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CS 499

Milestone 2 Reflection

Professor Alim

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

The artifact I selected is my original C++–based ABCU Course Advising System, which was developed as part of a previous CS course. This project was initially created to simulate a simple academic advising tool, using a hash table to store course information and provide prerequisite lookups. The system allowed users to load hardcoded course data, display a list of courses, and retrieve details about a selected course along with its prerequisites.

**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 selected this artifact for my ePortfolio because it represents a clear opportunity to showcase growth in multiple areas of software design. In the original version, the program was written in C++ with console-based interaction and minimal modularity. For the enhancement, I rebuilt the entire system in Python using a graphical user interface (GUI) with Tkinter, which introduces user-friendly interaction, file loading capabilities, and dynamic course visualization.

This new version demonstrates my ability to translate code from one language to another, build modular Python functions, and integrate GUI components to improve usability. It also shows that I understand how to organize code for maintainability and reuse, as well as how to connect front-end events to backend logic.

Currently, I am still actively working on resolving a functional issue related to the “Show Course Info” button. While the course data is loading correctly and the dropdown menu populates, the text area that should display course information is not updating when the user selects a course and clicks the button. I’ve verified the course selection logic, logging confirms correct detection of selected courses, and course data is fully loaded. I suspect the issue lies in how the Tkinter Text widget is being updated or configured. This is an ongoing debugging task, and I plan to resolve it before final submission.

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

Yes, I am on track to meet the course outcomes I mapped to this enhancement, particularly outcomes 2, 3, and 4, which involve software design, language translation, and user interface development. The core logic of the system has been successfully rebuilt in Python with a focus on modular design and improved user interaction. Although the current display issue prevents the full demonstration of functionality, all major components of the enhancement are in place and functional behind the scenes.

I will continue to troubleshoot the display logic so that this artifact fully demonstrates integration between backend logic and frontend interface, which is essential to achieving outcome 3 (Design and implement user interfaces that enable effective interaction with the system).

**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?**

This enhancement taught me the importance of clean modular design and the value of choosing the right tools for user interaction. Moving from C++ to Python allowed me to take advantage of a more flexible programming language and build a better user experience through a GUI. I also gained more practice working with CSV file parsing, string manipulation, and event-driven programming using Tkinter.

The main challenge I’m currently facing is getting the course details to display properly in the text output box after a course is selected. I’ve tested the dropdown selection and CSV parsing successfully, and debug print statements confirm the logic is being reached. I believe the problem may be due to how the GUI elements are updated or refreshed, and I am working carefully through Tkinter documentation and online resources to resolve it.

Despite this issue, I’m proud of the work I’ve completed so far and confident I can resolve the remaining display bug. This experience has helped me strengthen my debugging skills, practice resilience in problem-solving, and deepen my understanding of integrating logic and UI.