

Design Specifications

Sleep Fixer App

Group 6

Dang Nguyen Rafael Caldera Yohei Oya Yuanwei Chen

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Packages

Dependencies

Front-End (Flutter)

- **Flutter SDK (3.x):** Core cross-platform UI framework used to build iOS, Android, and Web versions of the Sleep Fixer app.
- **Dart Language:** Compiled language used by Flutter for UI and business logic.
- **Hive (Local NoSQL Database):** Lightweight database used for:
 - user sleep plan storage,
 - daily progress tracking,
 - user preferences.

Dependencies:

- `hive`
- `hive_flutter`
- `path_provider`
- **Provider (State Management):** Used to manage UI state for:
 - onboarding flow,
 - plan creation,
 - progress updates,
 - insights display.
- **Flutter Local Notifications:** Supports Snapshot 2 features:

- bedtime reminders,
- morning check-in prompts.

Dependency:

- `flutter_local_notifications`

- **Intl Package:** Supports formatting sleep times, dates, weekly reports.
- **Firebase Framework (Snapshot 3 – Community & Cloud Sync):** Used for:
 - anonymous community posts,
 - monthly challenges,
 - optional cloud backup of sleep data,
 - user authentication.

Dependencies:

- `firebase_core`
- `firebase_auth`
- `cloud_firestore`

- **Accessibility Support (Snapshot 4):**
 - dynamic text resizing,
 - screen reader compatibility.

Back-End (Snapshot 3 – Firebase Services)

Although Sleep Fixer does not use a traditional custom backend, Snapshot 3 introduces a cloud component for social features and storage.

- **Firebase Authentication:** Provides anonymous or optional user login for community features.
- **Cloud Firestore:** Stores:
 - community posts,
 - challenge participation data,
 - optional backups of local sleep data.
- **Firebase Functions (Optional):** Supports leaderboard logic or scheduled insights generation.
- **Firebase Storage (Optional):** Used only if users upload journal attachments (future work).

Database Management

- **Hive Local Database (Primary Storage):**

- Sleep plan configuration
- Daily progress entries
- User preferences

Stored on-device with:

- no internet needed,
- fast read/write performance.

- **Cloud Firestore (Snapshot 3 Feature):**

- Backup solution,
- Community data storage,
- Cross-device sync of streaks or achievements.

Libraries

- **Flutter Material Library** – Core UI components used throughout the app.
- **Provider** – Lightweight state management for dynamic screens.
- **Hive** – Local NoSQL storage library for sleep plans and progress.
- **firebase_core, firebase_auth, cloud_firestore** – Cloud features used from Snapshot 3 onward.
- **flutter_local_notifications** – Supports bedtime reminders.
- **intl** – Formatting of time, dates, and weekly reports.