# Group 16

# AI-Swayastham

**Group Members**


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# Problem Statement

Our app is a free pose trainer, it is an application that creates exercise session and detects a user's exercise pose and calculates a similarity score with the target pose. In case the predicted exercise is not performed correctly, recommendations can be given, to further improve the pose.

# Project Objectives

- The objective of this project is to create an application by which the user can do exercise in the well monitored environment where user can also see whether he/she is doing the exercises correctly or not.
- User will get a report after doing a certain exercise where he/she can see how much accurate the exercise he/she has done as compared to the actual exercise performed.
- User will be ultimately saving lot of money as otherwise for doing the same task he/she might have to hire a personal trainer.

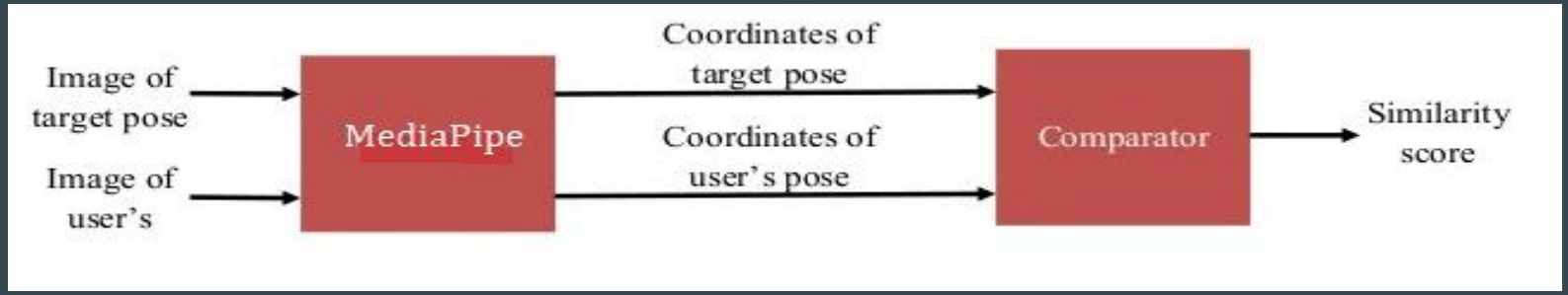
# Gap Analysis (Existing Solutions)

1.) One of the existing solution is Aaptiv Coach , what it does is takes various inputs like:

- Which types of workouts would I like to do ?
  - Running on treadmill
  - Outdoor Running
  - Strength Training etc.
- What equipments do I have access to:-
  - Resistance band
  - Jump Rope
  - Dumbbells
- And a few more similar questions related to our fitness and our routine, on the basis of these inputs it gives a weekly plan of exercises we need to do for a fixed duration on each day.

