

Reflections on the Development of FitHub

The development of FitHub presented a valuable learning experience, with several challenges:

Challenges

1. **Integration of Multiple Features:**
 - Combining role-based user management, progress tracking, and real-time updates required seamless coordination between components.
 2. **Database Complexity:**
 - Designing a relational schema that supported many-to-many relationships, such as in plans and exercises, was challenging.
 3. **Real-Time Notifications:**
 - Implementing the Observer pattern for notifications and ensuring timely delivery posed integration difficulties.
 4. **Security Measures:**
 - Balancing secure authentication (OAuth and password login) with simplicity required careful design.
 5. **Testing:**
 - Manual testing led to delays in identifying and resolving cases.
-

Improvements

1. **Comprehensive Planning:**
 - Create detailed project plans with realistic timelines and phased feature implementation.
2. **Enhanced Modularity:**
 - Adopt more design patterns and adhere to SOLID principles to improve maintainability.
3. **Automated Testing:**
 - Implement unit and integration tests using frameworks like pytest to reduce manual errors.
4. **Detailed Documentation:**
 - Maintain API specs, database schemas, and workflows to streamline development and debugging.
5. **Simplified Scope:**
 - Focus on delivering a functional MVP (Minimum Viable Product) within the semester timeline, adding additional features only if time permits.

6. Presentation Practice:

- Allocate time to prepare a clear and engaging presentation of the project for evaluation, including live demonstrations of core features.

7. Learning New Tools:

- Leverage the project to explore and learn new technologies or frameworks relevant to the course objectives, enhancing the learning experience.
-