

Project Report – Database Systems

**Workout and Fitness Tracker App**

Group Members:

Rahim Muhammad Syed - (18K-0122)

Abdullah Muzaffar - (18K-0169)

Muhammad Ahmed Khan - (18K-1103)

Instructor: Miss Anam Qureshi

Section: H

**Introduction:**

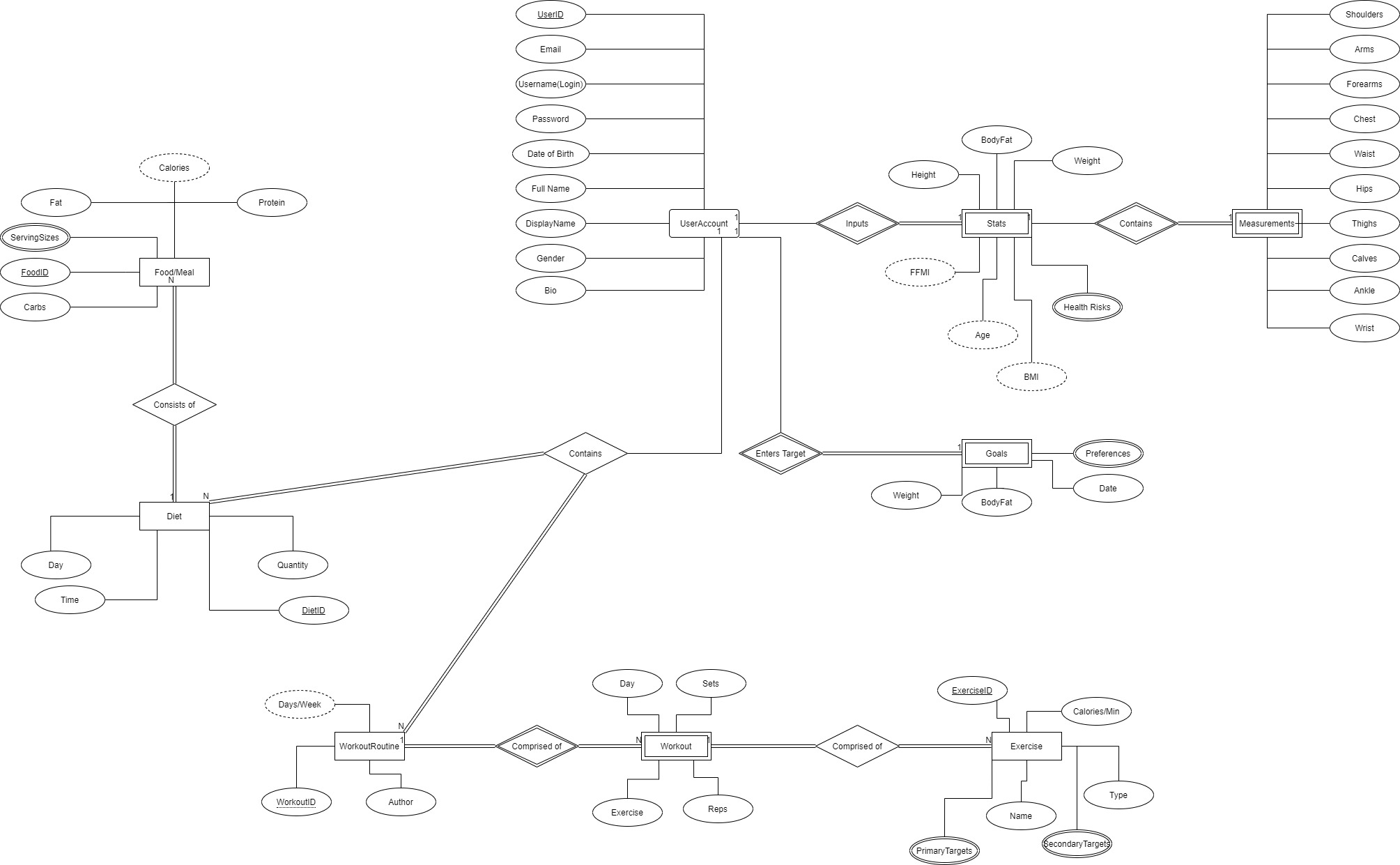
The Workout Tracker App is a mobile application that allows its users to set up healthy dietary and exercise routines and keep track of their fitness routines with the aim to reach their desired body type. It includes a dietary plan based on the user's personal details and an editable workout plan which will enable the users to follow a balanced routine in order to achieve healthy and positive results.

The application includes a personalized signup for new users and login for returning users who already have their routines set up. It allows easy navigation between the diet, exercises, log and profile pages each of which have an important role in the application. The home page displays upcoming workouts for the user’s ease and allows users to navigate to a search for exercises page so that the user may search and set up his desired exercises. The app by default gives its users routines to follow based on their body type but these can be edited if needed. One of the most important pages is the diet and workout pages. Each displaying their respective routines and requirements that need to be fulfilled for that particular day.

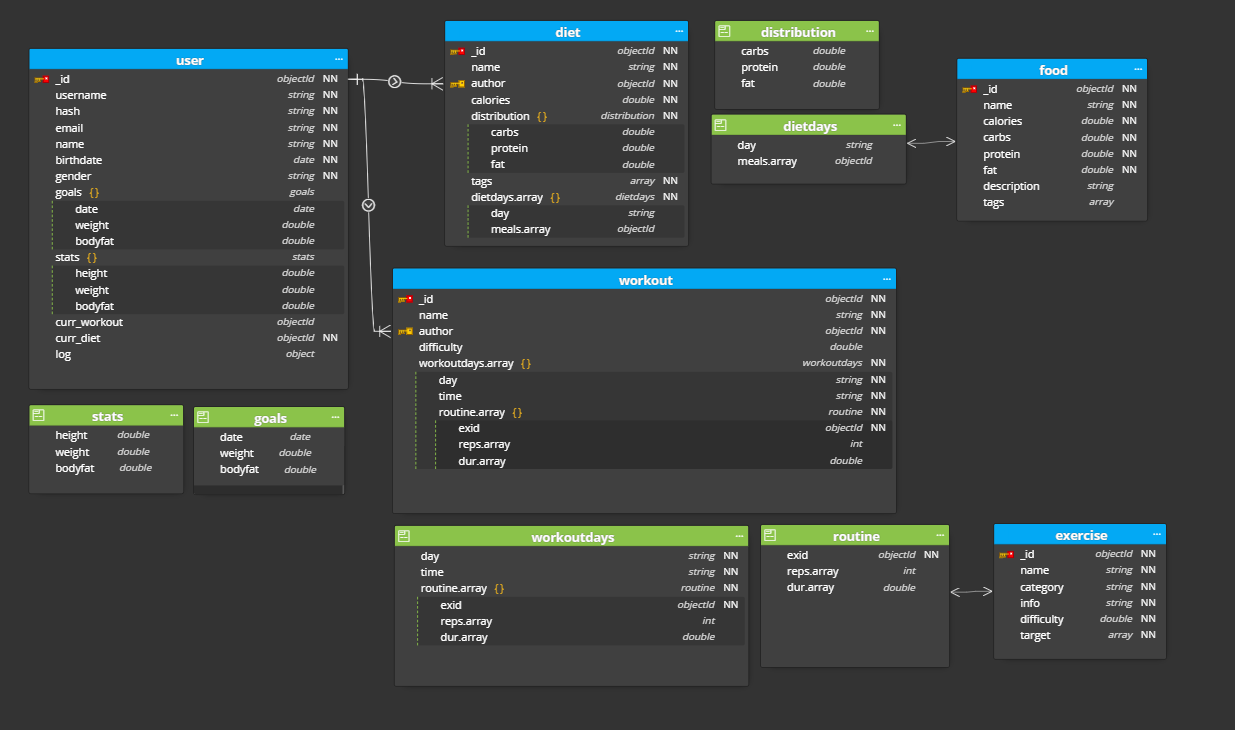
The settings and log pages are quite self-explanatory and typical. Settings which can be accessed in profile that allows the user to toggle between color modes, edit user details, and an easy logout button just in case the user wanted to use multiple accounts and wished to login into the other. The logs show the users completed workouts and followed routines. These can be cleared easily by the click of a button if the user wishes to clear some memory. As for workout, the user can start his or her workout when it is time for it. The workout has flexibility of increasing or decreasing the reps while in workout. There is also a stopwatch for the user so that they can keep track of the time. After the workout is over, a summary of the workout is shown. The diet on the other hand shows calories, fat, carbs and proteins for each respective food item for that particular day. The diet for the user is automatically selected from the database based on their goals and interests.

