Milestone Three: Algorithms and Data Structures – Narrative

The artifact I selected for the Algorithms and Data Structures category of my ePortfolio is the Craps Game Project, which I originally created during my time in the Computer Science program. This project simulates the dice-based casino game “craps,” allowing a player to roll two virtual dice, win or lose based on the result, and continue playing rounds. It was built using Unity and C# to represent game logic, player interactions, and the flow of the game. The project was recently enhanced during this milestone.

I chose this project for my ePortfolio because it clearly demonstrates my ability to work with basic data structures and algorithmic logic in a way that supports a real, playable application. The game logic behind dice rolling, win/loss conditions, and control flow are all examples of structured, decision-based programming. Enhancements included refactoring the dice rolling logic for better clarity, using structured loops instead of repetitive code, and improving the condition checks for win/loss scenarios. These changes make the code easier to read, more efficient, and simpler to maintain. I also added comments to explain each part of the algorithm to help others understand how it works.

My goal for this enhancement was to meet the program outcome related to designing computing solutions using algorithmic principles. I believe I have met this goal because the improved logic shows how I applied algorithmic thinking to simplify the dice-rolling and outcome-checking system. I also ensured that the control flow accurately models the rules of craps while keeping the code clean and reusable. At this point, I do not have any updates to my outcome-coverage plans because the project continues to align with my original goals.

Throughout the enhancement process, I learned a lot about refactoring and how small changes to how logic is written can make a big difference in performance and readability. One of the challenges I faced was organizing the outcome conditions in a way that wouldn't confuse the reader or become too complicated. I had to test different structures to see which one made the game logic both efficient and understandable. This process helped me grow my confidence in working with algorithms and gave me useful experience that I can apply in future software development projects.