Human Computer Interaction

DawaTime

Project Phase 2

Figure 1. Digital Healthcare & Telemedicine Illustration.
https://www.pinterest.com/pin/369928556914444936/

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1. Introduction

Patients frequently forget to take prescribed medications on time, resulting in missed or double doses, reduced treatment effectiveness, and health risks.

The Smart Medication Reminder App aims to address this issue by providing intelligent reminders, intake confirmations, and caregiver alerts.

Objective:

Design and evaluate a user-friendly mobile app that reminds patients to take medications, tracks adherence, and supports caregivers through timely alerts.

Stakeholders:

- **Patients:** The main users who receive reminders and confirm medication intake.
- **Caregivers:** Secondary users who get alerts when patients miss doses.
- **Healthcare Providers:** May use adherence data to adjust treatment or provide follow-ups.
- **Developers / Researchers:** Responsible for designing, developing, and evaluating the app.

Requirement Elicitation Methods:

- **Observation:** Watching users manage medications in real settings.
- **Survey:** responses to validate user preferences.
- **Competitive Analysis:** Reviewed apps (Medisafe, MyTherapy, DoseCast, Apple Health).

2. User Requirements

User requirements describe what users need from the system based on research and observation.

ID	User Requirement	Description
UR1	Reminder Reliability	Users need accurate and timely medication reminders.
UR2	Easy Confirmation	Users want to confirm intake ("Taken/Skipped") quickly with one tap.
UR3	Clarity of Information	Dosage and timing details must be clearly displayed.
UR4	Caregiver Notifications	Caregivers want alerts when multiple doses are missed.
UR5	Progress Visibility	Users want to track adherence rates and history.
UR6	Accessibility	The interface should support large text, voice feedback, and easy navigation for elderly users.

UR7	Privacy and Control	Users must control what information is shared with caregivers.
UR8	Simple Setup	Medication setup should be easy and fast.
UR9	Offline Operation	App must work even without internet access.

3. Functional Requirements

Functional requirements define what the app must do to meet user needs.

