

Course Outcomes and Justification

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

Proficiency in this course outcome is shown through the selection and development of both artifacts; in both cases, data is delivered from a computer-scientist-friendly format, such as a database or .csv file, and presented to a potentially less technical audience to aid in the use of that data.

- 2) Design, develop, and deliver professional-quality oral, written, and visual communications that are coherent, technically sound, and appropriately adapted to specific audiences and contexts.**

Proficiency in this course outcome is shown in the narratives accompanying the artifacts, the video presentation of the code review and enhancement plan, and the presentation of the ePortfolio.

- 3) 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.**

Proficiency in this course outcome is shown in Artifact 1; that artifact deals with taking in data from a .csv file and storing it in a data structure by using an algorithm designed to make the data more accessible to an end user. The sample data set is small, but the algorithm could be applied to a substantially larger data set and the resulting increase in computer efficiency would be noticeable.

- 4) 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.**

Proficiency in this course outcome is shown through both artifacts, but mostly through Artifact 2. The dashboard now follows an established design pattern of storing data in a database in the cloud and accessing it via a dashboard remotely. This allows a lesser-technical end user to access required data without having to understand the underlying computer science.

- 5) 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 resources.**

Proficiency in this course outcome is shown in several areas of the project, but mostly from the instantiation and implementation of the database in the cloud for Artifact 2. Access to the EC2 instance is secured by an RSA key stored on my computer, and Role Based Access Control was put in place on the database itself to require authentication for end-user access. Access is obscured in the code for the project, with values coded in manually; in a production environment I would implement a user database with a login for access, but that is difficult to showcase in a project such as this.