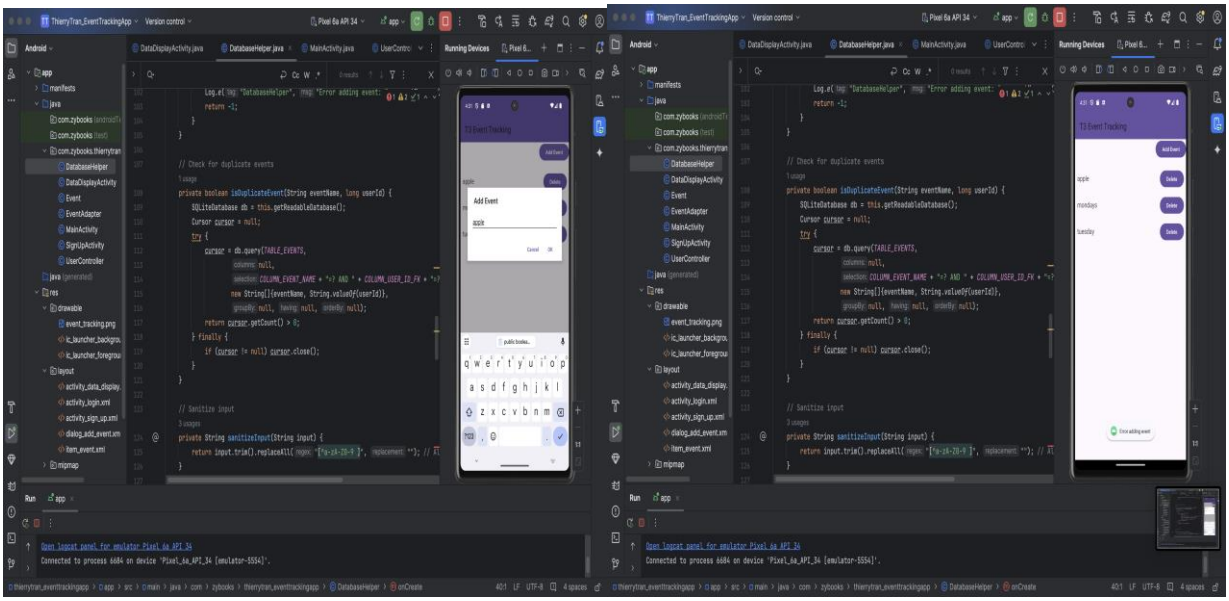
Thierry Tran

thierry.tran@snhu.edu

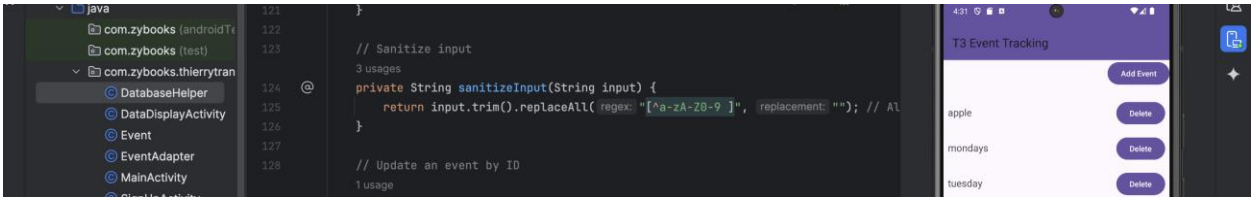
CS 499 Milestone Four

The artifact I chose for this enhancement is the database management component of my *Event Tracking Application*. This artifact represents the foundation of how user and event data are stored, retrieved, and maintained in the application. It was initially created during my coursework to demonstrate basic CRUD (Create, Read, Update, Delete) operations. However, through this enhancement, I refined its functionality by implementing advanced features like duplicate event prevention, input sanitization, and streamlined database methods to ensure usability, security, and maintainability.

I included this artifact in my ePortfolio because it showcases my ability to design and implement robust database solutions that are both secure and user-friendly. The database is a critical component of any application, and the updates I made highlight my skills in ensuring data integrity and system reliability. Specifically, the prevention of duplicate events demonstrates my ability to anticipate user needs and improve user experience. Input sanitization reflects a security-first mindset, while the refactored methods showcase my commitment to writing maintainable and readable code. These changes collectively align with industry standards for database management and security, making this artifact a strong representation of my capabilities in software development.



Through this enhancement, I achieved the course outcomes related to software engineering and database management, as outlined in Module One. The updated artifact demonstrates my ability to use innovative techniques and tools in computing practices to deliver value and accomplish specific goals. Moreover, I developed a stronger security mindset by incorporating input sanitization to prevent potential adversarial exploits, aligning with program outcomes focused on ensuring privacy and enhanced security. My initial enhancement goals have been met, and I feel more confident about this artifact's alignment with course objectives.



The process of enhancing this artifact was a valuable learning experience. I realized the importance of balancing functionality with security and usability. Implementing duplicate event prevention taught me how to manage constraints in database design effectively, while input sanitization reinforced the importance of protecting against malicious input. Adding logging to

database operations helped me identify and debug issues more efficiently. The biggest challenge was ensuring these changes did not break existing functionality or conflict with other components of the application, like the *EventAdapter* and *DataDisplayActivity*. This required careful planning, extensive testing, and attention to detail.

This enhancement reflects my growth as a developer. It shows my ability to analyze existing code, identify areas for improvement, and implement solutions that adhere to best practices in database management. This experience has not only strengthened my technical skills but also deepened my understanding of the role of databases in delivering secure and reliable software solutions. I am confident this artifact demonstrates my proficiency in designing and managing databases, and I believe it will be a valuable addition to my ePortfolio.

References

- Martin, R. C. (2008). *Clean Code: A Handbook of Agile Software Craftsmanship*. Prentice Hall.
- Elmasri, R., & Navathe, S. B. (2016). *Fundamentals of Database Systems* (7th ed.). Pearson.
- Schneier, B. (2015). *Secrets and Lies: Digital Security in a Networked World*. Wiley.