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CS 499

Artifact 2 Narrative

The artifact I chose for this category is my course planner program which was originally developed in C++ for CS 300 Data Structures and Algorithms. The program was created to help students view a list of courses and their prerequisites and to look up individual course information. It was built using a hash table to store course information for efficient retrieval and included basic functionality for sorting and displaying course data.

I chose to include this in my ePortfolio because it shows proficiency in data structure management and algorithmic thinking. The original version showed a solid use of hash maps for fast lookups and the enhancement I did expands on this by introducing a recursive algorithm to find circular prerequisites and moving the program to an object-oriented design. Replacing global variables with the CoursePlanner class and adding validation logic increased the program’s complexity and reliability which shows development in my ability to write maintainable and scalable software.

The enhancement met the outcomes I identified earlier in the term. It aligns with course outcome 1 by restructuring the code for better design and modularity. It aligns with course outcome 3 by using recursive algorithms and error checking to evaluate dependencies. Finally, it aligns with course outcome 4 by applying the best practices in software development that improve the usability and correctness of the system.

Enhancing this artifact was a good learning experience. Implementing the recursive check for circular prerequisites required me to think carefully about how data dependencies behave real world applications. One of the biggest challenges was ensuring that courses with no prerequisites were handled correctly and that the algorithm would not falsely detect cycles. This process helped reinforce my skills in algorithm design, software architecture and problem solving.