GD2 – Fa ‘21

3D Survival Part 2: Building AI with state machines

# 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 10/13

# Base Requirements (75):

SimpleAIMotion:

* Build a working SimpleAIMotion script.
* In your scene, include three things that use WaypointPatrol movement.
* In your scene, include three things that use RandomWalk movement.
* *Explain: What are the things that use WaypointPatrol? Where can I find them?*
* *There are 3 NPCs (white square) that use WaypointPartol, you can find them around the mountain.*
* *Explain: What things use RandomWalk? Where can I find them?*
* *There are 3 zombies on the top of the mountain that use RandomWalk.*

Plant-like AI:

* Build a working CornPlant script.
* You are welcome to change the theme. You don’t need Corn. You need a plant-like thing.
* In your CornPlant script, include FIVE states. (new states might be flowering, dead, leafless-in-winter, etc.)
* *Explain: What are the five states for your plant? List them here: Seed, seeding, adult, flowering, dead*
* *Explain, in a paragraph: For each of your five states, what triggers your plant to switch to that state? What causes it to switch from seed to seedling? What causes it to switch from seedling to adult? Etc?*
* *Seed – (if age > 5) – Seeding — (if age > 10)— Adult —(if food > Max food, clone itself; if Age > 50) – Flowering – ( if Age > 50 && Food > 50) – Dead*

Learn about the Linear Search:

* It is important to be able to write code that can search through a list of items and find the item that you want. The simplest and most flexible kind of search is the linear search.
* Do some research on the internet. Learn about linear searching.
* *Explain, in a paragraph: How does a linear search work? In a set of data, examined all of the each by each until the data runs out, once it found the target, it will stop examining.*
* *Explain, in a sentence: What is ONE place where you might use a linear search in a game?*
* *On an animal which need to find the closest water.*
* *Explain, in a sentence: What is ANOTHER place where you might use a linear search in a game?*
* *On a predator which need to chase the closest target.*

# Stretch Goals:

* **Plant animations** (+5 to +10): Create a set of animations for your plant-like thing. Upgrade your code so that every time the plant changes state, it changes animations accordingly. Each state should have it’s own animation. Animations should be distinctly different.
* **Second plant species** (+2 to +10): Create a second plant species. Copy/paste your CornPlant code, then create a new set of states, and a new set of behaviors for your new plant. For this, you should try to change the code in an interesting way. Don’t just give the plant different stats, make it act different. At least a little.

*Explain: How is this new plant species different from the original plant species?*

* **Avatar + Plant = ?** (+5 to +10): Give your Avatar the ability to interact with your plant. Can the avatar harvest plants for later use? Can the avatar eat a plant to gain energy / speed / hats / etc? Something else? Your choice. Create some sort of interaction.

*Explain: How can your Avatar interact with the plant? What does your player have to do to make this happen?*

* **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?*