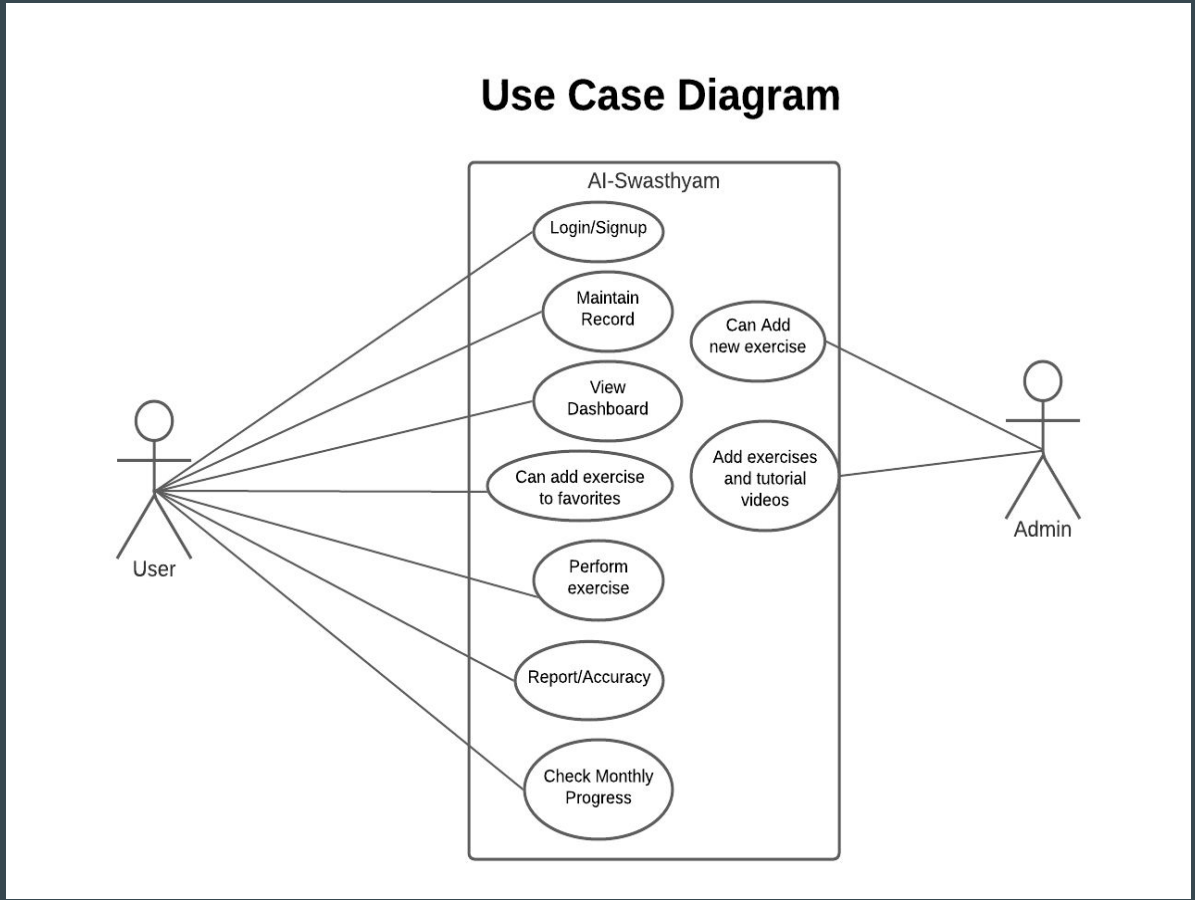
2.) One more application made by Cristina Maillo [*Github*][*WebApp*], this identifies the pose of a person using posenet library but considers single image frame independently at each time but we didn't found it to be a correct approach as the output must be on the basis of different frames captured during the exercise session.

