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CS-449 Computer Science Capstone

Southern New Hampshire University

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Enhancement Two: Algorithms and Data Structure

The artifact I created is a text-based game intended to show my algorithms and data structures. This game allows players to enter rooms, collect items, and do a side quest if the user is interested. The goal is for the player to move throughout different rooms, collect all the items, and defeat the dragon at the end. The original version was created in March 2024 for IT-140. The original version was a basic implementation for the course cilium, serving as a starting point for my learning journey. I made the enhancements due to my needs and my course goals. The new version includes an NPC interaction, random encounters, and different ways to win the game.

This artifact was chosen for my ePortfolio because it is one of the few projects I have that showcases my skills in algorithms and data structures. For my data structures, I used directories for my map rooms, items, and NPC interactions. The backtracking system, which is a common algorithm, demonstrates my knowledge and understanding of how to apply algorithms in a real-world context. I also showcased my skills in algorithms by implementing random encounters and quest progression, demonstrating my creativity in control structures and conditional logic. These components allowed me to enhance the interactivity of the game by adding algorithm-based decisions. Lastly, my enhancements included new NPC dialogue, a quest, and room backtracking, demonstrating my understanding of creating a game structure and keeping players engaged.

Yes, I met the course outcomes I set in module one. I was able to show how algorithms can be applied to a real-world context game. The quest system and my stack-based room history align with enhancing my algorithm and data structure. I currently do not have any updates to outcome-coverage plans.

During my enhancement process, I learned how to enhance the complexity of game design by adding new features such as NPCs, side quests, and random encounters. My biggest challenge when working on this project was balancing the new features with keeping the original design as close as possible. This required careful planning and intelligent design to manage the different components within the game. For instance, implementing the backtracking system for room history was a challenge as it required a balance between memory usage and player experience. Enhancing this project allowed me to understand how to structure algorithms for an interactive system that will make the player experience intuitive and engaging.