



Capstone Summer 2025

Project Proposal

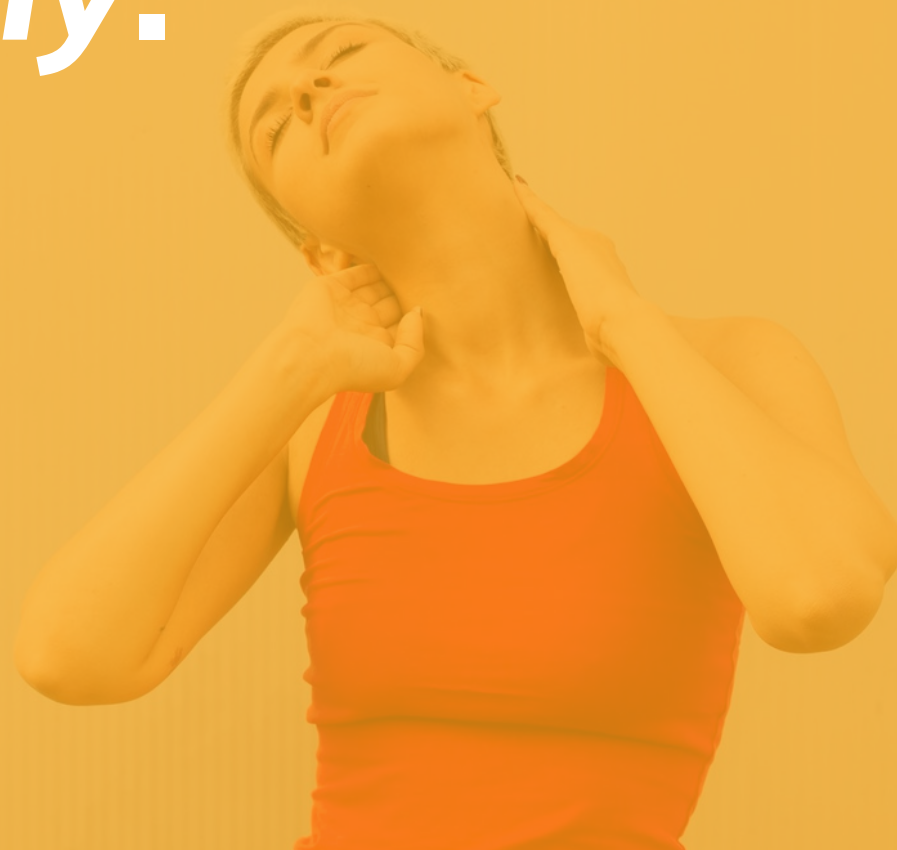






“

Recover *Smarter.*
Move *Freely.*



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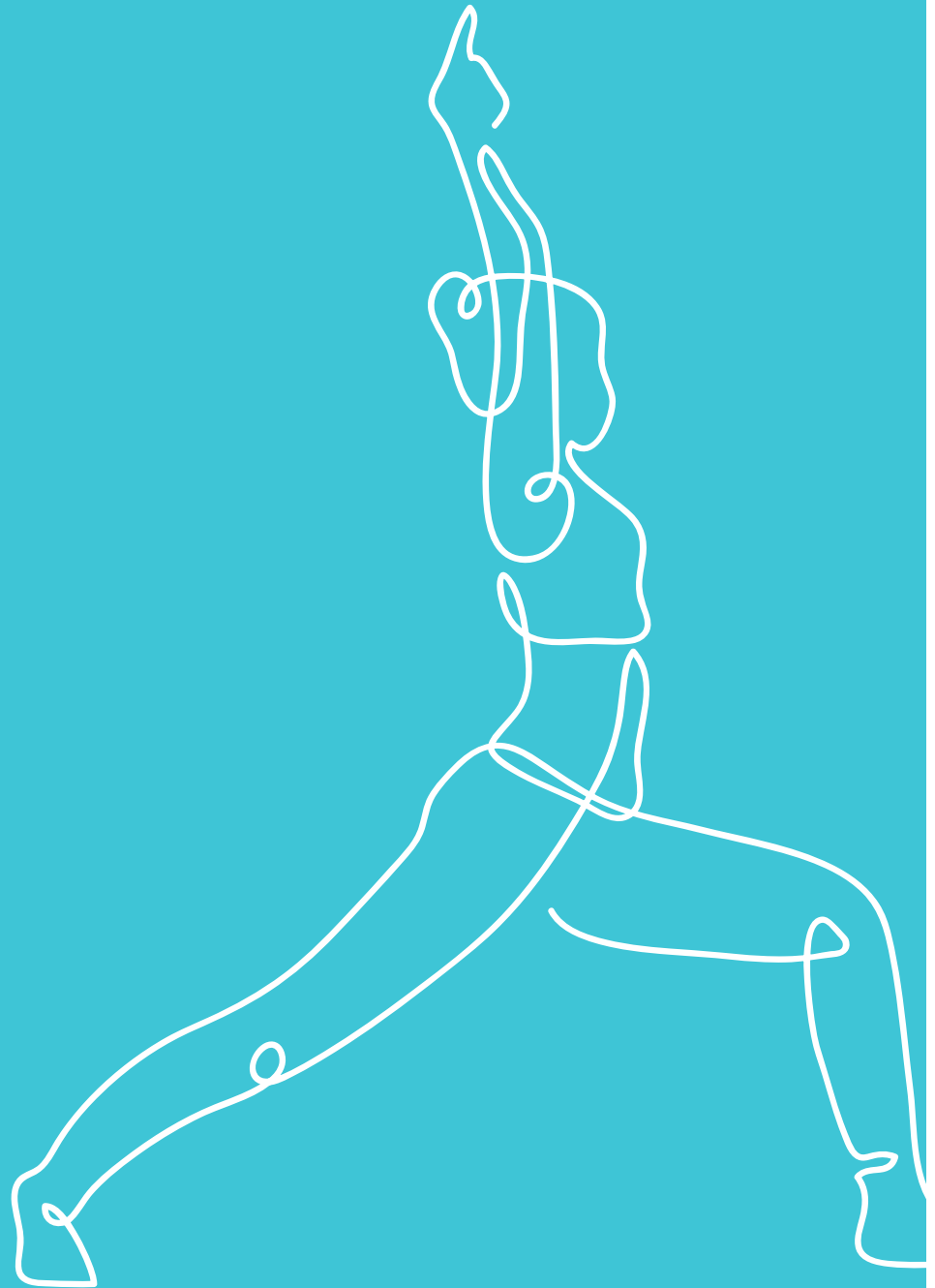
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Project Proposal- Kyntra



01. Project Overview





Problem

Many people experience recurring conditioning injuries like: Shoulder stiffness, Neck pain, Lower back strain etc. These issues often arise from poor posture, muscle imbalances, or improper form during workouts or daily activity. To recover and prevent flare-ups, they're told to do regular rehab or mobility exercises.

- Many can't afford regular therapy sessions
- At-home exercises are often done incorrectly
- No real-time feedback or correction
- Self-recovery without guidance is risky
- Minor issues can turn into long-term problems





Solution

Kyntra is a mobile app designed for non-emergency injuries, providing individuals with real-time exercise feedback.

- Using the phone's camera to track movements
- Detects incorrect posture or form in real-time
- Provides instant feedback visually on screen or through voice.

More Than Just Rehab:

Provides a guided video library, AI analysis, and suggestions for nearby therapists to support safe and effective home recovery. Kyntra ensures users recover correctly, confidently, and consistently even without frequent clinic visits.

Features



Conditioning Program Assist

Uses your phone's camera to guide rehab with real-time corrections for safe, effective healing.



Guided Exercise Videos

A simple video library for all fitness levels to stay active, flexible, and stress-free



Clinics & AI Support

Find nearby physio clinics fast and get 24/7 support from an AI assistant for rehab tips and guidance

Competitor Analysis

Features	 Kyntra	 PhylApp	 Reflex	 BackEasy
Real-time camera tracking	✓	✗	✓ posture only	✗
Live feedback during exercise	✓	✗	✗	✗
Guided video library	✓	✓	✓	✓
AI chat support	✓	✗	✗	✗
Clinic locator	✓	✗	✗	✗



PhyApp

URL: No public website listed) |
App Store: iOS

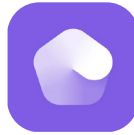
What They Do Well:

Provides physiotherapist prescribed exercise programs

Includes video instructions and progress tracking

What We Do Better:

Unlike PhyApp, Kyntra doesn't require a therapist to prescribe exercises. It offers real-time camera tracking and instant feedback, making it more accessible and effective for users recovering independently at home.



Reflex

URL: <https://reflexhealth.co> |
App Store: iOS

What They Do Well:

Strong focus on posture tracking for shoulder injuries

Camera-based posture analysis and history tracking

Large video library and additional features like sleep and pain tracking

What We Do Better:

While Reflex analyzes posture, it doesn't actively guide users during exercise. Kyntra provides real-time form correction with voice and visual cues, covering full rehab guidance rather than just posture tracking.



BackEasy

URL: (No public website listed) |
App Store: iOS

What They Do Well:

