

3-2 Milestone: Enhancement One Narrative

Joel Garcia

SNHU CS-499

1. Briefly describe the artifact. What is it? When was it created?

The artifact is the final project from CS 330 Computer Graphics and Visualization. It is an partially interactive 3D environment based on an image I selected at the start of the course, which in my case was a table setting of a meal. It was created in June 2023.

2. Justify the inclusion of the artifact in your ePortfolio. Why did you select this item? What specific components of the artifact showcase your skills and abilities in software development? How was the artifact improved?

I chose this artifact because my interest and career goals revolve around automated and autonomous systems. 3D environments can serve as a testing ground for various automated systems in a virtual environment before attempting to push to a live model. The enhancements so far have been to remove the bulky code that renders objects one at a time and replace it with a loop that renders objects. There is also a feature that adds randomness to the color and placement of objects. I feel these enhancements showcase my skills in efficient coding and more complex algorithms, as well as in thorough documentation.

3. Did you meet the course objectives you planned to meet with this enhancement in Module One? Do you have any updates to your outcome-coverage plans?

Yes, I feel that I have met all plans so far. I don't have any updates yet, but I need to reach out for further clarification on the third enhancement for databases.

4. Reflect on the process of enhancing and modifying the artifact. What did you learn as you were creating it and improving it? What challenges did you face?

The biggest challenge was sifting through the original project code to re-familiarize myself with it. It has been over a year since I worked on this project and it has quite a few lines of code that I had to go through to figure out what to keep and what to throw away. Once I was done with that,

however, it was actually pretty straightforward to complete the initial enhancements. The pseudocode written in an earlier assignment ended up being very useful in planning out how the planned enhancements would work, so all I needed was to put the right parts in the right places. The only somewhat tricky part was figuring out how to implement randomness as the rand() function isn't really random after the initial output. But after searching online a bit I found an example of a Mersenne Twister algorithm I was able to implement. The last thing I had to work out was how create "static" randomness, as the objects never stop running the render loop while the window is open which cause the objects to randomly change in real time. This was solved by simply creating an initial vector of random numbers when first running the program that becomes a static source of randomness for the render loop to reference.