CS 499 Milestone Three

CS300 Analysis and Design project- artifact change

The artifact I chose for my ePortfolio is a course advising system developed in C++ that utilizes a hash table to efficiently store and retrieve information about various courses. This system maintains essential data, including course numbers, titles, descriptions, and prerequisites. With a user-friendly, menu-driven interface, it allows users to view a comprehensive list of courses, get detailed information about specific courses, and understand the prerequisites needed for classes. I originally created this artifact during my CS300 course earlier this year, as part of an assignment aimed at demonstrating fundamental skills in data structures and algorithms.

I decided to include this artifact in my ePortfolio because it effectively showcases my ability to design and implement efficient solutions for managing structured data. The use of a hash table illustrates my understanding of this data structure and its real-world applications, such as the efficient storage and retrieval of course information. Moreover, the program demonstrates my skill in managing data relationships by connecting courses to their prerequisites, which adds significant functional depth. This artifact also reflects my algorithmic thinking through its sorting and display features, ensuring that courses are presented in an organized manner. To enhance the user experience, I updated the text file to include additional courses and provided detailed descriptions for each one. I also refined several functions within the code to improve performance, readability, and error handling, resulting in a program that is practical, user-friendly, and aligned with real-world advising needs.

This new artifact replaces a previous one that depended on a database I could no longer access due to restrictions on an earlier virtual desktop environment. The updated version is self-contained, making it a better fit for my ePortfolio and offering a clearer demonstration of my programming skills. Additionally, this artifact highlights my adaptability in creating a standalone solution that overcomes technical limitations.

Initially, I set specific outcomes focused on implementing efficient data structures and managing hierarchical relationships within datasets. I believe the improvements made to this artifact successfully meet those objectives. However, as I continue to refine the project, I plan to define new outcomes that better align with the recent enhancements. These outcomes will emphasize showcasing advanced concepts and further optimizing the artifact for both usability and robustness.

Enhancing this artifact has been a valuable learning experience. Revisiting the project underscored how foundational skills acquired in previous coursework have contributed to my understanding of more advanced programming concepts. One challenge I encountered involved ensuring that updates to the course data text file were applied correctly. Initially, my changes did not reflect in the program due to an issue with file paths. Resolving this problem required careful troubleshooting and file management, which ultimately deepened my grasp of file handling and debugging. Overall, I gained new insights into how foundational programming principles serve as building blocks for tackling more complex tasks.