Offers educational content and exercise videos for back pain relief

Simple, informative approach for pain management

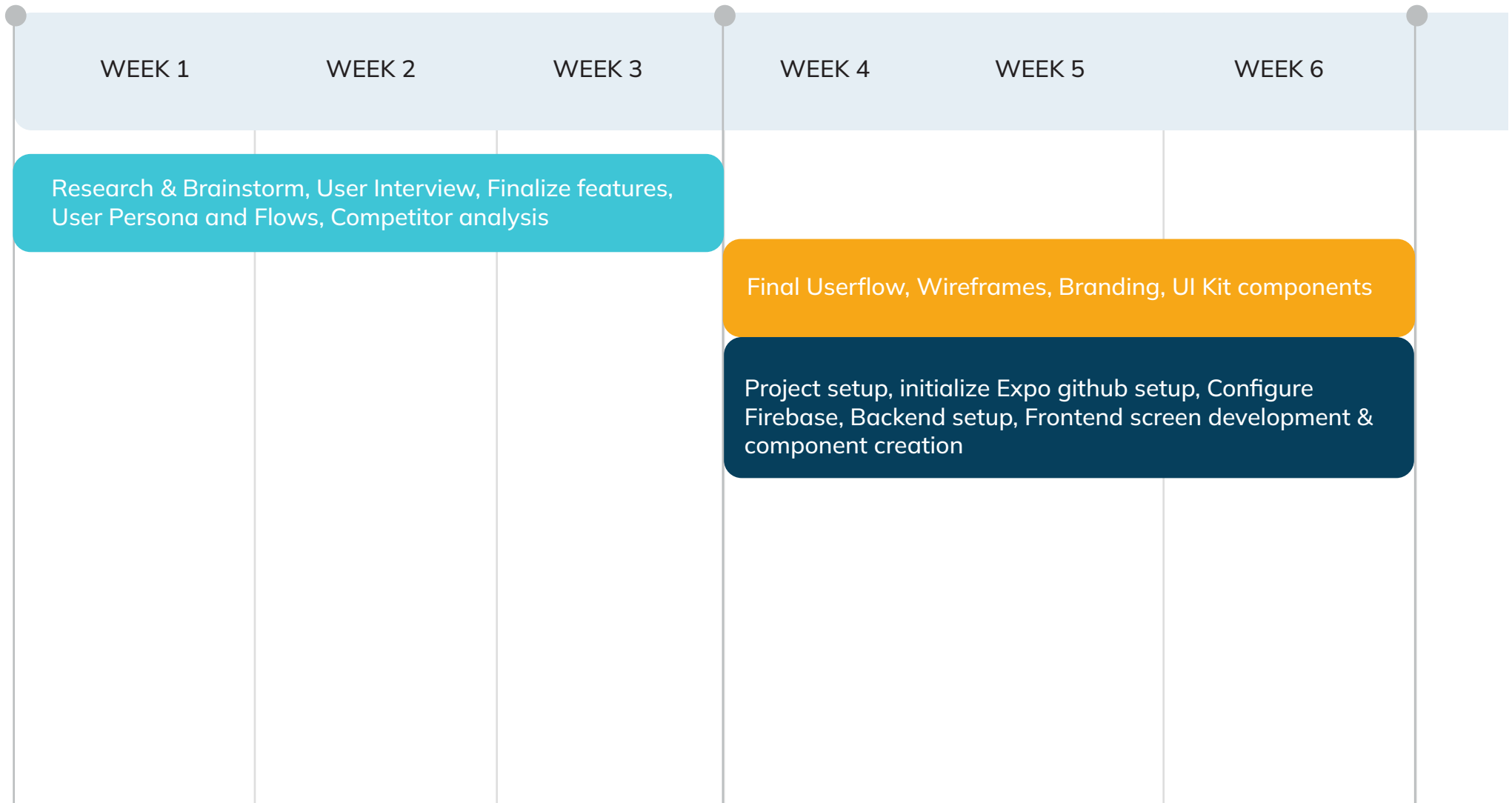
What We Do Better:

BackEasy is static and educational, while Kyntra is interactive tracking motion, providing real-time feedback like a virtual therapist, and expanding into general fitness with AI chat support for a broader recovery experience.





Project Timeline





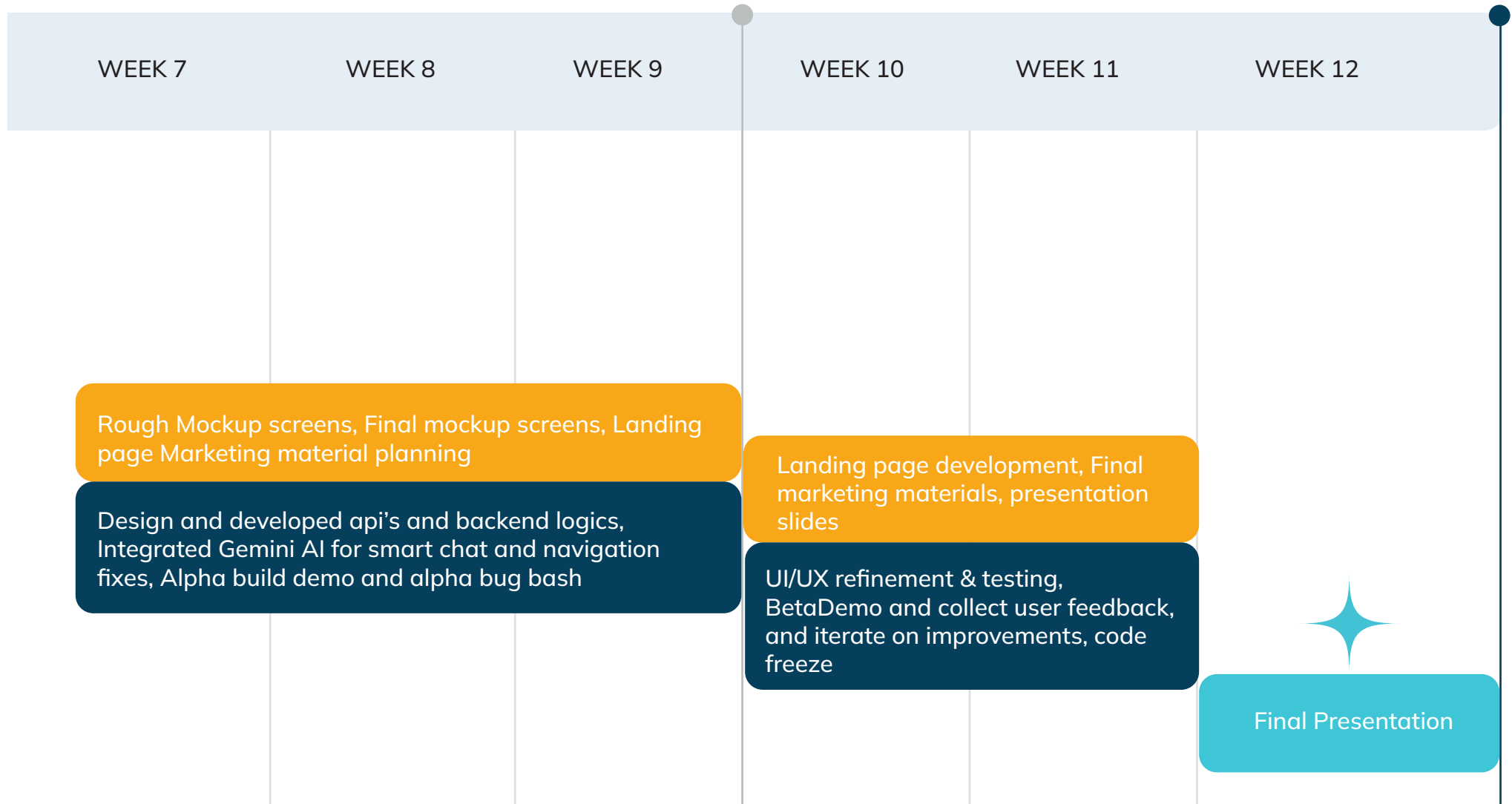
Team



Designers



Developers





02 Technical Overview





Frontend

React Native with Expo & Dev Client

Enables fast, cross-platform mobile development.

Expo simplifies setup and testing, while the Dev Client supports advanced native modules like react-native-vision-camera for real-time ML-based pose detection.

TypeScript

Adds static typing for improved error detection, maintainability, and tooling support.

ML Libraries

Integrated lightweight, on-device models for real-time posture detection and intelligent feedback.

Backend

Node.js & Express.js

Provides a fast, scalable, and lightweight environment for building RESTful APIs.

Implements MVC architecture for clear separation of concerns and maintainability.

AWS (EC2)

Hosts the backend with high scalability, availability, and security.

Apache

Configured as a reverse proxy to route client requests to the backend server efficiently and securely.



Media Storage

Cloudinary

Hosts pre-recorded physiotherapy exercise videos.

Provides fast, optimized, and secure video delivery via CDN-powered URLs.

Database

Firebase Firestore

A real-time NoSQL database that syncs data instantly across devices.

Integrates seamlessly with Firebase Auth and supports secure client read/write

Third-Party APIs

Google Maps – For locating nearby physiotherapists.

PowerDB API – For retrieving exercise change data.

Gemini AI (Google) – For smart chat features and intelligent recommendations.

Authentication

Firebase Authentication

Provides secure login, JWT token generation, and simplified user management.

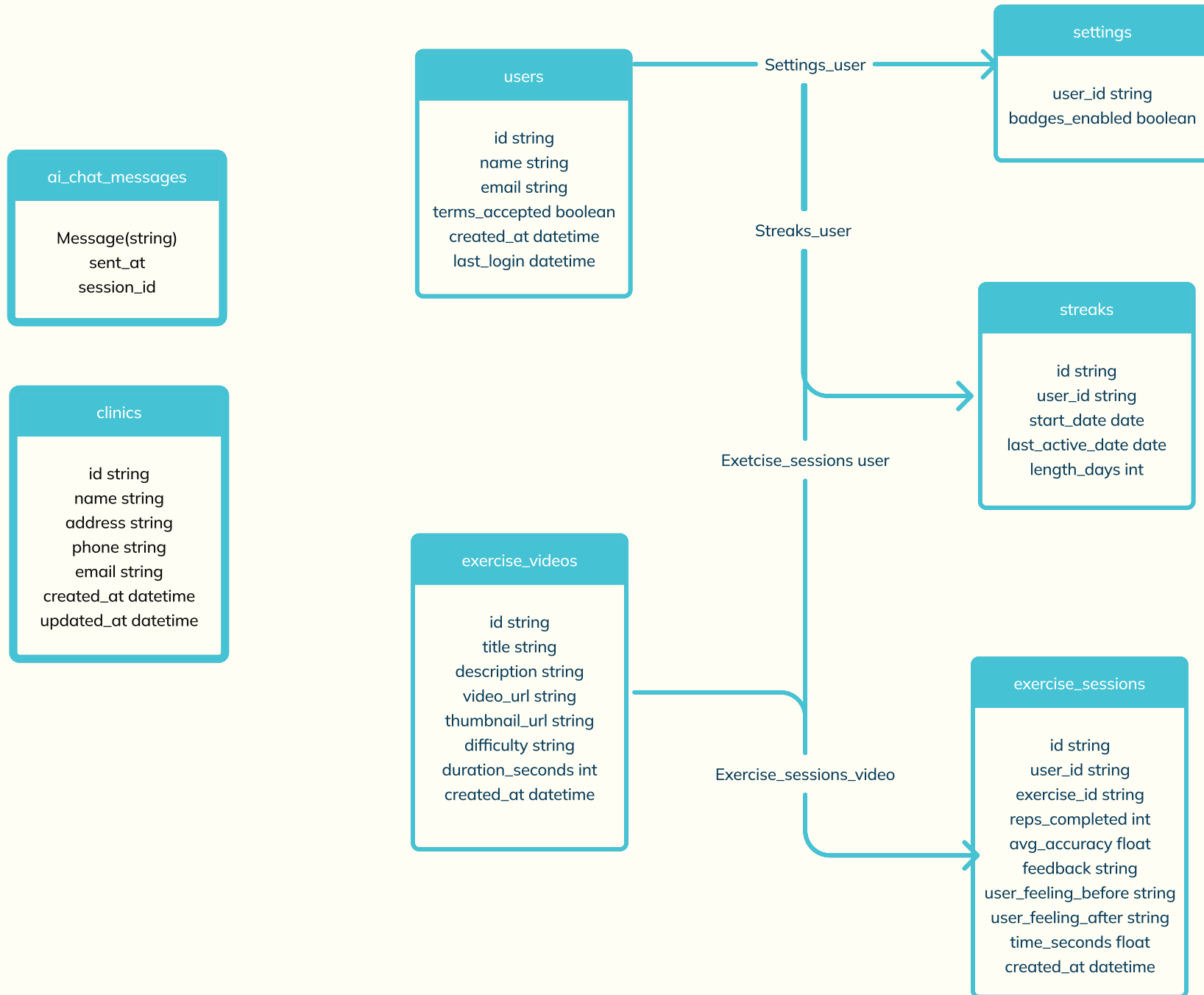
Authentication & Security

JWT (JSON Web Token)

Ensures secure transmission of user data between frontend and backend.