To sum it up the Workout and Fitness App is an easy-to-use application that is in the best of interest’s fitness freaks and even normal people who are trying to get in shape. Its database is based on mongoDB which is in json script.

**Entity Relationship Diagram** (If deployed on SQL/not for MongoDB)**:**

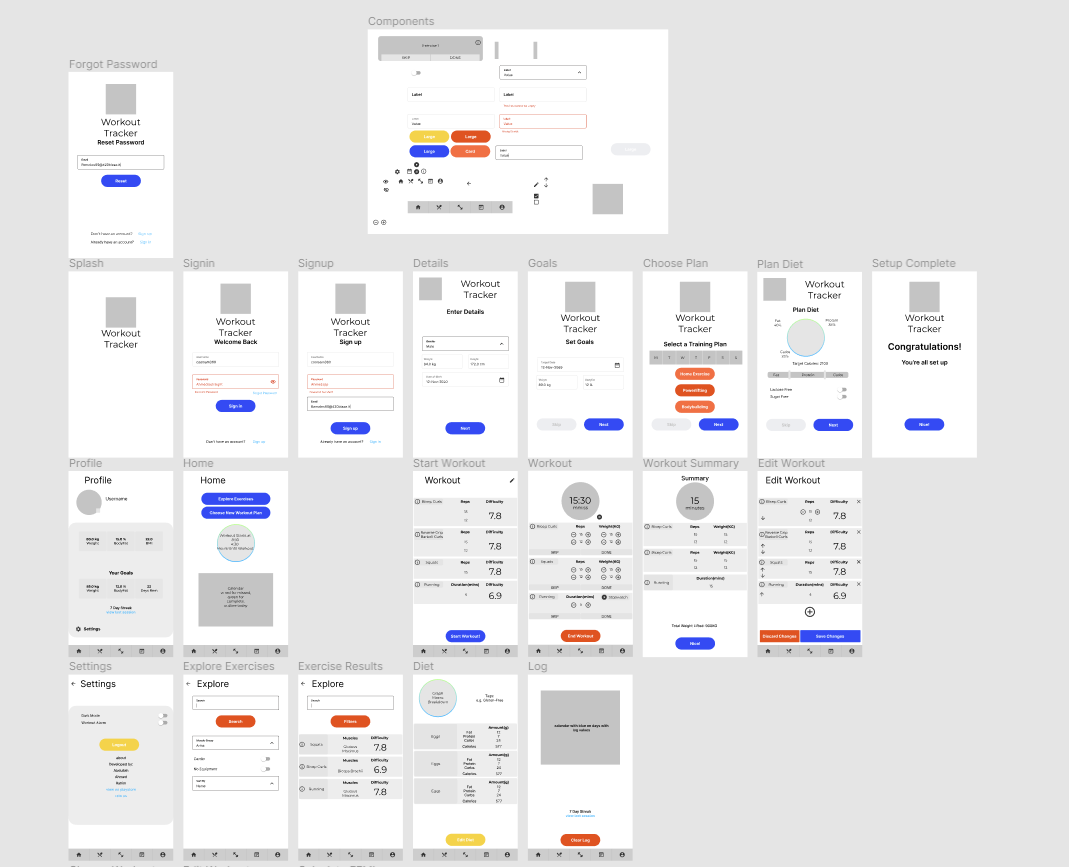


**Database Schema Design** (+ERD MongoDB)**:**



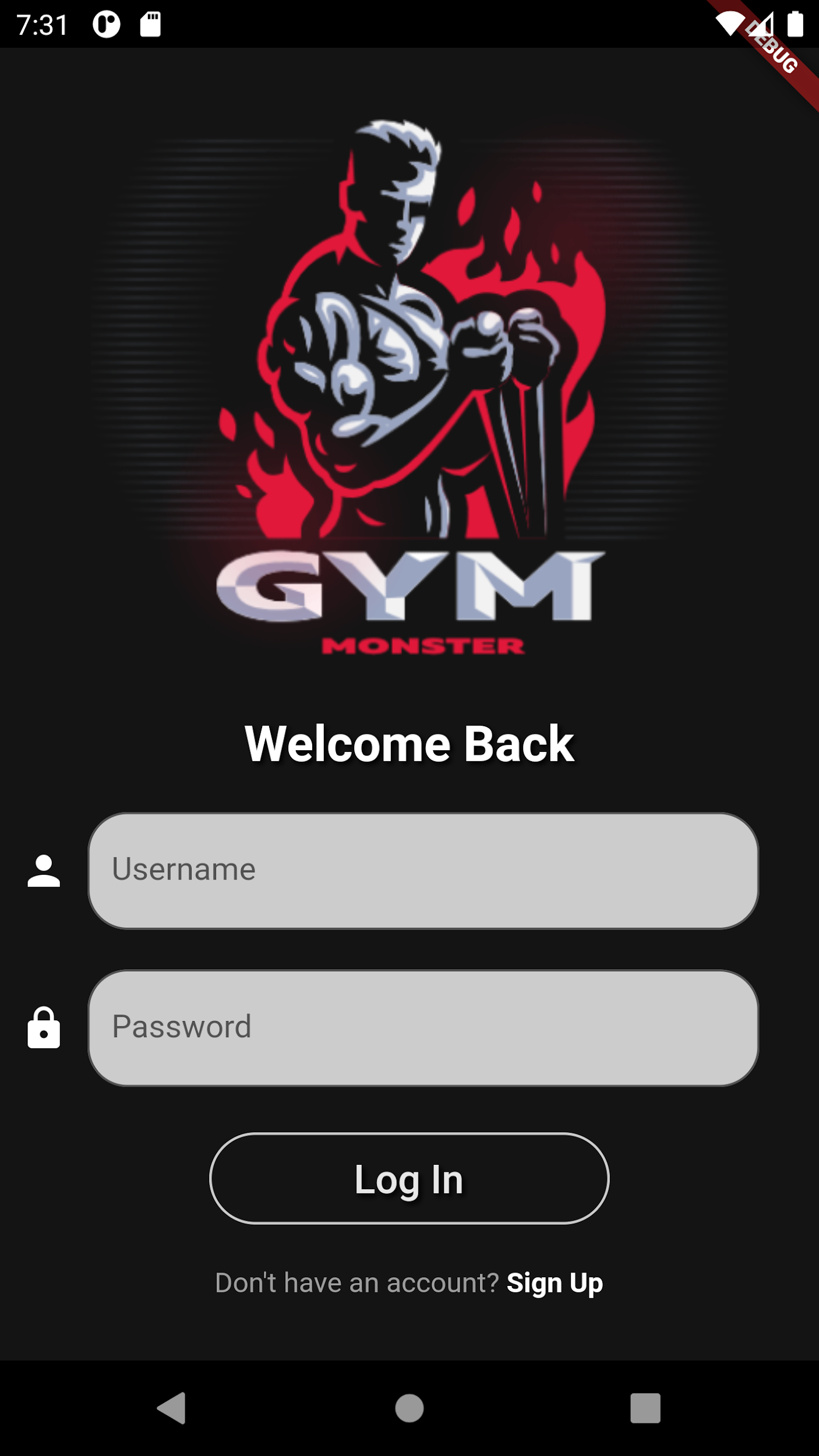
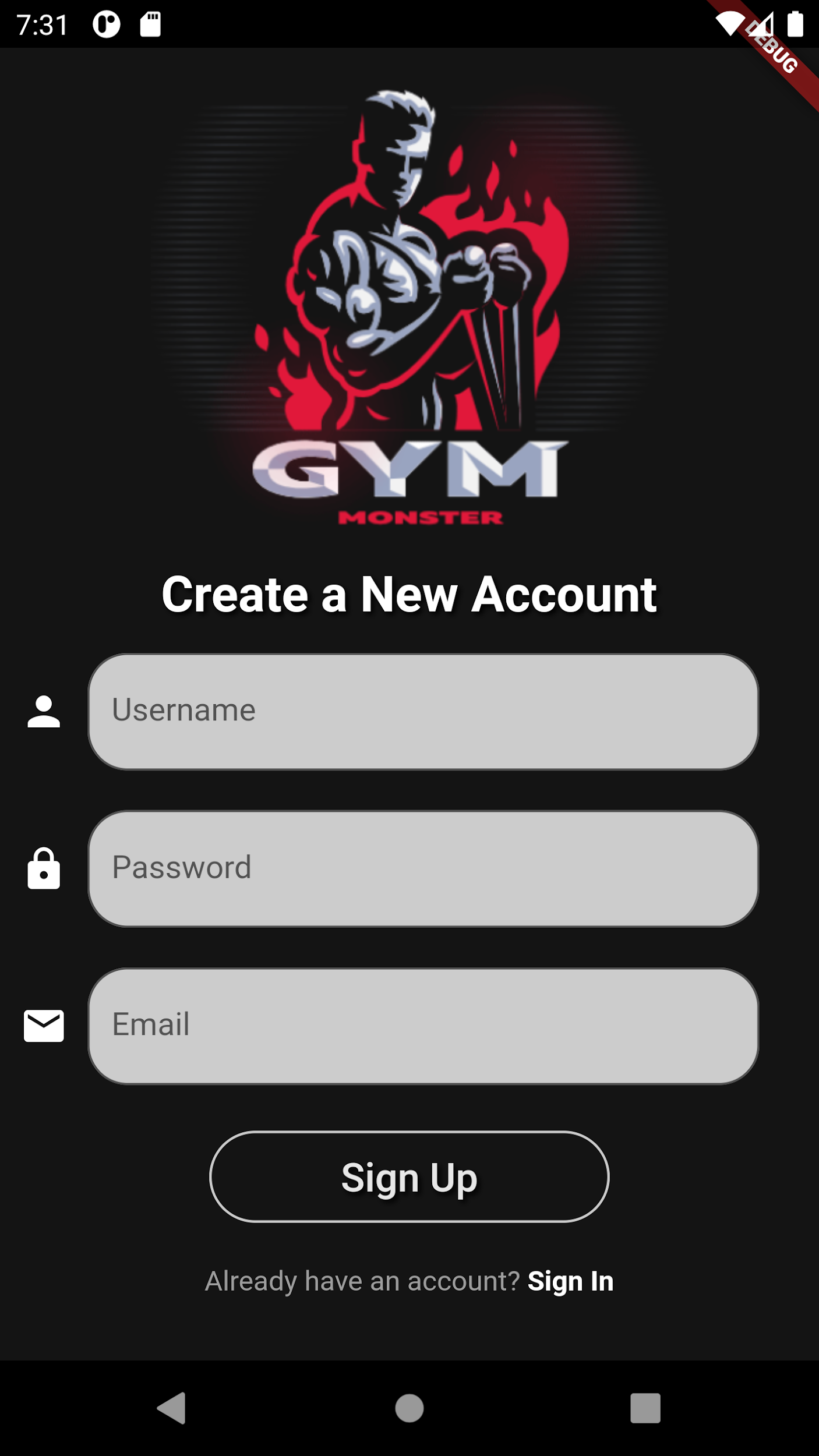
**Main Features:**