# Proposed Approach: For Pose Correction

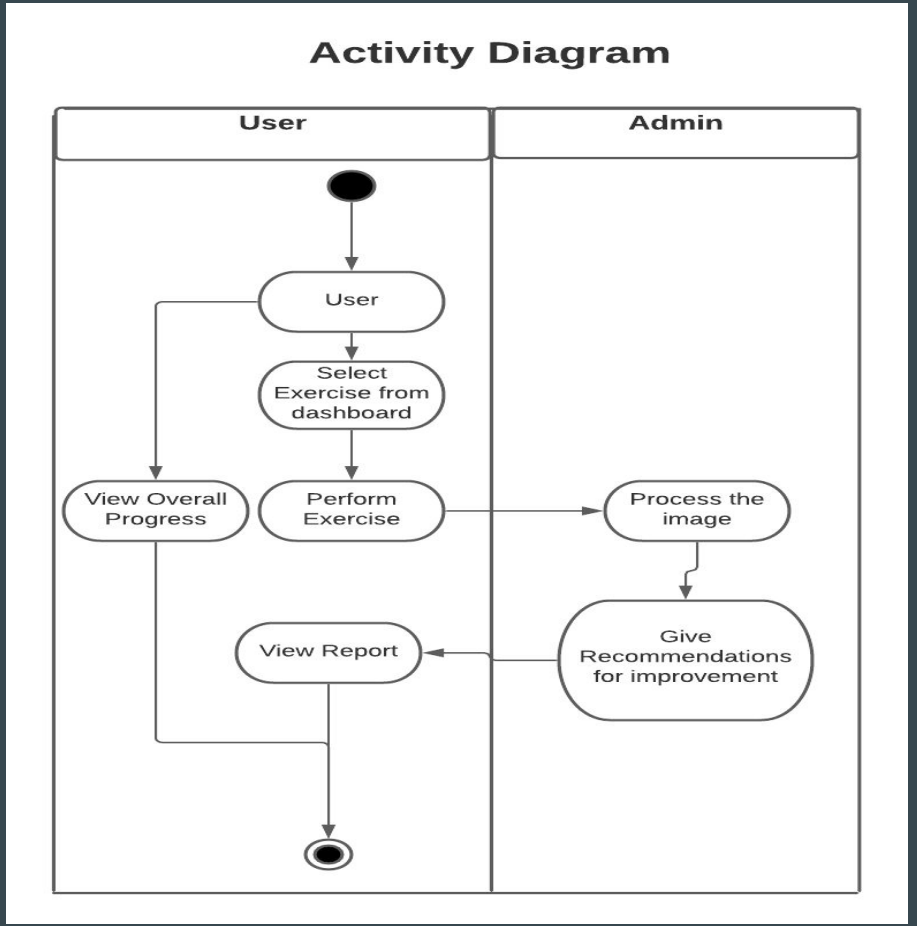



- Calculate similarity score for source and target pose.
- If it comes below 92%, we will recommend the right instructions to user to perform that pose, where he/she can also refer some youtube videos to perform that particular pose/exercise
- Our Implementation for Comparator.
- Hosted using Azure VM..

