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MSCS 630 – Security Algorithms and Protocols

Project Proposal – Cyber Vault Online Banking

My project proposal is to create an Android banking application using full encryption and authentication called Cyber Vault. The idea of this would be to create a banking application like the ones being used today by major banks. The app would implement AES (Advanced Encryption Standard) and SHA-1 (Secure Hash Algorithm 1) at 64 bits or better (I would be aiming for better). I would code the app using multiple programming languages such as Java, Kotlin, and SQL. The programming environment I would use would be either Android Studio or IntelliJ.

The application would start off with a login screen where the user would have to enter a username and password which would give access to their account. From there they could have full access to their account with a wide array of options to choose from. My goal for the app would be to have all the functionality and features of any normal banking application such as an intuitive user interface, view balance, money transfer, transaction details, quick balance, account security, available balance, travel notification, etc. I would like to store all of the user information in a database such as MySQL or MongoDB (I will have to decide between either the very scalable and flexible document-oriented database model or relational database model).

There will be a lot of research to do regarding this application because I will be working with multiple technologies and protocols that I have not yet gained any experience with such as Android Studio, Kotlin, MongoDB, encryption algorithms, authentication algorithms, etc. I am excited however because there is no better way to learn new technologies than diving right in and getting your hands dirty. It would be cool to expand on this application after the semester and experiment with wearables such as a smartwatch and figure how technologies such as Apple Pay and Samsung Pay work.