* Application UI Design

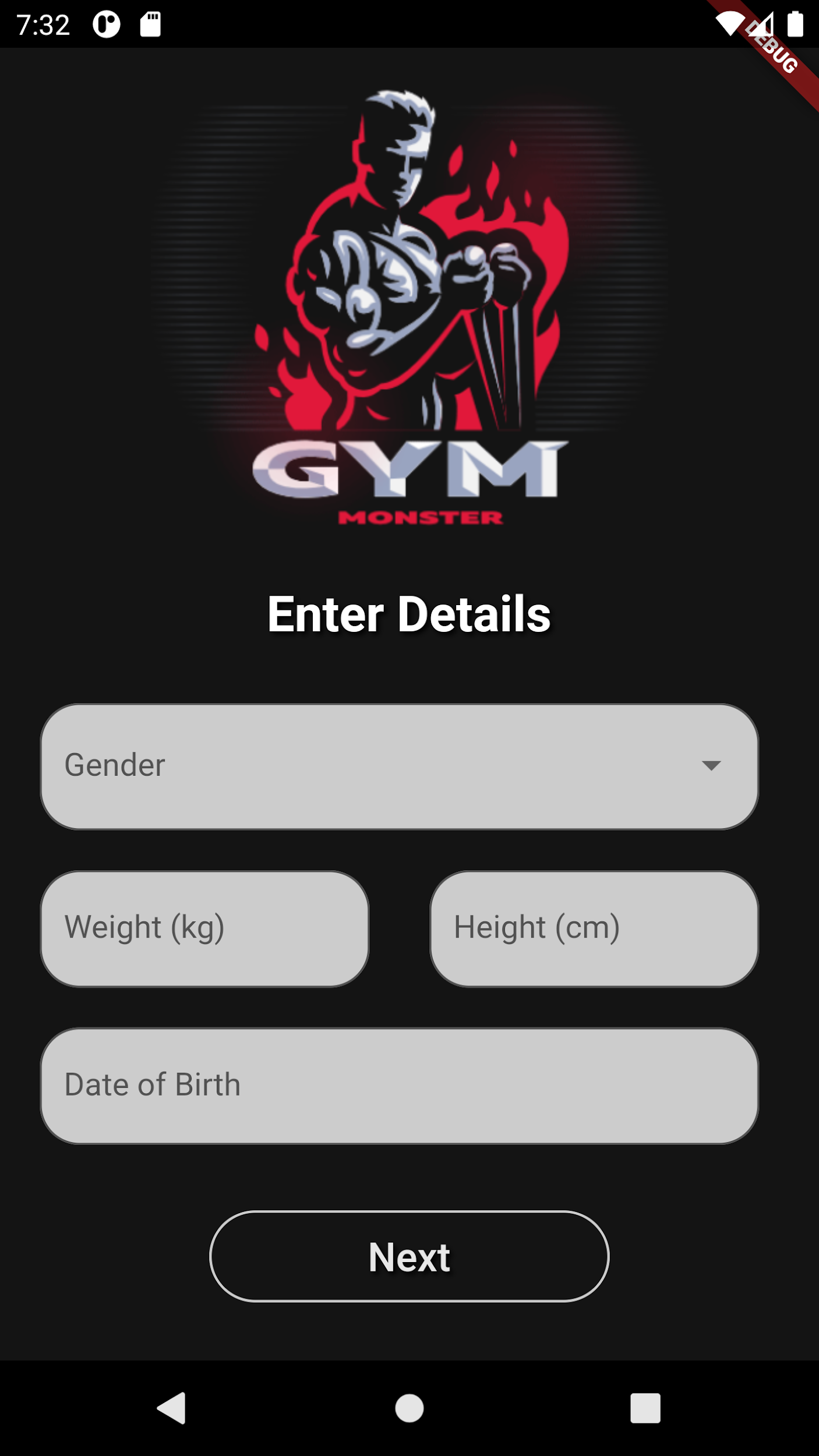
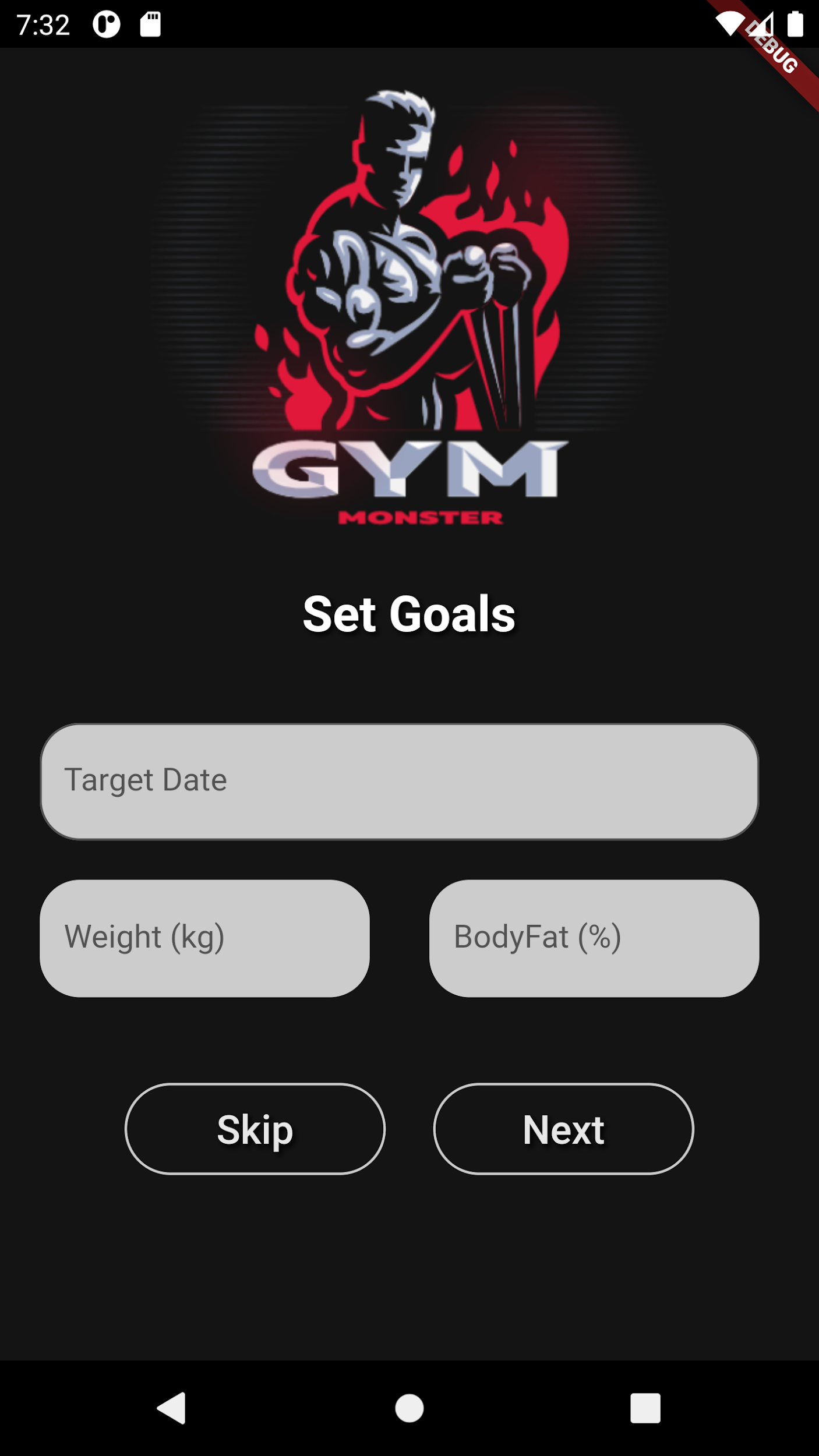