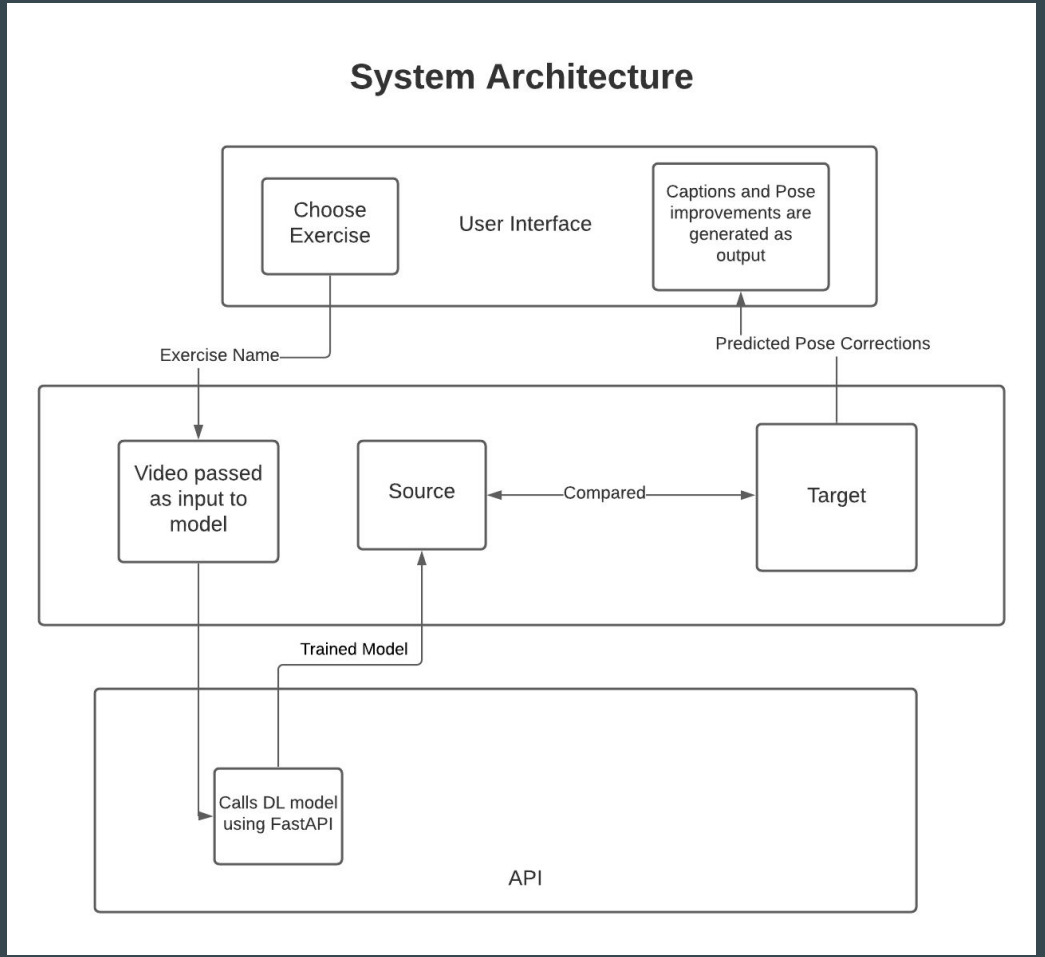
# Use Case Diagram



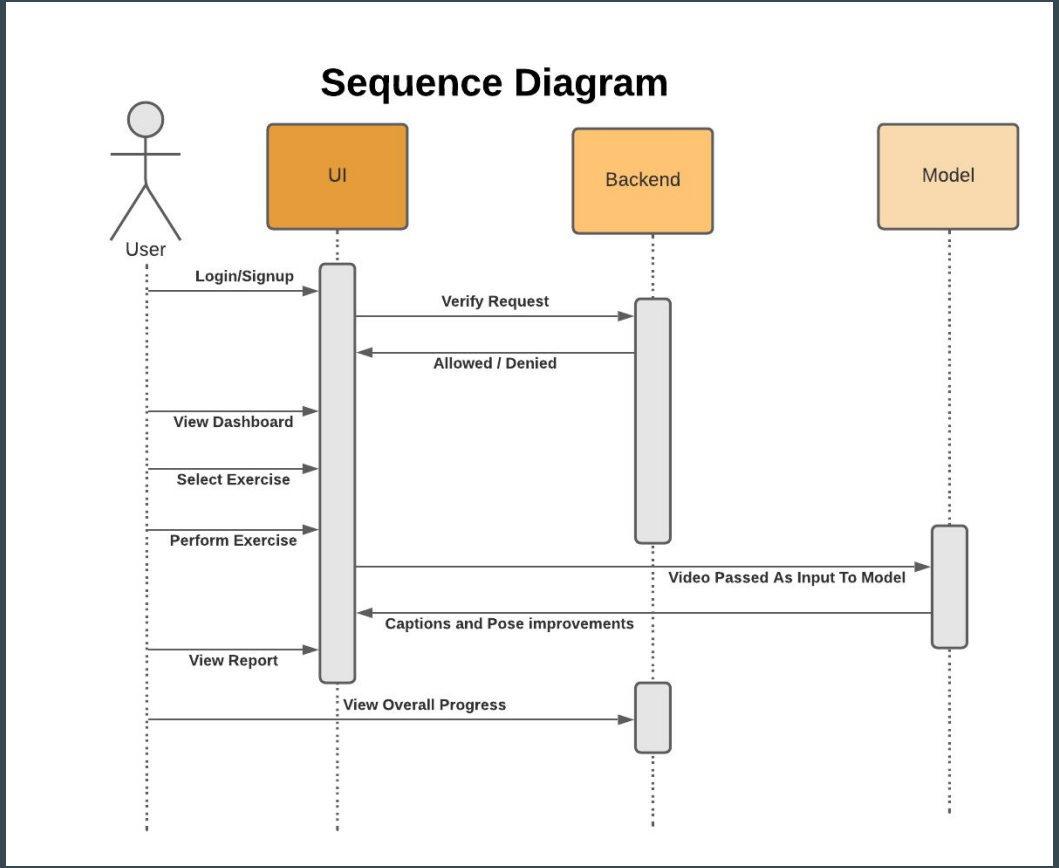
# Activity Diagram



# System Architecture



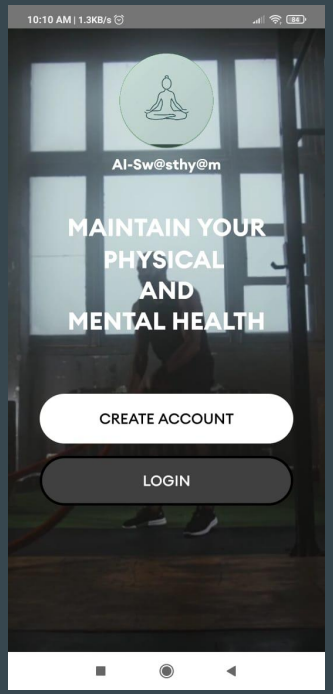
# Sequence Diagram

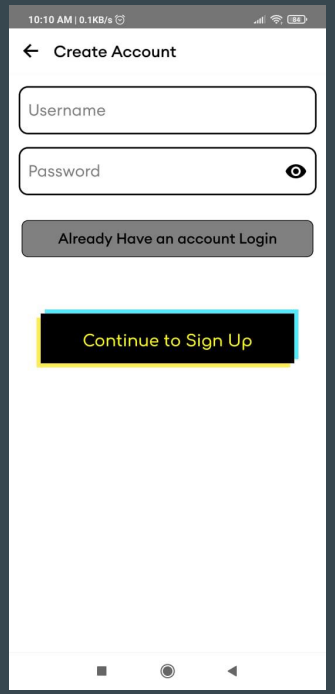


