | --- | --- | --- | --- |
|  |  | | 1. a) | | Explain the difference between public and private fields. |
|  | **1** | |  | | the public can be accessed from anywhere, it's also useful for making quick changes in the inspector tab. Private is restricted to being used inside its script. |
|  |  | | b) | | Give an example of where you used a private field in your project. Explain why you chose to make it a private field. |
|  | **1** | |  | | Inside my player object I had a variable for his power, and there was another variable named powerDefault. Power changed values depending on different factors but I wanted to have an unchangeable variable to act as a baseline. That's why I made powerDefault private because I didn't need any other script to access it and I didn't need to change it in the inspector panel. |
|  |  | | c) | | Give an example of where you used a public field in your project. Explain why you chose to make it a public field. |
|  | **1** | |  | | Referencing the example I listed above, the power variable was made public so It could be referenced by other scripts. I also wanted the option to change its value while the game was running. |
|  |  | | 1. a) | | Identify a ***Trigger*** event in your Unity Project. |
|  | **1** | |  | | I used a trigger event to check if the enemy object had touched my “lava” object. Touching it would make the enemy object destroy itself. |
|  |  | | b) | | For each of the 2 overlapping game objects, list the requirements to produce the trigger message. Refer to the ***Collision Action Matrix*** in your answer. |
|  | **2** | |  | | I a static collider that tracks the rigid body of the enemy object in order to find a collision. |
|  |  | | c) | | There are multiple component configurations for producing a trigger message. Provide a rationale for why you chose the specific configuration in 2b. |
|  | **2** | |  | | The prefab that searches for a collision does not need to move, It stays in place waiting for the enemy to cross and be destroyed. |
|  |  | | 1. a) | | Identify a ***Collision*** event in your Project. |
|  | **1** | |  | | When the player collides with the “item” object, the item is destroyed and powerUp = true; |
|  |  | | b) | | For each of the 2 colliding game objects, list the requirements to produce the collision message. Refer to the Collision Action Matrix in your answer. |
|  | **2** | |  | | A static collider that relies on the player object's rigid body to determine the collision |
|  |  | | c) | | There are multiple component configurations for producing a collision message. Provide a rationale for why you chose the specific configuration in 3b. |
|  | **2** | |  | | It was a very simple interaction between two objects so It didn't need many features other than checking if the two objects have come into contact. |
|  |  | |  | | Why and when is it important to use Time.deltaTime() in algorithms within Update() and FixedUpdate()?  Provide an example of where Time.deltaTime() was used in your project and explain why. |
|  | **2** | |  | | it's useful in making your game function at a consistent speed across many different and fluctuating framerates.    when I created a timer to keep track of my punchTime variable, The time was inconsistent because of my framerate. I used delta time to make the countdown consistent. |
|  |  | |  | | Provide an example of where you created a reference to another game object in the Scene.  How was the reference created?  Why was this reference necessary? |
|  | **2** | |  | | In the enemy object I needed to reference a variable from the player object. I made a variable that accesses the playerMove script and then used that to check the status of the player's powerUp. |
|  |  | | 1. a) | | Provide an example of where a Prefab was instantiated in the project. |
|  | **1** | |  | | I created a prefab out of the barrier that destroys the enemy. |
|  |  | | b) | | List the steps you took to create the Prefab. |
|  | **1** | |  | | I made a parent rectangle and 3 child rectangles, I then dragged the group into my prefab folder to create the prefab. |
|  |  | | c) | | List the steps required to create an instance of the Prefab at runtime. |
|  | **2** | |  | | I created a spawner that uses the Instantiate function to spawn the enemy prefab every second. |
|  |  | |  | | Provide an example of adjoining game objects that were placed using Vertex snapping. |
|  | **1** | |  | | I did not use Vertex snapping in my project, but it is useful for connecting two objects perfectly with no overlap or gaps. |
|  | | | | | |
|  | **22** | |  | |  |