* Signup and Signin

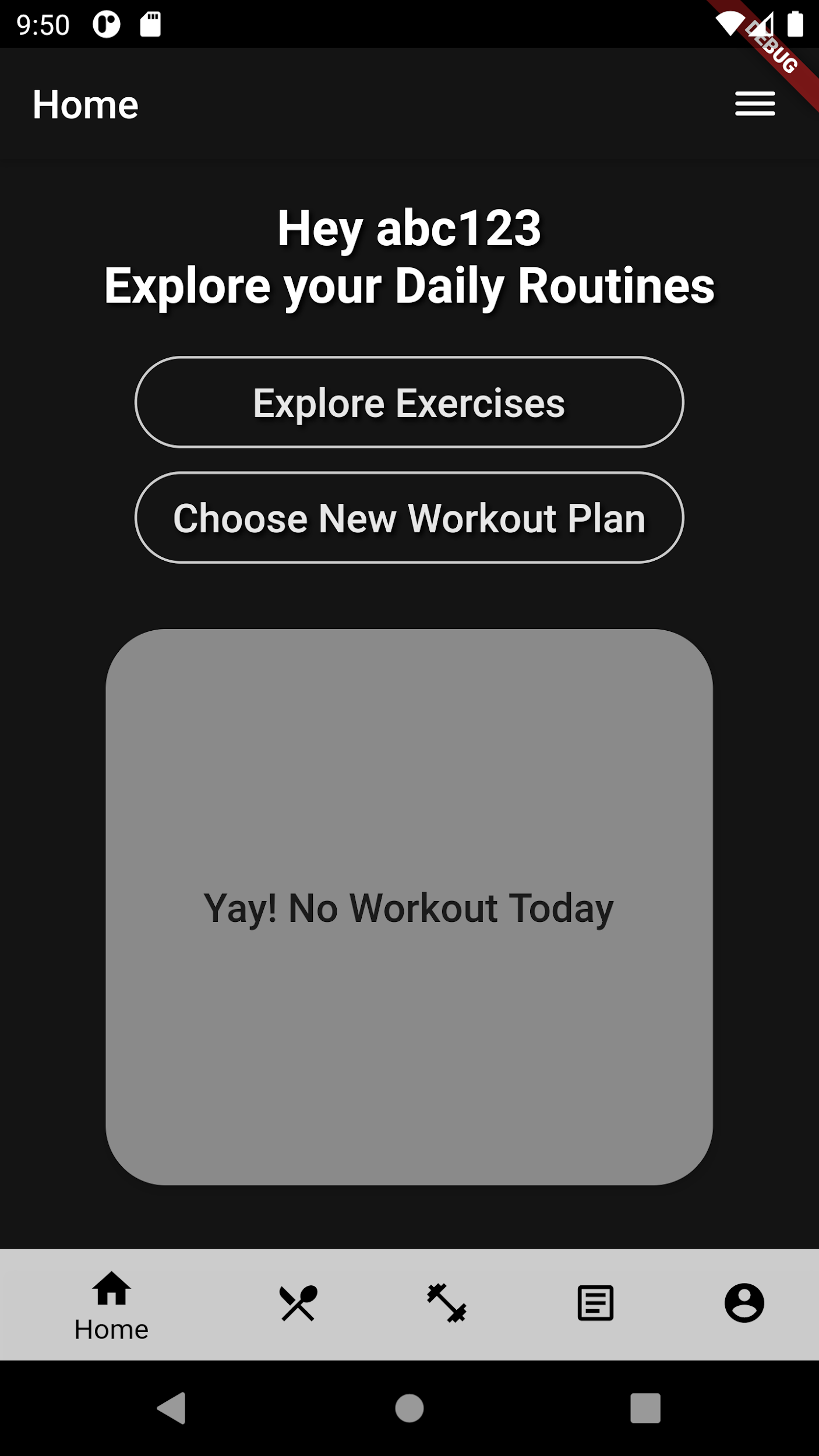
The user data is stored in the form as shown below. Each user is given a unique id and every username is unique in itself. This is done by validation on the frontend which fetches and checks for already existing mail and username in the database.