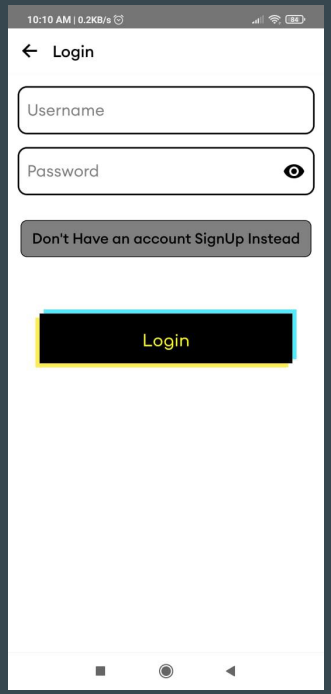
# Software Engineering Tools

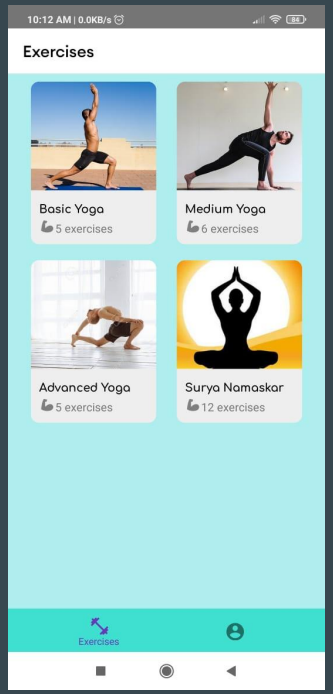
- FrontEnd - React Native, Figma
- BackEnd - FastApi,MongoDB
- Deep Learning Model - Pytorch
- We used *Notion* for tracking project updates and *Github* for code collaboration.

