

Al-Najah National University



Faculty of Engineering and Information Technology

Computer Engineering Department

Graduation project 1

One Step fitness

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Abstract:

The aim of this app is to make your lifestyle healthier by tracking your food intake, water intake and workout pattern, our app provides health and fitness tips and guidelines, which help individuals in meeting their health goals. You can also get free workout or exercise ideas that help you to plan your workout routine easily.

This fitness app includes workout plans and videos with explanatory comments. It should be able to adapt to the user. For example, it should create an individual training plan depending on the goals and initial data, as well as tips on supplements and sports nutrition , and a calorie counter.

In addition to the fitness application, there will be a web page that enables the admin to control the application, it will be integrated, contains features, helps with the training plan and the notification system. There are similar ideas for this application, but what distinguishes this application is the ease of dealing with it as the user interface is clear, in addition to the ability of the admin to control the application.

Chapter 1:

1. Introduction

1.1 Statement of the problem:

The project focused on important problems:

- There are some individuals who are overweight or underweight and need a specific plan to help them get a healthy body.

- There are also those who suffer from high vital indicators such as cholesterol, glucose or blood pressure, so they need to know the amounts of fat and calories they eat in order to be able to determine the appropriate quantities of food.

1.2 Project Objective:

This project is intended to help people suffering from overweight or underweight by creating an application that help them to do sports according to their bmi also it helps them to know the amount of calories in food.

1.3 Project Scope:

The project helps people suffering from overweight or underweight. The application offers them full support in resolving their problems in a variety of ways.

1.4 Project Importance:

The same idea has been incorporated into many applications, but our application combines two ideas, which are exercise and help the user track the amounts he eats in various types of diet, in addition to help him tracking the amounts of water he drinks daily.

1.5 Organization:

This report has organized as follows:

Chapter1: an introduction and overview about the importance and the scope of this project.

Chapter2: shows the problems and constraints that have occurred in this project.

Chapter3: Literature Review.

Chapter4: Programming languages that were used, Tools, Explains some of the features of the application, Mobile application and the website.

Chapter5: Conclusion .

Chapter 2:

Constraints and Earlier coursework

2.1 Constraints:

2.1.1 Programming language Constraint:

We have spent a long time choosing which programming language to use since this is the first time we are building a mobile application.

2.1.2 Finding datasets Constraint:

We struggled to find datasets to help us throw out the application building it properly.

2.2 Earlier coursework, topics:

Building our application more efficiently and effectively was made easier by gaining experience with Node-JS and MVC architecture from our Advanced Software Engineering course in addition to flutter course.

Chapter 3:

Literature Review

To determine which service is best to use and how to use it, we looked at “*lose weight*” and “*keto diet tracker*” taking notes to design the most effective application. Also, we looked into what was lacking from those applications so we could be different and more effective.

On “*lose weight app*” this app was only intended to provide an exercise plan.

Regarding “*keto diet tracker*” it’s an application help user to track what they eat only in keto diet .

But our application worked to integrate the two features together with more diet types, in addition to the existence of a web page that enables the admin to change the types of food, add or delete specific exercises.

Chapter 4: Methodology

4.1 Tools, Methods and Programming Languages:

4.1.1 Programming language:

Our application was built using three different languages:

- Flutter for the frontend.
- Node-JS for the backend.

4.1.2 Tools:

- Visual Studio Code
- Flutter .
- Node-JS .
- Real device to testing our project.

4.1.3 Database:

We used MongoDB “Atlas” database and the needed table are as follows:

Collection Name	Documents	Logical Data Size	Avg Document Size	Storage Size	Indexes	Index Size	Avg Index Size
bmis	2	231B	116B	36KB	1	36KB	36KB
carbs	59	6.62KB	115B	36KB	1	36KB	36KB
diets	2	216B	108B	36KB	1	36KB	36KB
foods	8	1.1KB	141B	36KB	1	36KB	36KB
ketos	67	7.7KB	118B	36KB	1	36KB	36KB
mytables	4	364B	91B	36KB	1	36KB	36KB
normals	10	2.27KB	233B	36KB	1	36KB	36KB
overs	40	9.38KB	241B	44KB	1	36KB	36KB
paleos	63	7.01KB	114B	36KB	1	36KB	36KB
raws	61	6.8KB	115B	36KB	1	36KB	36KB

System Status: All Good

Our Database consists of many tables, as each table is dedicated to storing a specific thing

Figure 1.Database

unders
users
vegetarians

```
_id: ObjectId('638e24069da43bb431ed4eb2')  
email: "zainmhamad2000@gmail"  
password: "zain"  
__v: 0
```

Users table used to save users account .

Figure 2. User account example

test

bmis

carbs
diets
foods
ketos
mytables
normals
overs
paleos
raws
sugars

FILTER { field: 'value' }

```
age: 25  
name: "zain"  
__v: 0
```

```
_id: ObjectId('638e24289da43bb431ed4eb4')  
email: "zainmhamad2000@gmail"  
weight: "51.4"  
height: "160"  
age: "22"  
name: "zoz"  
__v: 0
```

Figure 3. BMI table

BMI Table used to save elements that we need from each user to determine their BMI .

diets

foods

ketos

mytables

normals

overs

paleos

raws

sugars

unders

users

INSERT DOCUMENT

FILTER { field: 'value' } ▶ OPTIONS Apply Re

QUERY RESULTS: 1-2 OF 2

```

_id: ObjectId('63bbe30a64bbb1eee09eb666')
email: "zainzain"
num: "1"
keto: false
paleo: false
vegetarian: false
raw: false
carb: true
sugar: false
__v: 0

```

Figure 4. Diets table

Diets table is used to save the type of diet that each user choose .

carbs

diets

foods

ketos

mytables

normals

overs

foods

ketos

mytables

normals

overs

overs

paleos

raws

sugars

overs

paleos

raws

sugars

```

_id: ObjectId('63975f2f06e1ca487ab3a524')
name: "Chicken"
weight: "100"
fats: "3.6"
protein: "31"
calories: "165"
__v: 0

```

```

_id: ObjectId('6390a1d7bb6d3633f4308268')
name: "Sablefish"
weight: "100"
fats: "19.6"
protein: "17.2"
calories: "250"
__v: 0

```

```

_id: ObjectId('6396378469d2974f8e175486')
name: "Beef"
weight: "100"
fats: "49.6"
protein: "21.5"
calories: "550"
__v: 0

```

```

_id: ObjectId('63972e105677cb7ca5db72ff')
name: "Asparagus"
weight: "100"
fats: "0.2"
protein: "2.4"
calories: "22"
__v: 0

```



Figure 5. Diet Types table

These tables used to save foods for each kind of diet.

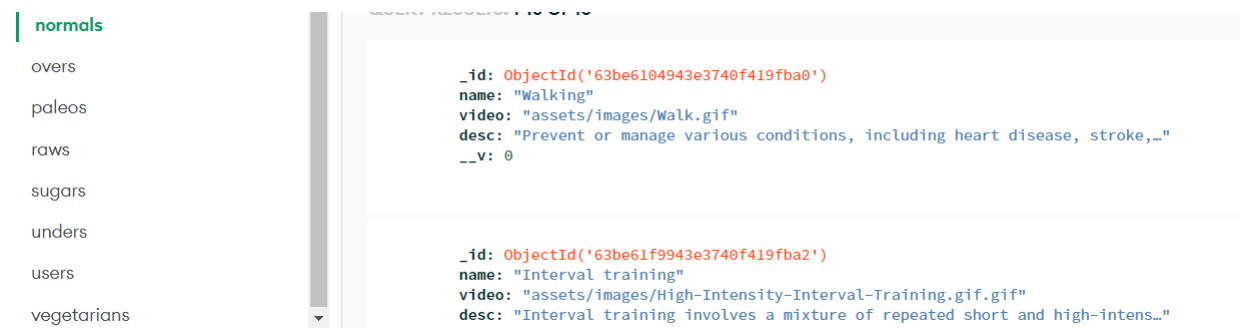


Figure 6 Normal weight table

This table is used to save the suitable exercises for normal weights.



Figure 7 Over weight table

This table is used to save the suitable exercises for over weights.

overs		<code>_id: ObjectId('63bdc1312646442261217966')</code>
paleos		<code>name: "Pull-ups"</code>
raws		<code>video: "assets/images/Shoulder-push-up.gif"</code>
sugars		<code>desc: "Primarily focus on biceps and latissimus dorsi."</code>
unders		<code>__v: 0</code>
users		<code>_id: ObjectId('63bdc1b02646442261217968')</code>
vegetarians		<code>name: "Crunches"</code>
		<code>video: "assets/images/crunches.gif"</code>
		<code>desc: "Target abdominal muscles and obliques."</code>
		<code>__v: 0</code>

Figure 8 Underweight table

This table is used to save the suitable exercises for underweights.

QUERY RESULTS: 1-1 OF 1

```

_id: ObjectId('63c1ba736fae22ae9d677119')
name: "zainzain"
percent: "0.5"
__v: 0

```

Figure 9 Water table

And water table is used to save the amount of water drunk by each user.

4.2 System Features Implementation:

4.2.1 Sign up :

- *Introduction:*

First thing the user need to sign up to the application and to complete this operation she needs to answer number of questions.

- *Implementation*

To compute BMI for each user, we need to ask her many questions , only once , when she create account:

- 1- Age
- 2- Height
- 3- Weight

-Home page



OneStep Fitness

Nothing will work unless you do



Get started

Figure 10 Application home page

-Sign in and Sign-up pages

To sign in , the user must have account ,and she must make sure that the password is correct or she can't enter the application , if she doesn't have one , she must register on sign up page, and on both pages she must enter all field , or a warning message will appear.