Restricts access to protected resources for authenticated users only.

Data Model



Tech Stack

Third Party API



PowerDB
API



Gemini AI



Google Maps
API

Authentication



Firebase

Database



Cloudinary



Firestore



AWS EC2



Apache

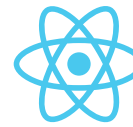


Express.js



Node.js

Front end



React Native



Expo



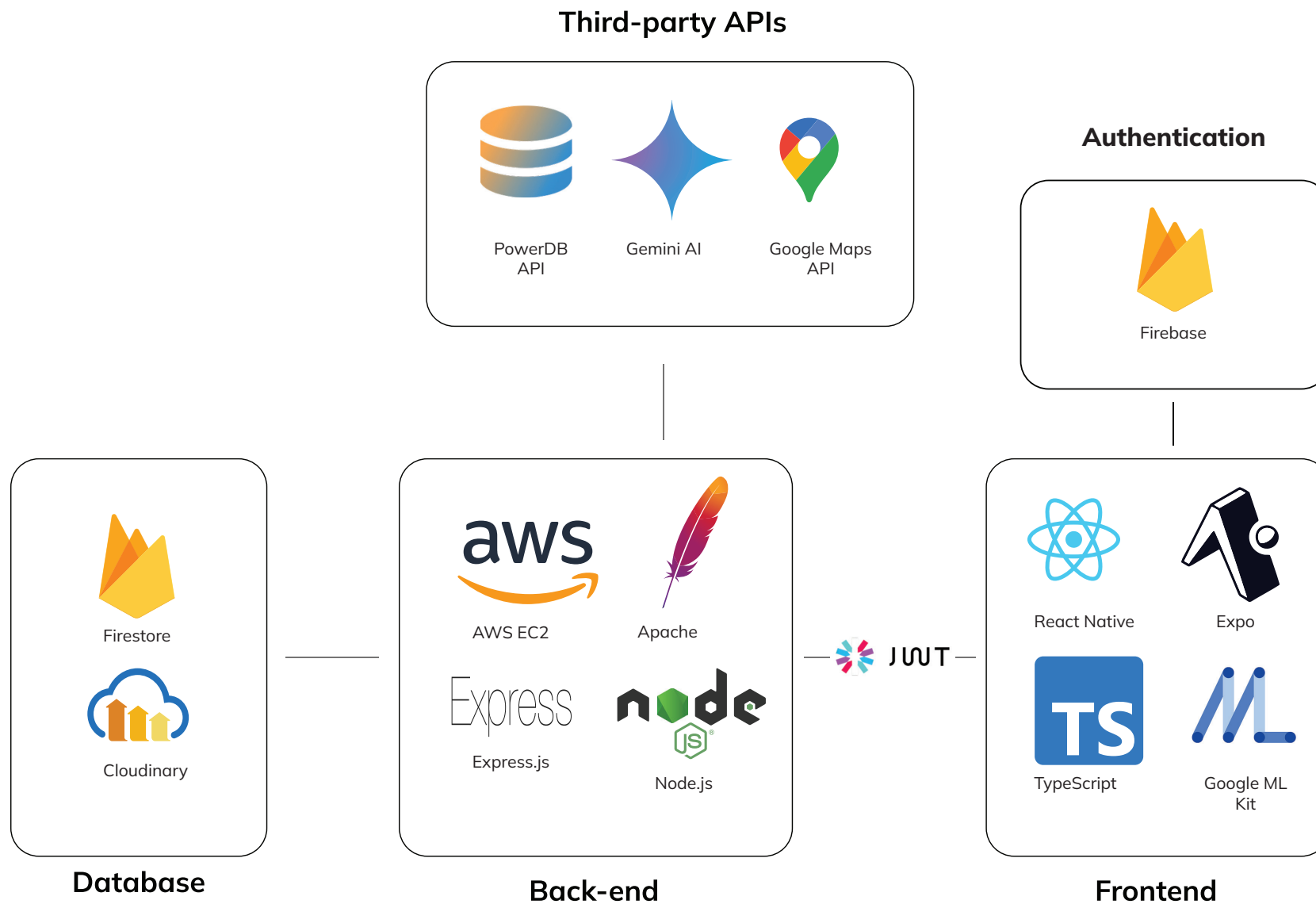
TypeScript



Google ML
Kit

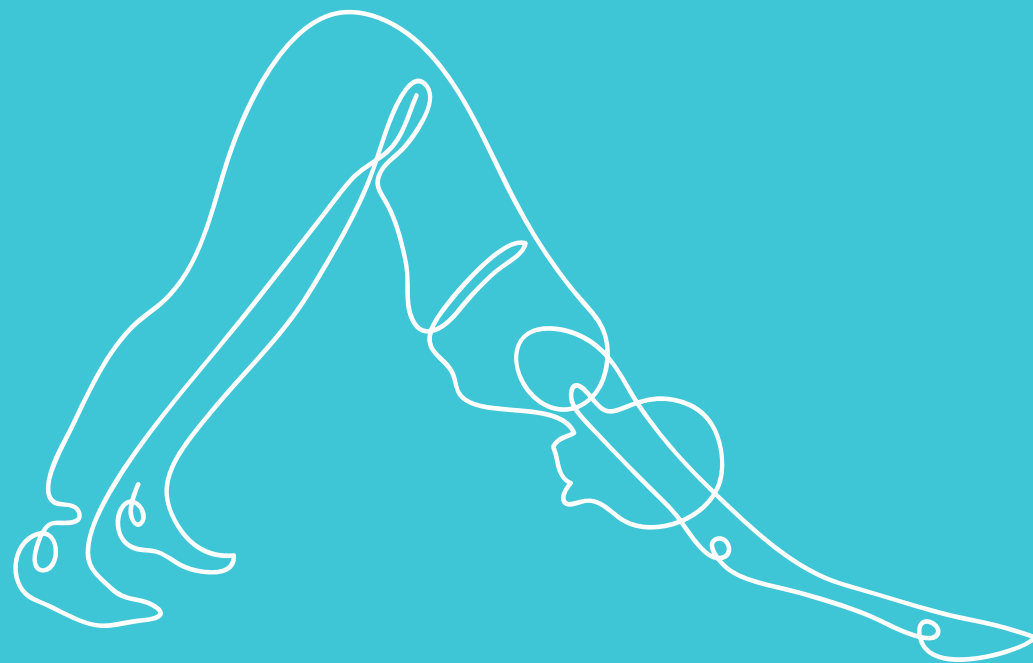
Back end

System Architecture Diagram





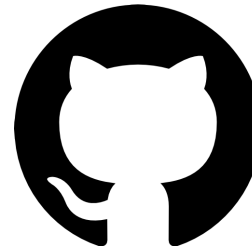
03 Design Process



Design Tools



Project Management



We use Figma for collaborative UI/UX design, including user flows, wireframes, and high-fidelity mockups. Adobe Illustrator is used for creating vector-based logos, icons, and illustrations, while Photoshop handles image editing. InDesign is used for project proposals, and for motion and video tasks, we use After Effects for animations and Premiere Pro for video editing

Persona 1



I've recovered, but I don't want this pain coming back again

Name: Pavan Pothamshetty

Age: 36

Occupation: Graphic designer

Hobbies: Playing Cricket

Lifestyle: Active, work long hours

Tech Familiarity: Moderate to high

Source: In person Interview

Background

Pavan is a 36 year-old graphic designer and a passionate cricket player. A few months ago, he experienced a shoulder impingement from poor posture and overuse. After completing a round of physiotherapy, he regained mobility but his therapist warned that without proper maintenance, the issue could return.

Pain point

- Generic fitness apps don't account for on specific recovery areas
- Afraid of doing exercises that might trigger the pain again
- Doesn't always know if he's doing it right
- Finds it hard to build a long-term routine

Goal

- Prevent re-injury through regular conditioning
- Maintain shoulder mobility and posture
- Get reminders and feedback to stay consistent

Persona 2



“Wants to ease stiffness safely”

Name: Alexa Marques

Age: 50

Occupation: Homemaker

Hobbies: Cooking, Gardening

Lifestyle: Calm, home-based, short walks

Tech Familiarity: Low-moderate

Source: Virtual Interview

Background

Alexa experiences age-related neck and shoulder stiffness. She wants to stay active but is hesitant to do exercises alone for fear of doing them wrong and worsening her condition. Traveling to clinics is tiring and costly. She prefers doing light stretches at home, but needs assurance she’s doing them correctly.

