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CS 499

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**Milestone Three: Algorithms and Data Structure Enhancement Narrative**

The artifact I selected is the trip-listing.component.ts file from the Angular front end of my CS 465 full-stack travel application. This component is responsible for retrieving and displaying trip data to the user when they visit the trip listing screen. It was originally created during the earlier modules of the CS 465 course and was later revisited as part of my code review in CS 499.

I chose this artifact for my ePortfolio because it allowed me to demonstrate clear use of algorithms and data structure principles in a real-world component. Specifically, the file uses an array of Trip objects, which I enhanced by adding filtering and sorting logic. I implemented a filter to only display upcoming trips (based on the trip’s start date) and a sorting function to arrange the trips chronologically. This allowed me to showcase my ability to process and manipulate data structures using built-in JavaScript methods like filter() and sort(), and to apply conditional logic based on date comparisons.

This enhancement aligns with the course outcomes I identified in Module One, specifically the outcome related to designing and evaluating computing solutions using algorithmic principles. I have not changed my outcome coverage plan, as this enhancement still supports that goal. It strengthened my understanding of how algorithmic decisions directly impact user experience, especially when managing and presenting large sets of data.

While enhancing the artifact, I learned more about working with TypeScript interfaces and the importance of correctly typing the Trip model, especially when using properties like start as a Date object. One challenge I faced was realizing that the date field in the mock data was called start, not date, which initially caused a type error. Once resolved, I was able to improve the code in a clean and maintainable way. Overall, this process helped me better understand how to apply algorithmic thinking within Angular components and emphasized the value of small but meaningful logic improvements in full-stack development.