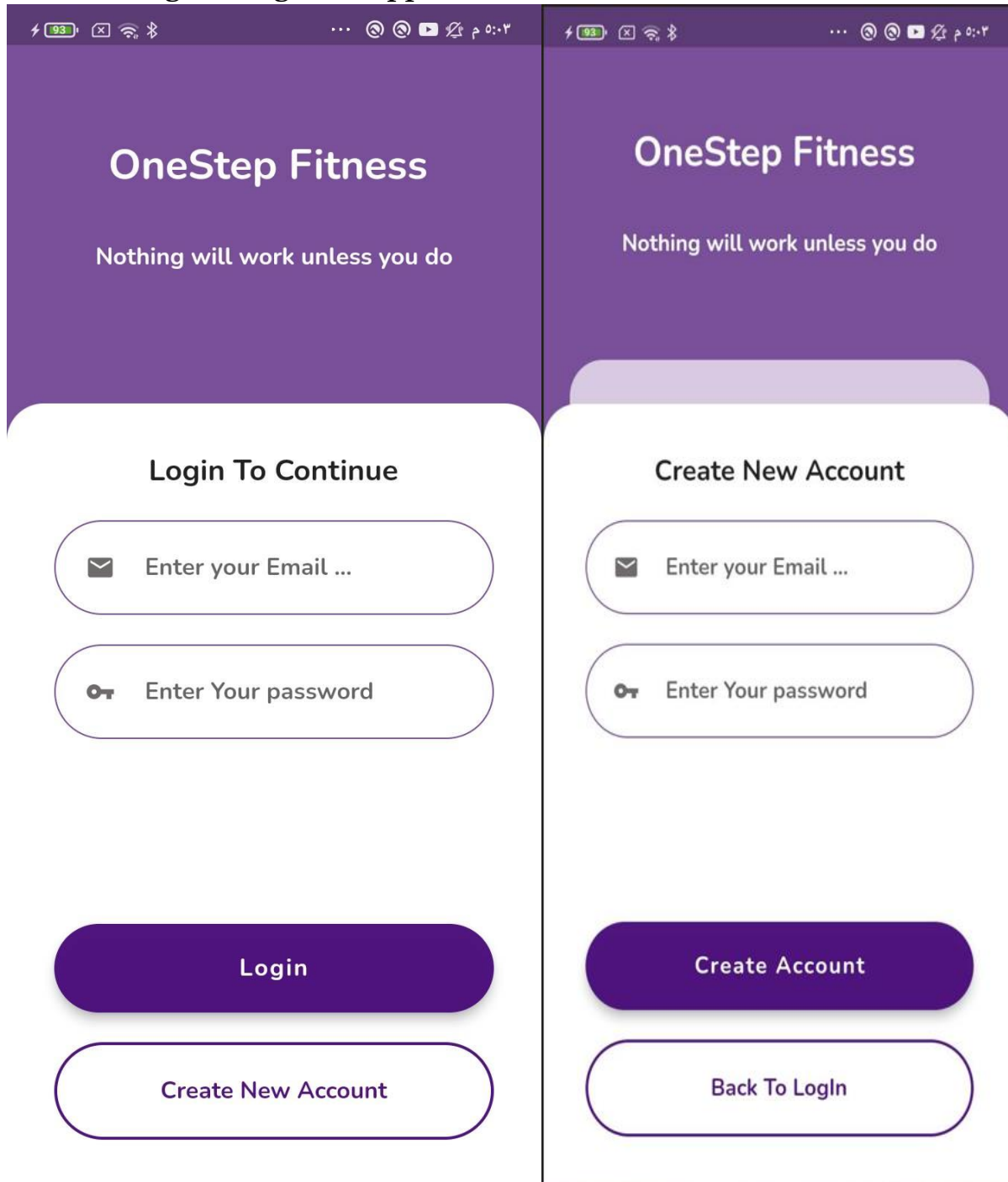


Figure 11 Application sign in page

Figure 12 Application sign-up page

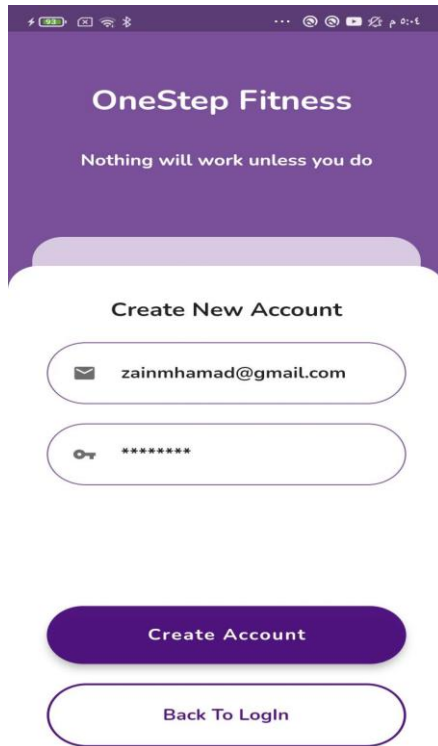


Figure 13 Sign up



Figure 14 Weight question

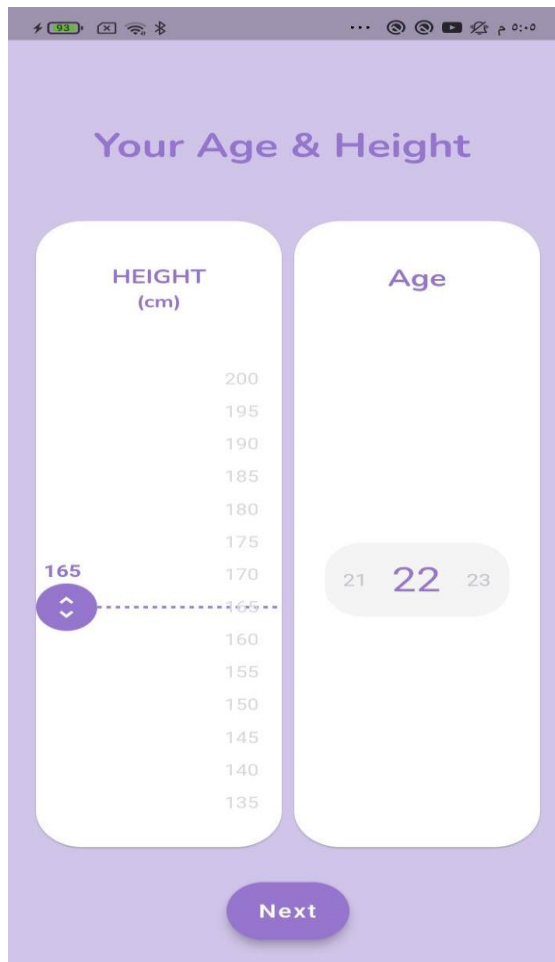


Figure 15 Age and height question

Then it will ask about name and finish questions .

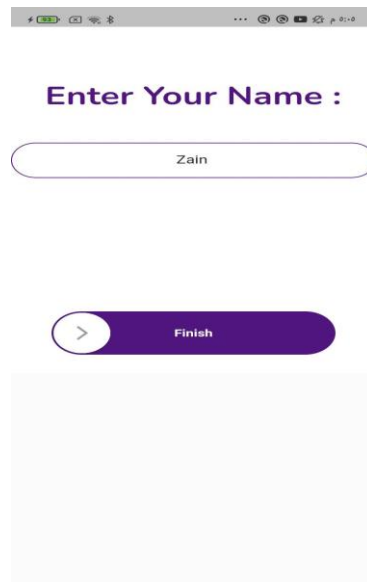
A screenshot of a mobile application interface. At the top, there is a status bar with various icons and the time 8:18. Below the status bar, the text "Enter Your Name :" is displayed in a purple font. Underneath this text is a rounded rectangular input field containing the name "Zain". Below the input field is a purple button with a white right-pointing chevron icon and the word "Finish" in white text. The bottom portion of the screenshot is a light gray rectangular area, likely representing a blurred or redacted section of the app.

Figure 16 Name question

4.2.2 Diet types :

From the main page the user have to choose one of 4 main sections , one of them diet types :

