

A Report on

Fitness Management App



Active Life

Your Journey to Fitness Starts Here!

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1. INTRODUCTION

1.1 Introduction

Our project is a comprehensive fitness management app designed to support users on their journey toward a healthier lifestyle. The app welcomes users with a dynamic splash screen, displaying a random motivational quote alongside the app logo to inspire each day.

For new users, the experience begins with a simple sign-up process, where they provide essential details like name, email, activity level, and other information to create a personalized fitness profile.

Upon login, users are greeted by a user-friendly dashboard with four main sections: **Homepage**, **Meal Planning**, **Workouts**, and **Profile**.

- **Homepage**: This section highlights the user's name and avatar, along with daily streaks that encourage consistent use. It also includes a step counter, workout counter, and showcases recommended workouts to help users meet their fitness goals.
- **Meal Planning**: Here, users find curated meal plans, each with detailed nutritional information. Beneath the top plans, they can also access nutritional tips to support their dietary choices.
- **Workouts**: Users can browse a comprehensive library of workout routines. Each workout features exercises with step-by-step instructions, targeted body parts, breathing techniques, and common mistakes. During workouts, an animated guide is available, along with a circular timer, and options to skip, resume, or quit.
- **Profile**: In this section, users can manage personal information such as weight, height, and age, and access features like progress photos, BMI calculation, step goal adjustments, achievement badges, and trainer preferences.

1.2 Problem Definition

In today's fast-paced world, maintaining a healthy lifestyle can be challenging due to a lack of structured guidance and support. Many individuals struggle with consistency in their fitness routines and meal planning, often leading to frustration and decreased motivation. Existing fitness solutions are frequently fragmented, making it difficult for users to track their progress and stay engaged in their wellness journey.

1.3 Project Category

This project falls under the category of Health and Fitness Applications, specifically focusing on mobile app development. It aims to provide an integrated platform that combines workout routines, meal planning, and personal progress tracking to enhance user engagement and promote a healthier lifestyle.

1.4 Motivation and Scope Objectives

The motivation for developing this fitness management app comes from the growing need for easy-to-access, comprehensive health tools. With more people looking for ways to improve their fitness and well-being, this app is designed to help users take charge of their health journey. The project aims to create a flexible platform that meets a variety of user needs, including workout guidance, meal planning, and tracking personal progress, all in one place to keep users motivated and on the path to their fitness goals.

1.5 Objectives

The primary objectives of the fitness management app are:

- To create a user-friendly interface that enhances accessibility and engagement.
- To provide personalized meal plans and nutritional advice tailored to individual needs.
- To offer a wide range of workout routines with detailed instructions and progress tracking.
- To motivate users through daily streaks, achievement badges, and personalized fitness insights.
- To facilitate community building among users through shared goals and achievements.

1.6 Background Study: Existing System

Current fitness applications often struggle with the integration of workout tracking and meal planning, which leads users to rely on multiple apps or resources to meet their fitness needs. Many existing platforms lack personalization, resulting in a one-size-fits-all experience that does not cater to individual fitness goals. Additionally, these applications may fail to engage users effectively, leading to decreased motivation and participation over time.

1.7 Proposed System

The proposed fitness management app addresses these gaps by providing a single, integrated platform that combines workout routines, meal planning, and personalized progress tracking. Users will benefit from features like a dynamic homepage displaying motivational quotes, a meal planning section with curated plans and nutritional tips, a comprehensive workout library with instructional content, and a user profile to manage personal fitness information. The app is designed to foster consistency and motivation through features like daily streak tracking and achievement badges.

1.8 Unique Features of the system

- **Dynamic Splash Screen**: Each time the app is opened, users are greeted with a random motivational quote to inspire their fitness journey. The splash screen also displays key metrics such as streak count and step count, providing users with immediate feedback on their progress.
- **Progress Tracking and Badges**: Users can track their progress through achievements and badges, creating a sense of accomplishment and motivation to continue their fitness journey. Additionally, users can upload progress photos, which are saved in a dedicated progress album, allowing them to visually track their transformation over time.
- **Interactive Workout Sessions**: Each workout includes animated video guides, a circular timer, and the ability to skip, resume, or quit exercises, providing flexibility during workouts. Users can easily navigate through different exercises, making their workout experience more enjoyable and efficient.
- **Personalized Dashboard**: A user-friendly dashboard showcases personalized stats in one place, including:
 - a) **Workout Progress**: Users can view their completed workouts and overall progress, motivating them to keep pushing toward their fitness goals.
 - b) **BMI Calculator**: An integrated BMI calculator helps users assess their body mass index, providing insight into their health and fitness status.
 - c) **Daily Streaks**: Users can track how many consecutive days they have engaged with the app, promoting consistent usage.
 - d) **Step Counts**: A built-in step counter allows users to monitor their daily activity levels, encouraging them to stay active.

2. REQUIREMENTS ANALYSIS AND SYSTEM SPECIFICATIONS

2.1 Feasibility Study

Technical Feasibility: The fitness management app has been developed using Android Studio, which allows for compatibility with both Android and iOS platforms. Data is efficiently managed through SQLite databases. The app is fully functional and ready for user engagement.

2.2 System Specification

The system specification outlines the functional and non-functional requirements of the fitness management app to ensure it meets user needs and expectations.

Functional Requirements:

- **User Registration and Login:** Users can create accounts and log in securely to access their personalized dashboard.
- **Dashboard Display:** The dashboard shows daily streaks, step counts, workout progress, and BMI calculations.
- **Workout Library:** The app provides access to a range of predefined workout routines with detailed instructions and video guides.
- **Meal Planning Section:** Users can access general nutritional information and tips for healthy eating.
- **Progress Tracking:** Users can upload progress photos, track achievements, and earn badges for completed workouts.
- **Interactive Features:** Users can start, pause, skip, or quit workouts at any time during their sessions.

Non-Functional Requirements:

- Usability: The app has an intuitive and user-friendly interface that is easy to navigate for users of all ages and fitness levels.
- Performance: The app loads quickly and operates smoothly, with minimal downtime or lag during use.
- Scalability: The backend infrastructure can handle an increasing number of users and data as the app grows in popularity.
- Security: User data is protected through encryption and secure authentication methods to ensure privacy and confidentiality.
- Compatibility: The app is compatible with major mobile operating systems (iOS and Android) and works on various screen sizes.

3. SYSTEM DESIGN

3.1 Design Approach

The fitness management app follows an **Object-Oriented Design (OOD)** approach, which means it's built around "objects" that group together related data and actions.

Encapsulation: Each part of the app is designed as a separate object that holds its own data and functions. This keeps things organized and makes it easier to manage and update the code when needed.

Abstraction: Complex workings are hidden behind simple, user-friendly features. Users see only what they need, without dealing with the technical details in the background.

Inheritance: The app uses a structure where certain features or functions are shared across different parts, saving time and effort. For instance, basic workout features are defined once and then extended to different workout types, reducing repeated code.

Polymorphism: This feature allows the app to handle different kinds of workouts or meal plans under one unified system, making it flexible and adaptable.

User-Centered Design: While following technical principles, the app is always designed with the user in mind. Feedback from users helps refine the design to ensure it remains simple, intuitive, and effective.

