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**CS 499: Computer Science Capstone**

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**5-2 Milestone Four: Enhancement Three: Databases**

I chose my Travlr Getaways web application again, created in CS 465 Full Stack Development course, and I made enhancements to it by making improvements to the database schema and creating role based access control for managing trips securely. I selected the Travlr Getaways web application because it showcases my skills in adding different fields for users to fill out and implementing role based access to the application. I added a **location** field to the **Trip** schema in **travlr.js** and **trips.json**. Also, I modified **user.js** to add a **role** field, so admin controls of making modifications to trips are only given to users with admin role. In **authentication.js**, users can create admin accounts.

In **index.js**, I added a middleware to check for authentication and what role the user is assigned to ensure routes are protected. I have met the outcomes of the course with the Database enhancements that I have planned in Module One. I don’t have any updates to my outcome coverage plans, because these enhancements align with my original plan in Module One. As I was making improvements to my artifact related to Databases, I wanted to test whether role based access works using Postman. I tested it with POST and PUT requests, as if I were a user who isn’t an admin with admin controls to access routes that are protected.

An error message for access denied due to not having admin permissions appeared with a **403 Forbidden** error code. So, I now have more knowledge of how role based access control, adding middleware, and JWT authentication work. The challenges I had were ensuring that the tokens were validated correctly and making sure that admins are the only ones who can make modifications to trips, which required me to test this carefully.