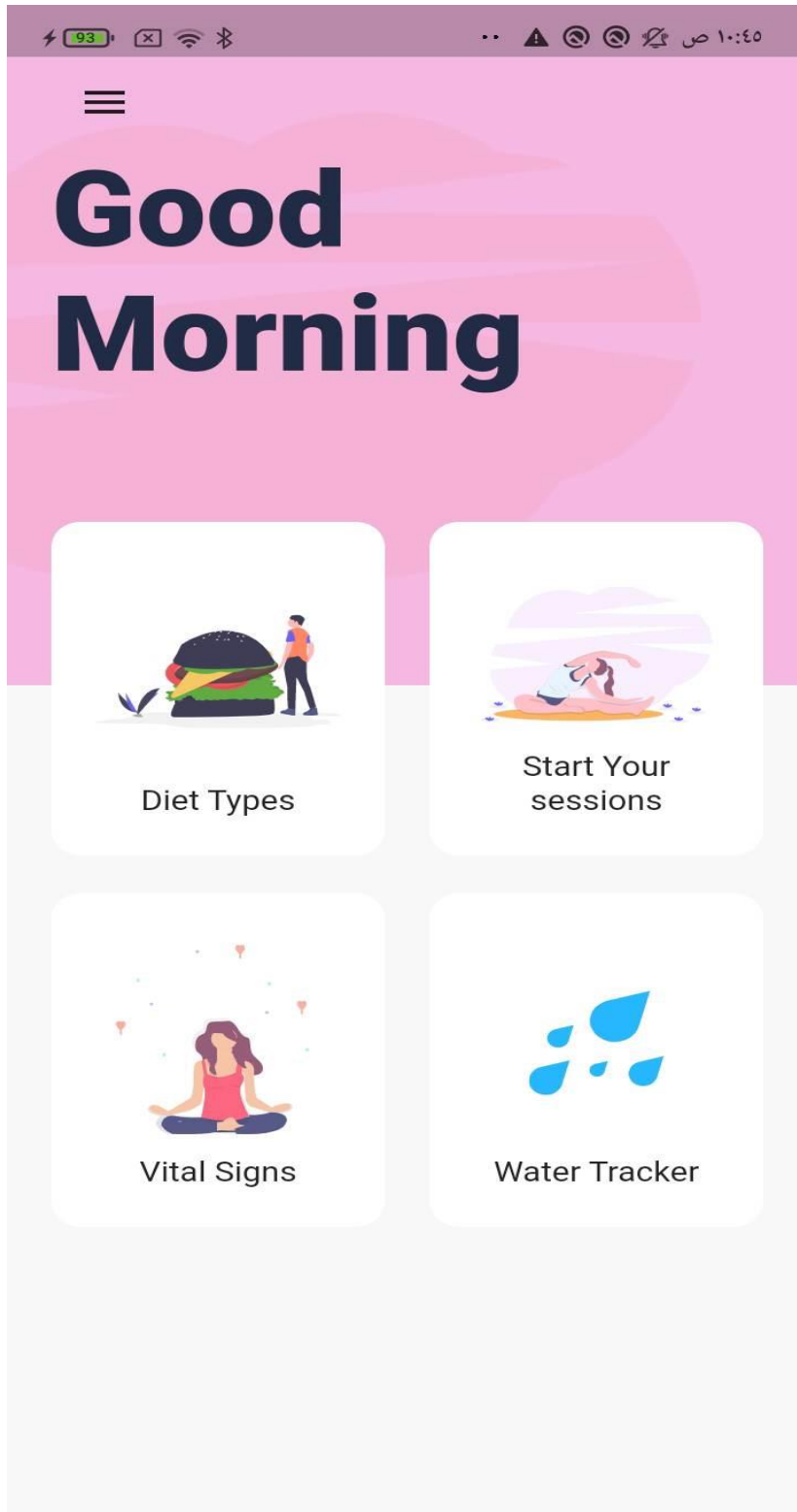


Figure 17 Main screen

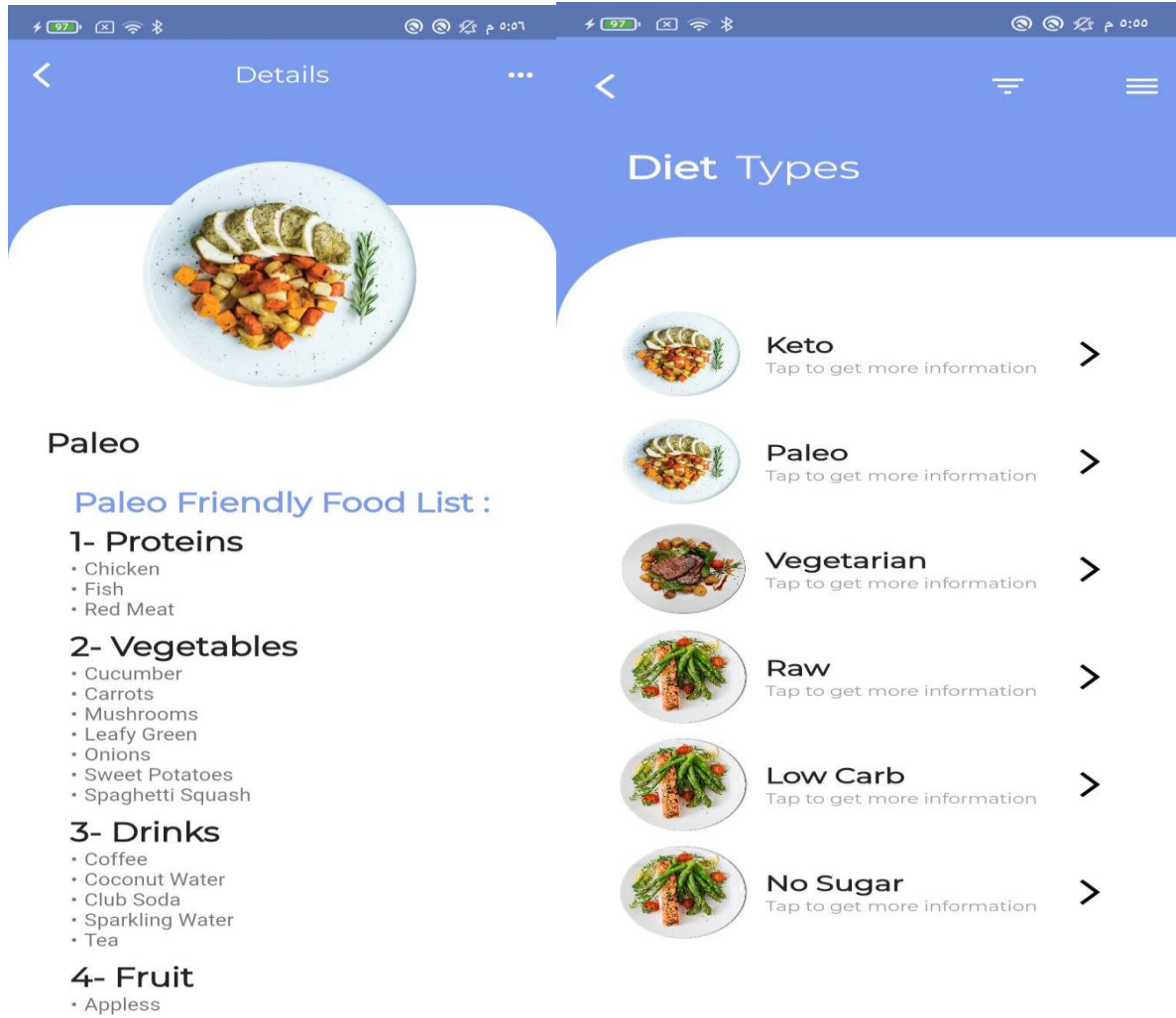
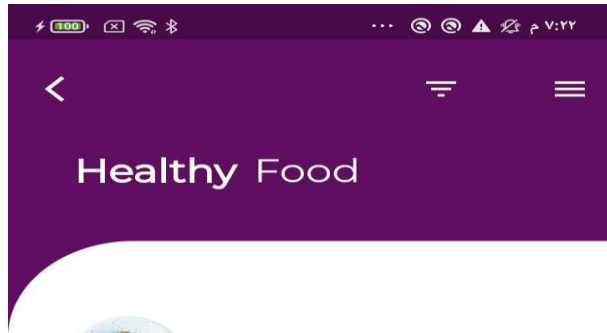




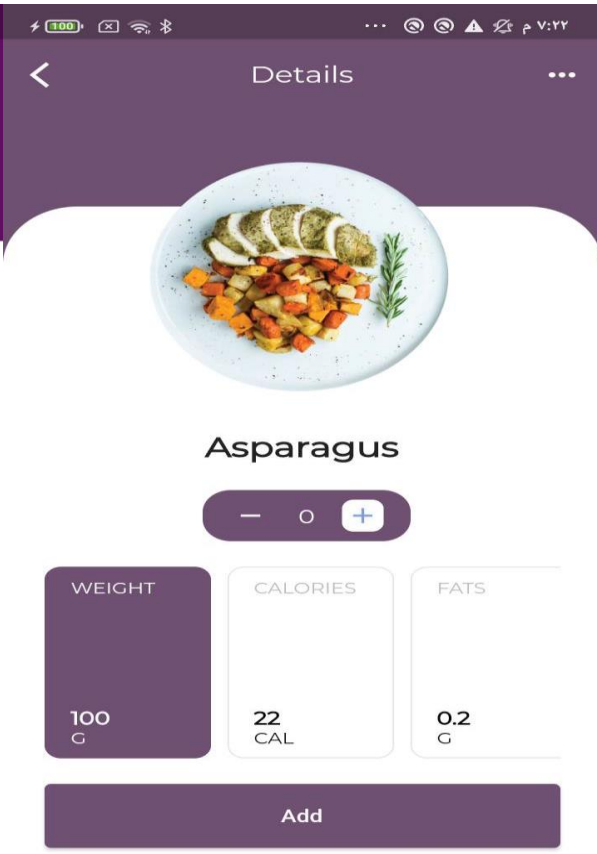
Figure 18 One of diet types "Paleo"

Figure 19 Diet types

Since user choose diet he want, the food of diet type will appear .



-  Arugula
-  Butter Lettuce
-  Cabbage
-  Chard
-  Collard Greens
-  Iceberg



WEIGHT	CALORIES	FATS
100 G	22 CAL	0.2 G

Figure 20 Foods inside paleo diet

Figure 21 Content of each food

Once user start add food he ate, the app starts track calories ,fats ,protein and the total amount will appear in vital sign page .