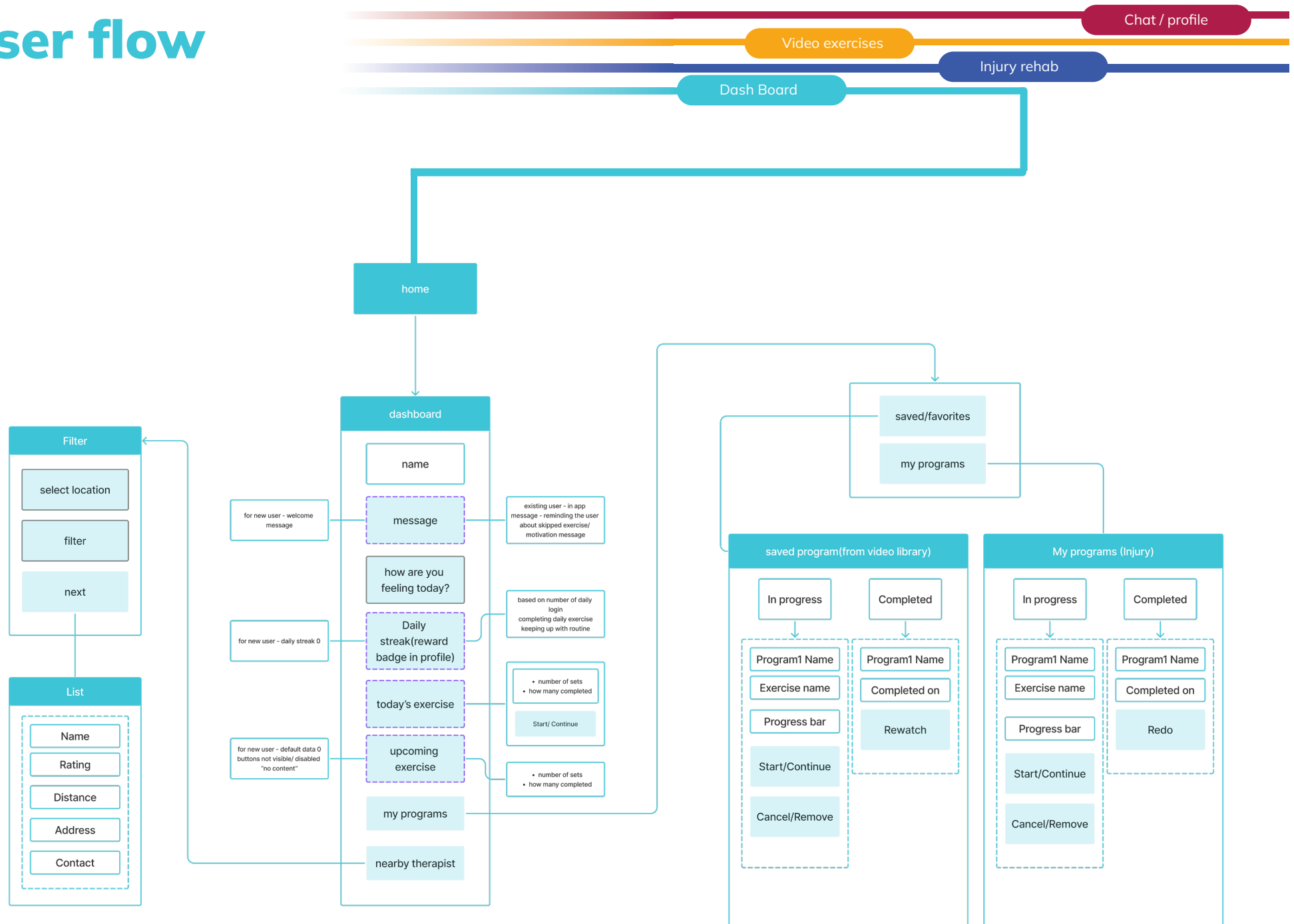
Pain point

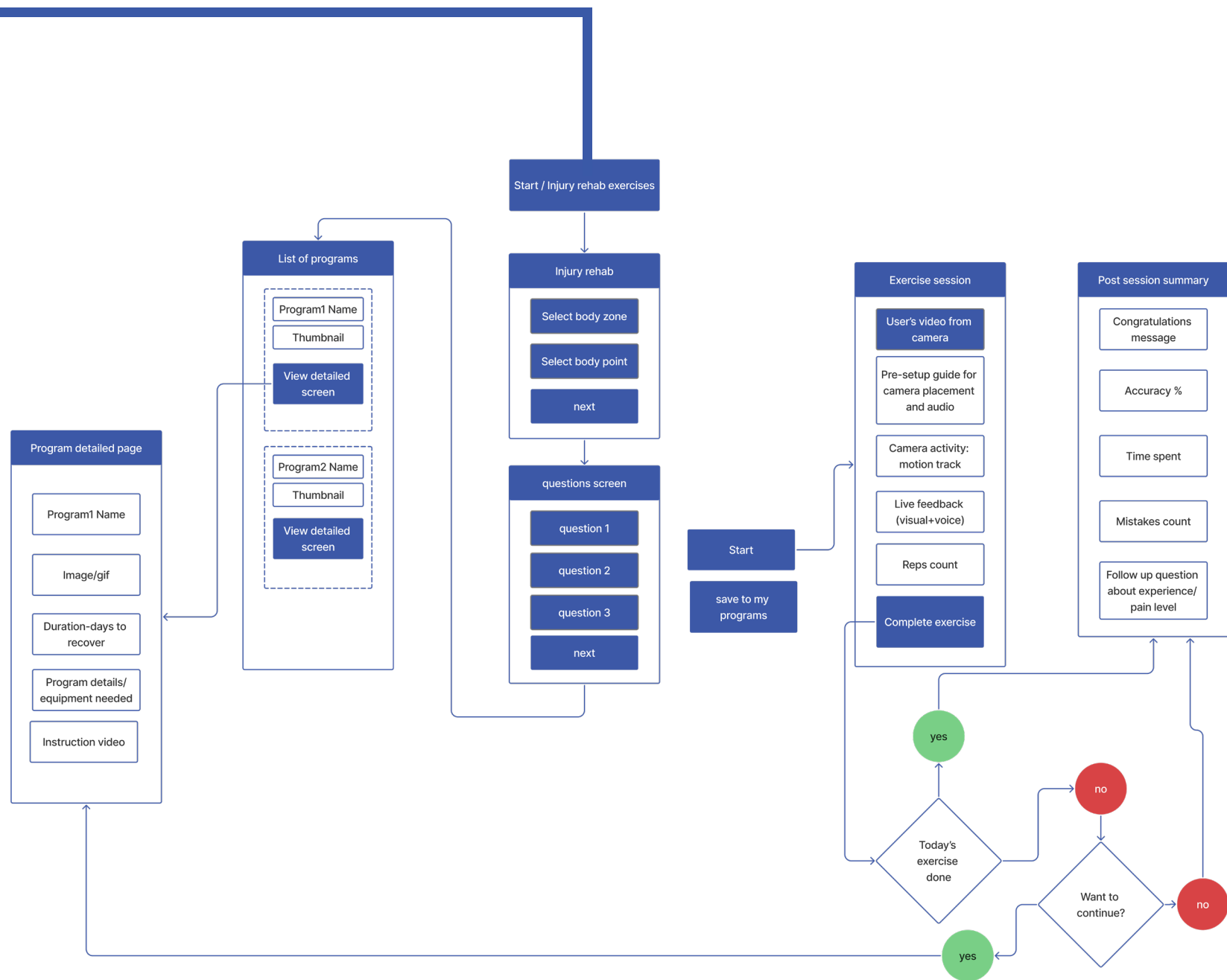
- Worried about doing the wrong move and hurting herself
- No physiotherapist nearby
- Gets overwhelmed by long YouTube tutorials
- Needs simple instructions

