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CS499

Enhancement: Databases

This enhancement improved StockSense by transitioning from a local SQLite database to Supabase, enabling cloud-based, multi-user inventory management. This change enhances scalability, security, and accessibility, allowing multiple users to collaborate on inventory tracking in real-time.

Why This Artifact?

StockSense was originally designed for CS360 as a single-user inventory system. This enhancement demonstrates my ability to:

- Implement secure authentication with hashed passwords.

- Utilize Supabase for cloud-hosted database management.

- Optimize database interactions using API-driven architecture.

Technical Improvements

Transitioning to Supabase required integrating Retrofit for API communication and improving database queries for efficient data retrieval. Additionally, I explored client-side vs. database-triggered sorting, ultimately opting for client-side sorting due to flexibility and maintainability.

Key Challenges & Solutions

- API Connectivity Issues: Debugging Supabase API calls required extensive Postman testing to validate request handling.

- Sorting Optimization: Considered database triggers but maintained client-side sorting for better performance tuning.

- Authentication Security: Replaced insecure credential storage with hashed password authentication, improving data protection.

Course Outcomes Addressed

- **Database Design & Optimization:** Implemented cloud database architecture for a scalable system.

- **Security & Authentication:** Integrated hashed password authentication for secure access control.

- **Technical Communication:** Used API documentation and structured logging for troubleshooting.