GD2 – Fa ‘21

World Gen 1: Procedural Terrain

# Project Administration (10):

* 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.
* The entire first project is due in-class on Wednesday, November 10

# Base Requirements (75):

Build the basic set of Terrain manipulation functions:

* Pip
* SetElevation
* ExtrudeBox
* RandomIndependentProfile
* RandomWalkProfile
* SingleStep
* ManySteps

Write a custom editor script:

* With a button for each basic function

Build an additional Extrude-type function:

* Choose a shape you like: cylinder, dome, triangle, diamond
* Write a function to create a shape of that type on your Terrain
* Add a button for this function to the custom editor
* *Explain: What shape did you choose?*
* ***I build the script for cylinder.***

Build a HundredStairs function:

* When run, this function should create a staircase of 100 stairs.
* Use a for-loop and ExtrudeBox
* Add a HundredStairs function to the custom editor.

Write a Landscape-type function:

* Choose a landscape type: river valley, desert/mesa, island/volcano, craters/moon, or other.
* Write a function called Landscape*NameOfLandscape* (with name of your landscape)
* This function should use some combination of your terrain manipulation features to create a procedurally generated landscape in that style.
* Add a Landscape*NameOfLandscape* button to the custom editor.
* *Explain: What landscape type did you choose?*
* ***I tried to use perlin noise to build some mountain-like landscape.***

# Stretch Goals:

* **Additional Extrude-type functions** (+2 to +10): Write one or more additional extrude-type functions. Make sure to add buttons for the new functions to the custom editor.

*Explain: What shape(s) did you choose?*

***I made a Triangular Column script***

* **Additional Landscapes** (+5 to +15): Write additional Landscape-type functions. Each new function should create a \*distinctly\*different\* style of landscape. Add additional Landscape*NameOfLandscape* buttons to the custom editor, one for each new function.

*Explain: What type of landscape(s) have you added to your toolkit?*

***I tried to build mountain landscape, but there are some problems, so it doesn’t work.***

* **Smoothing** (+5 to +15): The terrains that we create look a lot more jagged than real-life terrains. Write a function that will smooth a terrain, rounding the points and corners into something a little more realistic. Make sure to add a smoothing button to the custom editor.
  + Hint: Use a nested for-loop to go through all points on the heightMap. Then, at each point, set the current point to the average of the four neighboring points.
  + **Yes, I write the Smooth Function !!**
* **Player-useable terrain tools** (+5 to +20): Copy your Avatar from the previous project into this project. Create a tool that lets the player adjust the terrain, in-game.

*Explain: What does the player need to do to manipulate terrain in-game? Is it a collectable item? Do they need to push a button? What are the steps needed to manipulate terrain?*

* **Other** (+1 to +20): Something nifty and interesting on the theme of procedural terrain creation and manipulation.

*Explain: What nifty thing did you build?*