4.2.3 Vital Signs

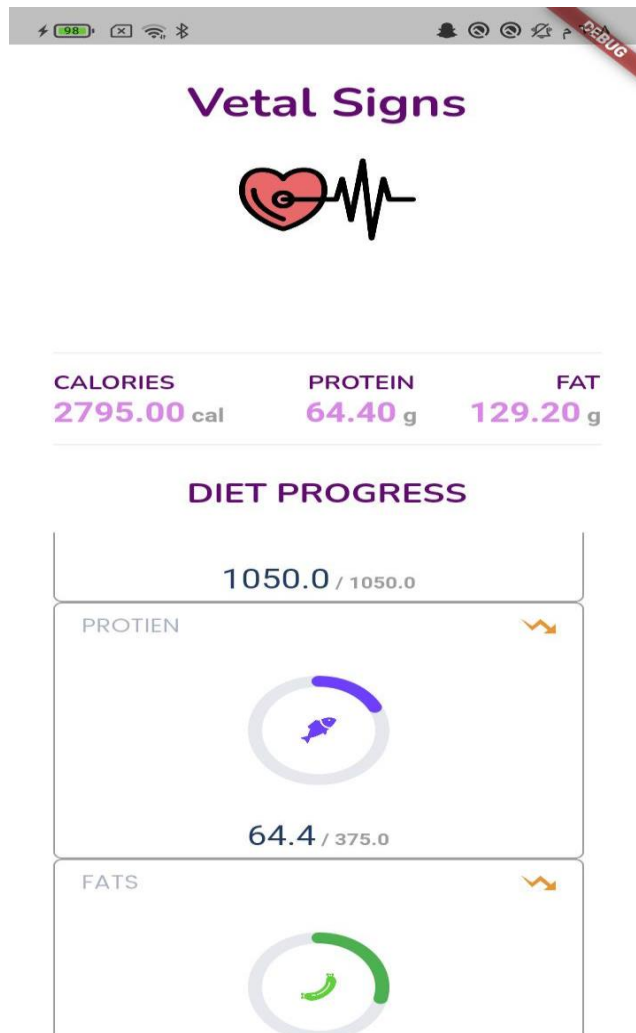


Figure 22 Vital sign page

This page tells the user how much fat, calories, the protein she has eaten, and each diet have an amount of total fat, calories, and protein and it will tell her if she exceeds the agreed amount.

4.2.4 Water Tracker

Other section can user choose from main page is water tracker, witch track the amount of water user drink, we consider total amount of water is (2.7)L for women, and if the user doesn't complete total amount, the notification will appear every 2 hours remained her to drink water and we use local notification for this feature .

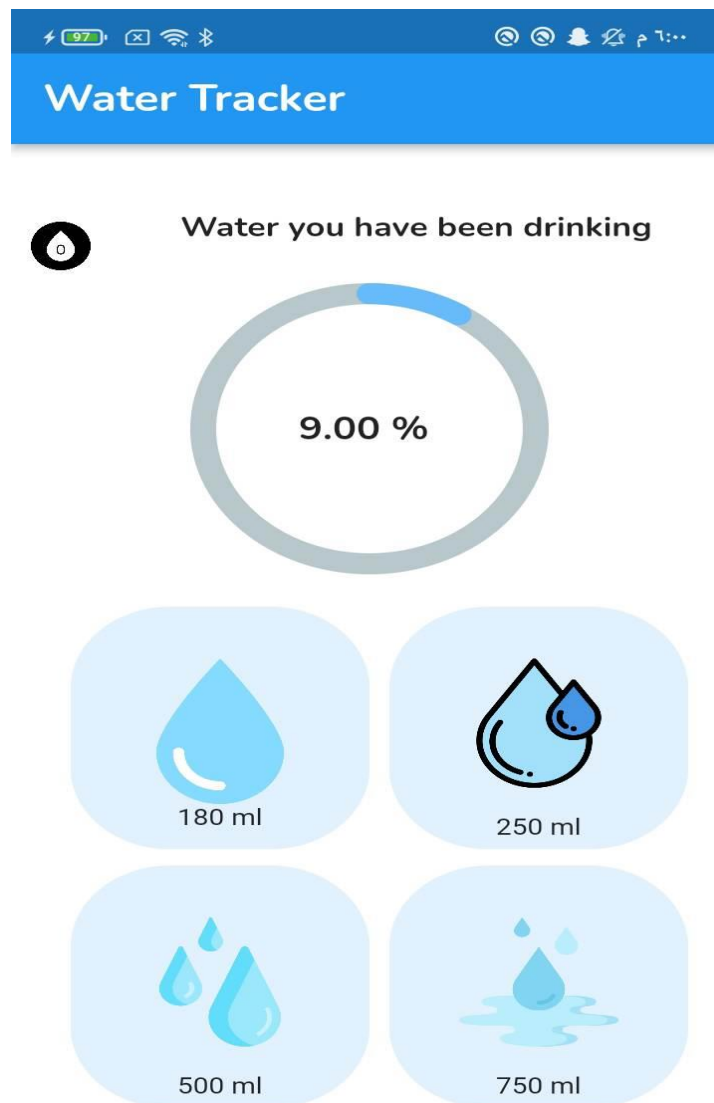


Figure 23 Water tracker

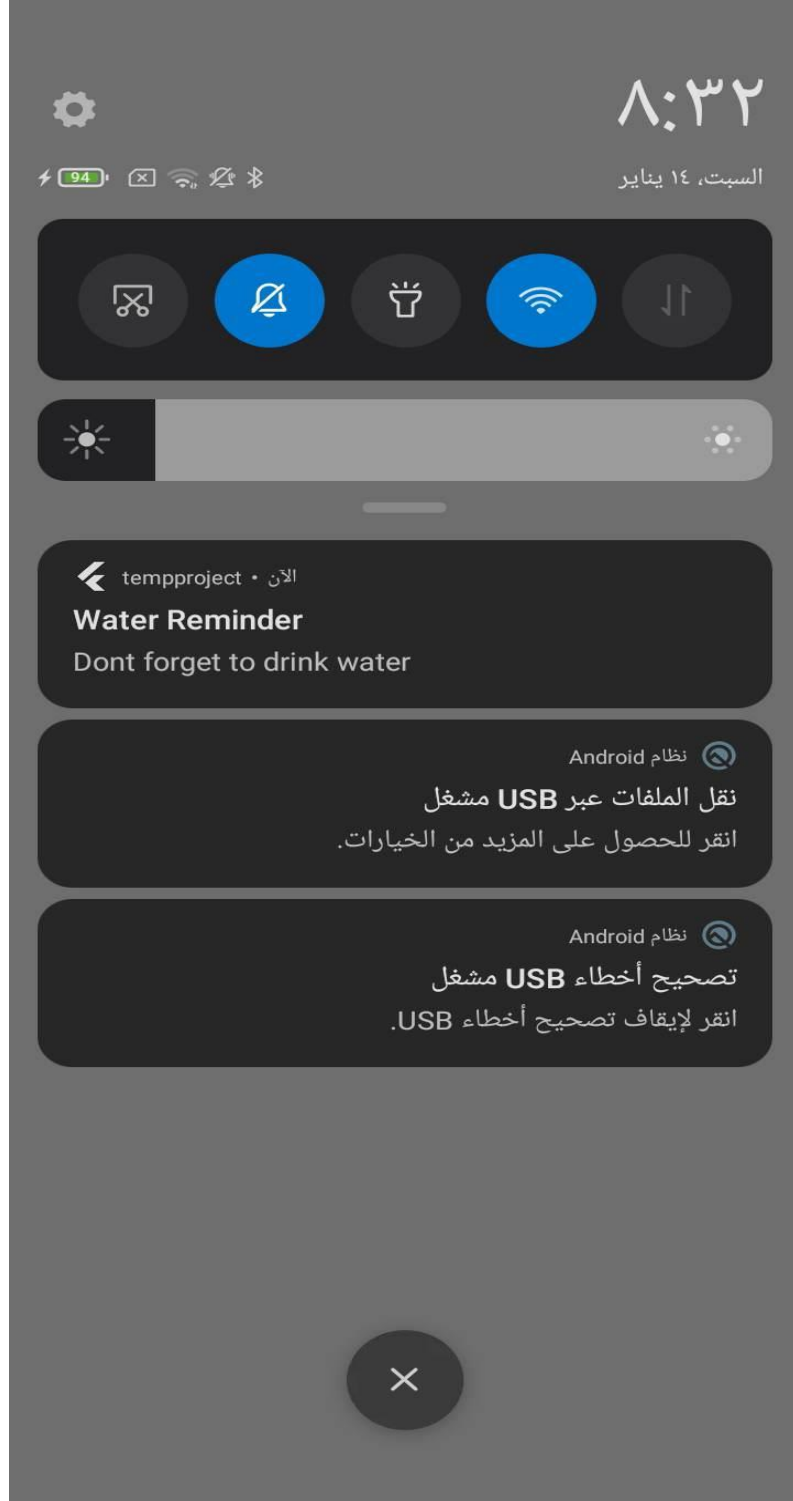


Figure 24 Water reminder

4.2.5 BMI Score:

First step we need to calculate BMI to put suitable plan for 30 days ,there are 3 types to treat with :

- 1- Normal
- 2- Over weight
- 3-Under weight

And for each kind we have plane .