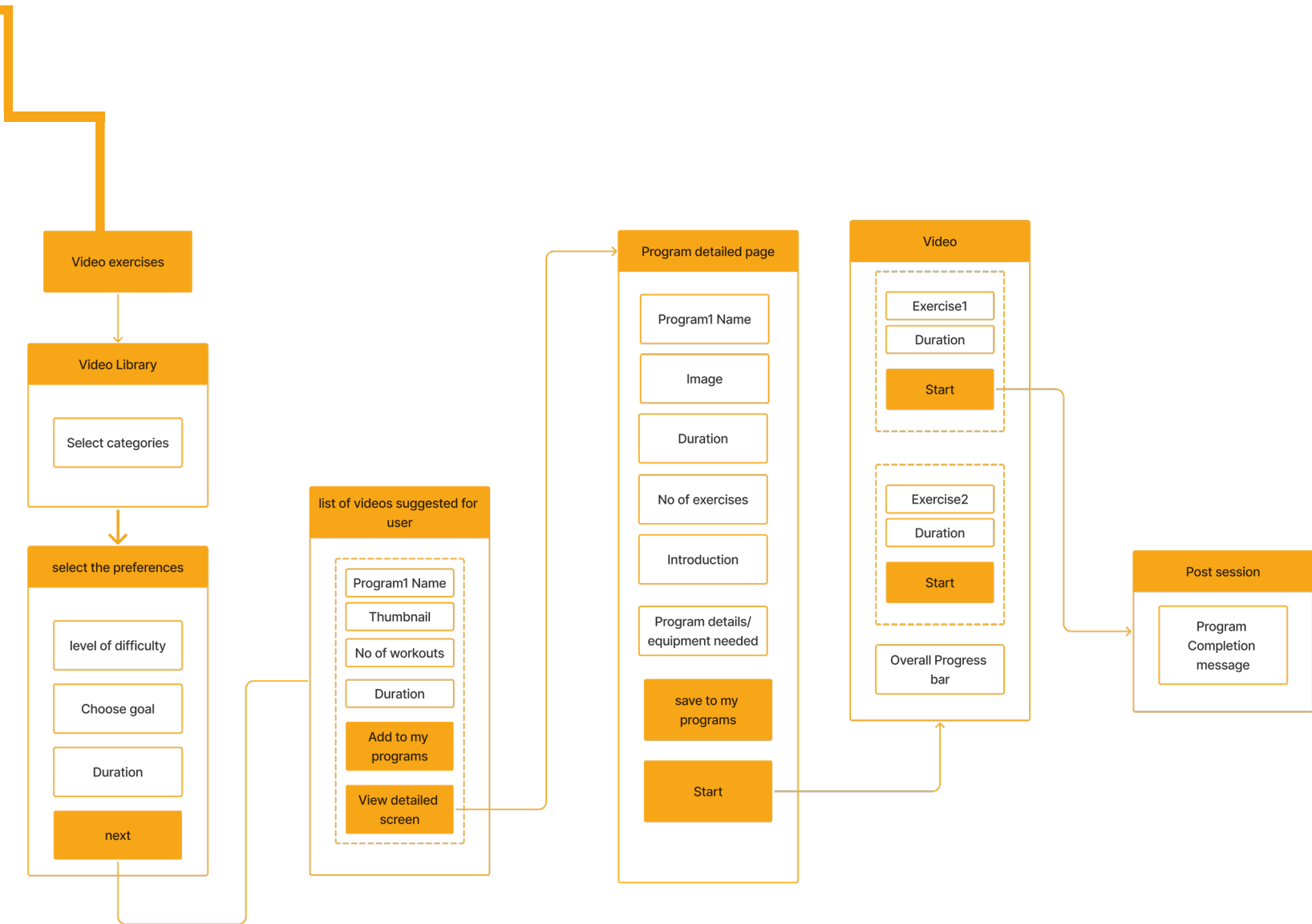
Goal

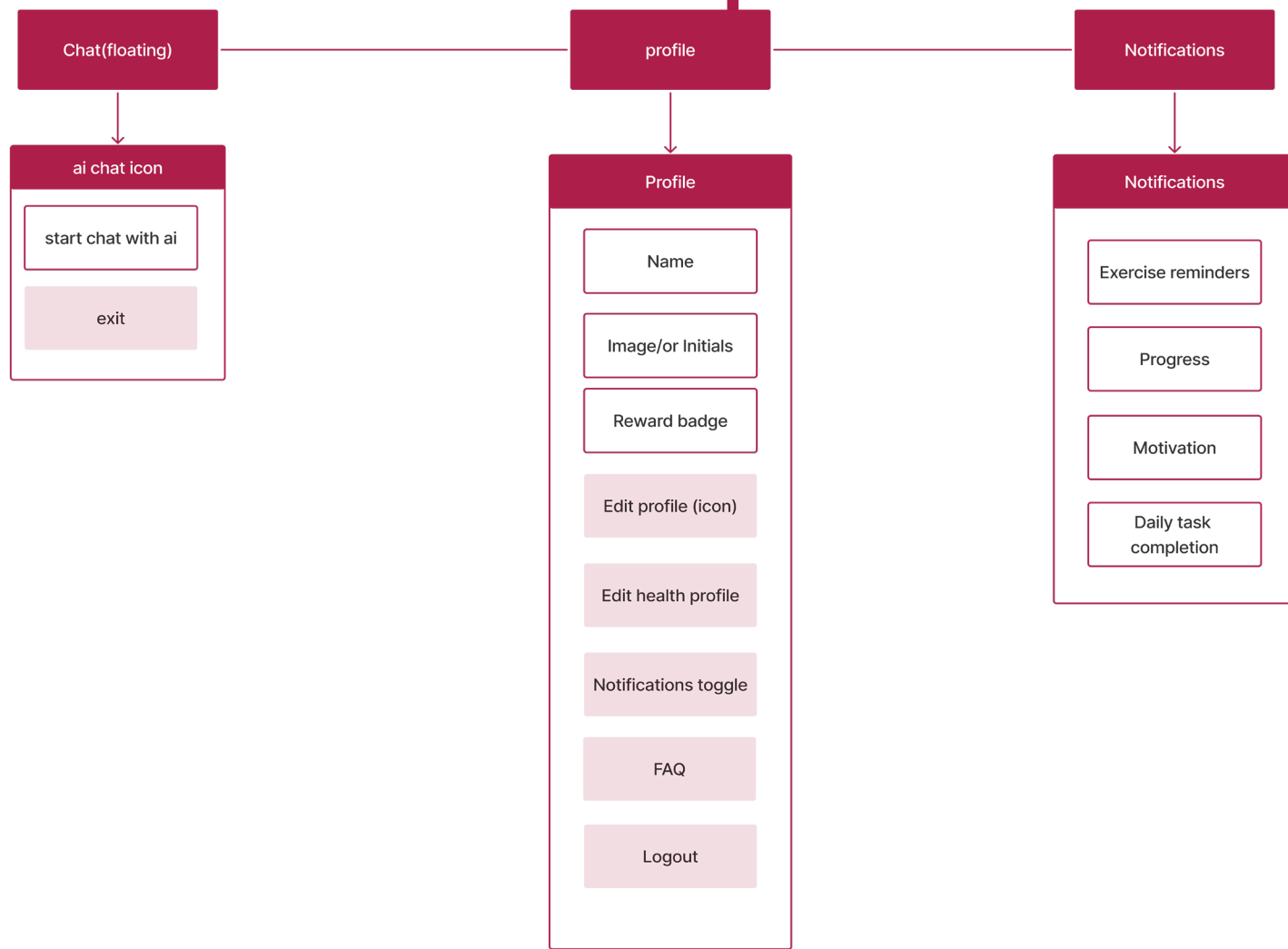
- Stay mobile and independent
- Follow gentle routines safely
- Get spoken, step-by-step guidance
- Track her daily progress with simple visuals

User flow











Branding

The Kyntra logo is designed to reflect movement, healing, and connection—core ideas behind what the platform stands for. The most distinctive part of the logo is the “K,” which is shaped like a person in a stretching or side-lunge pose. This design choice wasn’t just for style; it visually communicates that Kyntra is about physical recovery, movement therapy, and wellness. It gives the logo a human touch and creates an immediate association with exercise and body movement.

The letter “K” represent
“Kyntra”

+



The exercise represent the
Kyntra’s vision

=



Kyntra Logo





Logo Usage

Exclusion zone

The Logo and the icon's exclusion zone is equal to half the height of the icon (marked as x in the diagram)



Minimum size

To ensure the logo remains clear, readable, and recognizable across all platforms, a minimum size is defined.



Kyntra logo should never be smaller than 100px in mobile and 25mm in print



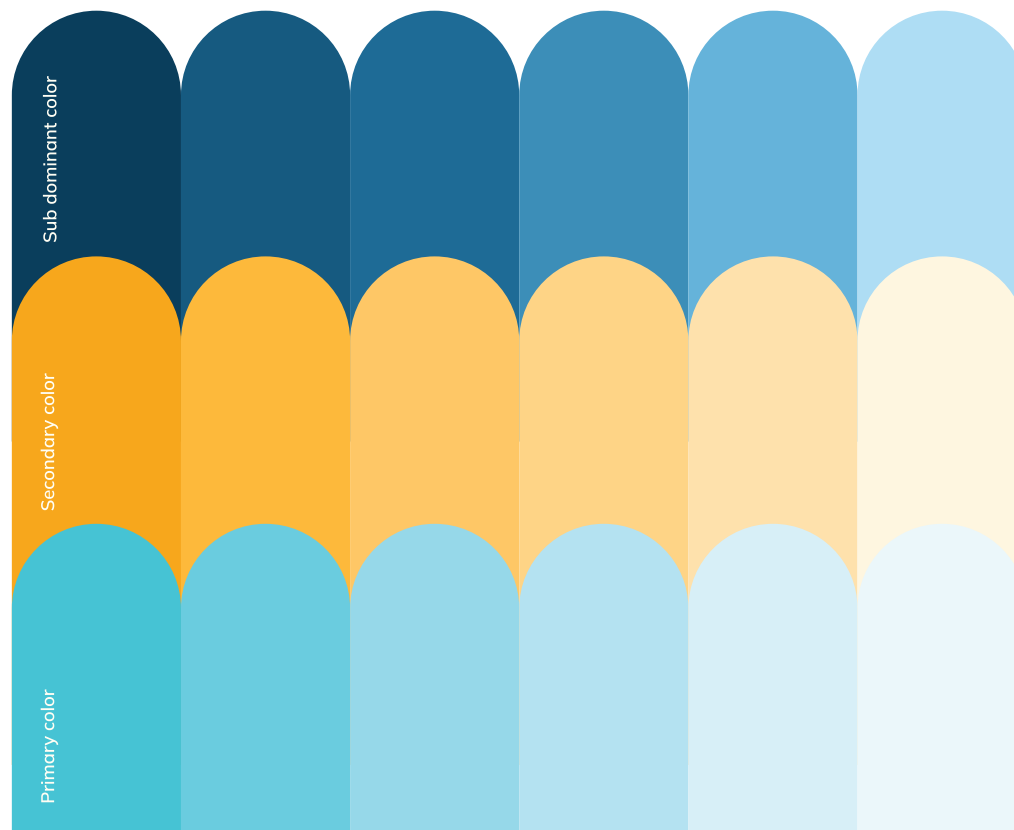
Kyntra Icon should never be smaller than 24px in mobile



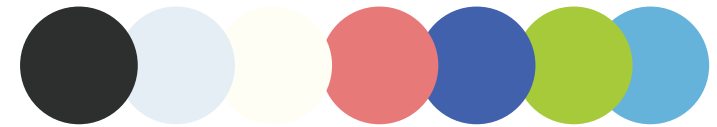


Color Palette

Brand colors



Accent Colors



Turquoise Blue - It represents calm, clarity, and hope feelings that are important when someone is recovering from an injury

Amber - Brings energy and positivity to the mix. It adds warmth and motivation, much like a supportive coach.

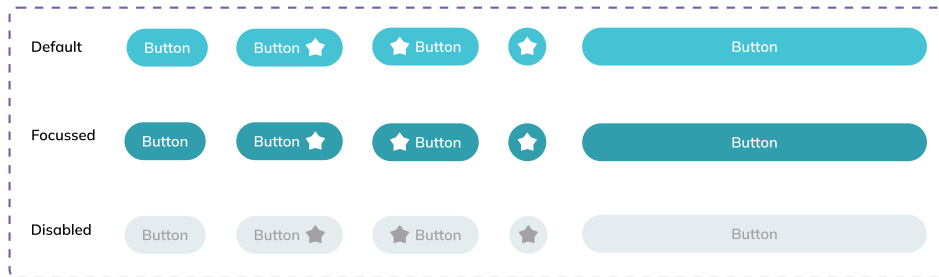
Midnight Blue - Gives the brand a sense of seriousness and confidence, which is important in any health-related service.