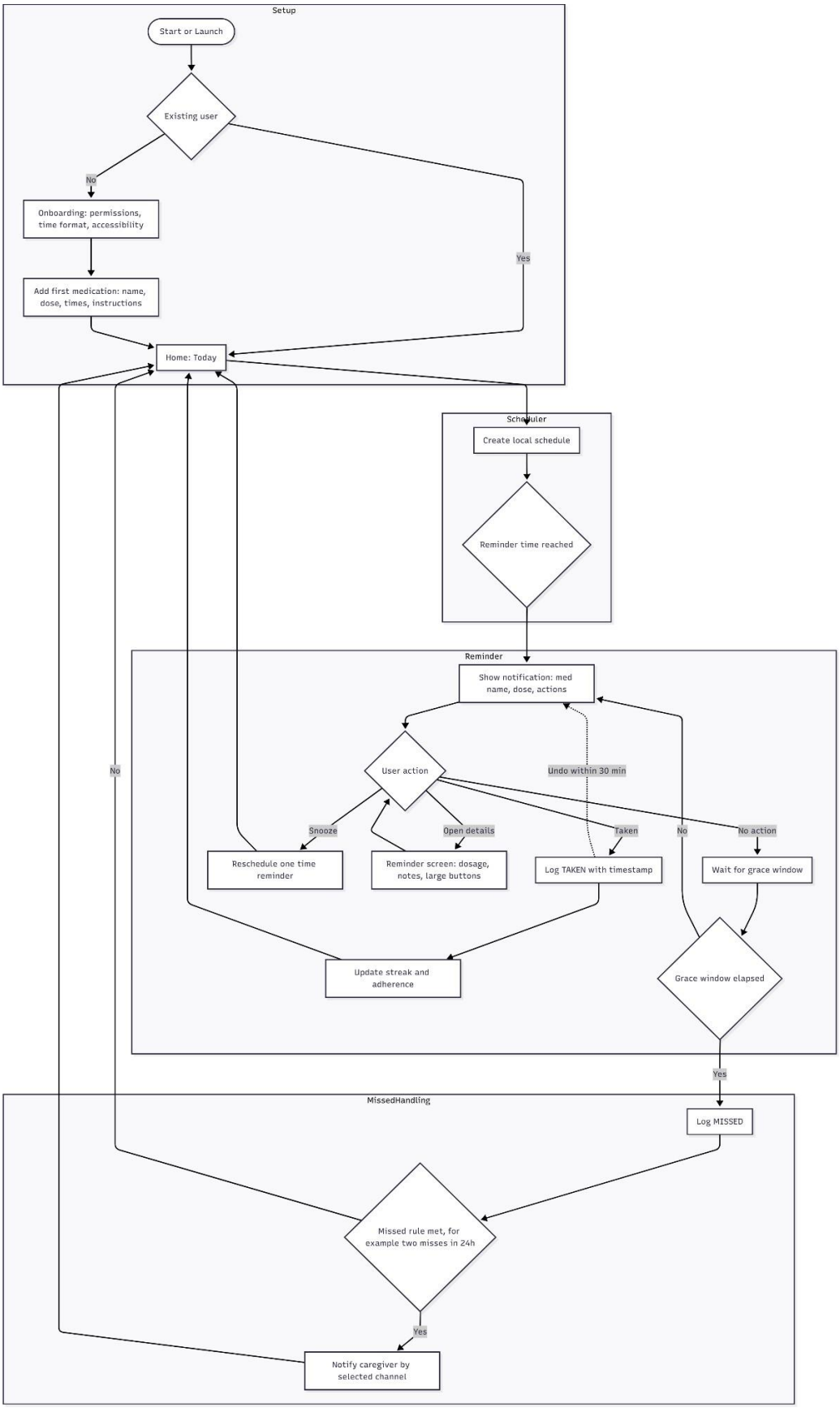
ID	Functional Requirement	Description
FR1	Create Reminders	The app will allow users to add, edit, and delete medication schedules.
FR2	Notification Alerts	The app will send reminders at the specified times.
FR3	Confirm Intake	Users will mark medications as “Taken” or “Skipped.”
FR4	Snooze Option	Users will be able to snooze reminders for 5–15 minutes.
FR5	Missed Dose Logging	If a user doesn’t respond, the system will log the dose as “Missed.”
FR6	Caregiver Link	Users can invite a caregiver through a secure code or link.
FR7	Caregiver Alerts	The app shall notify caregivers if repeated doses are missed.
FR8	History & Statistics	App shall show weekly/monthly adherence statistics.
FR9	Onboarding	A guided setup will help first-time users enter data easily.
FR10	Accessibility Controls	The app will provide adjustable text size and voice support.
FR11	Multi-Medication Support	The system will manage multiple medications independently.
FR12	Data Export	The app will allow users to export medication history as a PDF or CSV.