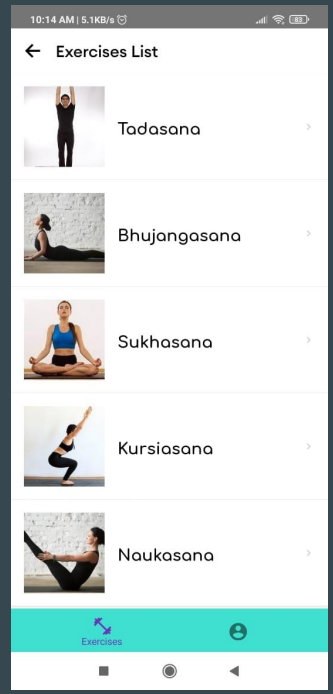
# Application-Onboarding and Dashboard



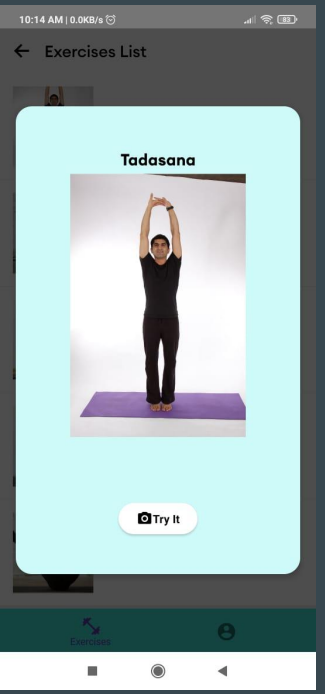



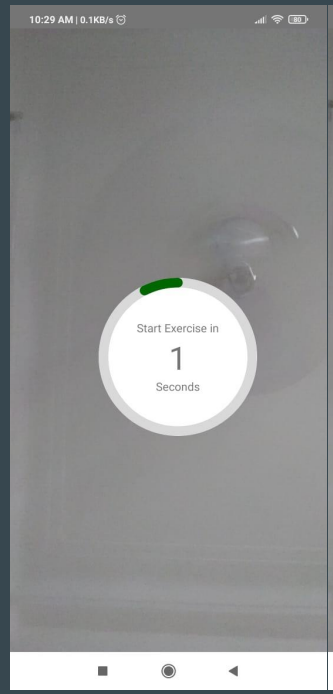



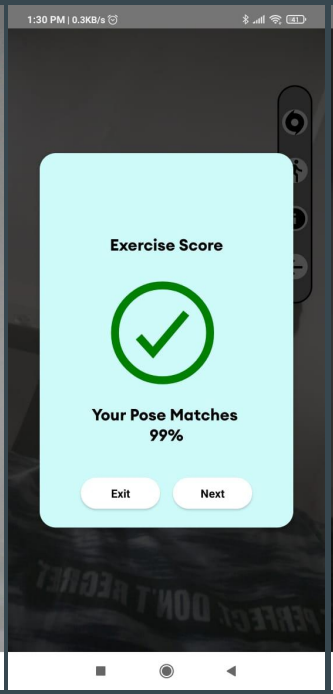



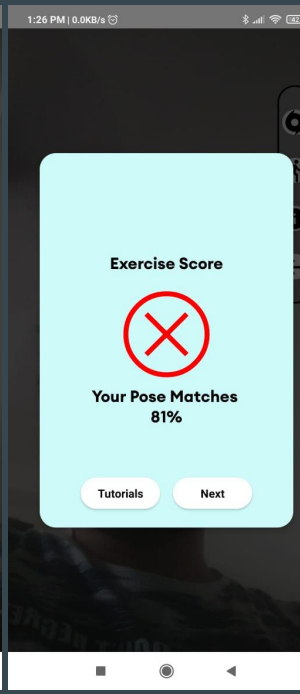
# Application - Perform Exercise



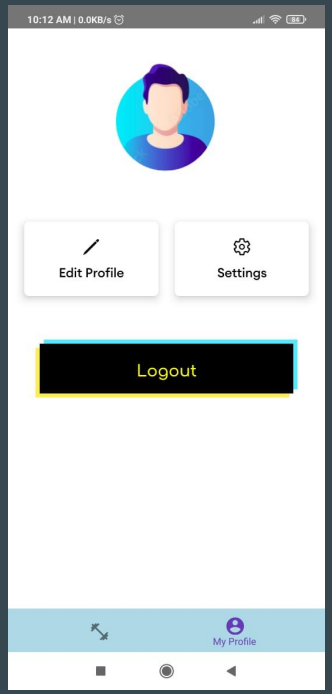



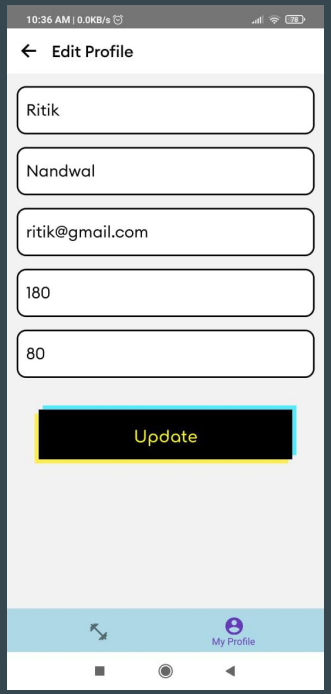