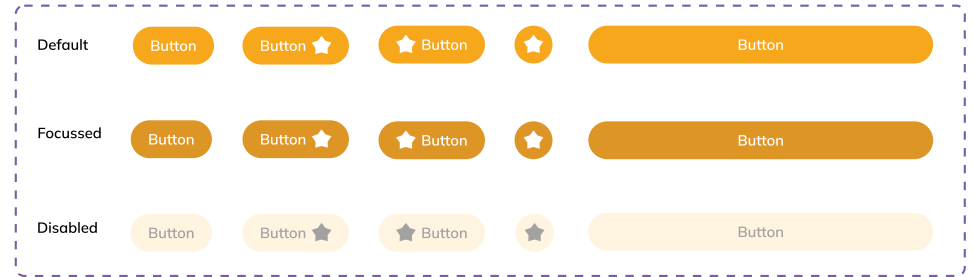


UI Kit

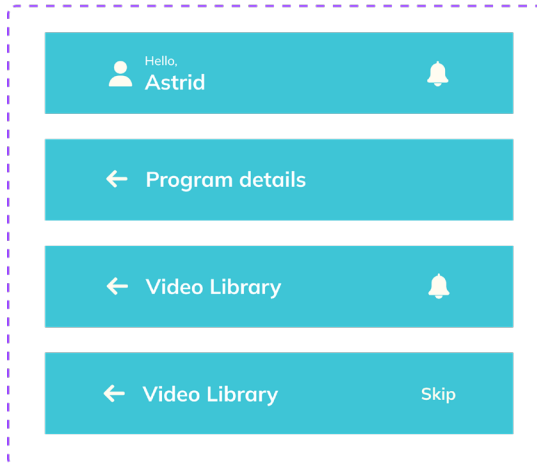
Primary- buttons



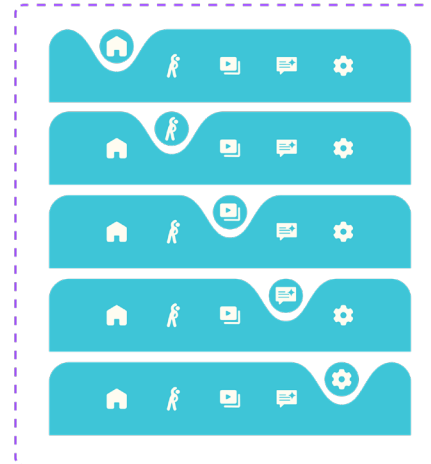
Secondary - buttons



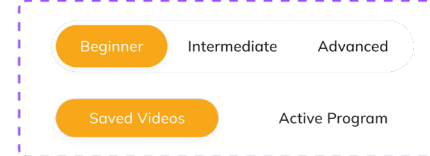
Header



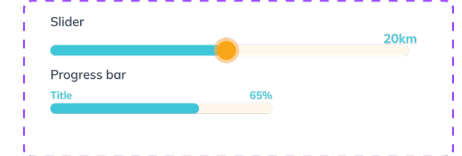
Navigation



Tabs



Sliders



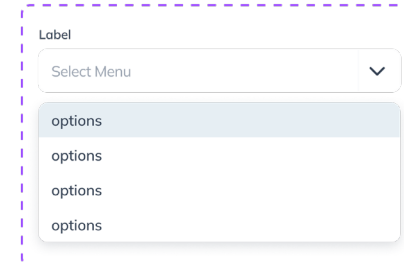
Check box-1



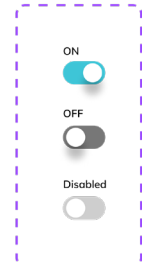
Radio Buttons



Drop down

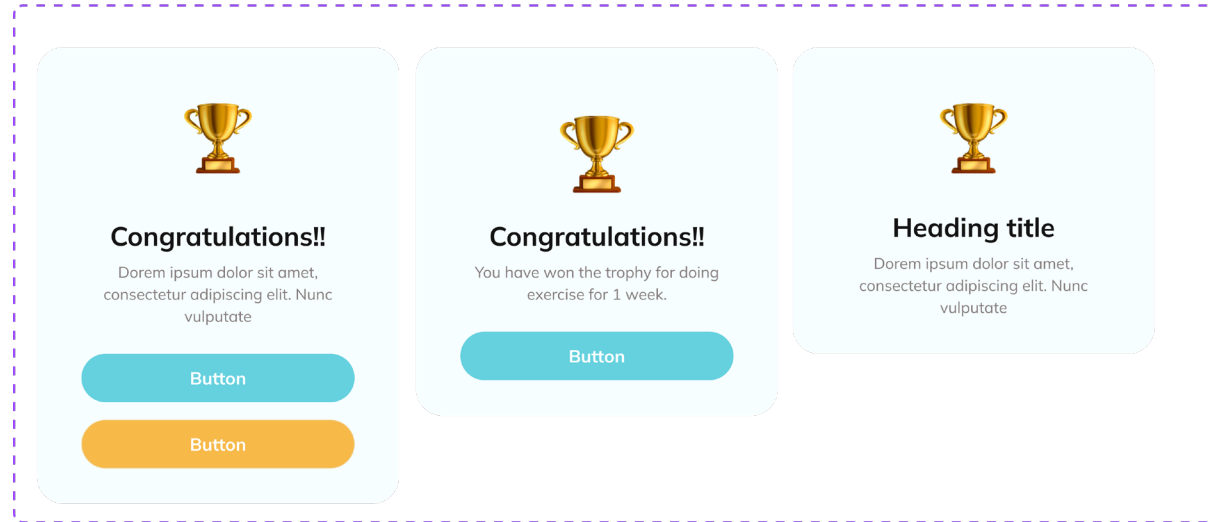


Toggle

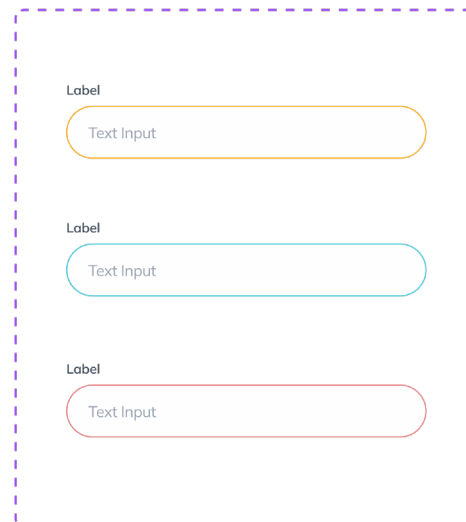




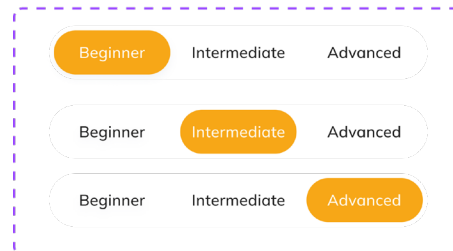
Popups



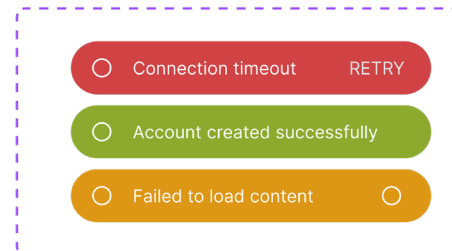
Form



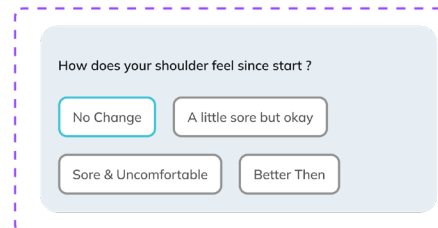
Tabs



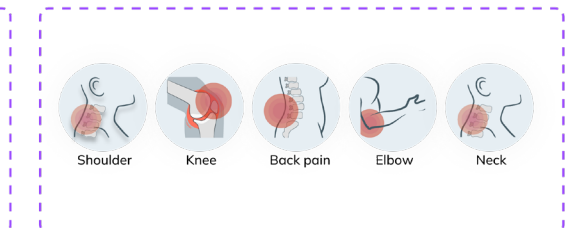
Snackbar/ Toast



Checkbox style- 2



Radio Button style- 2

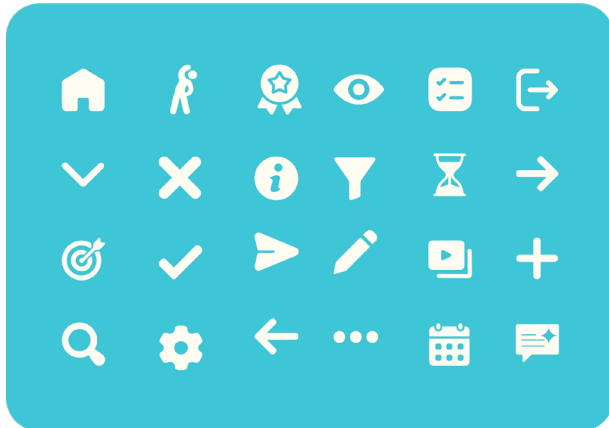
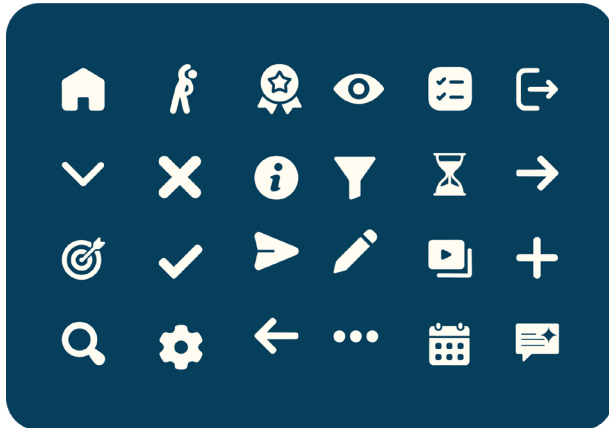


UI Kit Graphics

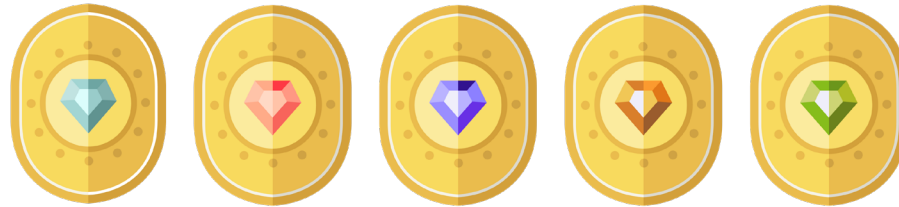
Graphics in the UI kit were developed to maintain a consistent and cohesive visual identity throughout the application.



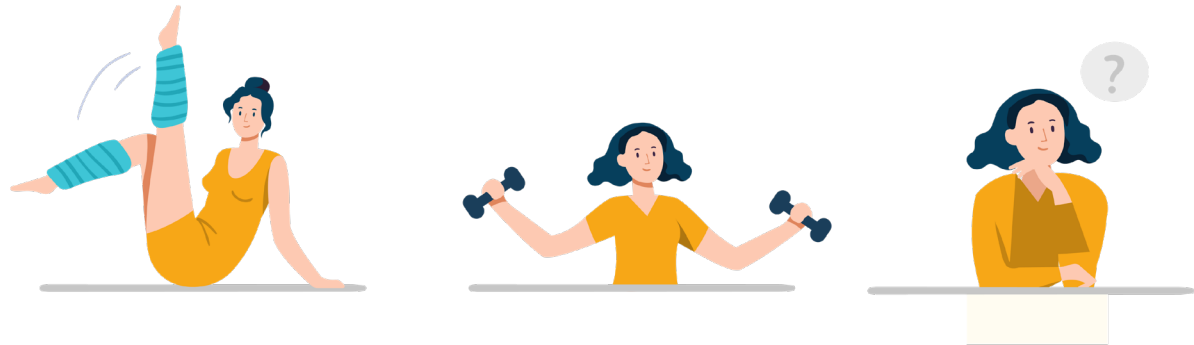
Icons



Illustrations - Badges



Illustrations - onboarding



Badges & Onboarding Illustrations

The badges were designed to encourage user engagement by celebrating progress, while the onboarding illustrations create a welcoming and approachable first-time experience.