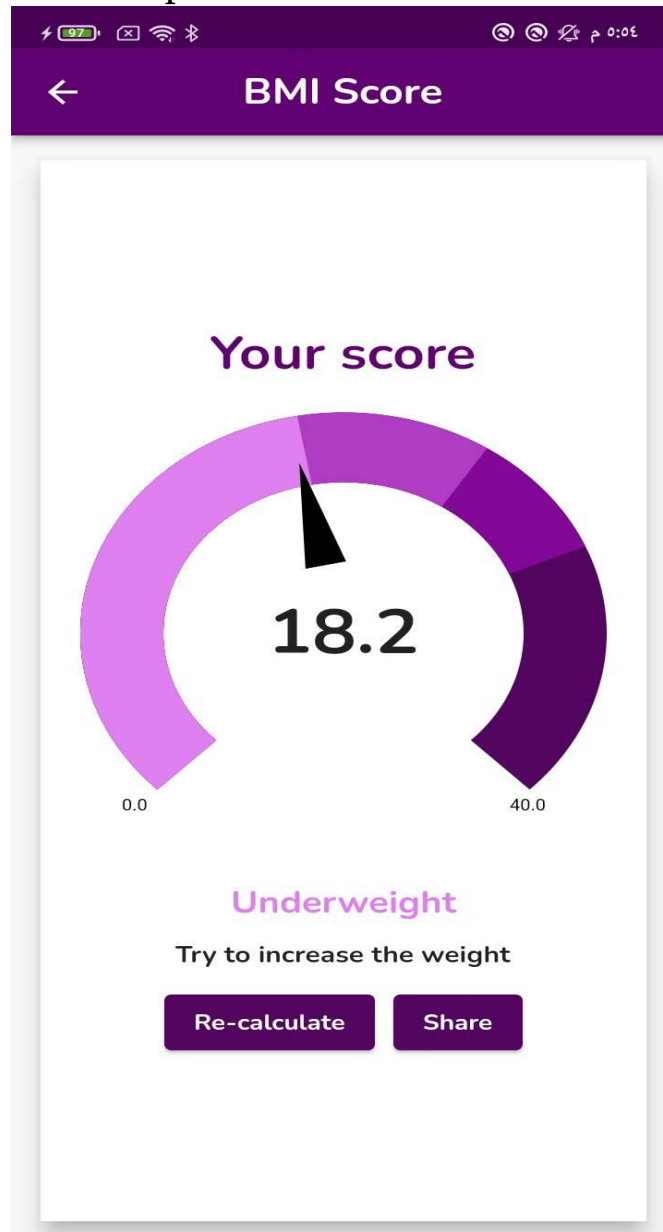


Figure 25 BMI calculator

4.2.6 Sessions:

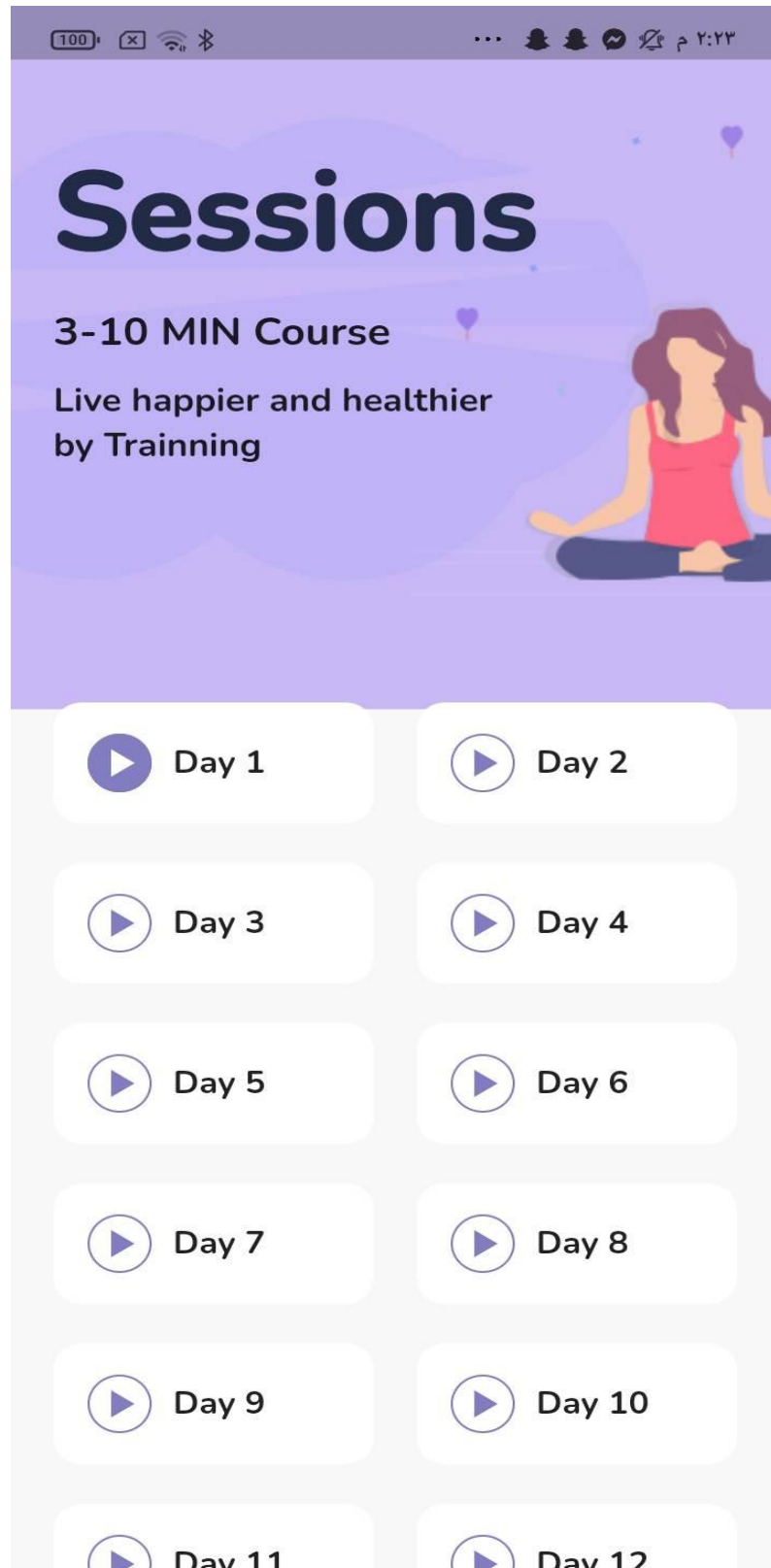


Figure 26 Days sessions

A training plan is created for a period of 30 days, and each day is opened when all exercises are completed on the previous day and 24 hours have passed since the end of the previous day .

When you open the day you are in, the plan of exercises will appear

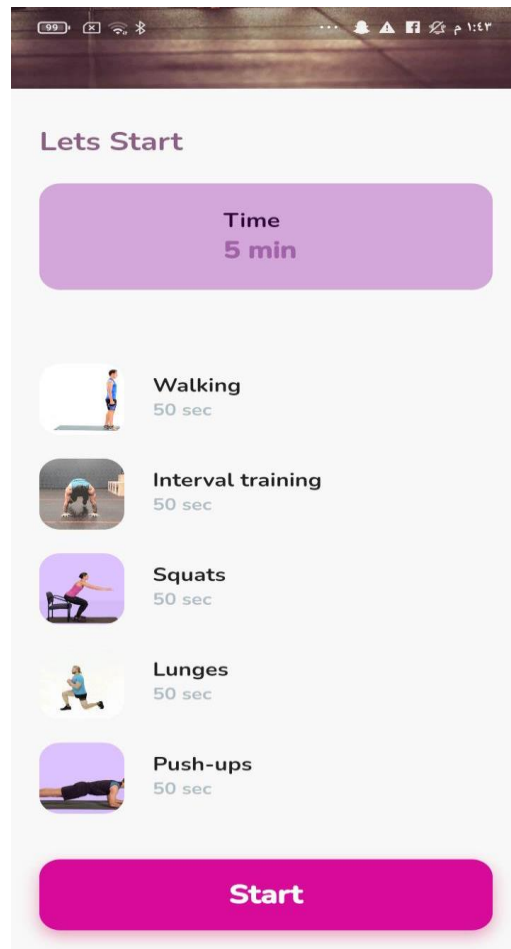


Figure 27 Exercises

As we said before each user has his exercises according to his BMI and each day have different exercises until reach 30 days (1 month) .

Start sessions:

