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The artifact I chose to implement a database in was my Java application from CS320. Originally, the artifact was a very simple Java program composed of several classes representing contacts or appointments, along with their associated services. I chose to include this artifact in my ePortfolio because I saw the potential to update and transform it into a full-stack project. This transformation could serve as a template for future projects, demonstrating a wide range of skills from frontend to backend development. Additionally, the updated artifact would showcase my abilities in developing well-written code and help me achieve course outcomes related to employing well-founded techniques and fostering a security mindset.

Enhancing this artifact allowed me to significantly improve my ability to write reusable and modular code while maintaining safe practices. One of the most important skills developed through this process was creating code that is not only functional but also maintainable and secure. In programming, a common challenge is balancing complexity and readability. By enhancing this artifact, I managed to strike that balance effectively. This experience helped me understand how to design and implement complex features without sacrificing the clarity and maintainability of the code.

Incorporating a SQLite database into the application required a deep understanding of both Java and database management. This enhancement enabled me to move beyond simple, in-memory data structures to a more sophisticated and persistent data storage solution. The process involved learning how to integrate the database, execute SQL queries, and handle database connections and exceptions. These are essential skills for any full-stack developer and are critical for ensuring data integrity and security in real-world applications.

The transition from a basic Java program to a full-stack application required significant code refactoring. This refactoring process was essential for creating a modular architecture that supports scalability and maintainability. It also allowed me to implement best practices in software development, such as separation of concerns and encapsulation, which are crucial for writing clean, efficient, and reusable code. Through this enhancement, I also developed a security mindset. Integrating a database introduces various security considerations, such as protecting against SQL injection attacks and ensuring secure data handling practices. By addressing these concerns, I enhanced the artifact's security, making it a more robust and reliable application. This experience not only improved the artifact itself but also expanded my understanding of security principles in software development.

Overall, the process of enhancing this artifact was a valuable learning experience that helped me develop essential skills in software development. The updated application now stands as a testament to my ability to design and implement complex, secure, and maintainable code. This project not only showcases my technical abilities but also reflects my growth as a developer, making it a fitting addition to my ePortfolio.