Computer Science Capstone Enhancement Plan

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CS-499 Computer Science Capstone

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**Category 1:** Software design/engineering

1. The artifact I am choosing to use for this category will be my final project from CS-330 Computational Graphics and Visualization. This code runs in Visual Studios. The purpose of this code was to create a 3D model of a photograph. [Link in GitHub](https://github.com/melody909/CS330/blob/main/Source.cpp)



1. The enhancement I plan to perform would be to refine the 3D scene to better represent the actual photograph. My goal in this enhancement would be to add greater detail to the 3D model such as working on the proportions of each object. As you can see in the images below, the size proportion of each object is not accurate. The rectangular bottle and the cylindrical bottle are about the same size in the photograph. The rectangular white tin is shown as a more of a square in the model but is actually a rectangle in the photograph. In addition, I would like to replace the hair tie with a different object and add texture.

A close-up of a bottle and a container

Description automatically generatedA group of bottles and a box of first aid kit

Description automatically generated

1. The skill that I would like to showcase in this enhancement is my ability to work with vertex arrays. I will need to focus on how the object is placed and scaled in the dimensional environment. I would like to change the hair tie object. I would change it to a sphere object.

**Category 2**: Algorithms and data structure

1. For this category, I plan to also use the same artifact for CS-330. [Link in GitHub](https://github.com/melody909/CS330/blob/main/Source.cpp) is here to view source code.
2. The plan for enhancement will be to clean up the code. I would like to remove unnecessary code that is causing the code to be un-readable and inefficient. This is a simple graphical program that consists of 770 lines of code. I would like to reduce and organize the C++ code. I will eliminate blocks of code that are not contributing to an output and refine the commenting structure.
3. The skill that I would like to focus on in this enhancement is overall best practices. I will evaluate using steps in the code review process to identify what is required lines of code and what is not required.

**Category 3:**Database

1. The artifact that I would like to work with in the final category came from DAT-220 Fundamentals of Data Mining where we worked with date from Bubba Gump Shrimp Company online store and restaurants. I have a link to my final project analysis [here](DAT%20220%20Final%20Project.docx)
2. The enhancements plan for this artifact will be to use a different program to analyze the data in the database. I would like to create a dashboard that displays relevant information in an easy way for a management group to view.
3. The skill that I would like to demonstrate in this category would be the ability to take a data set from an exterior source and transform it into an application I have never used before. Originally, the project for this course used JMP as an analytical tool. I would like to learn more about PowerBi and how reports can be created. PowerBi is a program that I have wanted to learn for many years now, but have not had the opportunity to work with.

**ePortfolio Overall**

During the process of performing the selected enhancements, I plan to achieve a portfolio of polished work that demonstrates my skill for improving code, demonstrate best practices and reporting data. I will demonstrate improving code though providing enhanced graphical outputs. I will demonstrate methods of best practices by producing code that runs more efficiently and is that is better readable to others. Lastly, I plan to be able to better present data to a management group and learn new skill along the way. I plan to illustrate this in my narratives by explaining the current state of the code then defining how I will enhance it. Overall, I believe that this will showcase important aspects I have learned through the Computer Science program.

**Optional Concerns:**

I am concerned that my last category is not heavily code based however, it is something that I feel that could add at an existing artifact. I am concerned it does not fit into the requirements of this course. I am struggling with how to find artifacts that cover this requirement since in the past, I was not building a data base but learning how to understand it’s structure, transform the data and analyze the outcomes. Any hints on this topic would be greatly appreciated.