3.2 System Design using Structured Analysis and Design Tools

The system design of the fitness management app employs structured analysis and design tools to create a clear and organized representation of the application's architecture and functionalities. The following tools and techniques are used:

Data Flow Diagrams (DFDs): DFDs are utilized to illustrate how data moves through the app. These diagrams help visualize user interactions and how information is processed in different modules, such as user registration, workout tracking, and meal planning.

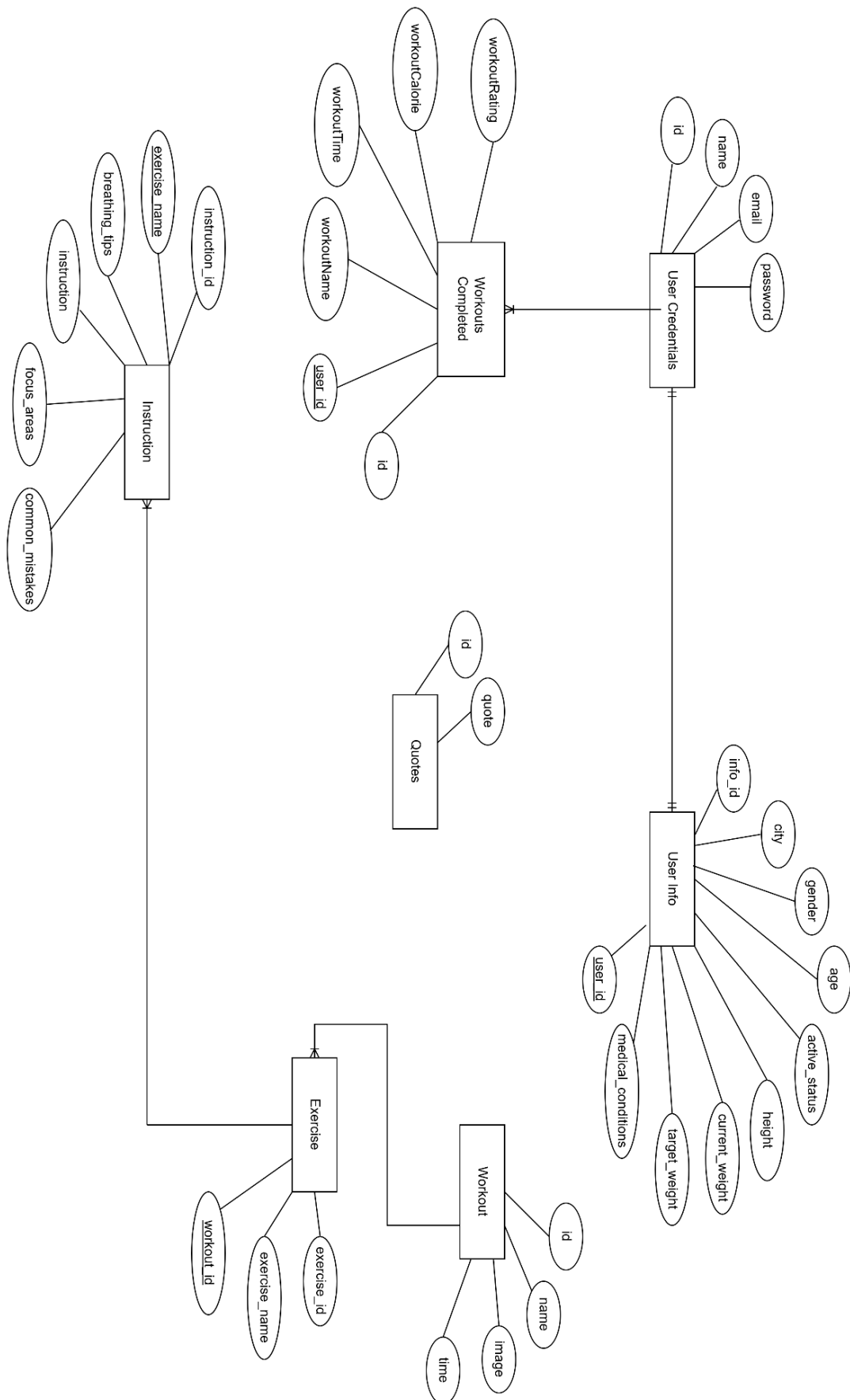
Entity-Relationship Diagrams (ERDs): ERDs are used to define the relationships between various data entities within the app, such as users, workouts, meal plans, and achievements. This representation assists in understanding the database structure and how different data points are connected.

Use Case Diagrams: Use case diagrams outline the interactions between users and the app's features. These diagrams provide a high-level overview of how users will engage with the app, such as logging in, tracking workouts, and accessing meal plans.

Class Diagrams: Class diagrams detail the various classes in the app, their attributes, methods, and relationships. This helps in organizing the object-oriented structure of the application and facilitates better code management.

Flowcharts: Flowcharts are used to detail the processes within the app, such as user registration and workout session management. These visual representations help clarify the steps involved in each process, making it easier to identify potential issues or areas for improvement.

3.3 Database Design using ER Diagram



4. IMPLEMENTATION, TESTING AND MAINTENANCE

4.1 Introduction to Languages, IDE's Tools, and Technologies Used for Implementation

Programming Languages:

The development of the fitness management app required a combination of programming languages, development environments, and tools to create a functional and user-friendly experience. Here is an overview of the key technologies used:

- **XML**: Used for designing the user interface layouts. XML allows for clear, structured, and easy-to-edit UI components that enhance the look and usability of the app.
- **Java**: Used for the main app development on Android. It is widely supported and provide powerful libraries for creating dynamic mobile applications.

Integrated Development Environment (IDE):

- **Android Studio**: The primary IDE used for developing the app. Android Studio offers a robust suite of tools, including emulators for testing on various devices, layout editors, and debugging tools, making it ideal for Android app development.

Database:

- **SQLite**: This lightweight, local database is used to store user data on the device, such as workout progress, meal plans, and personal information. SQLite is ideal for mobile applications because it is efficient and doesn't require a network connection.

Design and Prototyping Tools:

- **Figma**: These tools were used to create wireframes and mockups for the app. They allow the team to visualize the user interface before implementation and make it easy to gather feedback and refine the design.

4.2 Testing of Applications

Test Case -1

<u>FIELD</u>	<u>DESCRIPTION</u>
Test case ID	TC001
Unit to test	Registration Page
Assumptions	User is not registered
Test data	Username, password and email
Steps to be executed	<ol style="list-style-type: none">1. Open the app and go to the Signup page.2. Fill in the username, password, and email fields with valid information.3. Tap the "Sign Up" button to complete the process.
Expected result	Registration is successful, and the user is redirected to the Home Page.
Actual result	Registration completed successfully, and the user is redirected to the Home Page.
Pass/Fail	Pass
Comments	Registration process works as expected.

Test Case -2

<u>FIELD</u>	<u>DESCRIPTION</u>
Test case ID	TC002
Unit to test	Login Module
Assumptions	User is already registered and has valid credentials
Test data	Email and Password
Steps to be executed	1. Open the app and go to the Login page. 2. Enter the username and password from the test data. 3. Tap "Login" to proceed.
Expected result	Login successful, and the user is redirected to the Home Page.
Actual result	Login successfully, and the user is redirected to the Home Page.
Pass/Fail	Pass
Comments	Login functionality is working as intended.

