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Professor Phillips

CS 499

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**Artifact Description:**

The artifact is an enhanced database management system for a retail application, created in May of 2023 during my CS 305 software security course. It initially encompassed a MySQL database but has been further advanced to include data mining features, a MongoDB interface with HTML/JavaScript, and a full stack developed in a different programming language.

**Artifact Brief:**

This artifact, initially created as a MySQL database for managing retail operations, has been enhanced to become a more robust, full-stack application with data mining capabilities and a user-friendly MongoDB interface. The creation commenced in September 2023, during my 499 CS Capstone course.

**Justification for Inclusion:**

I selected this artifact for my ePortfolio as it vividly demonstrates my growth and capabilities in database management, full-stack development, and software security. The enhancement from a simple MySQL database to a full-stack application with advanced database features showcases my skills in software development, particularly in database design, front-end development, and back-end logic. Moreover, the incorporation of data mining and a MongoDB interface reflects my ability to adapt and utilize different technologies to meet evolving project requirements.

**Reflection on the Enhancement Process:**

The process of enhancing this artifact was a journey filled with learning, challenges, and iterative improvements. As I delved into advanced database concepts and integrated a different programming language for the full stack, I learned the importance of adaptable code structure and robust security measures, especially in a retail environment where sensitive data is handled.

One of the challenges I faced was integrating MongoDB with the existing MySQL database while ensuring a seamless user experience through the HTML/JavaScript interface. The feedback received from my peers and instructor was invaluable. It pointed out areas for improvement, particularly in optimizing the data mining algorithms and enhancing the security features of the application. Incorporating this feedback, I refined the data mining algorithms for better performance and bolstered the security measures to safeguard against potential vulnerabilities.

The artifact has significantly improved through this process. It now not only serves as a comprehensive database management system for retail operations but also provides insightful data analytics through data mining, and a user-friendly interface for easier data management and retrieval. The enhancement process has enriched my understanding and skills in database management, full-stack development, and software security, preparing me for more complex, real-world projects in the future.