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CS499 - Artifact 1

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

The artifact I have selected for this was the weather station I created for the final project of CS350, Emerging Architectures, and Technology. The weather station program used the Raspberry Pi and GrovePI+ to measure the temperature, humidity, and light. The program would only work during daylight hours which was determined by the light sensor. The light reading would have to be over a certain threshold to allow the program to take a reading. The temperature and humidity reading would be measured and based on the readings it would light up an LED on the board. The conditions were: Green LED lights up when the last conditions are: temperature > 60 and < 85, and humidity is < 80%. Blue LED lights up when the last conditions are: temperature > 85 and < 95, and humidity is < 80%. Red LED lights up when the last conditions are: temperature > 95. Green and Blue LED light up when the last conditions are: humidity > 80%. The project also recorded the output every 30 minutes into a JSON file. The file would be used to display the data on a webpage using CanvasJS.

B. 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 because I felt that I could do more to the original project to make it function more efficiently. The original program was fine in its original context for a final project, but I wanted to add more features than it originally had. I wanted to demonstrate that I could take a piece of software and add enhancement by adding a menu function for the user. The menu function would add five menu items: an LED self-test. the ability to take one reading, the ability to take many readings, an option to display the menu and a means to exit the program. I created functions that would run the LED self-test, and display the menu. I took the core of the original program and converted it into a function that would be used to take one or many readings. The function would show how code can be reusable.

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

I met the core objective which was to demonstrate the ability to use well-founded and innovative techniques, skills, and tools in computing practices to implement computer solutions that deliver value and accomplish industry-specific goals. I have no updates to my outcome-coverage plans at this time.

D. Reflect on the process of enhancing and/or modifying the artifact. What did you learn as you were creating it and improving it? What challenges did you face?

I created this project using the Mu 1.0.2 IDE which we used during the original CS350 class. I learned that the IDE had a built-in “Check” function which inspects your code to see how it compares against best practices. I used this function to look over my code and it suggested minor corrections. For this part, I deleted some unused variable and I also removed the ability to write the data to a JSON file. In the future, I will re-add the JSON functionality and have the user choose a filename to save the data. During the improvement, I learned a little more about the Python language had to write functions that would be reusable. If I was having issues with the code, I was able to research the issue on the internet and found solutions. One of the issues I was having during this assignment was getting one of the LEDs to work. After reordering a new one, I noticed that it illuminated as bright as the other one meaning the original one was working properly.