**Narrative for Software Design/Engineering**

The artifact I selected for the category software design/engineering is a 3D model furniture (Kitchen chair) that is drawn using modern OpenGL, starting with a cube and finally ends up as a kitchen chair with the number of polygon counts not to exceed 1000 triangles. This artifact was created on April 19, 2020 in CS-330 (Computational graphics and visualization).

The reason for selecting this artifact is because it contains critical elements that demonstrates my ability and expertise to use well-founded and innovative techniques, skills and tools in computing practices of implementing computer solutions that deliver value and accomplish industry-specific goals in software design/engineering. I use this artifact to showcase my skills in computational graphics and visualization that meets industry standards in software design/engineering. The specific components of the artifact that showcase my skills and abilities in software development include

1. Utilizing organized geometry, to ensure that polygons (triangles) on the 3D model are well spaced and connected and give a low-polygon representation of a real-world object
2. Navigating the object through Input devices on different orientations
3. Creation of computational graphics and visualization using modern OpenGL
4. Creation of interactive graphics applications that respond to input devices.

In the process of enhancing and/or modifying the artifact, I learned the value of applying comments that makes the code easier to read and understand. I also learned different techniques of applying graphics, textures and visualization to 3D objects using modern OpenGL. I faced some challenges during the implementation process such as creating a perspective and orthographic display of the 3D. I also had issues writing code that will navigate the object in different orientations. By implementing standard for best coding practices in software development, I was able to incorporate feedback I gained from my instructor into the artifact. The artifact was improved by applying texture to ensure high-resolution textures are projected accurately. Generating lighting to give the artifact a professional look to create a perspective and orthographic display of the 3D model and applying color to lighting with varying intensities.

**Narrative for Algorithms/Data Structures**

The artifact I choose for this category Algorithms/Data Structures is a reporting service for a basic stock market securities information using Restful API web-based protocol & MongoDB. This artifact is an industry report for the top five securities chosen from a specific industry in the stock market to analyze and represent the securities information using a Restful API web-based protocol and MongoDb using python programming language. The artifact was created on June 22, 2020 in CS-340 (Client/Server Development).

The reason for selecting and including the artifact in my ePortfolio is that it demonstrates industry standard best practices for writing good quality codes using python programming language in MongoDB database. It also shows how you can utilize the CRUD operations of Create, Retrieve, Update and Delete functions using a Restful API web-based protocol. The specific components of the artifact that showcase my skills and abilities in Algorithm/Data structures include

1. The use of the MongoDB import tool to create and inserts records into a database collection
2. The ability to used CRUD operations to create, retrieve, update and delete records from a collection.
3. The ability to implement a Restful API web-based protocol using functions and CRUD operations

In the process of implementing the enhancements, I learned how functions can be used to create an API call using different CRUD operations of create, retrieve, update and delete. I was able to use these same CRUD operations to create, read, update and delete documents from a collection as well as the ability to use the MongoDB import tool to import data into a database. At the beginning, I encounter some challenges where my code was not executing properly due to improper indentation. But I later figure it out and the code was able to run and produce the expected outcome. I incorporated feedback gained from my instructor into the artifact by following guidelines for proper indentation and code alignment. The artifact was improved by adding a functionality to the functions that will accurately create, retrieve, update and delete a specific record from the collection and not multiple records as previously defined. Through the addition of more specific and precise comments, the artifact was improved to ensure that the code is easy to read and understand. By adjusting some of the indentations and alignment of the code also improved the artifact.

**Narrative for Databases**

In this category Databases, I choose an artifact called Database Management Report. The artifact is a standard industry database management report with an existing database that need to be modified with queries written against it to create, insert, alter and retrieve specific data from the database. The artifact was created on June 17, 2019 in the course DAD-220 (Introduction to SQL).

The reason for choosing and including the artifact in my ePortfolio is that it provides me with the skills to understand an existing database and be able to write queries against it and eventually alter its design and data. This will give me the opportunity to be exposed to a real-world scenario as a developer. The specific components of the artifact that showcase my skills and abilities in Databases are;

1. Ensure the integrity and functionality of programs by identifying and correcting syntax errors in SQL statements
2. Apply proper SQL syntax to retrieve, sort, and restrict data from a database.
3. Develop and combine data from multiple sources using SQL syntax and logical data manipulation and management techniques.
4. Perform accurate calculations by aggregating data and applying SQL summary functions
5. Assess the functionality of embedded SQL statements, functional calls, and stored procedures within various scenarios.

In the process of implementing the enhancements, I learned how to use different SQL commands to retrieve specific data from multiple sources. I also learned how you can delete, update and apply certain constraints to a database without affecting the functionality of the database. I encounter challenges during the implementation of the SQL commands where my queries were throwing syntax error. I later figure out the sources of error and corrected them and everything worked as expected. I had difficulty determining which type of join to use and when to use it in a SQL query. Through adding more precise comments to each section of the code, I was able to incorporate feedback gained from my instructor into the artifact to make it more readable and easier to understand. The artifact was improved by adding some SQL functionality to the code that can insert specific rows of record into a table with defined datatypes. I added SQL code that can retrieve data by combining multiple tables using joins to return specific records and counts. To improve clarity and preciseness, I added comments to the artifact to ensure that the code is easy to read and understand and, fix indentations and alignment.