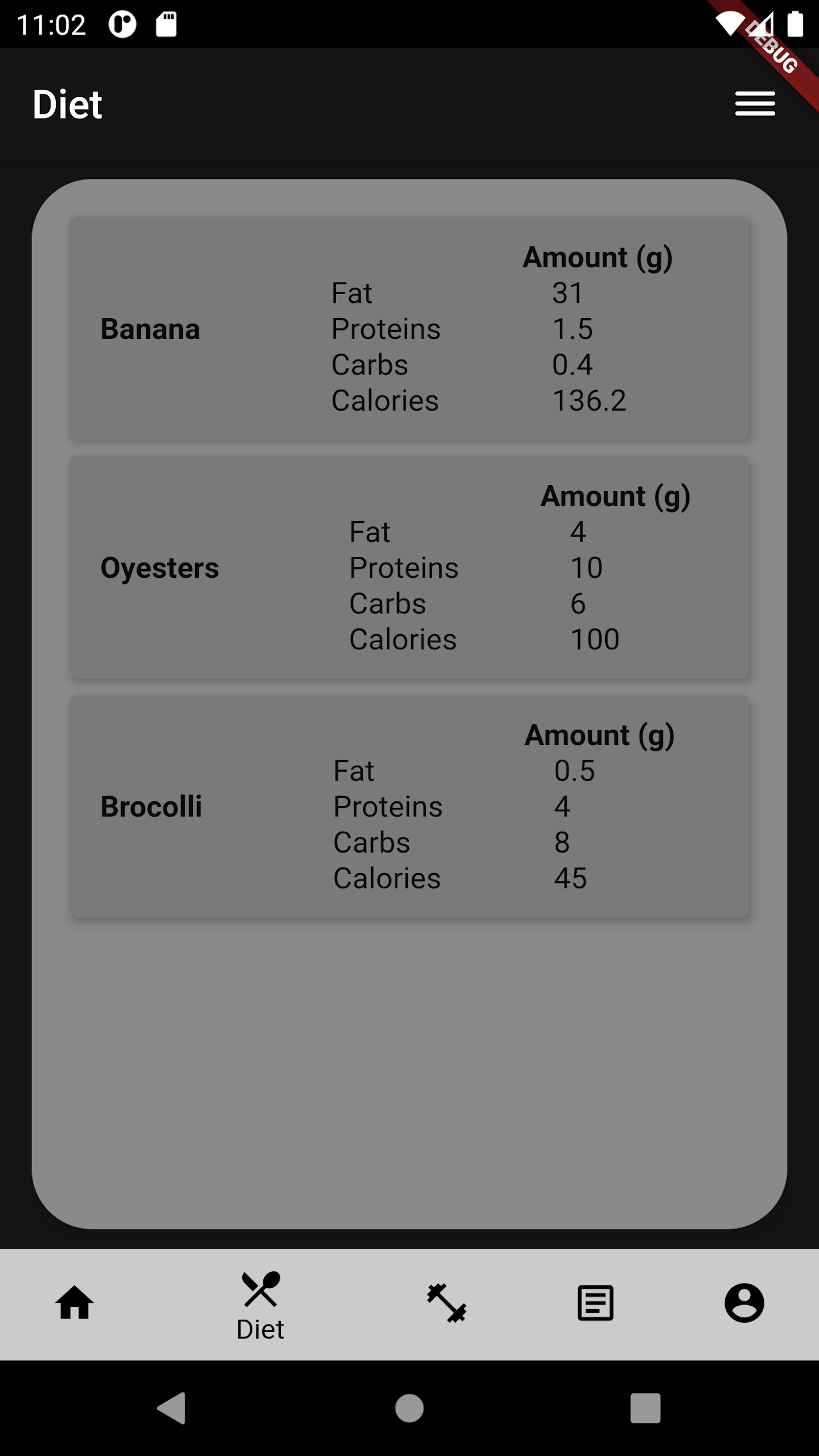


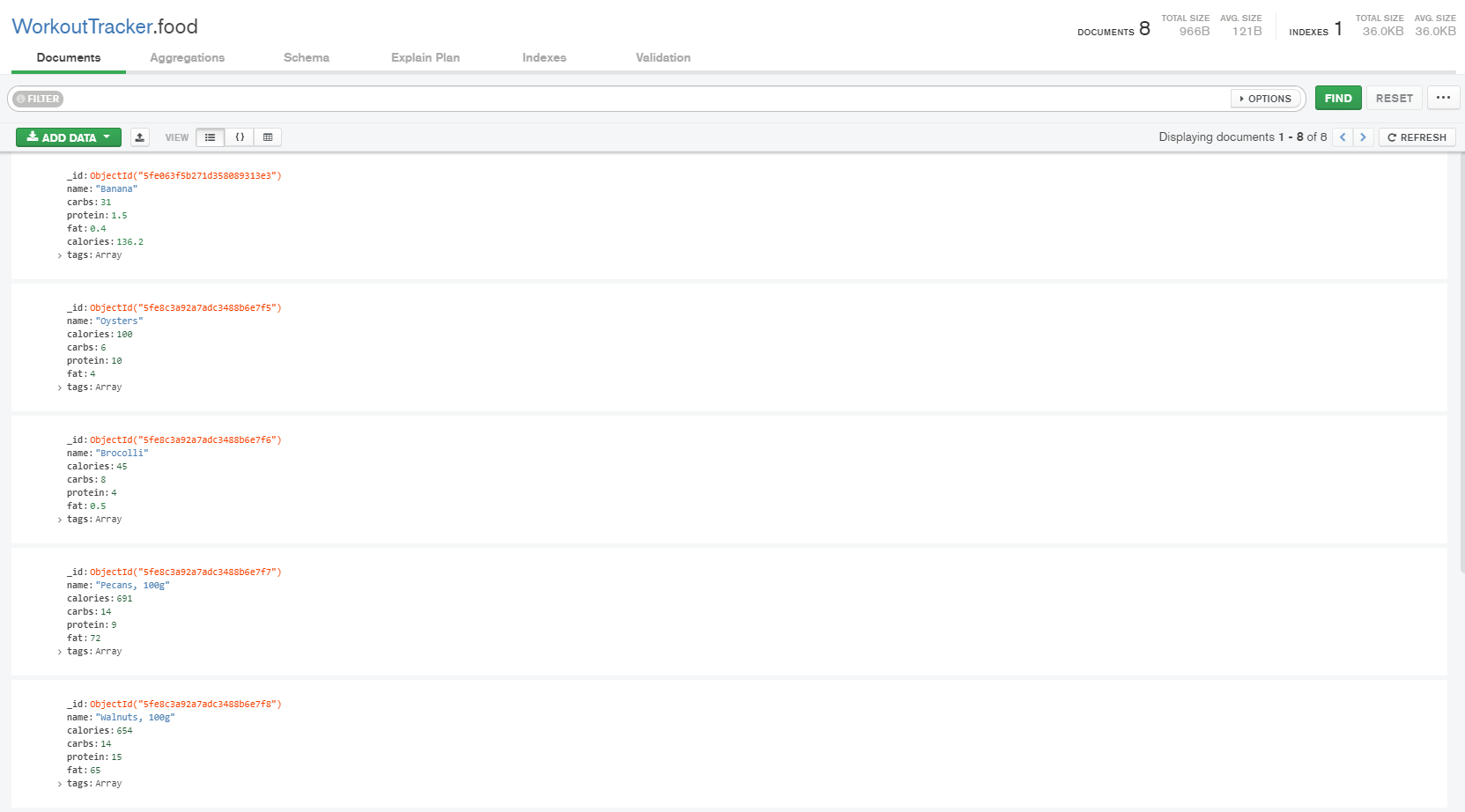
 

Once signed in the user is directed to a homepage from where he can navigate throughout the app using the bottom navigation bar.



