

# **CS 499 Enhancement Three Databases Narrative**

Trenton Mendiola

Southern New Hampshire University

CS-499

Dr.Penmatsa

October 19, 2025

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

This artifact originated as an application that I developed through reverse engineering an existing application, to practice reverse engineering in my CS410 class. This is an application that allows users to display the existing client list and their accompanying option, either 1 or 2 as well as change each client's option. This application also features a login system where users will have to enter their login information to gain access to the application's functionality. Through the enhancements I have made to this application, the artifact will contain the same functionality only developed as a MEAN stack application. This means users can access the application through a webpage, and it utilizes various tools but most notably a database to hold the client's information.

**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 chose to include this artifact in my ePortfolio as it demonstrates my ability to implement and utilize a database in an application as well as implement and use many different tools and techniques from the MEAN stack development process. Another large reason for my inclusion of this artifact in my portfolio is to demonstrate my ability to utilize and implement new tools or techniques. I am far from a master at creating MEAN stack applications in fact I have only done it once before; However, I wanted to show that through utilizing resources effectively that I can implement new tools and techniques. Using a semi familiar concept of a MEAN stack application with tools I have never used before like MongoDB Atlas displays my ability to do this quite well and effective use of my resources while also meeting the course requirements of working with a database. The artifact will be improved in its data handling methods and ease of

access for users. The utilization of a database is a more efficient and secure way of storing data for the application. MongoDB Atlas, the tool I am using for the database, makes the application more secure through the security features they have included. This allows me to determine who has access to the database and application through a username and password or other means, then define which IP addresses may connect. Atlas also makes the application more scalable as I can continue to add clusters to the database to serve other functionality, like for example I could include user information in the application. The application being accessible through a web page makes the application more accessible to more users.

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

I did meet the course outcomes that I planned on meeting through my work on this enhancement. I have shown that I can utilize various tools and techniques from the MEAN stack development process to create this application. I have shown that I can develop using a security mindset, utilizing Atlas security tools to limit who may have access to the database and what they may do with the data inside. As well as creating secure code that does not produce vulnerable errors. I have also shown that I can create solutions to developing this applications functionality in a MEAN environment using my resources and proven algorithms and data structures. I have shown that I can create a collaborative environment by including in line comments throughout the code as well as using Git to directly share the file contents to a GitHub repository. I believe this work on the enhancement properly satisfied course outcomes and I do not need to change my current plans.

**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?**

Through my process of developing the enhancements of the artifact I followed the tutorial “Stack: Build a Web Application From Scratch” by MongoDB which explains how to develop a mean stack application utilizing the MongoDB Atlas tool to provide the Database for the application. Atlas is something that I have not utilized in the past so through the work I have completed so far, I have learned a lot about working with this tool. Through this development I have faced a few challenges that have slowed my progress, one of which being getting the connection to work with the database. This is something I eventually figured out to be because I was entering the password information incorrectly. Another issue that I ran into when developing was with the client form component. This component is used in the application when getting information for a new client or updating an existing client. The issue I ran into was when trying to submit the form in either add or update client page noting was being sent. When looking at the error console, I realized that it was an issue with the form builder form itself. I had not properly defined the form and did not properly handle it on button submission. After looking at the official form builder resources, I was able to fix this issue, and everything worked as expected.

At the end of my development for this enhancement, I created an application that improves the original artifacts functionality. Being able to access the application through a webpage and access the data from a database makes the application far more functional than it originally was for its users. The use of the database means that multiple people can have access to the information and interact with it, which other people can see live. The database is overall far more efficient and practical than the local storage the original artifact was utilizing. Through my development process, I have learned a lot about working with MEAN stack development. One of the biggest things I learned was utilizing the MongoDB Atlas tool. I learned the process of creating a database, clusters, and assigning credentials. This has helped me familiarize myself with potential tools that I may utilize in the working world.