Typography

Aa

Mulish

Characters

A B C D E F G H I J K L M N O
P Q R S T U V W X Y Z a b c
d e f g h i j k l m n o p q r s t u
v w x y z
0 1 2 3 4 5 6 7 8 9 0 ! @ # \$
% ^ & * () _ + = - / ? < > | \
~ ` { } []

Mulish ▶

Regular
Medium
Semibold
Bold





Mulish

San serif

Heading Style

Heading 1

Heading 1, Mulish, Bold, 36px

Heading 2

Heading 2, Mulish, Bold, 24px

Heading 3

Heading 3, Mulish, Bold, 20px

Heading 4

Heading 4, Mulish, Bold, 18px

Titles

Title, Mulish, Bold, 16px

Body Style

Body Text 1

Body text 1, Mulish, Regular, 14px, line height 20

Body Text 2

Body Text 2, Mulish, Semibold, 14px, line height 20

Button Style

Button 1

Button text 1, Mulish, Regular, 16px

Button 2

Button Text 2, Mulish, Semibold, 14px

Tabs

Tabs Text , Mulish, Semibold, 14px

Caption Style

Caption 1

Caption text 1, Mulish, Medium, 12px

Caption 1.1

Caption text 1.1, Mulish, Bold, 12px

Caption 2

Caption Text 2, Mulish, Medium, 10px

Caption2.2

Caption Text 2.2, Mulish, Bold, 10px

Warning, Message

Warning Message, Mulish, Medium, 12px

Labels Style

Label

Label text 1, Mulish, Semibold, 12px, line height 18

Placeholder

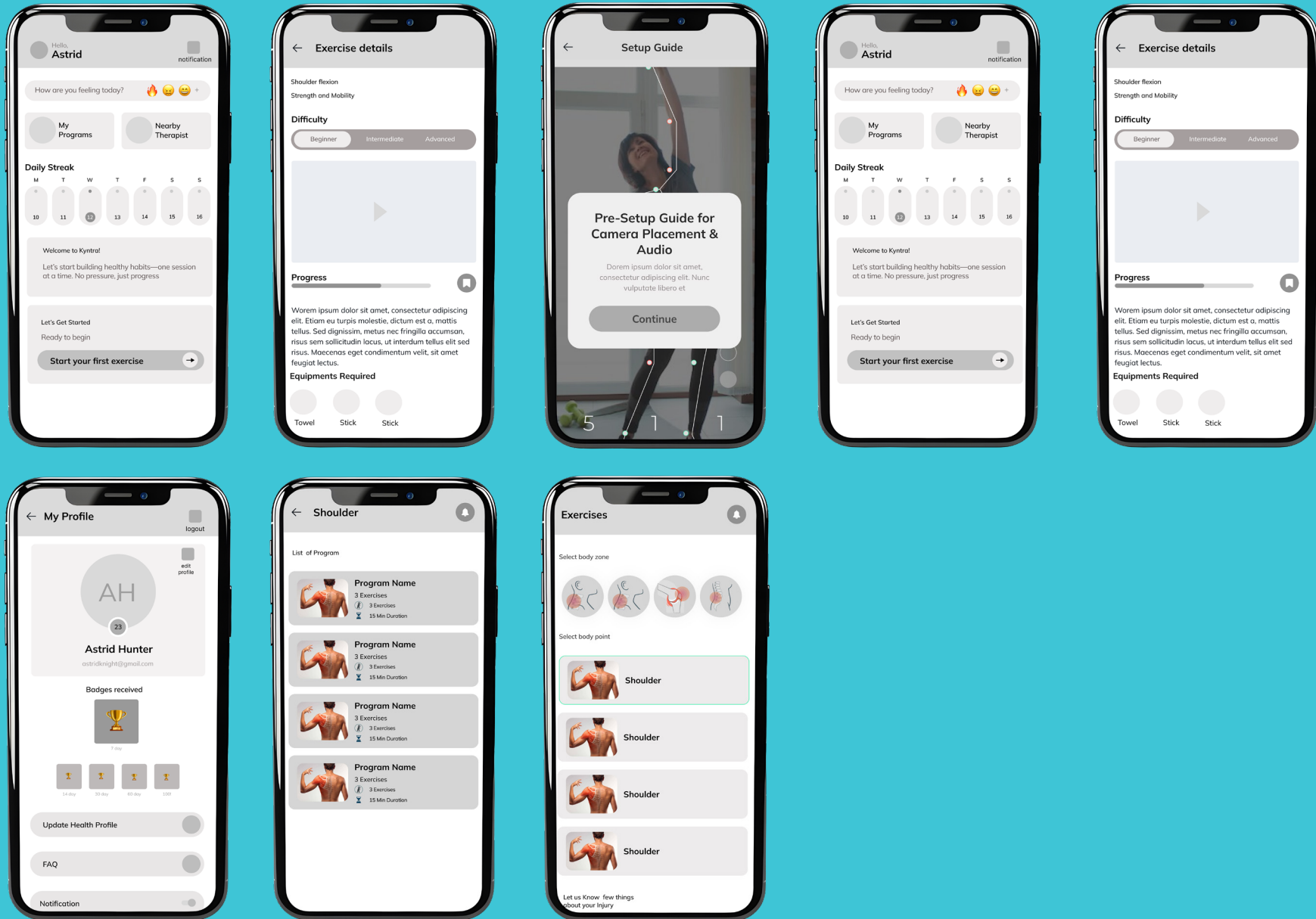
Placeholder text 1, Mulish, Regular, 14px, line height 17

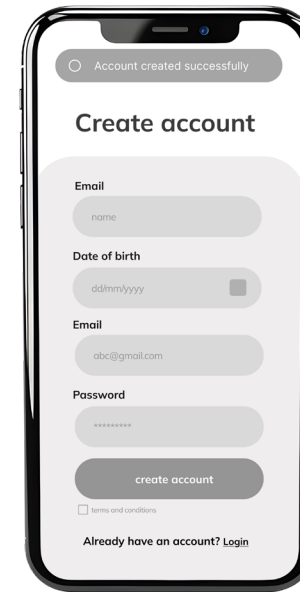
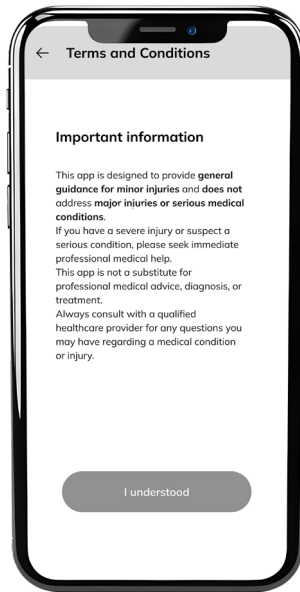
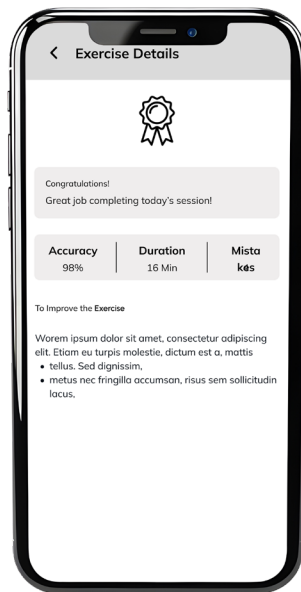
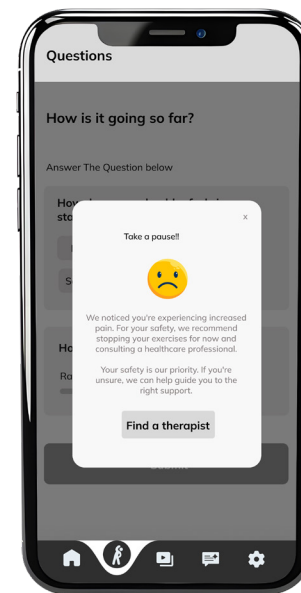
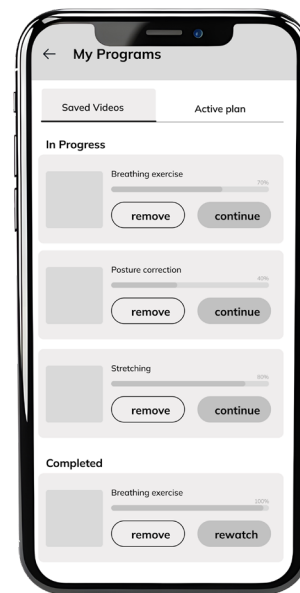
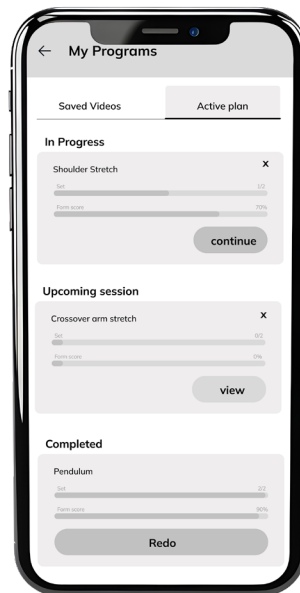
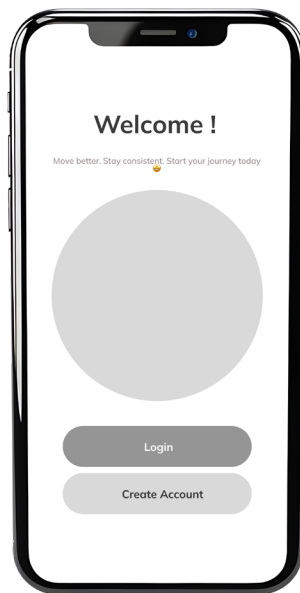
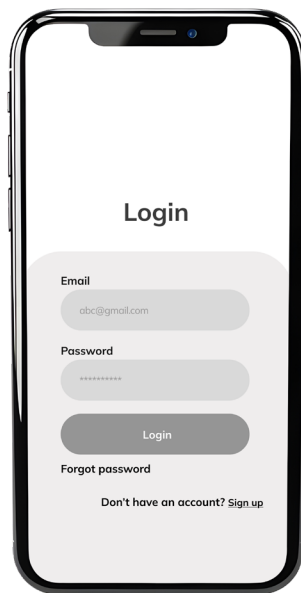
Text Input