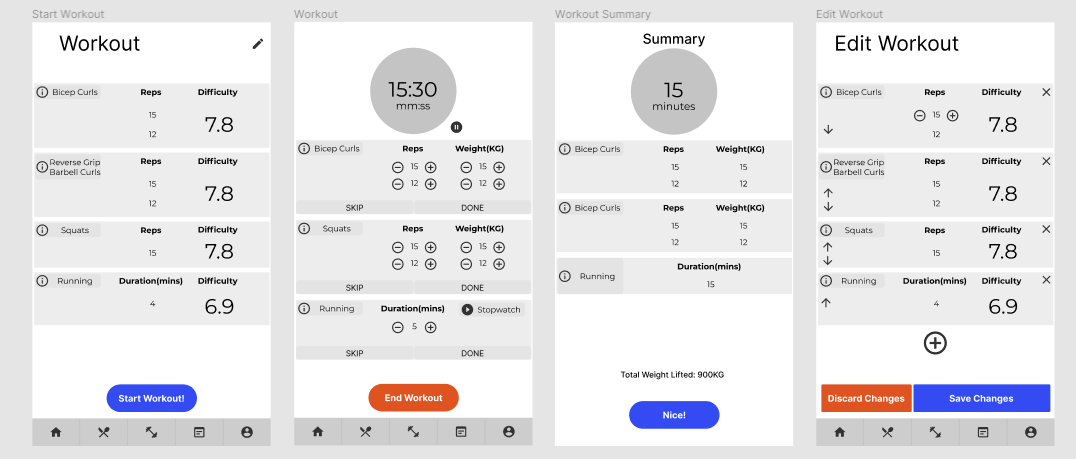
* Diet Plan

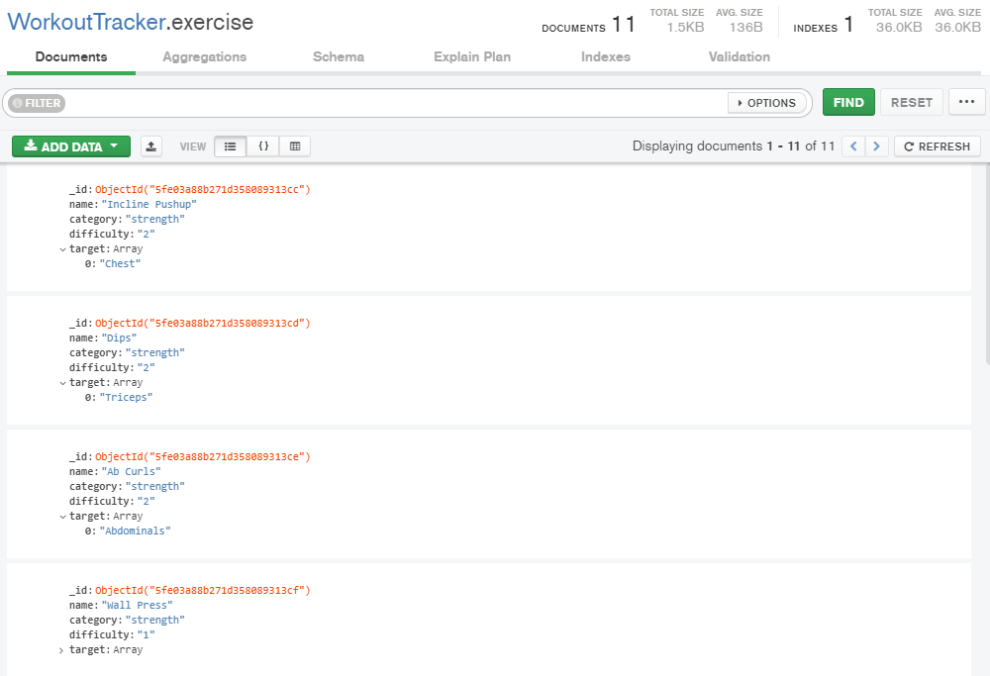




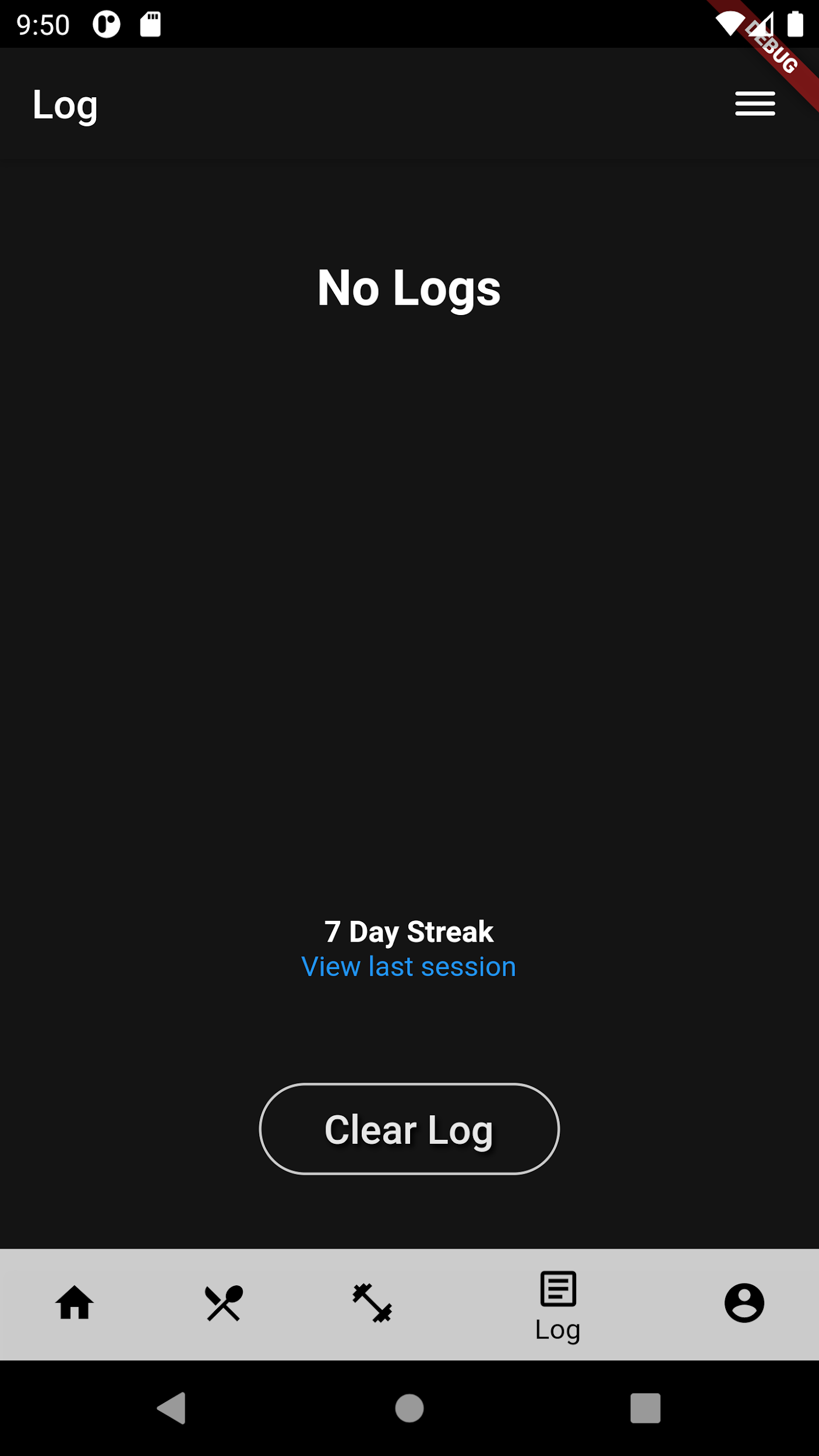
* Workout

Workout navigation shown below.

