**Artifact 1 Narrative**

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**CS 499 Computer Science Capstone**

**Professor Brooke**

My capstone project involves refining a full stack web application called "Travlr Getaways," which was originally created in my CS 465 Full Stack Development I course. The project entails developing a static customer-facing website with HTML, CSS, and JavaScript. To demonstrate my skills in the category of software/design and engineering, I decided to recreate and upgrade this hotel booking web application using the MERN stack and Tailwind CSS.

I chose to include this artifact in my ePortfolio because it exemplifies my ability to adapt and refine a project from MEAN to MERN stack integrating modern technologies like Tailwind CSS for an enhanced UI/UX design. I also added registration and sign in forms and functionality using JWT authentication.

By transitioning the project from AngularJS to React.js, the front-end performance of the application saw significant improvements. React's virtual DOM and efficient rendering mechanisms lead to faster page load times and smoother UI. I also improved the code usability, allowing for cleaner code and easier management/maintenance of the application.

The UI/UX design was greatly improved. I was able to create a modern and more consistent design using colors, typography and layout and I also made the web application’s design responsive; this is especially important because users are mostly using mobile devices to book hotels. I removed unnecessary distractions, allowing users to focus on essential elements such as signing in and booking through the application.

By adding a Sign in and Registration functionality to the web application, the user experience can be personalized and in a real-world scenario can encourage users to return to the app. Implementing a sign-in and registration system enhances the security of the web app by requiring user authentication. This helps protect sensitive user information and prevents unauthorized access to certain features or data within the app. Additionally, incorporating secure authentication mechanisms like JWT (JSON Web Tokens) can further strengthen the security of user accounts.

The artifact meets course objectives because it showcases my ability to design and evaluate computing solutions by managing trade-offs in design choices, such as transitioning from MEAN to MERN stack while considering the impact on user experience and security. Additionally, the artifact underscores my proficiency in employing innovative techniques and tools in computing practices, exemplified by the integration of Tailwind CSS and MongoDB to enhance UI/UX. Finally, it reflects my development of a security mindset by addressing potential vulnerabilities and ensuring the privacy and security of user data through JWT authentication.

Moving the project from a MEAN to a MERN stack was one of the biggest obstacles I had to overcome. This necessitated switching the frontend from AngularJS to React.js, which meant learning new ideas as well as adjusting to a new framework. I now have a better understanding of node concepts and the benefits of React.js for developer experience and performance thanks to this switch. Using Tailwind CSS to improve the UI/UX design came with its own set of difficulties. It took time and experimenting with various layouts, color schemes, and typography to produce an interface that was both aesthetically pleasing and easy to use and also functional. In the end, this process gave me a better grasp of front-end and back-end web development which resulted in a web application that looks more polished and professional.

URL for Artifact 1:

https://travlr-booking-app.onrender.com/