

Study App Development

Research Background and Purpose

In today's society, information devices such as smartphones and tablets are widely used. Managing study plans and monitoring progress on personal devices enables users to create tailored plans and visually track their results. This approach is gaining attention as an effective way to enhance learning outcomes.

Development Environment

We are developing this application using Android Studio 2024.1.1 and Kotlin, ensuring a stable development framework. Testing is conducted on both physical devices, such as the Galaxy S22, and virtual devices like the Pixel XL emulator. To maintain efficient team collaboration, we utilize Git and GitHub for version control, ensuring consistency and flexibility in the development process.

Demand for Local Applications

Local applications offer higher performance and stronger security compared to web-based applications. Leveraging these advantages, we aim to develop a study application that meets users' needs and expectations, ensuring high satisfaction levels.

Continuous Improvement

To enhance the application, we will continuously gather and analyze user feedback through regular surveys. This feedback will help us identify pain points and uncover latent needs, allowing us to implement targeted improvements and refine the app's functionality over time.

Database Design

The application uses an SQLite database named `study_app.db` to efficiently manage learning data. It includes tables such as `tasks`, `events`, `study_time`, and `sleep_data`, enabling streamlined CRUD (Create, Read, Update, Delete) operations. This organized structure ensures effective data management and usability.

Application Components

The app is organized around a Main Activity, which serves as the central controller, allowing seamless navigation between the following four primary fragments:

1. Home: Displays an overview of the user's learning progress and analytical insights.
2. Schedule: Assists users in managing and organizing their study schedules.
3. Study Time: Tracks and records the duration of study sessions.
4. To-Do List: Helps users manage tasks effectively and stay organized.

Utilizing the Sleep API

To provide a comprehensive learning experience, the app integrates the Sleep API for analyzing users' sleep data. The process involves:

1. Permission Request: Obtaining user consent by clearly explaining the purpose and benefits of accessing sleep data.
2. API Registration and UI Design: Once permission is granted, the app registers with the API and designs an intuitive UI to present sleep data clearly and meaningfully.
3. Unsubscribing: If users choose to discontinue, the API is promptly deactivated, ensuring data protection and maintaining user trust.

Prospects for the Future

We aim to enhance convenience and usability through innovative technologies:

- Implementing image recognition for schedule entry.
- Introducing customizable templates for the To-Do List.
- Strengthening notification features to ensure users never miss important study reminders.
- Designing an intuitive and user-friendly UI for seamless interaction.

Advanced Data Analysis

The application will include robust data analysis features to identify individual learning patterns and provide tailored support, ultimately maximizing the efficiency and effectiveness of the learning process.