4. Non-Functional Requirements

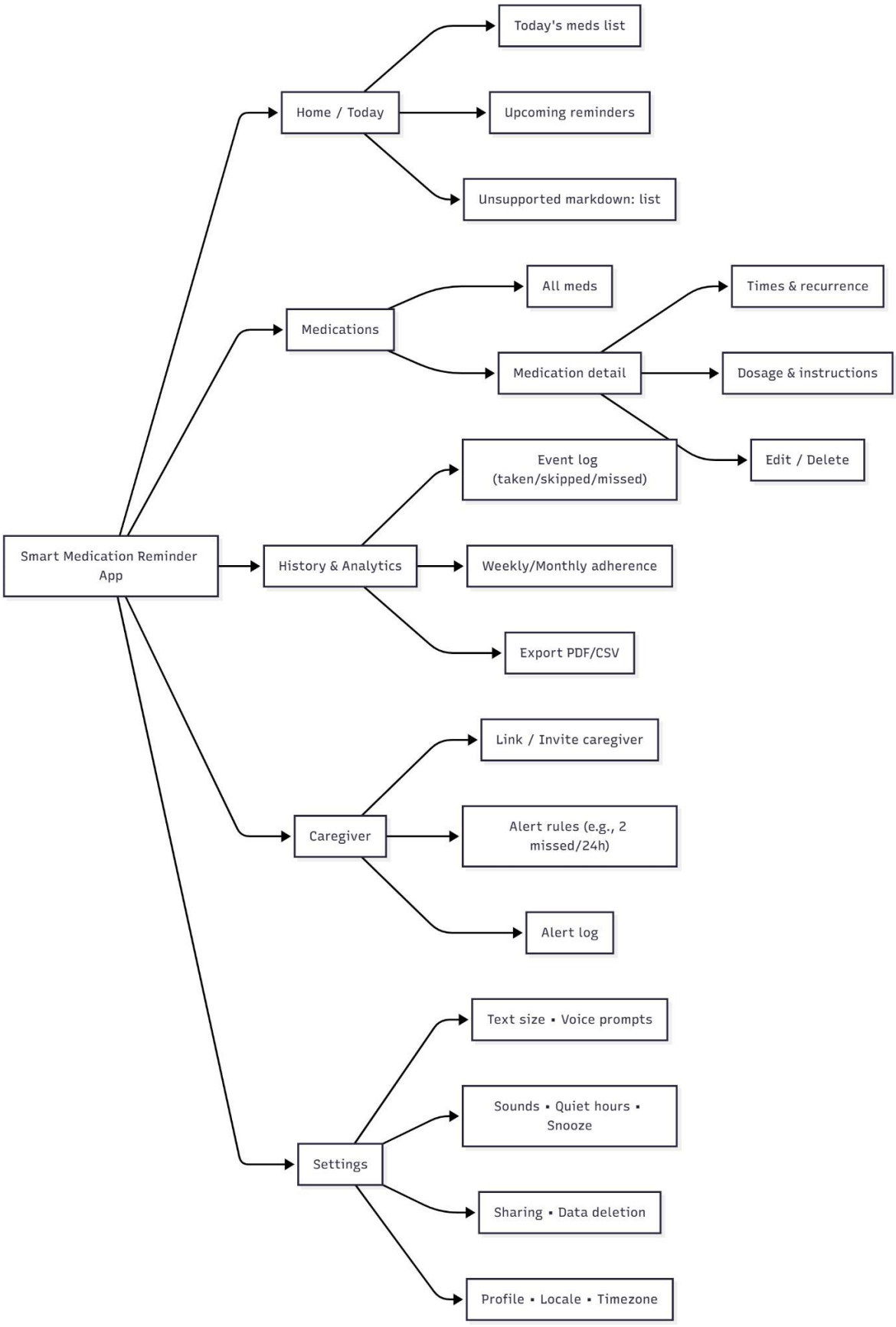
Non-functional requirements describe the system's quality attributes and constraints that ensure usability, reliability, and performance

ID	Non-Functional Requirement	Description
NFR1	Usability	App must achieve a SUS score ≥ 75 in usability testing.
NFR2	Learnability	New users should complete onboarding within 3 minutes.
NFR3	Accessibility	App must meet WCAG 2.2 AA standards; support large fonts and screen readers.
NFR4	Performance	Reminders must trigger within ±1 minute of the scheduled time.
NFR5	Reliability	No reminder or log data should be lost during app restarts.
NFR6	Security	Use encryption for all stored and transmitted data.
NFR7	Privacy	Share data only with user consent; allow data deletion.
NFR8	Compatibility	The app will run on Android and iOS devices from the last 5 years.
NFR9	Maintainability	Code must be modular, documented, and testable.
NFR10	Offline Functionality	Core reminder features must function without internet access.

