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CS 499

Milestone Four Narrative

The artifact being enhance for this milestone is the Travlr Getaways travel agency website from CS 465 Full Stack Development. This was created in January and February 2025 and uses a MEAN stack to pull content from a database using a RESTful API. This artifact is being included in my portfolio because it is the largest and most comprehensive project I have completed in the computer science program and it showcases skills that I believe are sought-after in the software development field. The artifact showcases the ability to develop both front and back ends of a web application as well as integrating database connectivity. The CRUD functionality of the app, the database, and the accompanying UI cover a wide base of skills which makes this artifact worth including. The enhancement for this milestone was adding indexing to the MongoDB schema to enable faster querying on parameters in the Trips and User collections, then adding additional API endpoints to query the database using different parameters. These improvements enhance the artifact by making the database more performant and better equipped to handle larger datasets. The querying options also expand the database interactivity by allowing more options to find records, such as by price.

The course outcomes I planned to meet with this enhancement were the fourth and fifth. The fourth course outcome, which is related to using techniques and tools to deliver high value solutions, is met by the expansion of the API endpoints and the database indexes that improve the project’s overall functionality. With these improvements, back-end queries not previously possible are now available. The fifth course outcome, which covers software security, is met by the inclusion of authorization on the User database access methods and the parameterization of all queries to the database. These improvements ensure the user data is protected and the API is not susceptible to SQL injection. The process of modifying this artifact was in some ways easier than expected and in some ways more difficult. The indexing was straightforward to add and required only modifying the MongoDB schema. The modifications to the API were more difficult as I encountered some issues with query parameters not being recognized and I had to learn how to use a RegExp to enable case-insensitivity. The other difficulty was in keeping track of the changes needed to be made across the codebase, such as exporting API functions, as this project is larger than most I have worked on. Overall though, I felt I had a good understanding of what I was doing through the enhancement process. Below are screenshots of the API calls being tested in Postman, and the full project code is available at [github.com/brennonfultz/CS-465](https://github.com/brennonfultz/CS-465).