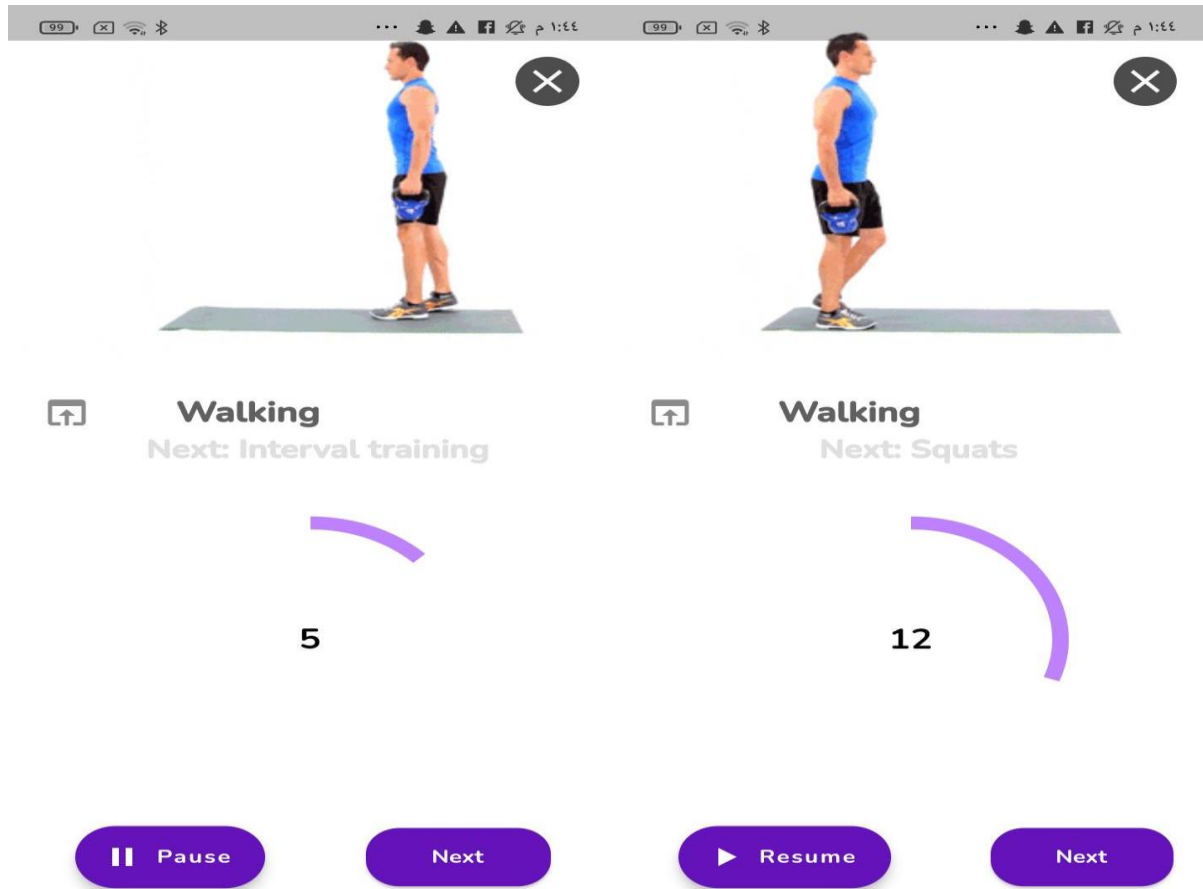


Figure 28 Start exercises

Figure 29 Paused exercises

User has timer for each exercise he can pause and resume it and he can go to next exercise by click on next button .

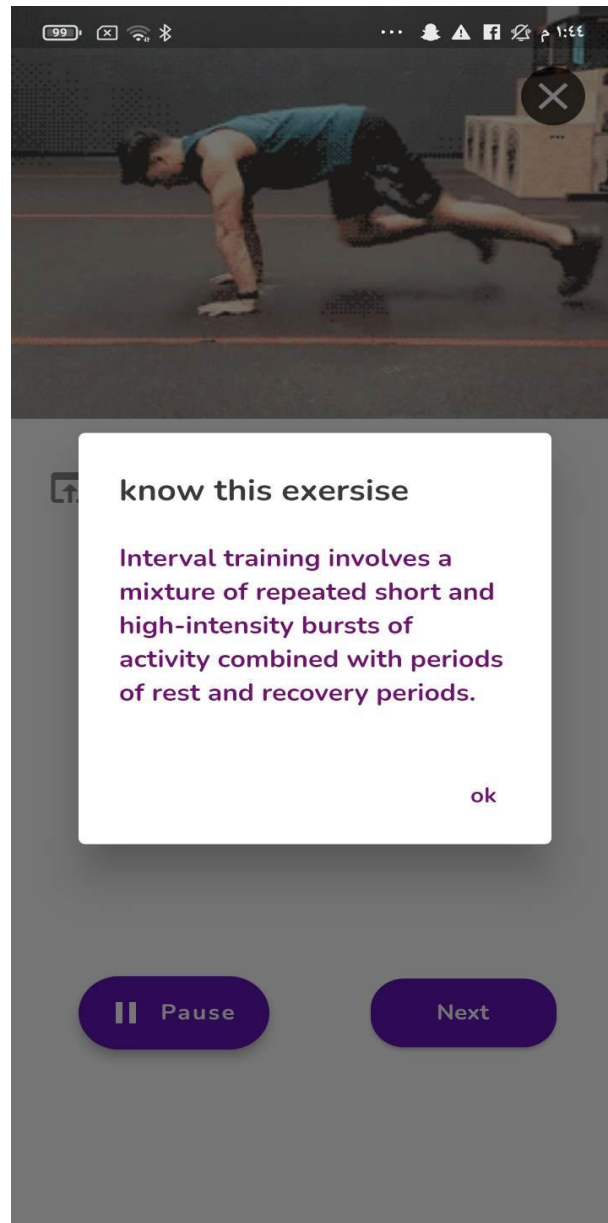


Figure 30 Information about exercise

There is also icon like window when click on it an information will appear about this exercise .

4.2.7 Profile:

Profile page , let the user to see her information , and edit it, so she can change her name, email, password, weight and height, and she must confirm the new password , the password can't change if the confirmation is wrong , if she change the weight or height, the BMI will give new result differ than the old one.