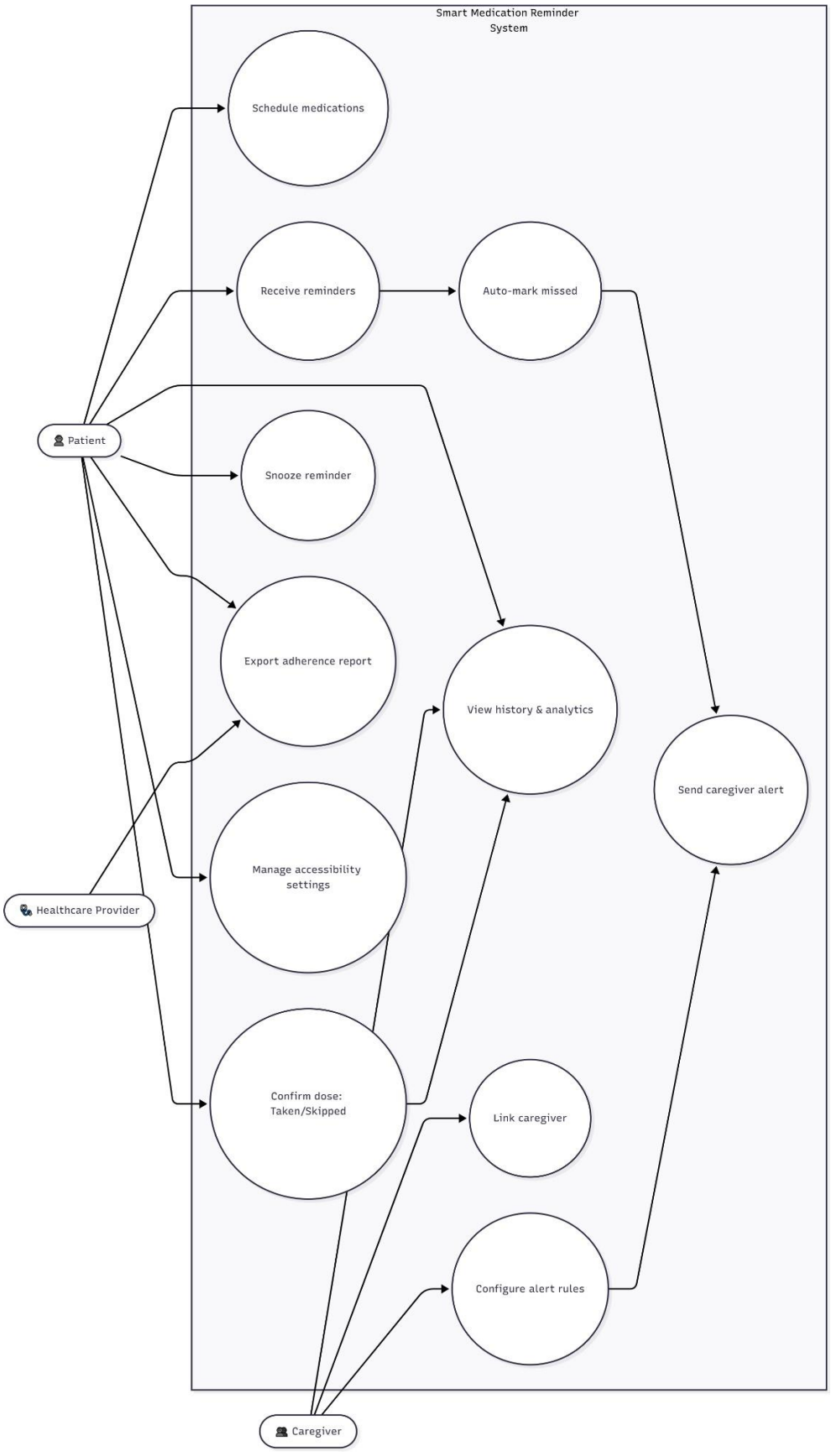
5. Flowchart


Setup
Start or Launch
Existing user
No
Yes
Onboarding: permissions, time format, accessibility
Add first medication: name, dose, times, instructions
Home: Today
Scheduler
Create local schedule
Reminder time reached
Reminder
Show notification: med name, dose, actions
User action
Undo within 30 min
Snooze
Open details
Taken
No
No action
Reschedule one time reminder
Reminder screen: dosage, notes, large buttons
Log TAKEN with timestamp
Wait for grace window
Update streak and adherence
Grace window elapsed
Yes
MissedHandling
Log MISSED
Missed rule met, for example two misses in 24h
Yes
Notify caregiver by selected channel