Test Case -3

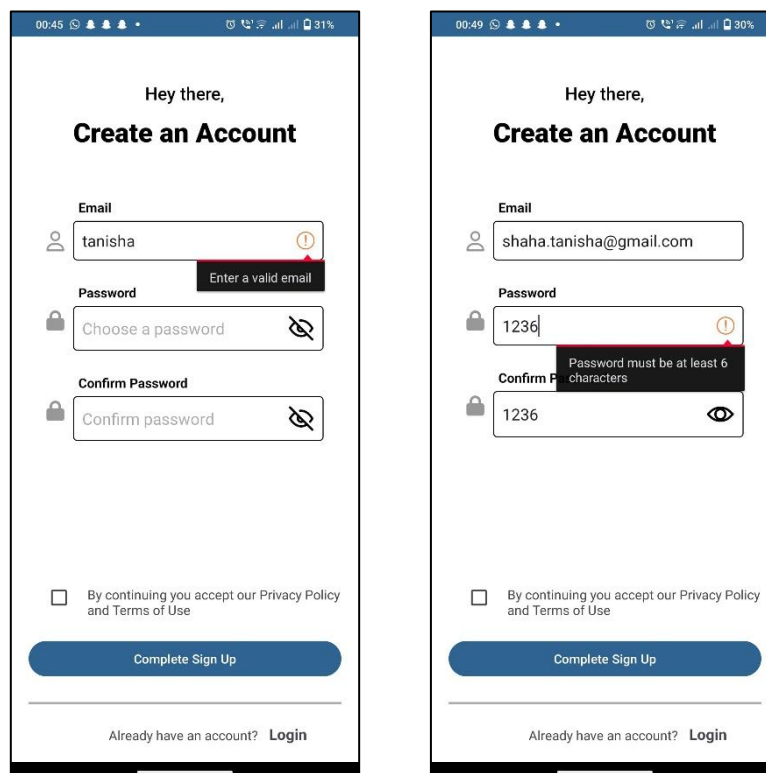
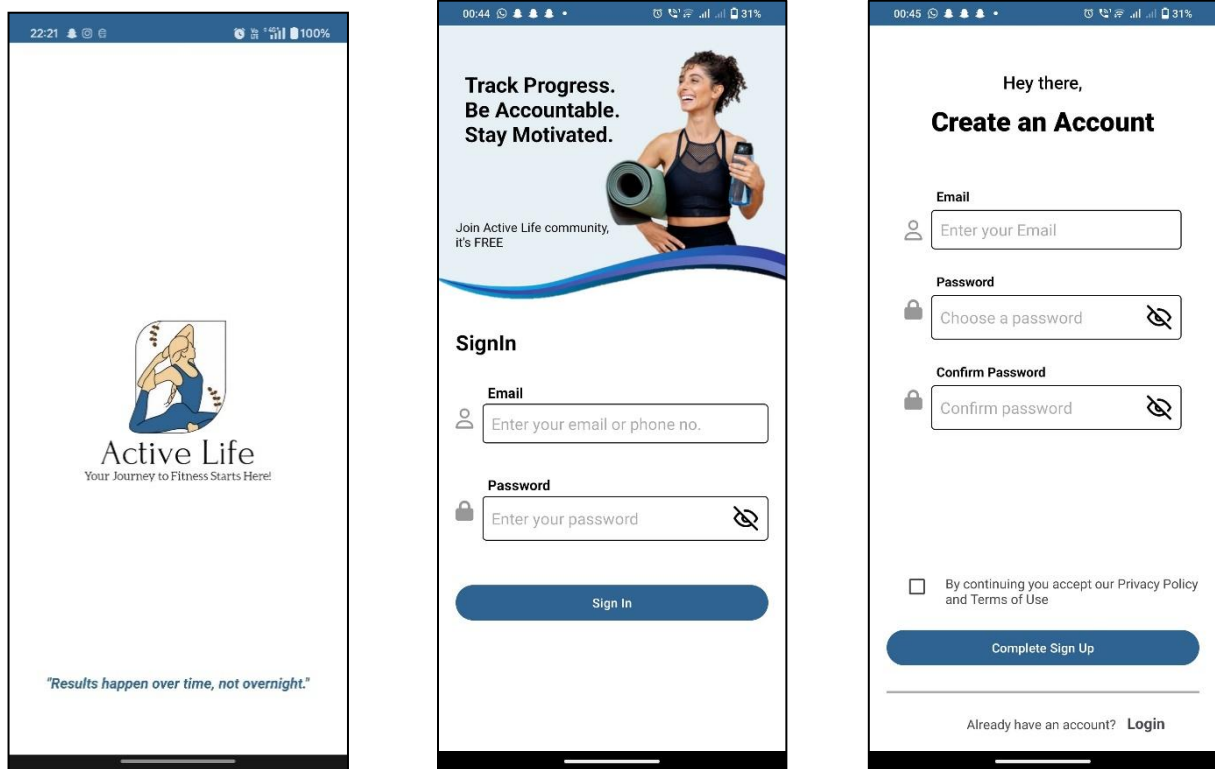
<u>FIELD</u>	<u>DESCRIPTION</u>
Test case ID	TC003
Unit to test	Workout Tracking Module
Assumptions	User is logged in and navigates to Workouts section
Test data	WorkoutID
Steps to be executed	<ol style="list-style-type: none">1. Log in and gets redirected to Home Page.2. Go to the Workouts section.3. Choose a workout and start the session.4. After completing the workout, tap "End Session" to log it.
Expected result	Workout session is logged; user can see the available exercises.
Actual result	Workout session logged successfully; calories burned and available exercises are displayed.
Pass/Fail	Pass
Comments	Workout tracking feature is operating correctly.

Test Case -4

<u>FIELD</u>	<u>DESCRIPTION</u>
Test case ID	TC004
Unit to test	Profile Module
Assumptions	User is logged in and navigates to Profile section
Test data	User Info: Age, Height, Weight, Username, Email, Gender, Full name
Steps to be executed	<ol style="list-style-type: none">1. Log in and gets redirected to Home Page.2. Go to the Profile section.3. Tap "Edit" to update profile information.4. Make the changes specified in the test data, then tap "Save" to store them.5. Tap on the option to Contact Trainer.6. View any achieved badges displayed in the profile.7. Use the BMI Calculator to calculate BMI based on current data.8. Tap on the Progress Album to view uploaded progress photos.9. Check the Step Counter to see the current step count.
Expected result	Updated profile information is saved and displayed in the Profile section.
Actual result	Profile information updated and displayed successfully in the Profile section.
Pass/Fail	Pass
Comments	Profile management functionality is working as expected.

5. RESULTS AND DISCUSSION

5.1 Snapshots of the modules of the system



00:49 30%

Hey there,
Create an Account

Email
shaha.tanisha@gmail.com

Password
.....

Confirm Password
Tanisha1234

☐ By continuing you accept our Privacy Policy and Terms of Use

Complete Sign Up

Please accept the Privacy Policy and Terms of Use

Already have an account? **Login**

00:49 30%

Hey there,
Create an Account

Email
shaha.tanisha@gmail.com

Password
.....