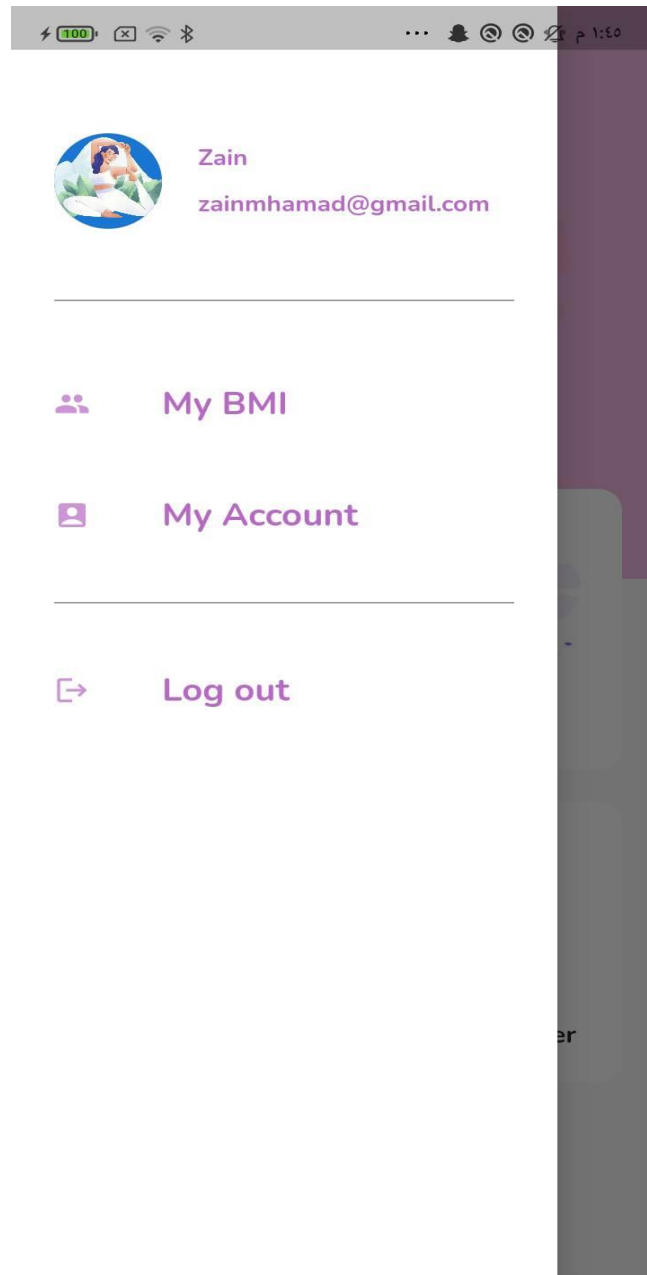


Figure 31 Profile

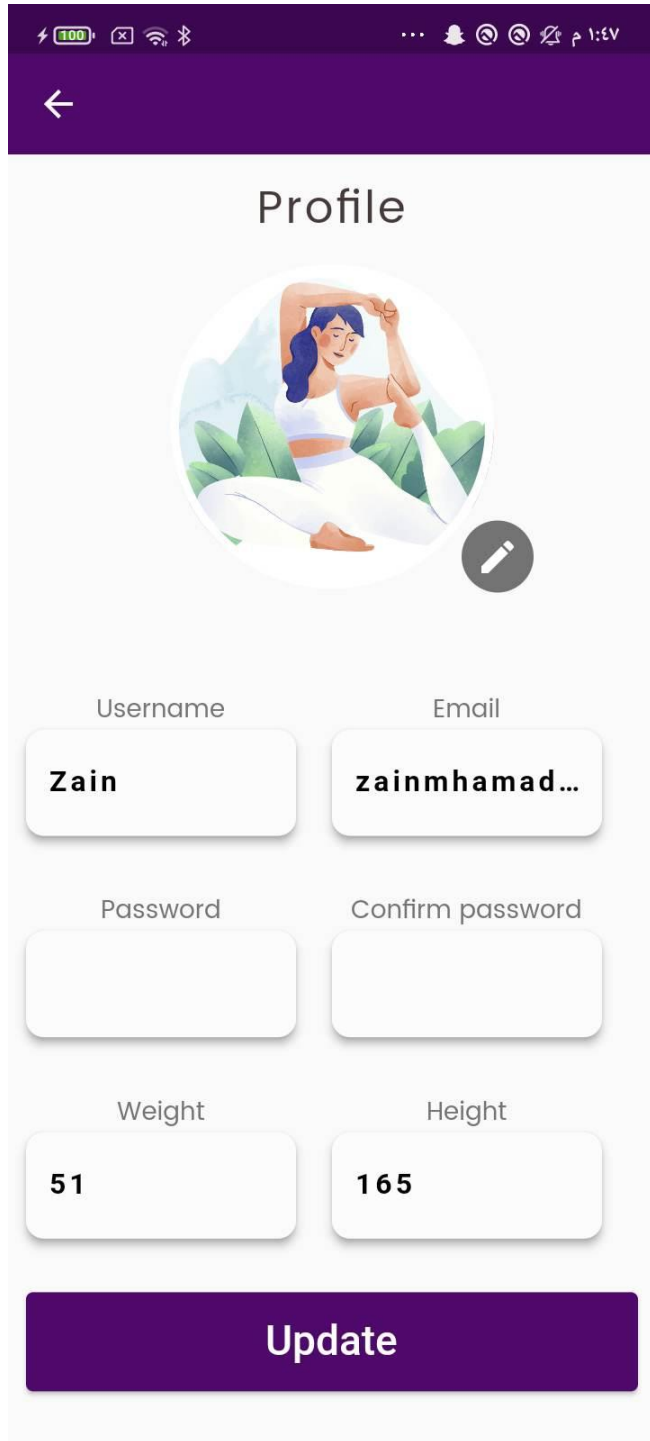


Figure 32 Before edit

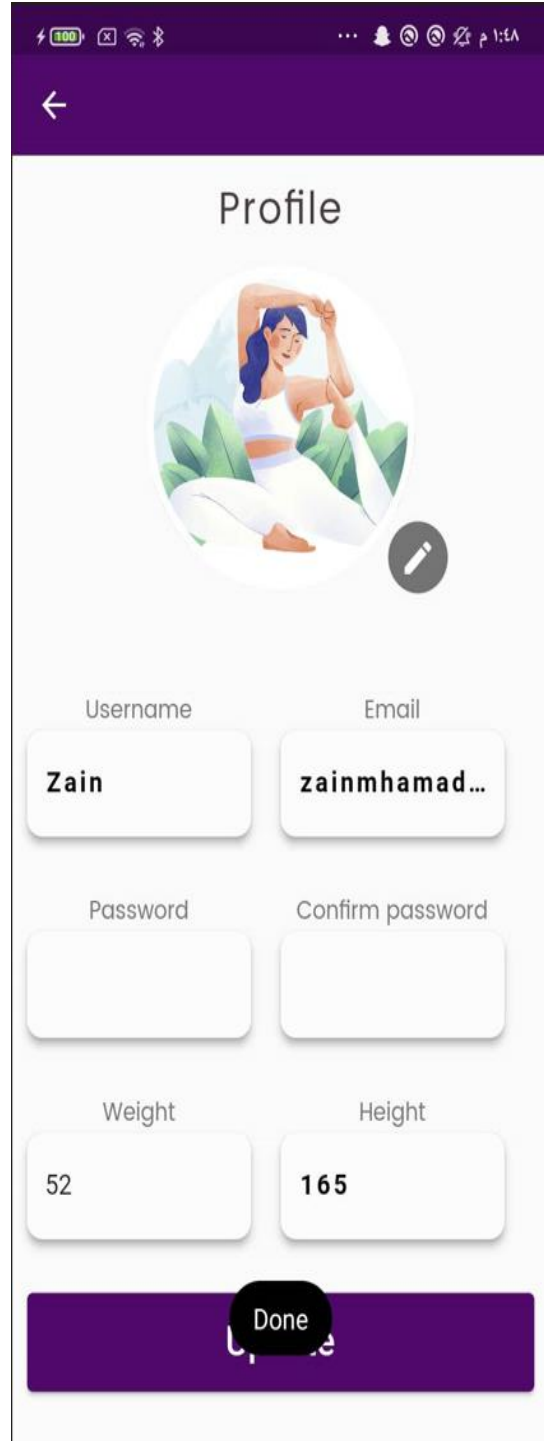


Figure 33 After edit

4.3 The Website:

The website was created using flutter as it is suitable for both applications and websites.

4.3.1 Home page

Home page with several images.

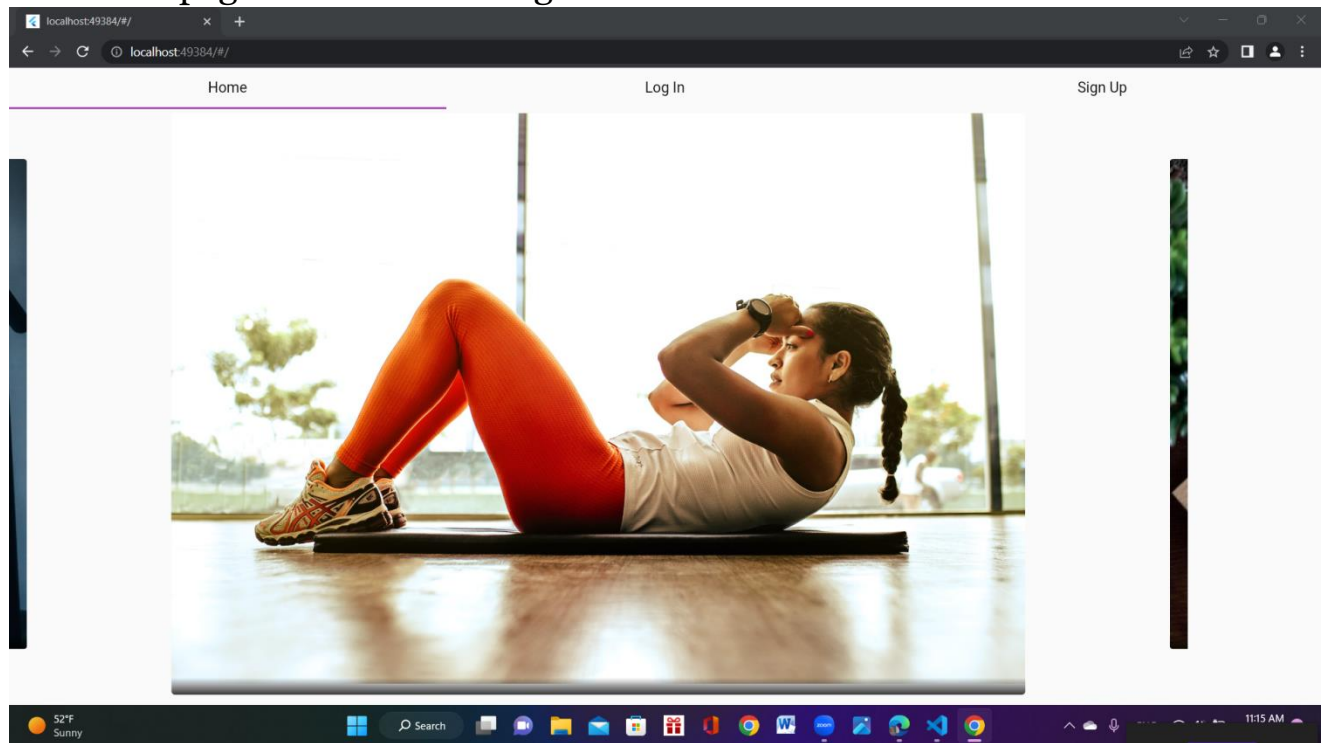


Figure 34 Home page

4.3.2 Sign-in and Sign-up pages

Admins can sign in and swap to sign up page on the website using these pages.

