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CS-499

7-1 Professional Self-Assessment

**ACADEMICS & PROFESSIONAL GOALS**

I began this Computer Science degree program in the Spring of 2018, and at the start of it, I did not enter with any particular aspirations to speak of. The two most important things along this journey are (1) the myriad joys of software engineering and its practical applications, and (2) the awareness of how as well as the desire to teach myself more outside of the classroom -- to deepen my skills much further beyond the places this degree program has taken me.

Moving forward, my objective is to begin my career in the field of cyber security. As time goes on, technological literacy is constantly becoming ever more widespread among younger generations of people and in more places in the world. The need for security will likewise only grow alongside it, increasing the demand for experts of the subject.

**COURSE OUTCOMES**

**Employing strategies for building collaborative environments that enable diverse audiences to support organizational decision making in the field of computer science.**

The nature of the program is inherently collaborative as it simulates a multiplier game that requires more than one participant. All three enhancements pertain to this course outcome: the first two include error fixes which allow the application to function as intended; the third implements a password gate which is traditionally passed through via the sharing of information between collaborators.

**Designing, developing, and delivering professional-quality oral, written, and visual communications that are coherent, technically sound, and appropriately adapted to specific audiences and contexts.**

The voice-recorded code review covers this course outcome. I prepared a script in advance to read from that (1) appropriately describes all of the essential information regarding the nature & structure of the artifact, (2) answers the pertinent questions that are asked in general code reviews, and (3) discusses considerations I had made at the time for possible future enhancements.

**Designing and evaluating computing solutions that solve a given problem using algorithmic principles and computer science practices and standards appropriate to its solution, while managing the trade-offs involved in design choices.**

Enhancements one and two implement methods that solve fundamental problems in the artifact’s initial design, namely ones that prevented it from functioning properly. Solutions to the following problems were effectively introduced.

* Program crashing unexpectedly.
* Scores not being tracked correctly.
* The score of the final player in the turn order not updating correctly under a certain circumstance.
* When more than two players are present and one player is eliminated from the game, scores not updating correctly.

**Demonstrating an ability to use well-founded and innovative techniques, skills, and tools in computing practices for the purpose of implementing computer solutions that deliver value and accomplish industry-specific goals.**

The second enhancement pertains to this course outcome because it involves the migration of a large mass of code from the main method into a library function. This procedure simplifies the code visually and makes it less difficult for a developer to examine, and compartmentalizes the essential functions of the code in to build blocks that can be viewed independently of each other. It is also a good practice for helping to prevent future errors in code that is continually being updated.

**Developing a security mindset that anticipates adversarial exploits in software architecture and designs to expose potential vulnerabilities, mitigate design flaws, and ensure privacy and enhanced security of data and resources.**

This course outcome is addressed in the third enhancement via the implementation of single-factor authentication via a password requirement.

**ePORTFOLIO SUMMARY**

The enhancements presented in this ePortfolio have all been applied to a single artifact. It is a C++ application that simulates a board game between multiple participating players. This code was initially written by me for another course, IT-312, however at the time of that class’s completion there was still room for improvement and there were defects in the code which impaired its functionality. These enhancements identified & fixed every flaw and also contributed additional advances in the design using reliable computer science methods & acumen. The reason why I chose a game to represent my portfolio is because games serve as an excellent link between software engineering and its practical use in the real world. The ultimate goal of computers is to improve the quality of people’s lives in all areas. There is no better representation of everything software engineering stands for than the mediums of recreation that games are, and they serve as the best motivating factor for why an average person might gain an interest in the subject at all.