Confirm Password
Tanisha1234

☒ By continuing you accept our Privacy Policy and Terms of Use

Complete Sign Up

Already have an account? **Login**

00:50 30%

Hey there!

Great choice on starting your health journey!
To help us tailor the experience for you, please provide us with a few essential details to get started.

What is your name?

Tanisha Shaha

NEXT

00:50 30%

Where are you from?

This will help us personalize the app for you.

Mumbai

Bengaluru	Mumbai	Delhi-NCR	Kolkata
Chennai	Hyderabad	Ahmedabad	Pune
LUCKNOW	JANPUR	Kochi	Chandigarh

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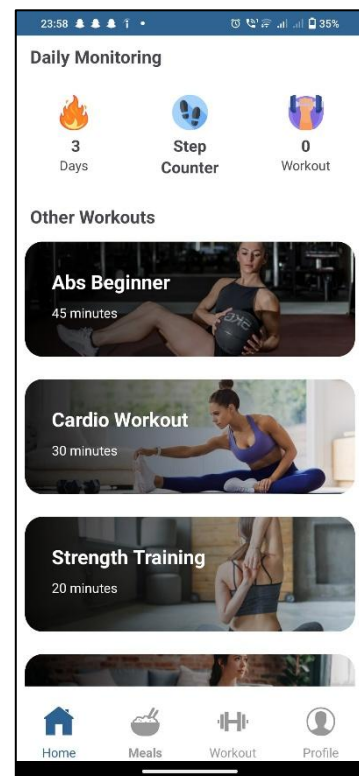
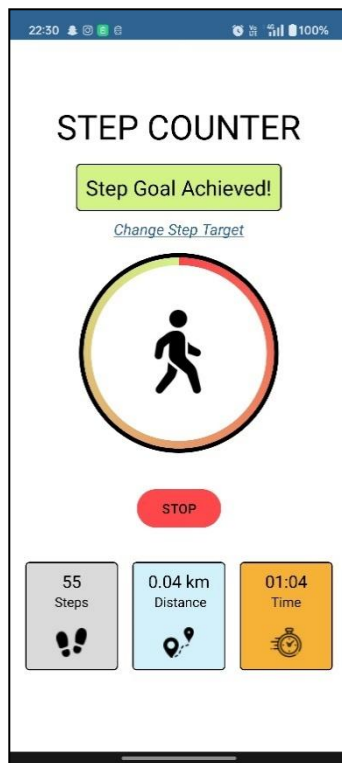
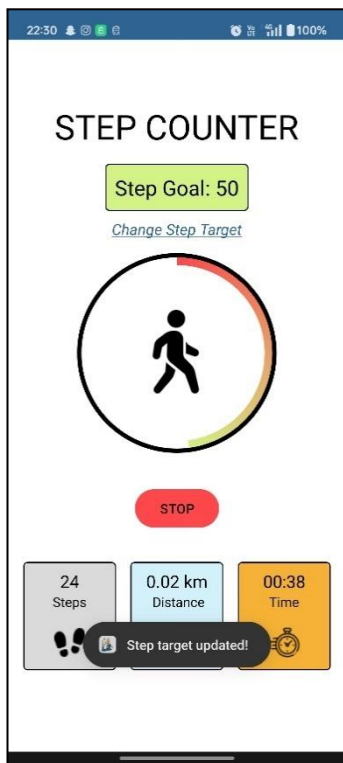
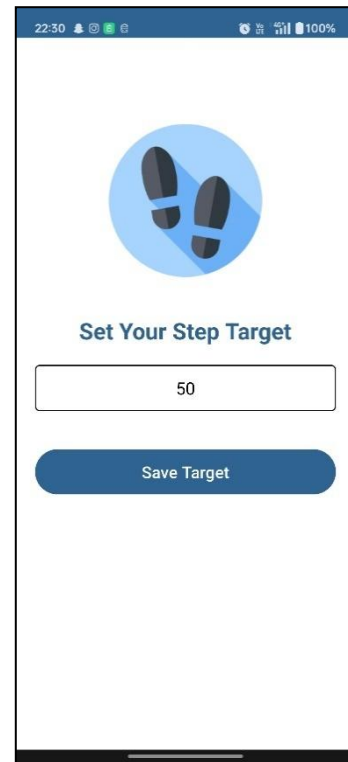
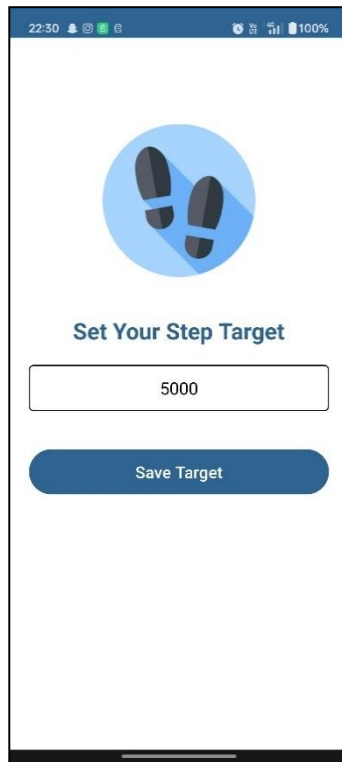
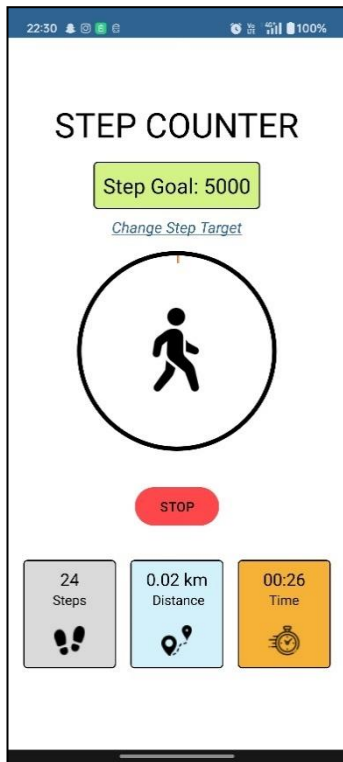
What's your biological sex?