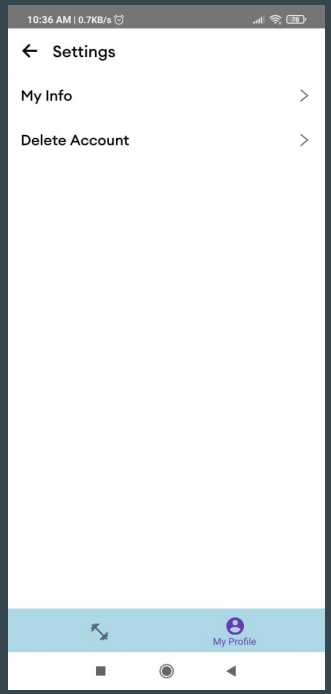


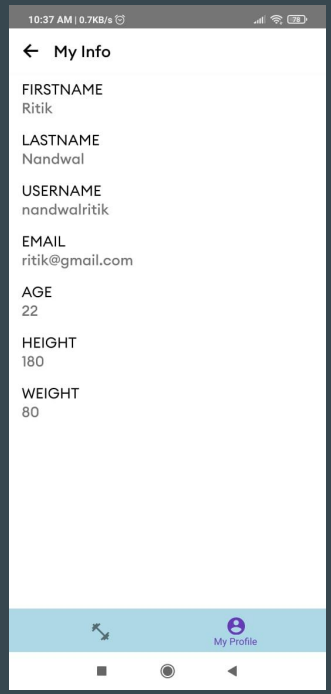



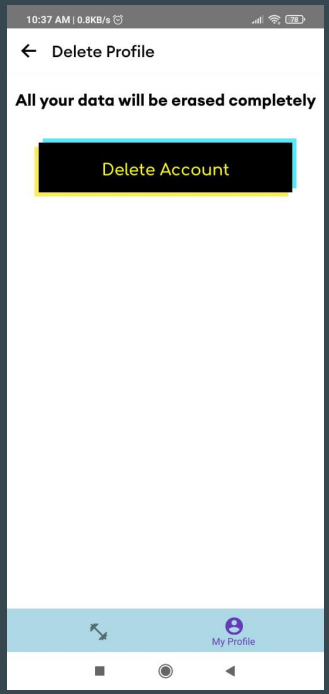
# Application - My Profile



# References ,Resources and Codebase

- *Papers-Referenced*
- *Github Organisation*
- *Figma-Designs and Flow*
- *Report(in latex)* | *Overleaf-Link*

# Project Demo

# Thank You!