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CS499

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

The artifact is the backend portion of a contact management system, originally created during a prior course in the computer science program. The application allows users to create, read, update, and delete contact information via RESTful API endpoints using Node.js and Express. This specific version of the artifact was enhanced in June 2025 for Milestone Three in CS499.

1. Justify the inclusion of the artifact in your ePortfolio.

I chose this artifact because it demonstrates a clear improvement in algorithm efficiency. Originally, contact search functionality relied on a linear search (Array.prototype.filter). I replaced this with a binary search algorithm which is significantly faster for sorted data.

Specific components that demonstrate my skills include:

* The custom binarySearchContracts() function, which efficiently searches sorted contacts by name
* Integration of a new /api/contacts/search endpoint using query parameters
* Sorting logic to ensure binary search operates correctly

These updates improve the performance and scalability of the application and reflect my competency in apply algorithmic thinking to production code.

1. Did you meet the course outcomes you planned to meet with his enhancement?

Yes, I met the course outcomes of demonstrating the ability to design and evaluate computing solutions that solve a given problem using algorithmic principles. This enhancement shows my understanding of time complexity and optimization by switching from a linear time algorithm (O(n)) to a logarithmic one (O(log n))

1. Reflection on the process of enhancing and modifying the artifact.

Through enhancing and modifying this project, I reinforce my knowledge of sorting algorithms, binary search, and how to use query parameters in REST APIs. I also learned how important input validation and error handling are when building robust endpoints. A key challenge I faced was ensuring that contacts were sorted before applying the binary search, which is a crucial prerequisite for it to function correctly.

This process helped me understand the impotence of choosing the right data structure and algorithm based on the contact and performance needs of the application.

A screen shot of a computer

AI-generated content may be incorrect.