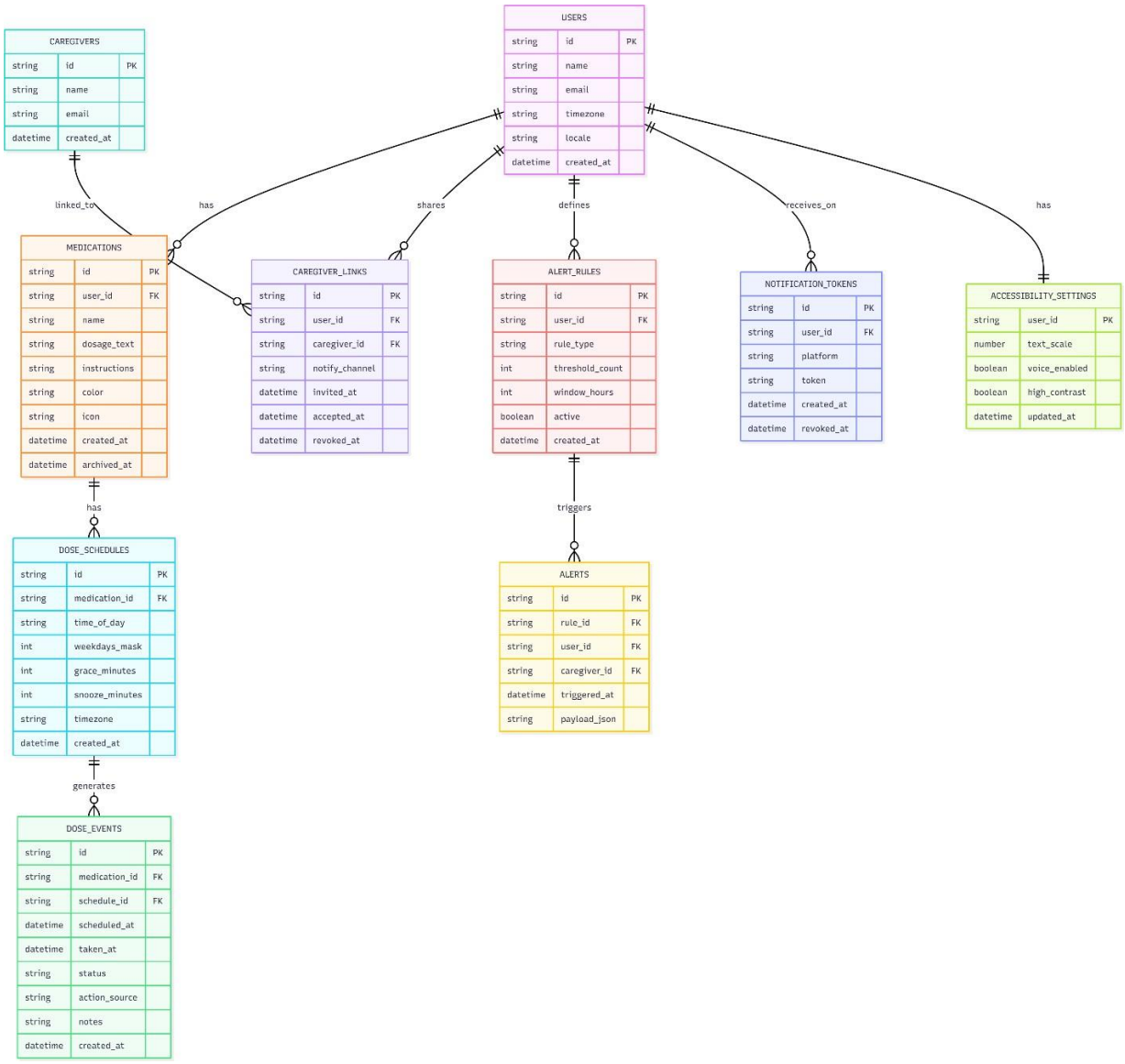
6. Information Architecture



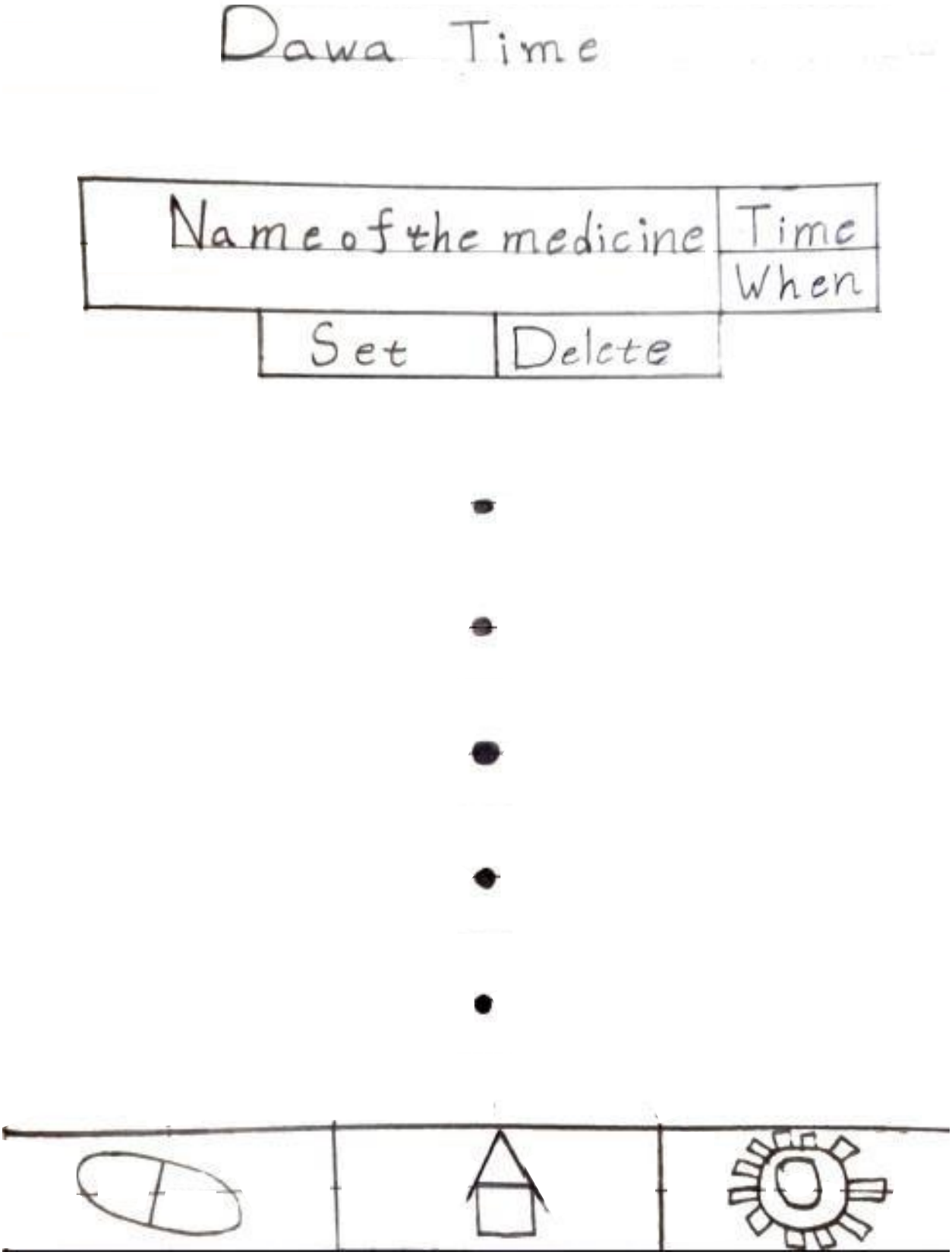
7. Use Cases


Smart Medication Reminder System
Schedule medications
Receive reminders
Auto-mark missed
Patient
Snooze reminder
Export adherence report
View history & analytics
Send caregiver alert
Manage accessibility settings
Healthcare Provider
Confirm dose: Taken/Skipped
Link caregiver
Configure alert rules
Caregiver