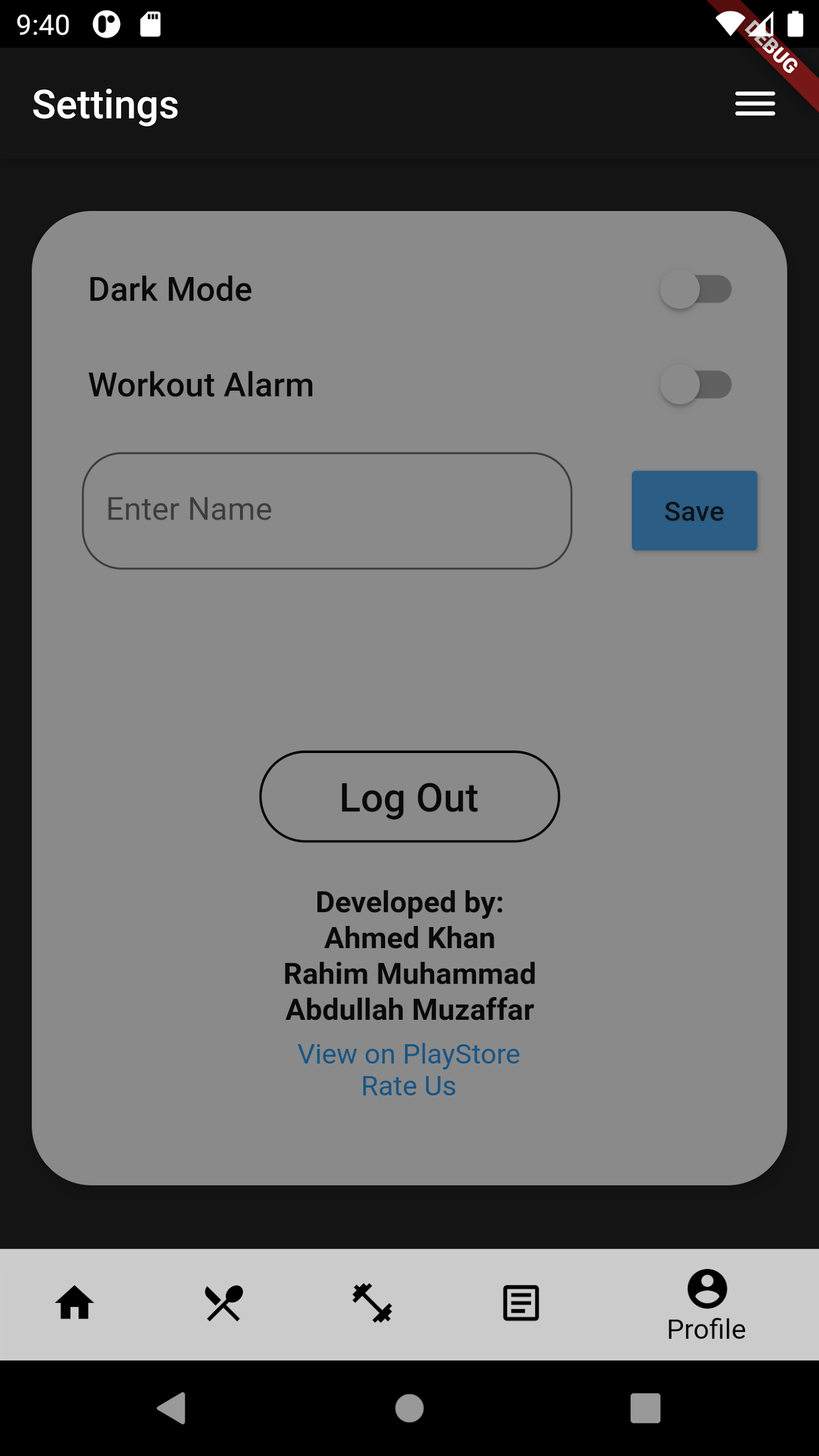
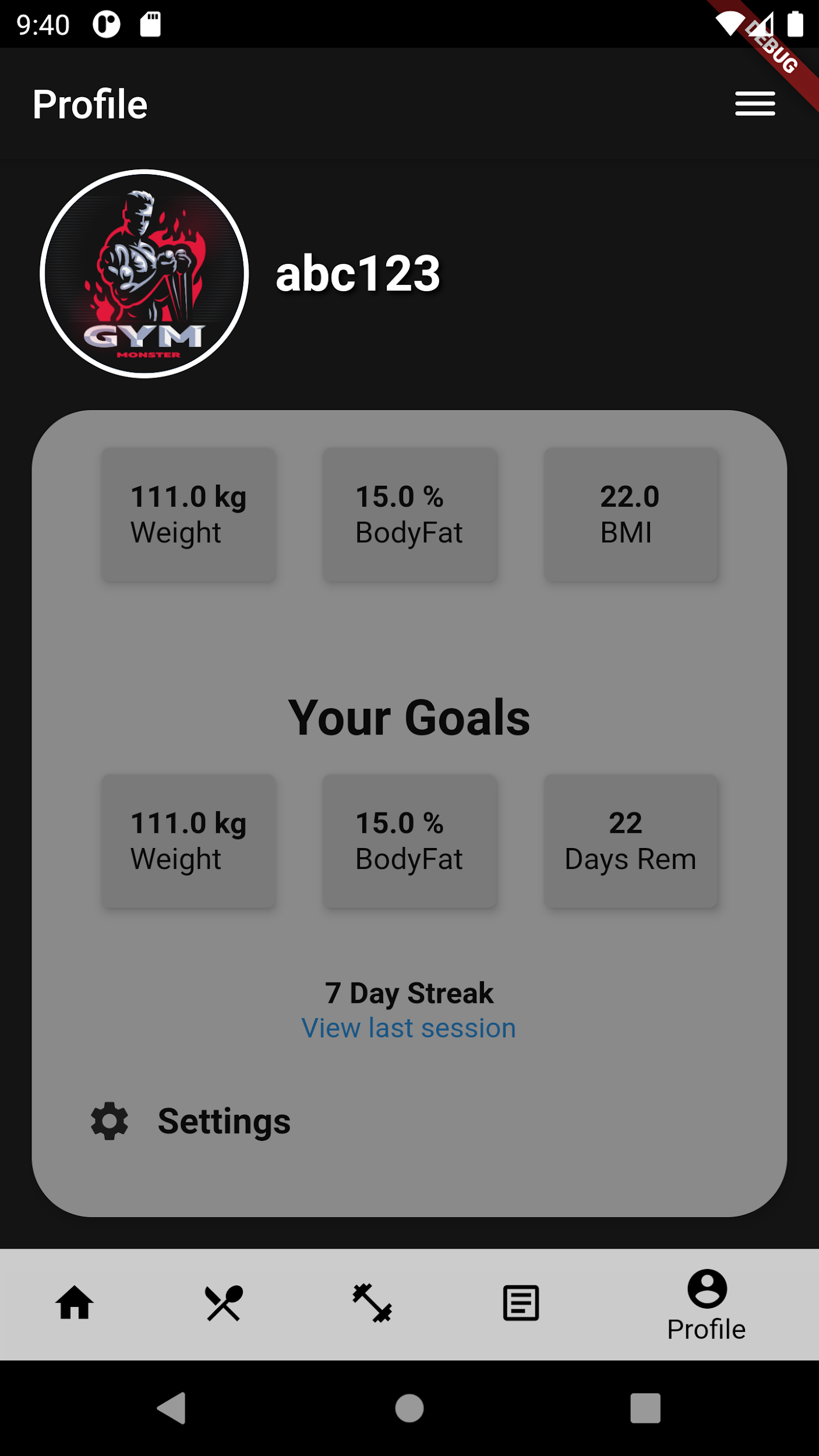




* Logs



Profile settings can be edited.

Sample User Document (JSON):

{

"\_id": {

"$oid": "5fdbec1aaec3eb3c70b801d6"

},

"username": "Darkness",

"hash": "$6$mHabWT8Hc6sxORGY$.svNi7kK3oeBR3s1hmdKpjRSceflR6fzlMKLgrvxMVloiiU6sXj188jVF1C2Vlxdli4RQKCsfa.jPUgourVia0",

"email": "dustiness@ksuba.jp",

"name": "Dustiness Ford Lalatina",

"birthdate": "12/06/1995",

"gender": "Female",

"stats": {

"height": "177",

"weight": "76",

"bodyfat": "22"

},

"log": [{

"date": "12-11-2020",

"workout": {

"wid": null,

"ex": [{

"id": "ex1",

"reps": [1, 3, 4],

"weight": [4, 3, 6]

}, {

"id": "ex2",

"reps": [13, 3]

}, {

"id": "ex2",

"dur": [13]

}]

}

}],

"curr\_workout": null,

"curr\_diet": null

}

**Technologies Used**:

**IDE:**

● Android Studio

● Visual Studio Code

**Framework:**

● Flutter

**Language:**

● Dart

**Database:**

● MongoDB (Atlas)

**ERD and Schema Design:**

● Draw.io

● Moon Modeler

**UI Design and Prototyping:**

● Figma.com

**Back-end:**

● Dart (mongo\_dart, Sevr)

**Tools:**

● MongoDB Compass

● Postman

**Test Devices:**

● Android Emulator (Pixel 4, Nexus 6)

● Huawei Mate 10 Lite

● Infinix Note 4

● Oneplus 6

**Challenges and Issues:**

* Connecting the database to the application (Backend)
* Validation checks in place to ensure wrong data doesn’t get through
* Collaboration during COVID-19

**Solutions:**

* Using Serv package, an Express.js like utility for dart, along with mongo\_dart as driver and dio for http connection
* Using TextFormFields and validators, along with get requests to confirm existence
* Github for codesharing, Discord for Screensharing/Resources and Figma for UI Collaboration

**Links:**

* Github: <https://github.com/samuzaffar99/WorkoutTracker>
* Figma: <https://www.figma.com/file/lqy30oh813aDsEwhbkbQ3O/WorkoutTracker>

**References:**

* <https://stackoverflow.com/>
* <https://www.youtube.com/>
* <https://github.com/>
* <https://medium.com/>
* <https://flutter.dev/>
* <https://pub.dev/>
* <https://material.io/>