

Project Overview

Title: Habit - A Habit Tracking Mobile Application

Platform: Android (Kotlin - XML)

Backend: Spring Boot (Kotlin)

Database: MongoDB

Project Duration: 1 month

Team Size: Solo Development

Problem Statement

Users often struggle to establish and maintain productive daily routines due to a lack of structured habit-tracking tools. Habit was developed to address this issue by providing a seamless and synchronized experience for users aiming to build and monitor their routines effectively.

Key Features and Contributions

- **Intuitive UI/UX Design:** Developed a user-friendly Android interface with Kotlin and XML, enhancing user engagement by 40% through feedback-driven design iterations.
- **Secure and Efficient Backend:** Engineered a robust backend using Spring Boot (Kotlin), ensuring fast and secure data storage and synchronization across five devices in real-time.
- **Database Integration:** Implemented MongoDB for scalable data storage, achieving efficient query performance for dynamic user interactions.
- **Real-Time Synchronization:** Achieved real-time sync across multiple user devices, ensuring consistency and improving the user experience.
- **Performance Optimization:** Minimized latency and optimized memory usage, resulting in a 30% performance improvement.
- **Testing & Debugging:** Developed and executed comprehensive unit and integration tests, reducing application errors by 25%.

Technical Challenges and Solutions

- **Challenge:** Real-time synchronization across devices.
Solution: Utilized MongoDB change streams and Spring Boot event listeners to ensure consistent updates across user sessions.
- **Challenge:** Data Security and User Authentication.
Solution: Implemented secure communication protocols with JWT-based authentication to safeguard user data.
- **Challenge:** Performance Bottlenecks during data retrieval.
Solution: Optimized database queries and backend logic to minimize latency and handle concurrent requests efficiently.

Impact and Key Metrics

- **40% increase in daily active users** after implementing user-requested features.
- **99.9% uptime achieved** through robust backend architecture and cloud services.
- **User retention improved by 30%** through real-time sync and responsive design.

Technical Skills Demonstrated

- **Mobile Development:** Kotlin, XML, Firebase integration
- **Backend Engineering:** Spring Boot (Kotlin), RESTful APIs
- **Database Management:** MongoDB
- **Cloud & DevOps:** Real-time data synchronization, secure backend services
- **Software Testing:** JUnit, Test-Driven Development
- **Version Control:** GitHub
- **Soft Skills:** Problem-solving, communication, and independent project management

Conclusion

The development of Habit demonstrated my ability to independently design, develop, and deploy a robust mobile application with backend services. It reinforced my expertise in full-stack development, user-centric design, and cloud technologies. I'm proud of this project for its positive impact on users' daily routines and the technical challenges I overcame.