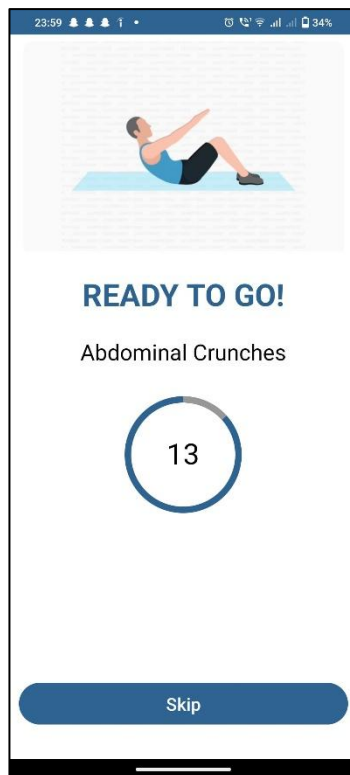
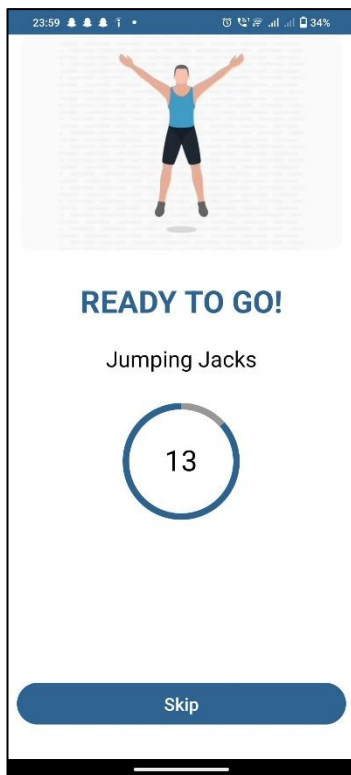
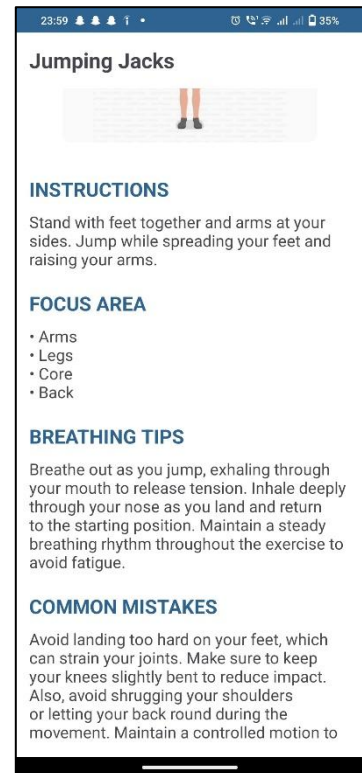
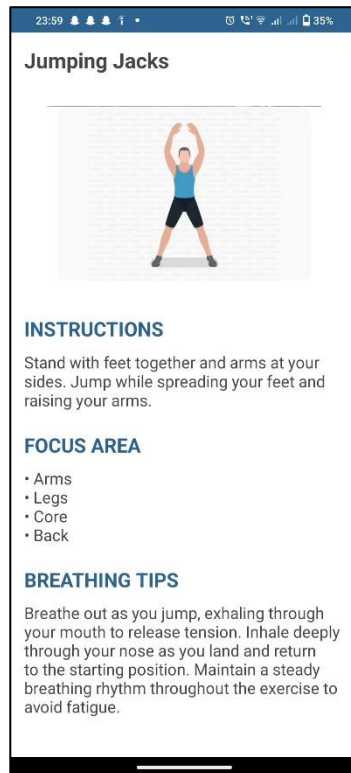
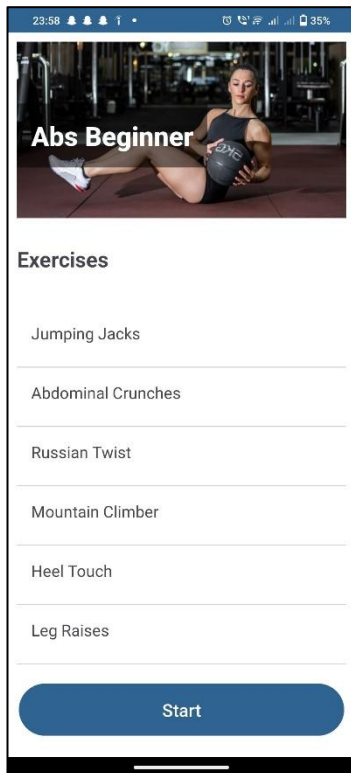
We support all forms of gender expression. However, we need this to calculate your body metrics.

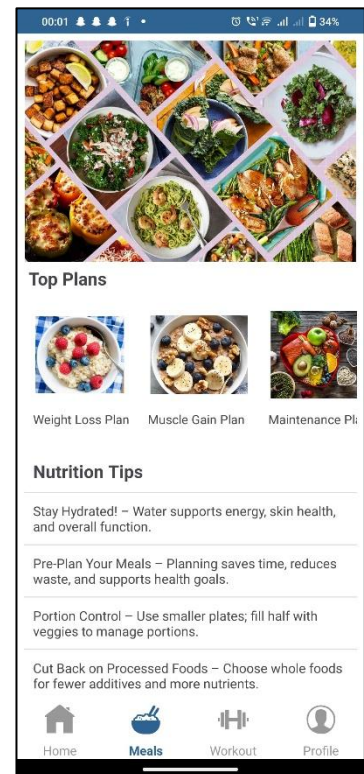
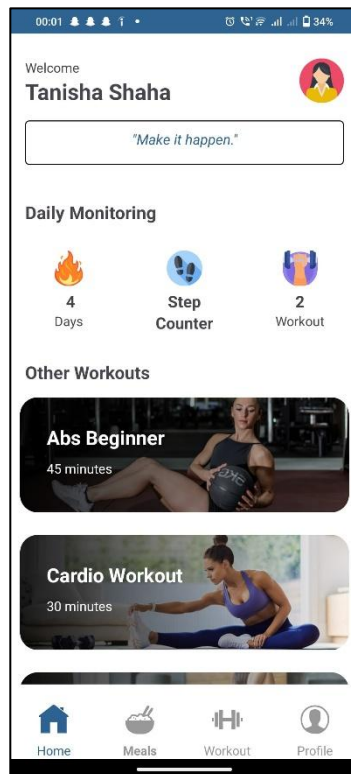
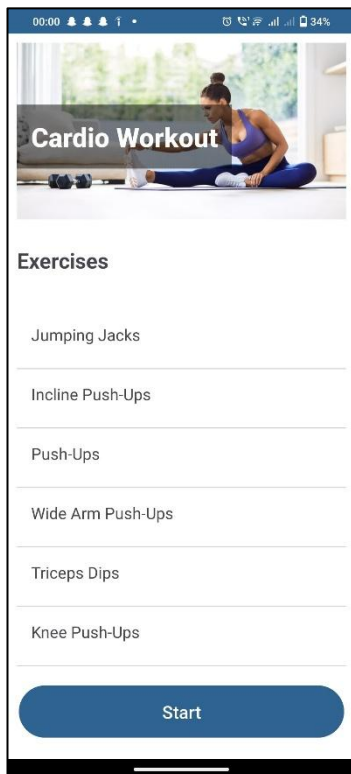
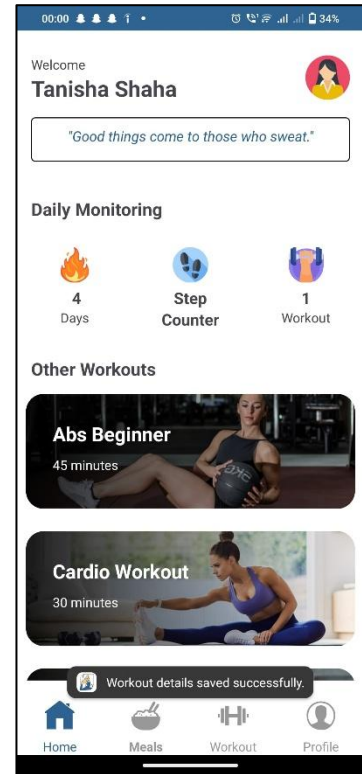
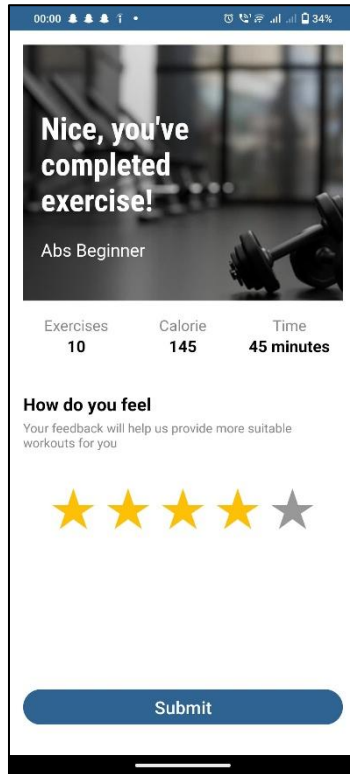
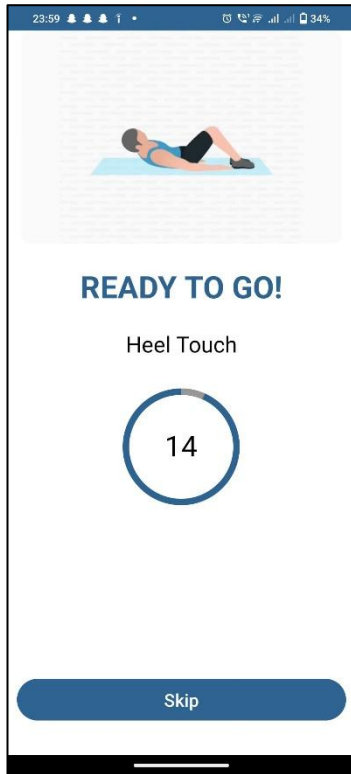
Male **Female**

