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Narrative: Enhancement Two

The ContactService.java file is a Java class that provides basic functionality for managing a list of contacts, including operations to add, update, delete, and retrieve contact information. It was originally created in an earlier course in my Computer Science program and later enhanced during the Spring 2025 term as part of CS499. The enhanced version transitioned to using a HashMap, significantly improving performance by enabling constant-time lookups, updates, and deletions based on contact IDs. This work was completed during a software development course focused on object-oriented design and data structures.

This artifact was chosen for my ePortfolio because it showcases my growth as a developer, particularly in understanding and applying core programming concepts such as object-oriented principles, data validation, and efficient data management. The most significant change in the enhancement was the move from an ArrayList to a HashMap, which demonstrates my ability to evaluate and improve the performance of my code. The enhanced version also includes clearer exception handling and more robust validation logic, making the code more maintainable and reliable.

Through enhancing this artifact, I developed a deeper understanding of how different data structures affect the performance and scalability of applications. The challenge of maintaining consistent functionality while refactoring core logic required close attention to detail and rigorous testing. Peer and instructor feedback played a key role in shaping the final version as I received feedback that I had the clear to continue which helped my resolve. I learned how to refactor code thoughtfully and how to implement enhancements that make a real impact on usability and performance.

This artifact demonstrates my ability to write efficient, clean, and scalable code. It reflects several course outcomes including the use of object-oriented techniques, implementation of robust validation and exception handling, and performance optimization through proper data structure selection.