

FitPro App Report

Project Overview

The FitPro App is a comprehensive fitness management application designed to help users streamline their fitness routines, book appointments, access educational resources, and manage their profiles. The app leverages modern technologies such as Flutter, Firebase, and local storage to provide a seamless and user-friendly experience across platforms.

Key Features

1. Appointment Booking System

- Users can book appointments by selecting a date and time.
- Notifications are sent to remind users of their appointments, ensuring they never miss a session.
- Notifications are scheduled to trigger 1 hour before the appointment.

2. Profile Management

- Users can upload and update their profile pictures.
- Profile images are stored locally using TinyStorage for offline access and synced with Firebase Storage for cloud backup.
- User details such as email and profile photo are dynamically fetched from Firebase Authentication.

3. Educational Resources

- A curated list of fitness-related educational materials is available for users.
- Users can download and open PDF resources directly to their devices.
- The app ensures proper permission handling for file downloads and storage.

4. Notifications

- Local Notifications: Implemented using the flutter_local_notifications plugin for appointment reminders.
- Push Notifications: Integrated with Firebase Cloud Messaging (FCM) to handle real-time notifications.

5. Platform Support

- The app is designed to work Android platforms.
- Time zone handling ensures notifications are accurate regardless of the user's location.

Technical Details

6. Technologies Used

- Flutter: For building the cross-platform mobile application.
- Firebase: For authentication, cloud messaging, and storage.
- TinyStorage: For local data persistence.
- flutter_local_notifications: For managing local notifications.
- timezone: For accurate time zone management.
- Flutter image_picker for profile photo update.
 - Flutter file_picker for pdfs.

7. Key Libraries

- `firebase_auth`: For user authentication.
- `firebase_messaging`: For push notifications.
- `flutter_local_notifications`: For scheduling and displaying local notifications.
- `path_provider`: For accessing the device's file system.
- `permission_handler`: For managing runtime permissions.

8. Architecture

- The app follows a modular architecture with separate features for booking, profile management, and education.
- Firebase is used as the backend for authentication and cloud storage, while `TinyStorage` handles local data persistence.

Feature Highlights

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11. Educational Resources

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Challenges Faced

- Time Zone Management: Ensuring notifications are scheduled in the correct time zone required integrating the timezone package and initializing time zones properly.
- Android 13+ Permissions: Android 13 introduced stricter notification permissions, requiring additional handling to request and manage these permissions.
- Firebase Integration: Handling Firebase Cloud Messaging and syncing profile data with Firebase Storage required precise configuration.

- Using the notification package from flutter was challenging and kept causing issues to the performance of the app.
- The accelerometer package from flutter was also not functioning properly. This was meant to be used for activity tracking.

Conclusion

The FitPro App is a robust and user-friendly fitness management solution that leverages modern technologies to provide a seamless experience. With features like appointment booking, profile management, and educational resources, the app caters to the diverse needs of fitness enthusiasts. By integrating Firebase and local storage, the app ensures data reliability and accessibility. Future enhancements will further improve the app's functionality and user engagement.