**Category Three – Databases**

**Selected Artifact:**

For this assignment, I selected the artifact I completed in CS-360 Mobile Architecture & Programming to exemplify my ability to implement enhancements in regard to databases. The original artifact consisted of a project created with Android Studio that utilized four activity XML files and corresponding Java files to create an Inventory Management Mobile Application.

**Justification:**

This artifact was selected for this category because of my personal desire to create a platform where users can share and find reviews on TV episodes with their social circles. The original InventoryApp Artifact provided a well-implemented framework for a client-side application, so the enhancement for this assignment mainly deals with seeding data from a third-party API for the enhanced mobile application to interface with. The enhanced version of the application includes more sophisticated libraries for loading images and handling/parsing JSON objects, along with the integration of the TVmaze API for data retrieval.

**Outcome-Coverage Plan:**

With the completion of category three, I can say with certainty that I achieved the set goals for this artifact.

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

This artifact was modified and saved using git. Having an effective strategy for version control is necessary when constructing a large-scale application in a collaborative environment.

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

Throughout my implementation, I included documentation comments for each method and class that define the captured functionality, along with parameter descriptions and return values.

1. 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.

With the utilization of aggregation pipeline functionality, a simple TTL Cache, a data structure that can be referenced for frequently used indexes, and lazy loading algorithmic implementations, this artifact thoroughly displays an ability to design and evaluate computing solutions.

1. 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.

This enhancement required me to utilize the knowledge and tools I learned while taking the CS Full Stack Development Course. My implementation utilized the MEAN Stack suite of tools (apart from Angular) to define endpoints to populate and interface with the database I loaded documents into from the TVmaze API. Using Mongoose, Express, Node, MongoDB Compass, and Postman, I was able to demonstrate exceptional skills and tool utilization to meet computer solutions.

1. 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.

This artifact uses thorough exception handling and try-catch block instances to protect endpoints from injection attacks.

**Reflection:**

Android Studio has plenty of documentation and implementation examples that made implementing this enhancement much easier for me than the other enhancements. I am also much more familiar with Java than Python and implementing functionality for an application I wanted to personally design made the enhancements much easier to accomplish. One of the more difficult portions of the previous enhancements was trying to configure a working environment on my local machine that matched the virtual machine my original implementation occurred. Since the original artifact for this assignment was already implemented on my machine, it made implementation much easier as well. The most difficult aspect of this enhancement was testing server connections within the Android Studio Application. I am not super familiar with the tool itself, so debugging functionality was something I spent a good portion of time learning. Finding the right methodology to load images with Glide was also difficult, but there was plenty of documentation to assist in configuring it as needed.

**Show\_List Activity:**

**A screen shot of a computer

AI-generated content may be incorrect.**

**Show\_Details Activity:**

**A screenshot of a computer

AI-generated content may be incorrect.**