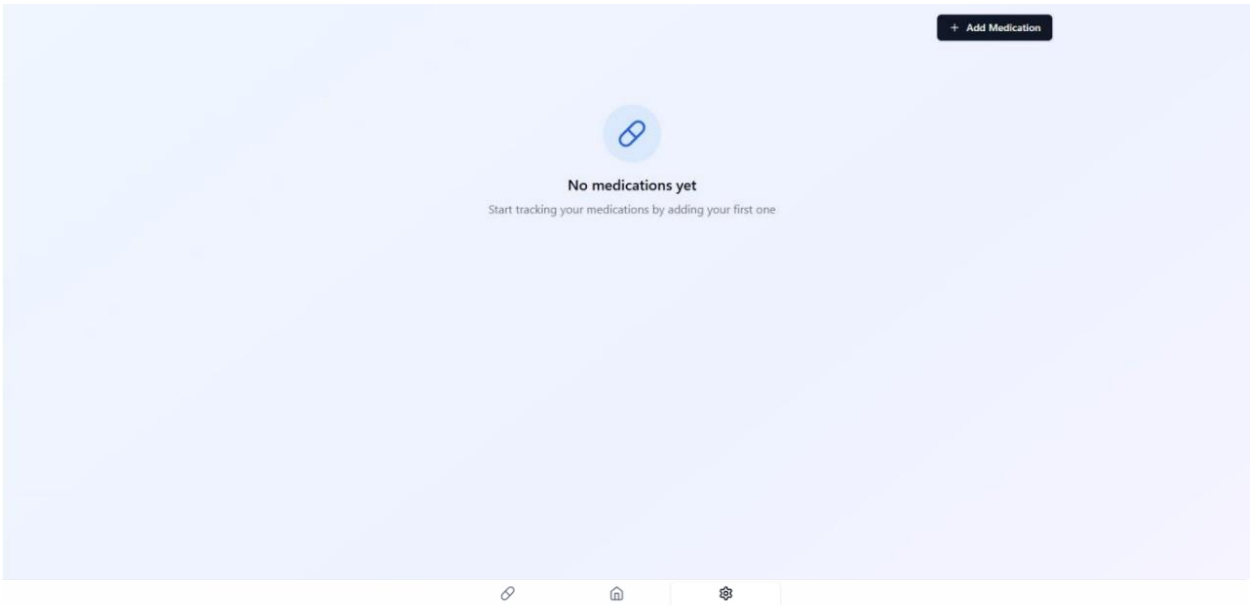
8. Database Design

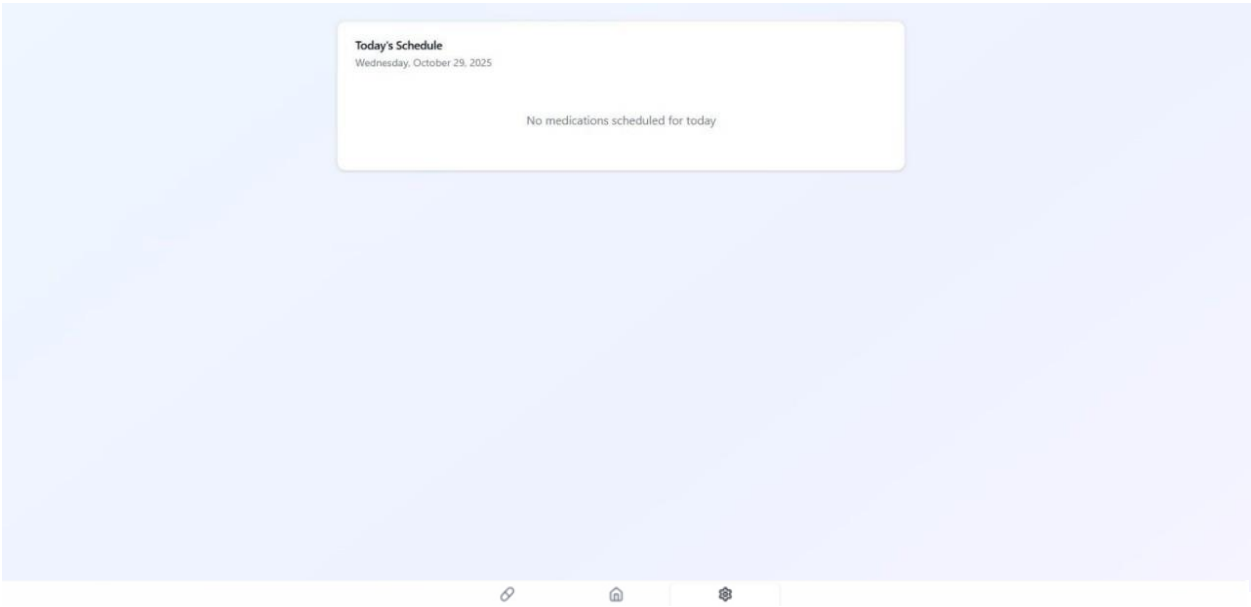


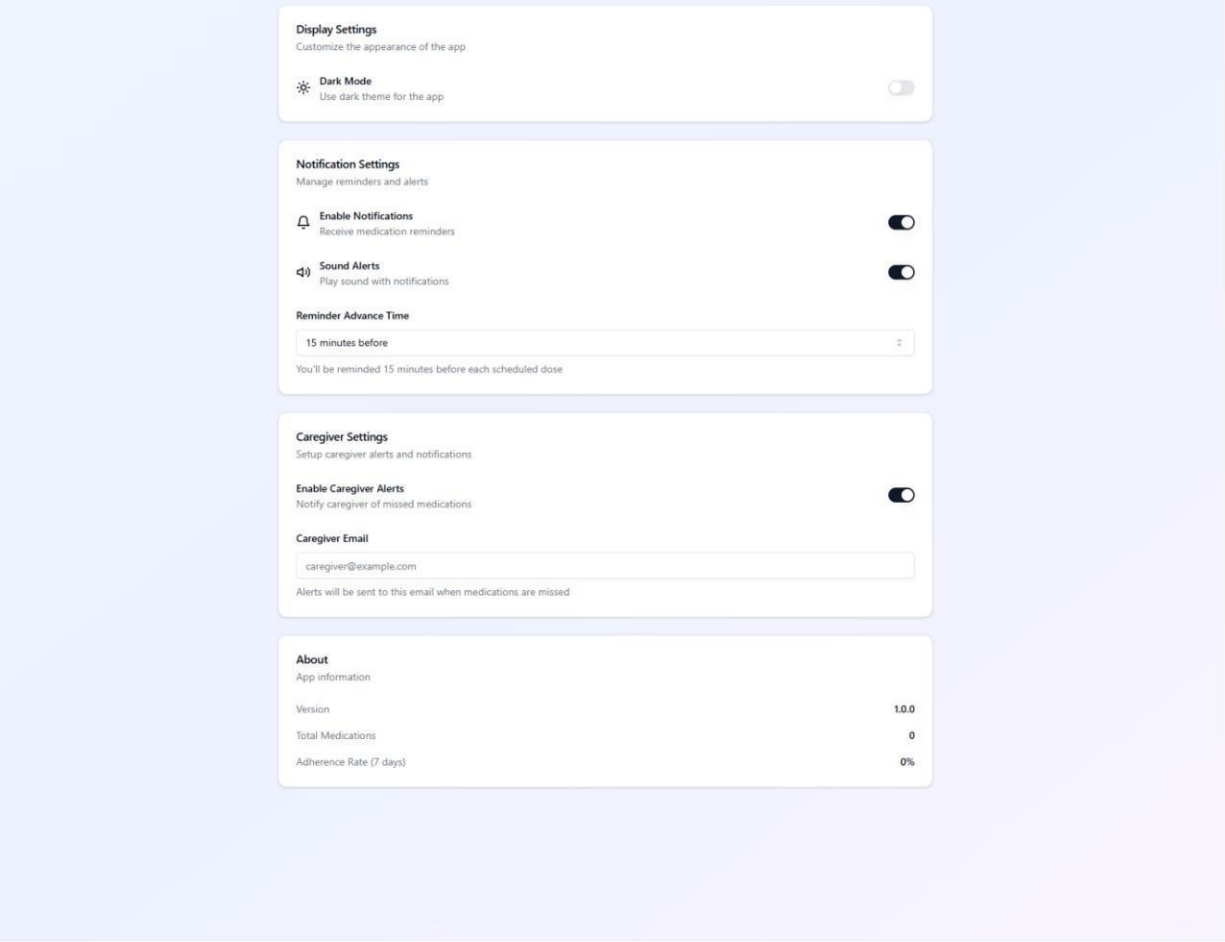
9. Low Fidelity



10. High Fidelity






Display Settings
Customize the appearance of the app
Dark Mode
Use dark theme for the app
Notification Settings
Manage reminders and alerts
Enable Notifications
Receive medication reminders
Sound Alerts
Play sound with notifications
Reminder Advance Time
15 minutes before
You'll be reminded 15 minutes before each scheduled dose
Caregiver Settings
Setup caregiver alerts and notifications
Enable Caregiver Alerts
Notify caregiver of missed medications
Caregiver Email
caregiver@example.com
Alerts will be sent to this email when medications are missed
About
App information
Version
1.0.0
Total Medications
0
Adherence Rate (7 days)
0%