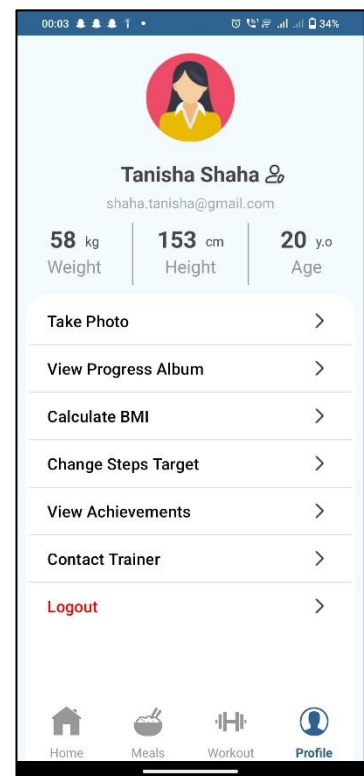
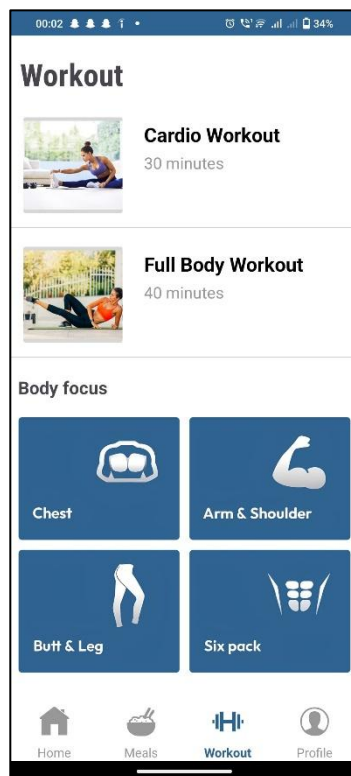
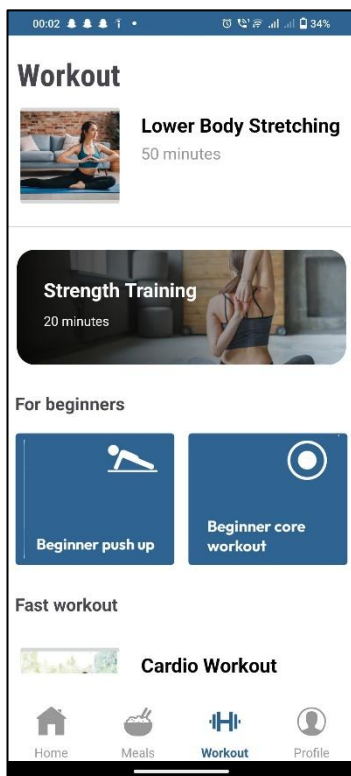
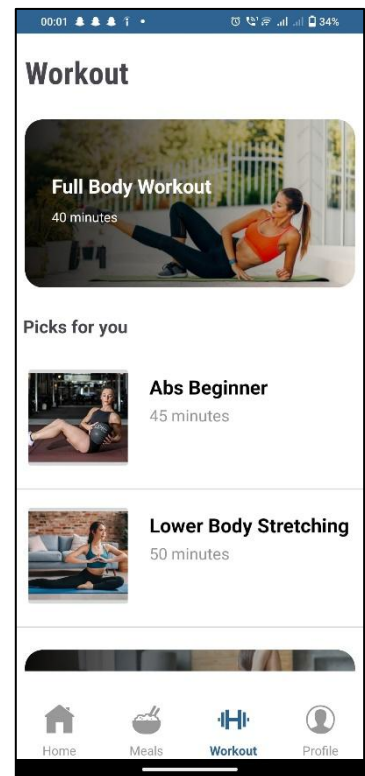
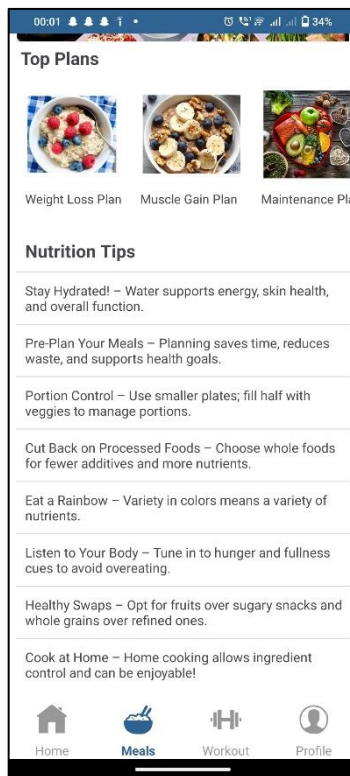
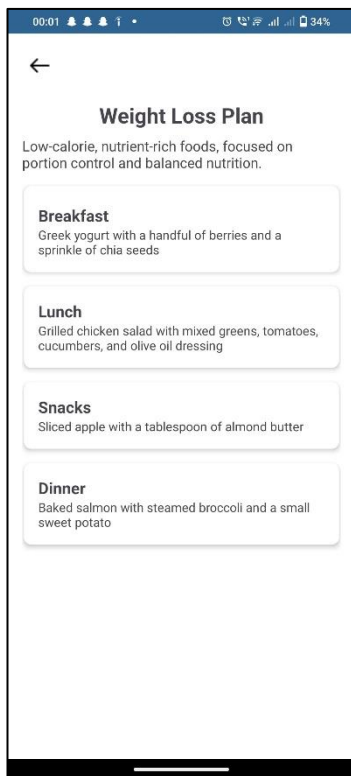
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00:03 34%



