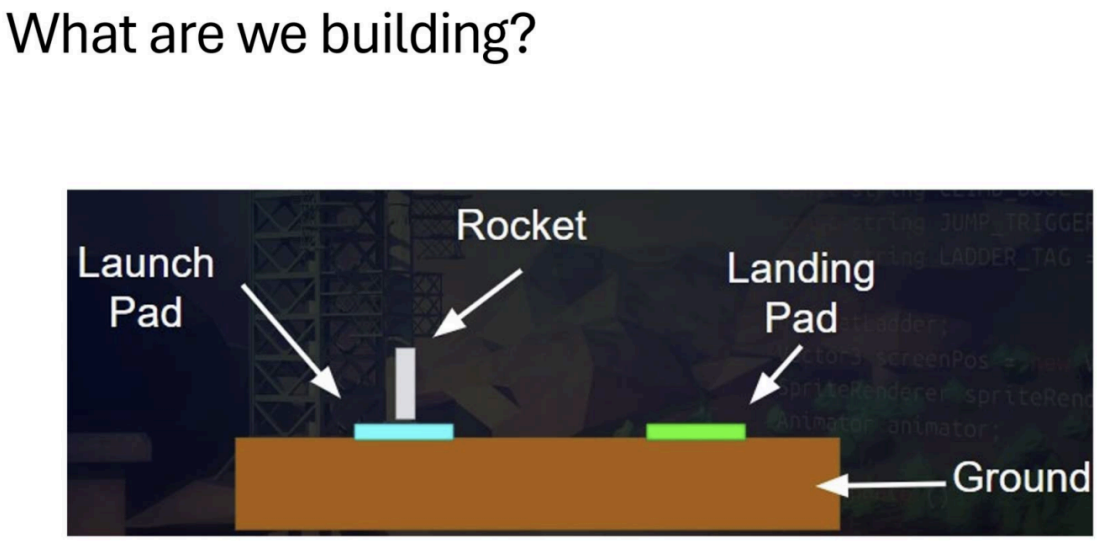
Game Development **Homework Assignment#4**
Points: 25 **Due**: 09/27/2024 11:59 PM Jaden Brescia

1. Create a new Unity project named Homework_Four.
   - https://github.com/JadenBresciaVillanova/Game-Development

2. a) Add a terrain to your game such as the “ground” modeled in Project Rocket Boost. **[2 pts]**
   b) Add a “landing pad” similar to the landing pad in Project Rocket Boost **[1 pts]**.
   c) Add a “cube” primitive object to your game and model it like the rocket in Project Rocket Boost. **[2 pts]**
   Note: You can use the diagram shown below to model your GameObjects. The colors of the GameObjects are your choice, but please make sure to assign them a color and not leave them with the default color.



3. a) Model the rocket to move upward when you press the “W” key on the keyboard. **[3 pts]**
   b) Model the rocket to rotate to the left and right when you press the “J” and “L” keys on the keyboard. **[3 pts]**
   Note: Add any C# scripts necessary to make the GameObjects behave as expected.

4. Add an audio clip to the rocket as an upward thrust is added to the rocket GameObject. You can pick an audio clip of your choice from anywhere on the internet. However, here’s an audio store that you could use: https://freesound.org/search/?q=rocket+boost. **[4 pts]**

5. Explain the following in a few sentences and give an example in your own words (or research the internet to find one. If researched, please cite your source): [2 pts each]
   a) World coordinate system

- The world coordinate system basically acts as its own system constantly fixed at 0,0,0 in the rendered world and it dictates the orientations of GameObjects in the whole world.

b) Local coordinate system
- This is the coordinate system relative to an independent GameObject which means it is centered at its point of rotation or pivot point that determines the orientation of the axes.

c) Vector3. Also, explain any two vectors in Unity of your choice.
- So a vector in physics relates to an object's magnitude and direction so in Unity vectors control the direction an object is moving in which in turn affects its position. There are vectors to control movement up and down called “Vector3.up” and “Vector3.down” which when called will move a GameObject along the Y axis.

d) Rigidbody.AddRelativeForce function
- The Rigidbody.AddRelativeForce function applies a force on a GameObject’s rigidbody and how the object reacts is based on the direction/intensity of the force impacting the object which will make it change its position in some way which is dependent on its orientation at first.

e) Input.GetKey function
- The Input.GetKey method allows the user to register a key press of any chosen key via the KeyCode enum passed into the method. This way you can trigger actions/events based on certain keypresses.

Deliverables:
- The Homework_Four Unity project with the required specifications.
- For question#5, the answer needs to be written in a word (or similar) document.

Submission: Please upload the Unity project and word documents to a version control system of your choice, such as Git (or similar) and share the link on Blackboard.
Alternative Submission: If you are unfamiliar with version control systems or experience trouble, you may zip your deliverables, and upload directly to Blackboard.