Text Input, Mulish, Medium, 14px, line height 17

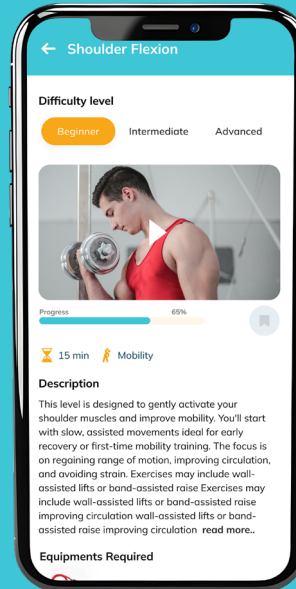
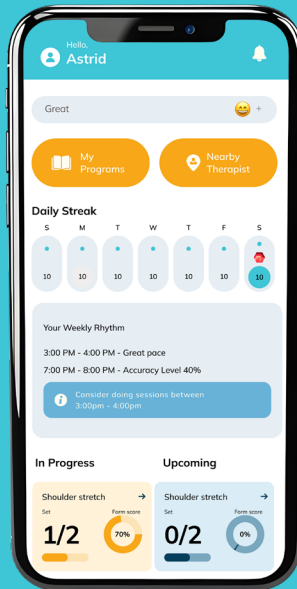
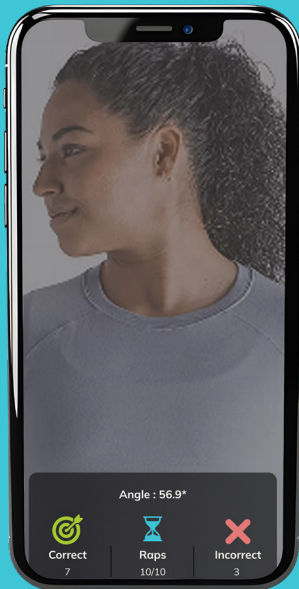
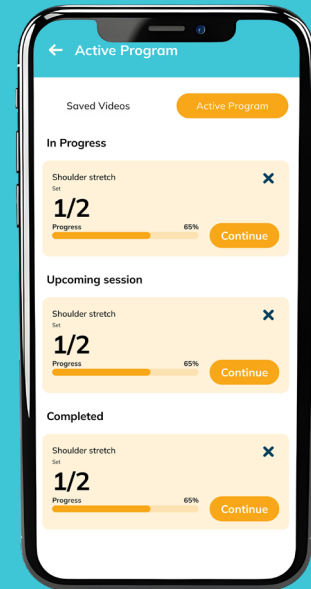
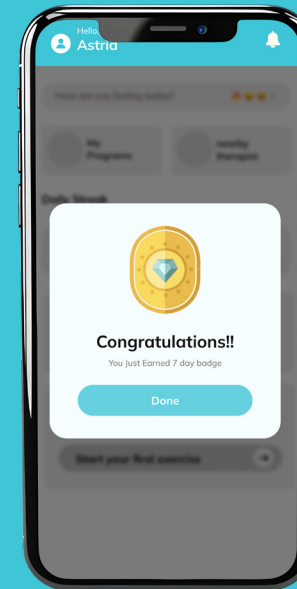
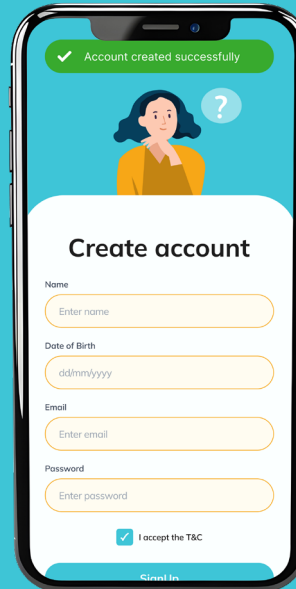
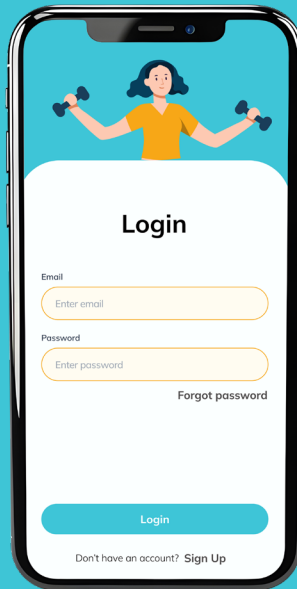
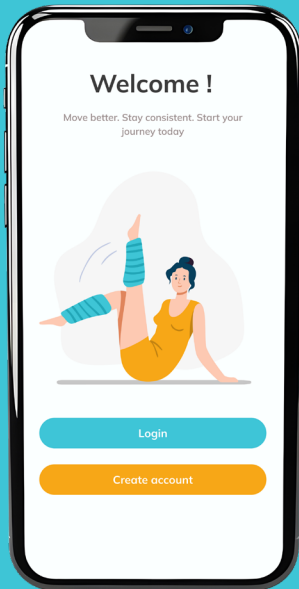


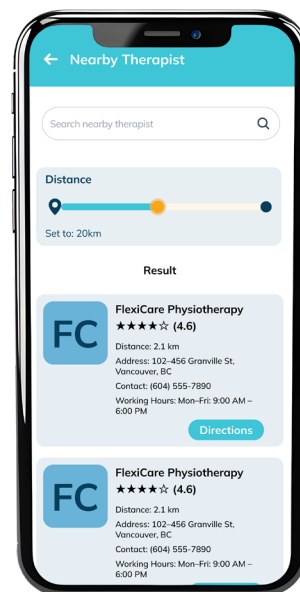
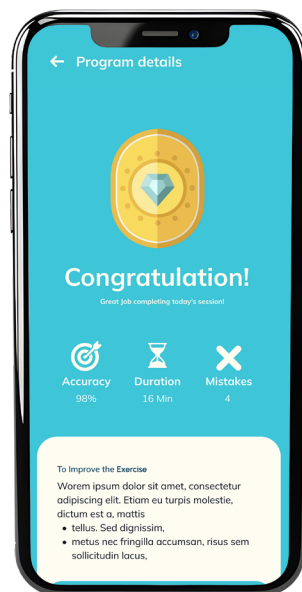
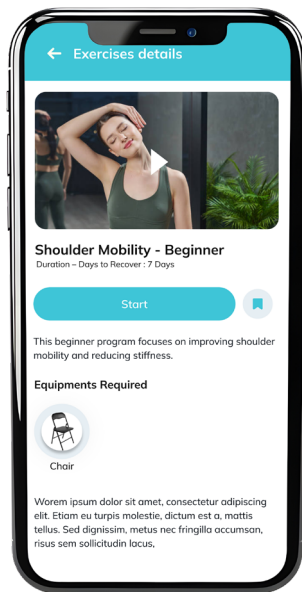
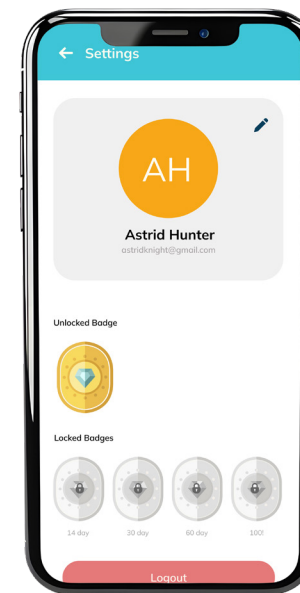
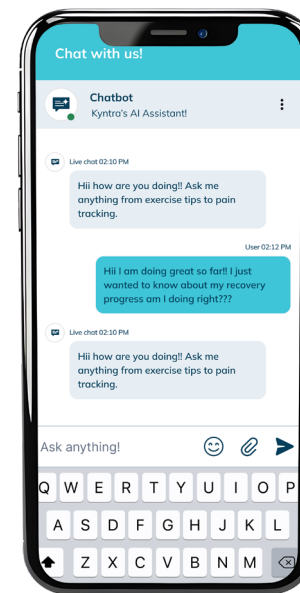
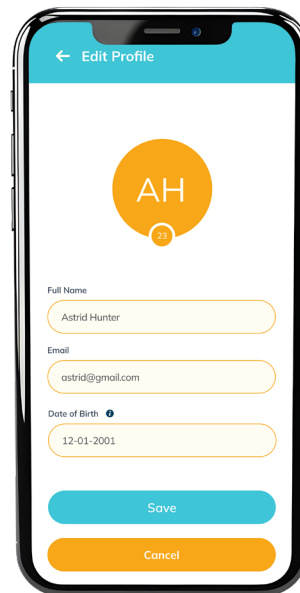
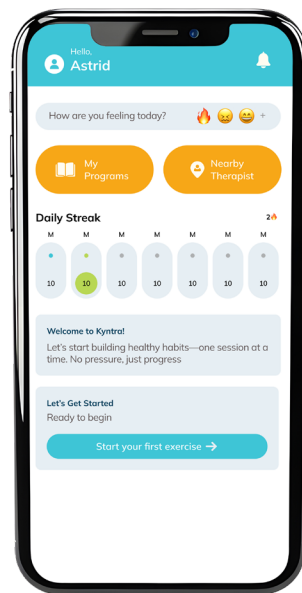
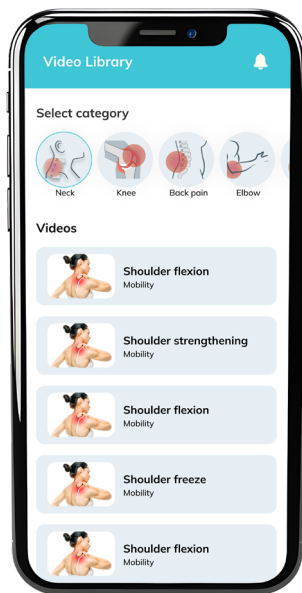
Wireframes





Mockups





Business Model

Kyntra Solo

Free

- ✓ Real-time motion tracking
- ✓ Access to exercise video library
- ✓ Daily check-ins & progress tracking
- ✓ Nearby therapist locator

✗ No observer/monitor access

Basic

Kyntra Support

\$15/mo

Includes everything in Free plus

- ✓ All features in Kyntra Solo
- ✓ Add 1 observer (family, friend, caregiver)
- ✓ Observer can:
 - View daily progress
 - Get alerts for missed sessions
 - Receive weekly summary reports

Premium



Meet The Team



Sourav Shetty

Full Stack Developer

[in](#) /sourav-s-shetty



Venkatesh

Full Stack Developer

[in](#) /venkatesh-pothamsetty



JASPREET SINGH

Full Stack Developer

[in](#) /jaspreet-singh



Surbhi Nayyar

UI/UX Designer

[in](#) /surbhi-nayyar



Mashiur Rahman

UI/UX Designer

[in](#) /mashiur-rahaman



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How We Brought Kyntra to Life

We combined our expertise in UI/UX design, software development, and user research to bring Kyntra from concept to reality. Through user interviews, detailed personas, and carefully mapped user flows, we ensured the solution addressed real needs. By integrating real-time feedback systems with AI and following a collaborative design and development process, we created a fully realized, user-centered application.





Kyntra - Your Healing Mantra



Designed with Expert Inputs

“ Kyntra offers a unique solution for home exercise programs by using advanced tracking features to monitor patient performance. It provides feedback when exercises are performed incorrectly, addressing one of the biggest challenges in home exercise prescription for physiotherapists

Gillian Corbo | Physiotherapist, MPT, MSc, BKin

Instructor

Department of Kinesiology

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