Tanisha Shaha
shaha.tanisha@gmail.com

Full Name
Tanisha Shaha

Gender
Female

Age
20

Current Weight (in kg)
58

Height (in cm)
153

User Name
@Tanisha Shaha

Save

00:04 34%



Tanisha Shaha
shaha.tanisha@gmail.com

Full Name
Tanisha Shaha

Gender
Female

Age
21

Current Weight (in kg)
55


Height (in cm)
155

User Name
@Tanisha Shaha

Save

Profile Updated Successfully

00:04 34%



Tanisha Shaha
shaha.tanisha@gmail.com

55 kg Weight | 155 cm Height | 21 y.o Age

Take Photo >

View Progress Album >

Calculate BMI >

Change Steps Target >

View Achievements >


Contact Trainer >

Logout >

Home Meals Workout Profile



00:04 34%



Tanisha Shaha
shaha.tanisha@gmail.com

55 kg Weight | 155 cm Height | 21 y.o Age

Take Photo >

View Progress Album >

Calculate BMI >

Change Steps Target >

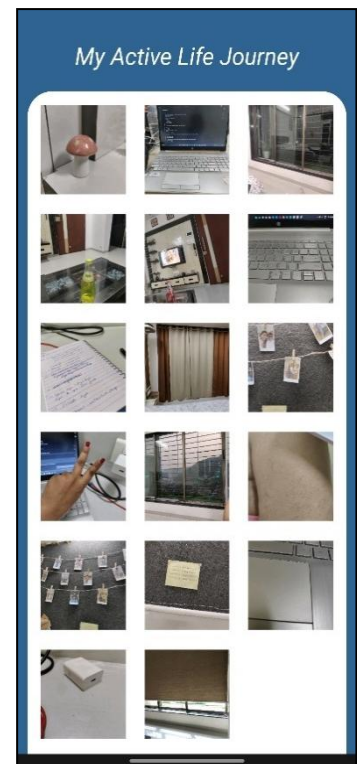
View Achievements >

Contact Trainer >

Logout >

Image Saved Successfully

Home Meals Workout Profile



00:06 34%

← BMI CALCULATOR

♂
Male

♀
Female

Height
170 cm

Weight
55

Age
30

Calculate Your BMI

BMI CALCULATOR

♂
Male

♀
Female

Height
155 cm

Weight
55

Age
21

Calculate Your BMI

00:06 34%

✓


22.89282


Female
Normal

RECALCULATE YOUR BMI

BACK TO PROFILE

00:04 34%




Tanisha Shaha 
shaha.tanisha@gmail.com


55 kg Weight | 155 cm Height | 21 y.o Age


- Take Photo >
- View Progress Album >
- Calculate BMI >
- Change Steps Target >
- View Achievements >
- Contact Trainer >
- Logout >


Home Meals Workout Profile


Your Badges



Rising Star ★


Consistency 🏆


Sweat Warrior 🏃



Peak Performer 🏔️


Fit Legend 🏆


Health Hero 🦸


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←



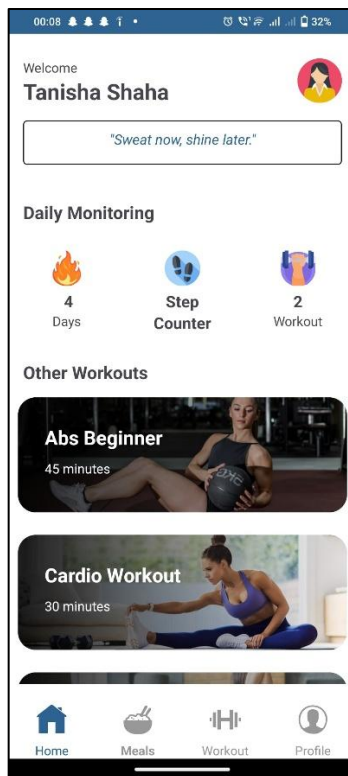
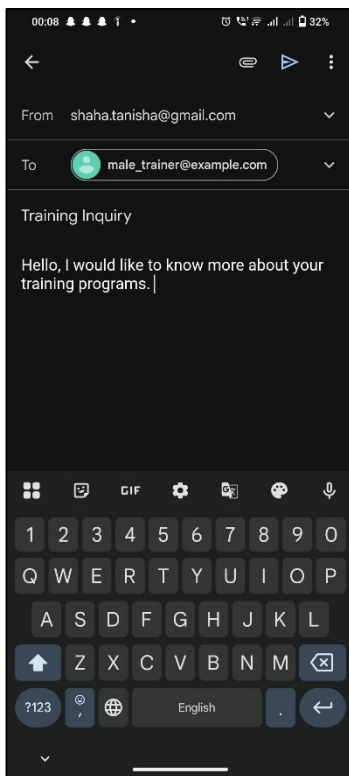
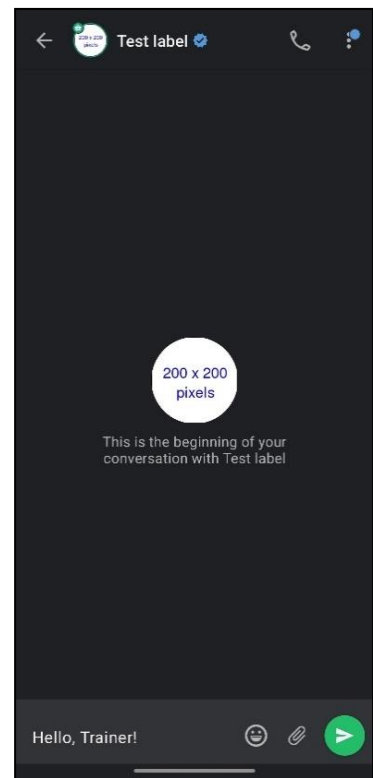
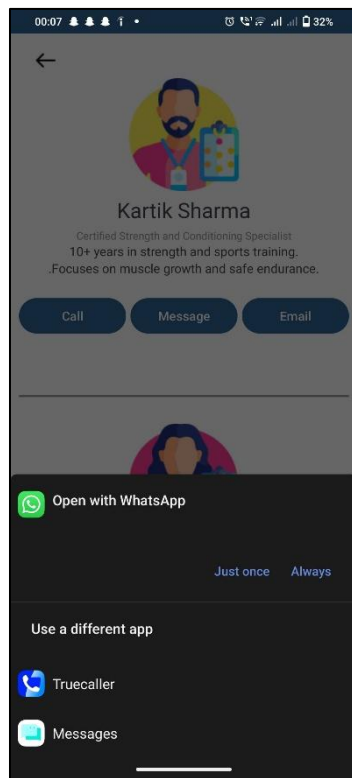
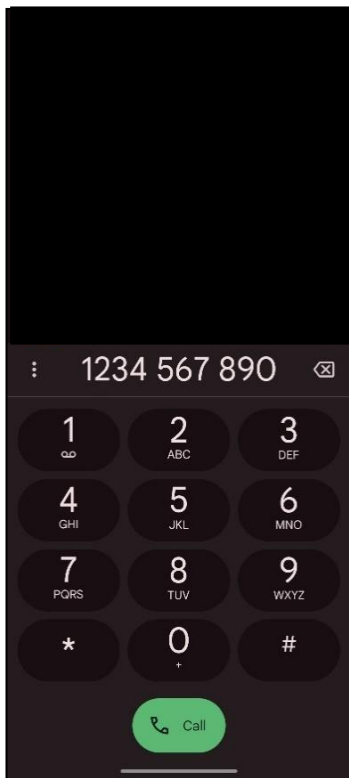
Kartik Sharma
Certified Strength and Conditioning Specialist.
10+ years in strength and sports training.
Focuses on muscle growth and safe endurance.

