Category One Artifact Narrative – Software Design/Engineering

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

My artifact is part of my CS-260 Data Structures and Algorithms class. This artifact is a C++ file that takes bids from a CSV file and allows the user to sort the bids using quicksort algorithms that sort the data by using while loops and comparing the highest and lowest bids per loop. I worked on this assignment about two years ago.

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 item for my ePortfolio because it allows me to reach each of the three Categories and to build a considerably impressive application while doing so. By creating sort by date, amount, and name functions and then rebuilding the code in a different language I meet the standards for Category 1 of this project. I then was able to showcase more of my ability by updating the GUI from a terminal in C++ to a functional GUI in Python that properly parses the data and prints it in a displayed chart.

The artifact was improved in functionality, design, usability, and readability. Redundant code was either used or gotten rid of. For example, there was a case for the "close now" function, which I got rid of since the GUI can be closed using the X now.

I was also able to make the code modular and expandable by creating classes for all the functionality within the program.

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

Here are the outcomes I have met through this enhancement.

I believe I met the outcome: *"Design, develop, and deliver professional-quality oral, written, and visual communications that are coherent, technically sound, and appropriately adapted to specific audiences and contexts."* by finishing the Python application and creating the GUI. I will be including a README file in the repository to further meet that outcome. I made the code modular through classes which also meets this course outcome very well.

I believe I have met the outcome: *"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)."* by using event handlers for the radio select buttons and using sort algorithms for the "sort by" functions. This program went from being very specific to its task to now being an application implementable in many industries for comparing data.

I have met: *"Employ strategies for building collaborative environments that enable diverse audiences to support organizational decision making in the field of computer science."* When I pushed changes in the git repository. I have also modularized the code to make it easy for coders to jump in and create additional functionality.

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?

One of the challenges faced was changing the project to a Python application as it was difficult to reimplement all the app functionalities. Creating the classes to convert the code to an object-oriented design was one of the biggest challenges. One of the difficulties in doing this was that the memory kept getting deallocated whenever the function calls didn't store the data. In order to fix this, I had to learn about deallocation of memory and using the built-in copy function that would create new memory sources.