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CS – 499

Project One: Software Design and Engineering

This program is called Paint. I originally wrote this program in my CS 145 class. This program fulfills the Software Design and Engineering requirement for the final project. The following program fulfills the following requirements.

**[CS-499-01] Employ strategies for building collaborative environments that enable diverse audiences to support organizational decision making in the field of computer science.**

* This is done by making a program that is used by individuals who need to figure out how much paint they need for their wall or room. It is a collaborative environment that enables diverse audiences and supporting organization decision making by prompting the user to enter specific information and then reading that input into the program.

**[CS-499-02] Design, develop, and deliver professional-quality oral, written, and visual communications that are coherent, technically sound, and appropriately adapted to specific audiences and contexts.**

* The Paint Program fulfills this requirement by having well written comments above code to explain to the designers and programmers what the line of code is doing. The program relays clear messages to the user on what to input to help them calculate how much paint they will need for their project.

**[CS-499-03] Design and evaluate 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 (data structures and algorithms).**

* This program fulfills this requirement by prompting the user to input measurements of their walls, base boards, and doors to help them calculate how many gallons of paint they will need for their project. It provides a choice for the user to enter if the paint for the door and trim are the same color as the wall or a separate color. This will then give them the amount of paint they need for the wall, trim, and door if the they are the same color or different colors.

**[CS-499-04] Demonstrate 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 (software engineering/design/database).**

* The paint program fulfills this requirement by using innovative Java commands that can prompt the user to input information needed to calculate the amount of paint needed for the project. Programs are designed to help users achieve an end goal which this program helps the user calculate the wall area, the amount of board feet needed for the trim, and the door area. With these calculations the program then tells the user how many gallons of paint is needed for their project.

**[CS-499-05] Develop 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 resource**s.

* My paint program develops a security mindset by keeping original code that is not copied or reused by another person. It has specific comments above the code to tell future developers what the line of code is doing. This is an important part of programming to keep in mind when developing. Having original ideas and patterns that you know and no one else does helps eliminate the risk of someone else taking control of your program.