Call Message Email



Sonal Srivastava
Nutrition and Wellness Coach
8 years in holistic health, specializing in
weight management and functional fitness.

Call Message Email



5.2 Snapshots of Database Tables

ActiveLife.db ▶ instruction

Reset Filters Records: 28

	instruction	exercise	instructions	breathing_tips	focus_areas	common_mis...
1	1	Jumping Jacks	Stand with feet tog...	Breathe out as you j...	• Arms • Legs • Cor...	Avoid landing too h...
2	2	Abdominal Crunches	Lie on your back wi...	Exhale fully as you L...	• Arms • Legs • Cor...	Avoid pulling on yo...
3	3	Russian Twist	Sit on the floor with...	Exhale as you twist ...	• Core • Obliques	Avoid using mome...
4	4	Mountain Climber	Start in a plank posi...	Exhale as you drive ...	• Core • Arms • Legs	Avoid letting your h...
5	5	Heel Touch	Lie on your back wi...	Exhale as you reach...	• Core • Obliques	Avoid using mome...
6	6	Leg Raises	Lie on your back wi...	Exhale as you lift yo...	• Core • Lower Abs	Avoid arching your ...
7	7	Plank	Start in a push-up p...	Breathe steadily. D...	• Core • Arms • Sho...	Avoid letting your h...
8	8	Cobra Stretch	Lie face down and ...	Inhale deeply as yo...	• Lower Back • Core	Avoid overextendin...
9	9	Stretch Left	Stand with feet tog...	Inhale deeply as yo...	• Side Body • Arms	Avoid overstretchin...
10	10	Stretch Right	Stand with feet tog...	Inhale deeply as yo...	• Side Body • Arms	Avoid overstretchin...
11	11	Incline Push-Ups	Place your hands o...	Inhale as you lower ...	• Chest • Shoulders ...	Avoid letting your h...
12	12	Push-Ups	Start in a plank posi...	Inhale as you lower ...	• Chest • Shoulders ...	Avoid flaring your e...
13	13	Wide Arm Push-Ups	Start in a plank posi...	Inhale as you lower...	• Chest • Shoulders ...	Avoid letting your h...
14	14	Triceps Dips	Sit on the edge of a...	Inhale as you lower...	• Triceps • Shoulder...	Avoid using your le...
15	15	Knee Push-Ups	Start in a plank posi...	Inhale as you lower ...	• Chest • Arms • Core	Avoid arching your ...
16	16	Arm Raises	Stand with feet sho...	Inhale as you lift yo...	• Shoulders • Arms	Avoid shrugging yo...
17	17	Side Arm Raises	Stand with feet sho...	Inhale as you raise ...	• Shoulders • Arms	Avoid swinging yo...
18	18	Arm Circles Clockwi...	Stand with arms ext...	Breathe steadily thr...	• Shoulders • Arms	Avoid rotating too ...
19	19	Diamond Push-Ups	Start in a push-up p...	Inhale as you lower...	• Triceps • Chest • S...	Avoid flaring your e...
20	20	Diagonal Plank	Start in a standard ...	Breathe steadily wh...	• Core • Shoulders •	Avoid letting your h...

ActiveLife.db ▶ exercise

Reset Filters Records: 41

	exercise_id	exercise_name	workout_id
1	1	Jumping Jacks	1
2	2	Abdominal Crunches	1
3	3	Russian Twist	1
4	4	Mountain Climber	1
5	5	Heel Touch	1
6	6	Leg Raises	1
7	7	Plank	1
8	8	Cobra Stretch	1
9	9	Stretch Left	1
10	10	Stretch Right	1
11	11	Jumping Jacks	2
12	12	Incline Push-Ups	2
13	13	Push-Ups	2
14	14	Wide Arm Push-Ups	2
15	15	Triceps Dips	2
16	16	Knee Push-Ups	2
17	17	Cobra Stretch	2
18	18	Arm Raises	3
19	19	Side Arm Raises	3
20	20	Triceps Dips	3

ActiveLife.db ▶ workout

Reset Filters Records: 5

	id	name	image	time
1	1	Abs Beginner	2131165515	45 minutes
2	2	Cardio Workout	2131165510	30 minutes
3	3	Strength Training	2131165517	20 minutes
4	4	Lower Body Stretchi...	2131165527	50 minutes
5	5	Full Body Workout	2131165415	40 minutes

ActiveLife.db ▶ workouts_completed

Reset Filters Records: 3

	id	user_id	workoutName	workoutTime	workoutCalo...	workoutRating
1	1	1	Abs Beginner	45 minutes	137	4
2	2	2	Cardio Workout	30 minutes	124	4
3	3	3	Strength Training	20 minutes	118	3

ActiveLife.db ▶ user_info										
Reset Filters		Records: 2							Search 2 records...	
	info_id	user_id	city	gender	age	active_status	height	current_weight	target_weight	medical_con...
	Search column...	Search column...	Search column...	Search column...	Search column...	Search column...	Search column...	Search column...	Search column...	Search column...
1	1	1	Mumbai	Female	21	Moderate Active	155	55	50	PCOS, Breathing Iss...
2	2	2	Ahmedabad	Male	25	Moderate Active	168	68	72	None

```
</> ActiveLifeLogin.xml ×
1  <?xml version='1.0' encoding='utf-8' standalone='yes' ?>
2  <map>
3      <boolean name="isAlertShown" value="true" />
4      <int name="currentStreak" value="1" />
5      <string name="lastCompletedDate">2024-11-04</string>
6      <boolean name="isLoggedIn" value="true" />
7      <long name="userId" value="1" />
8      <int name="stepCountTarget" value="50" />
9  </map>
10
```

6. CONCLUSION AND FUTURE SCOPES

Conclusion

The fitness management app provides an all-in-one solution for users looking to improve their health and fitness. By combining workout guidance, meal planning, progress tracking, and motivational features, the app encourages users to stay consistent and engaged in their fitness journey. Its user-friendly design and comprehensive approach make it a valuable tool for anyone seeking to adopt a healthier lifestyle. The app's development has shown the potential of integrating multiple health-related functions into a single platform, enhancing accessibility and convenience for users.

Future Scope

Looking ahead, the app has several opportunities for enhancement and expansion. Potential future developments include:

- **Customizable Workouts and Meal Plans:** Introducing personalized plans based on user preferences, goals, and fitness levels to make the experience even more tailored.
- **Integration with Wearable Devices:** Connecting with popular fitness trackers to provide users with more precise health data, such as heart rate monitoring and sleep tracking.
- **Community and Social Features:** Adding a feature where users can join groups, share achievements, and connect with friends to foster a supportive fitness community.
- **Advanced Analytics and AI Recommendations:** Using AI to provide smart recommendations for workouts and meal plans based on user progress, helping them achieve their goals more effectively.
