GD2 – Fa ‘21

3D Survival Part 1: Terrain and Navigation

Terrains are fun. And the NavMesh is a useful tool.

# Project Administration (10 pts)

* Add annotations to this rubric: fill in the blanks, answer relevant questions, etc. Make sure your annotated rubric accurately and thoroughly describes what you’ve built.
* Put a copy of your annotated rubric into the root folder of your project.

# Base Requirements (75):

Build a Terrain-based scene that fits your theme

* Use at least 3 TerrainLayers, each with a different texture
* Include a set of walkable steps (adjust step height and NavMesh options so that Avatar can walk up steps)

Bake a NavMesh:

* That includes your Terrain
* And all of your NavMesh Obstacles

Build a Player Avatar with a walk animation and a point-and-click AvatarController:

* When player left-clicks on the Terrain, the Avatar will move to that point
* When walking, Avatar plays a \*simple\* walk animation
* Speed of walk animation is connected to speed of Avatar movement (when avatar moves faster, animation plays faster)

A “room” and a door:

* Walls and door of the “room” are NavMesh Obstacles. NOT physics colliders.
* When door is closed, Avatar cannot enter room.
* When Avatar hits a switch, the door opens.
* When door is opened, Avatar \*can\* enter the room.

# Stretch Goals:

* **Classy Environment** (+1 to +5): An unusually charismatic or interesting setting. Terrain is sculpted with care, and textures are well-chosen.

*Explain: What makes your environment classy?*

* **Trees** (+3 to +7): Unity has a whole tree system. You can create a tree prefab with tree shape info, and paint that tree prefab across your Terrain. Do keep performance in mind. If you have > 1000 trees, it can slow things down.

*Explain: How did you decide on a tree design?*

* **Walking and Idling** (+5 to +20): Upgrade your Avatar to have both a walking animation and an idle animation. When the Avatar is moving fast - it plays the walking animation, with animation speed matched to movement speed. When the Avatar is standing still, it plays an idle animation. To do this, you will have to create an idle animation, add it to the Animator Controller, create some Triggers in the Animator Controller, and then write code in the AvatarController script to trigger the change from walk -> idle -> walk.

*Explain: How does the new AvatarController code work? How does it decide when to trigger walk, and when to trigger idle?*

* **New movement style with new animation** (+5 to +15): Upgrade the AvatarController with a new movement style. Example: if you shift-click, rather than doing a ‘walk’, the avatar might run or sneak. The player would see this as the avatar moving faster/slower. Extra respect if the new movement style also has a new animation.

*Explain: What is your new movement style, and what buttons does the player push to make it happen?*

* **Camera Controller** (+5 to +10): Many point-and-click games, such as RTSes, let you move the camera independently of the mouse. Write a camera controller script so that the player can to move the camera with one hand (keyboard), while controlling the avatar with the other hand (mouse).
* Use the arrow keys to move the camera up, down, left and right. Use Z to zoom in and X for zoom out.

*Explain: How can the player control the camera?*

* **Other** (+1 to +20): Something nifty and interesting. Your choice.

*Explain: What nifty thing did you build?*

*AND What does the player need to do to enjoy your nifty thing?*