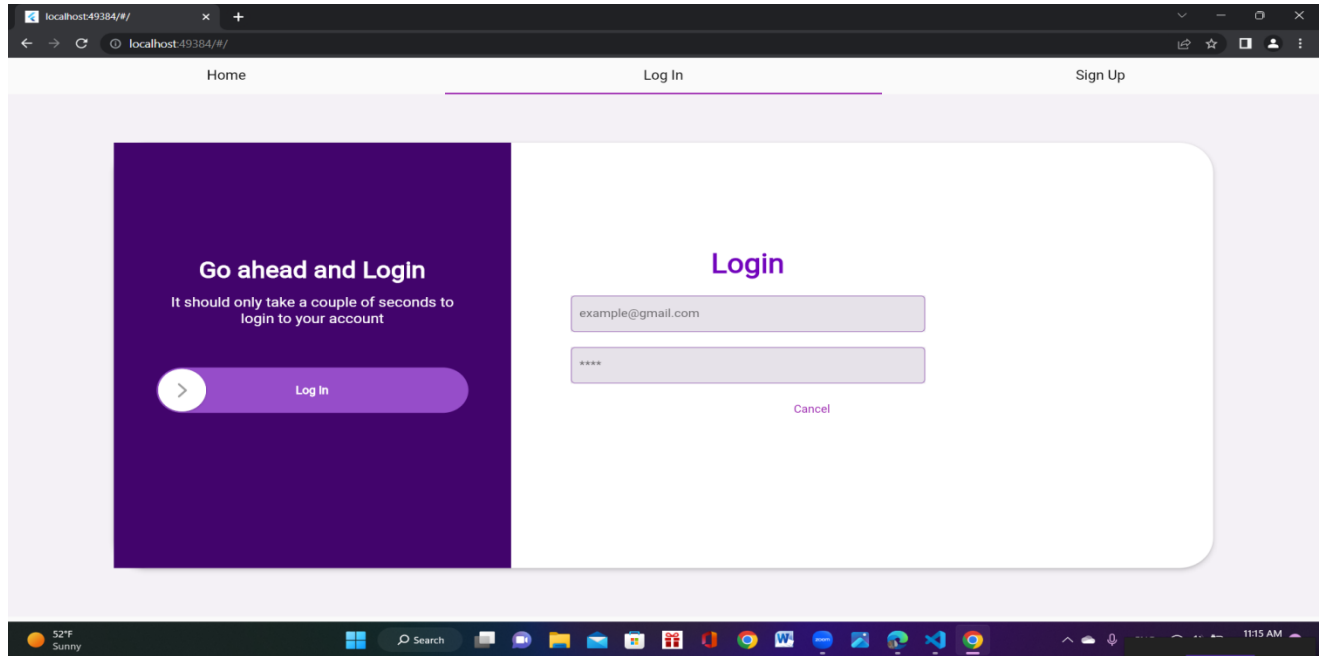


Figure 35 Login page

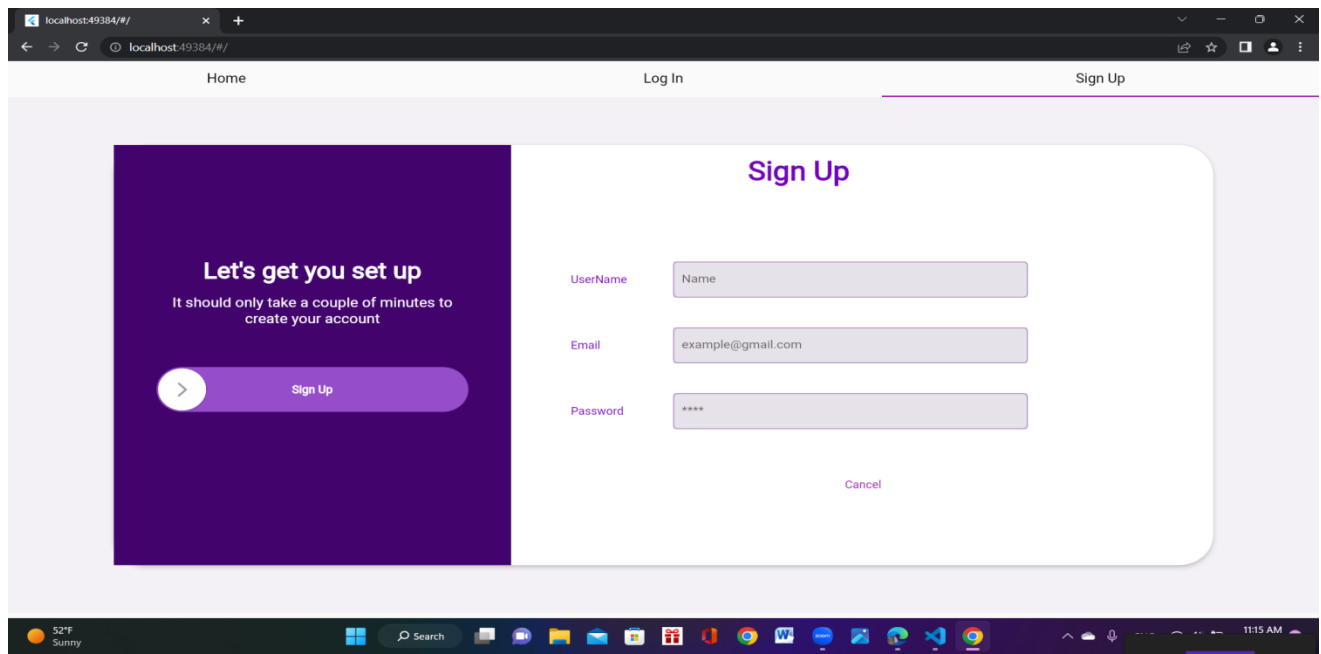


Figure 36 Sign-up page

4.3.3 Edit page

Admin can edit any type of diet and any food inside any type, he must enter the name of the diet, then he enters the name of the food and its new information, if this food doesn't exist, a warning message will appear, if exist it will update successfully.

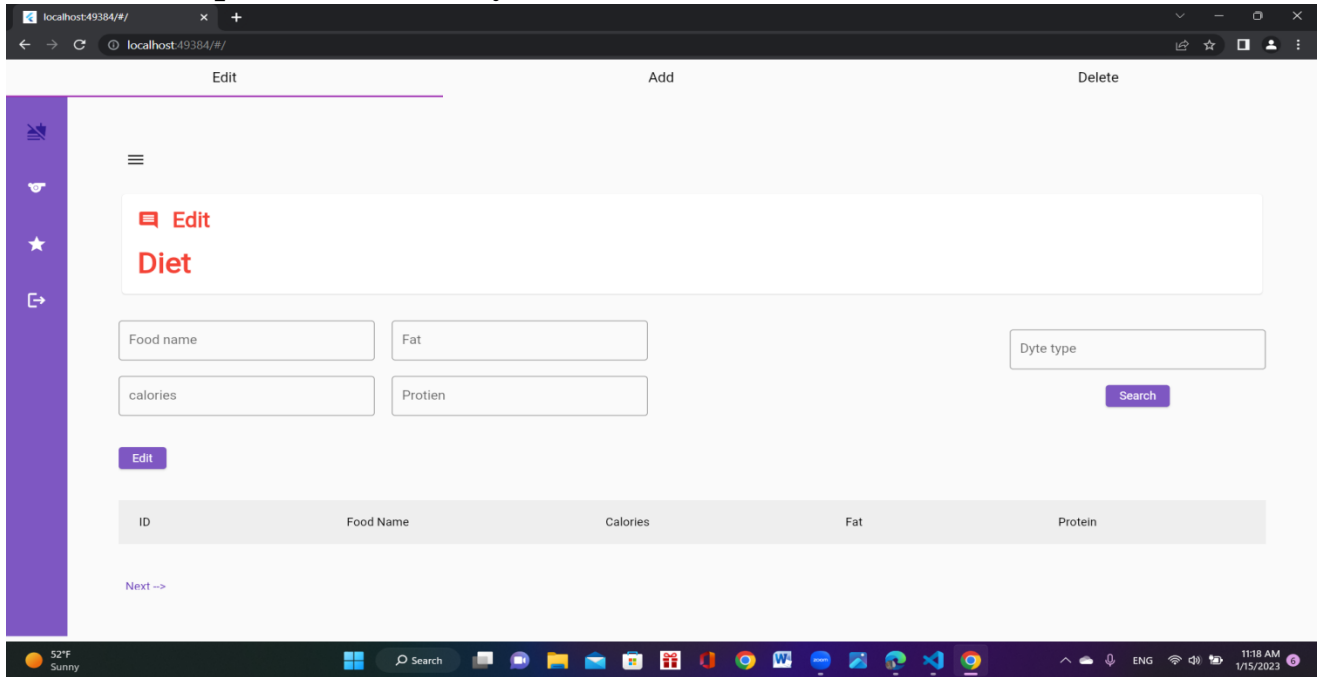


Figure 37 Edit page

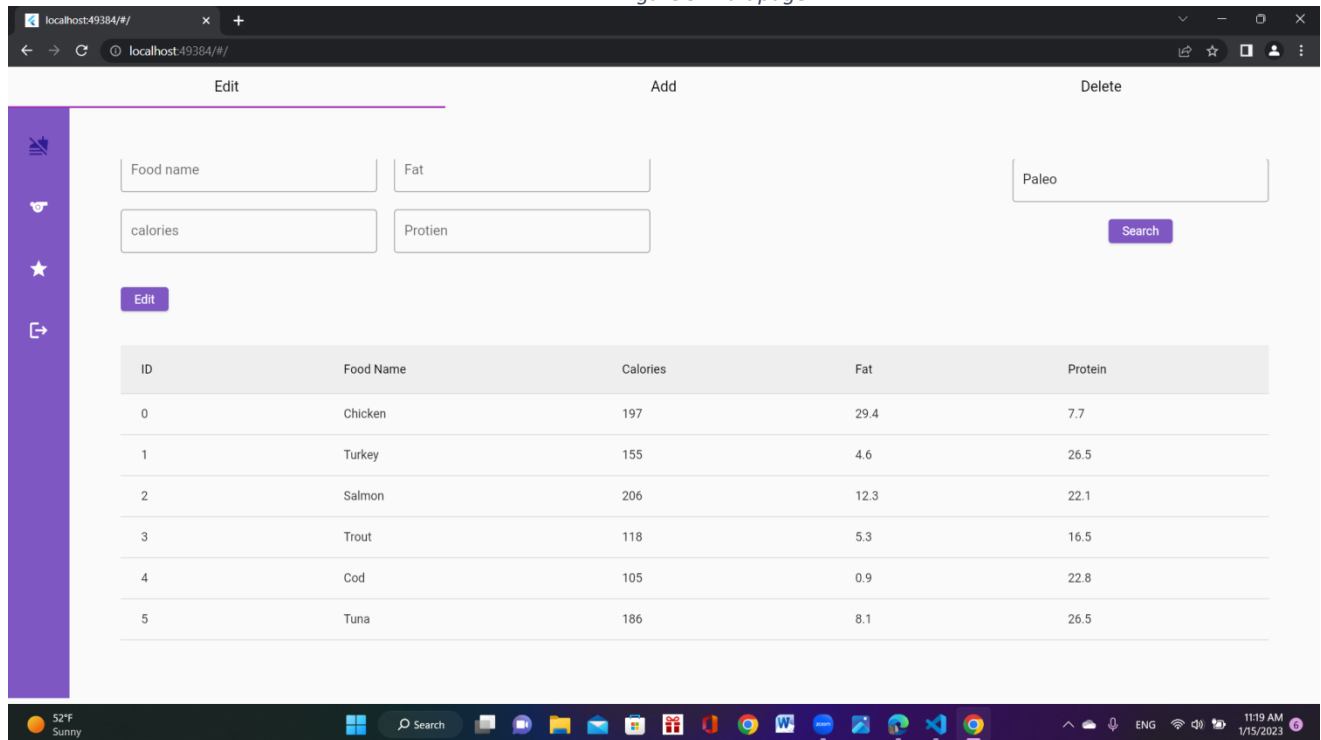


Figure 38 Table content

4.3.4 Delete page

After the admin enters the diet type , he enters the name of the food he needs to delete , if the food doesn't exist , a warning message will appear, if exist the delete is done successfully.

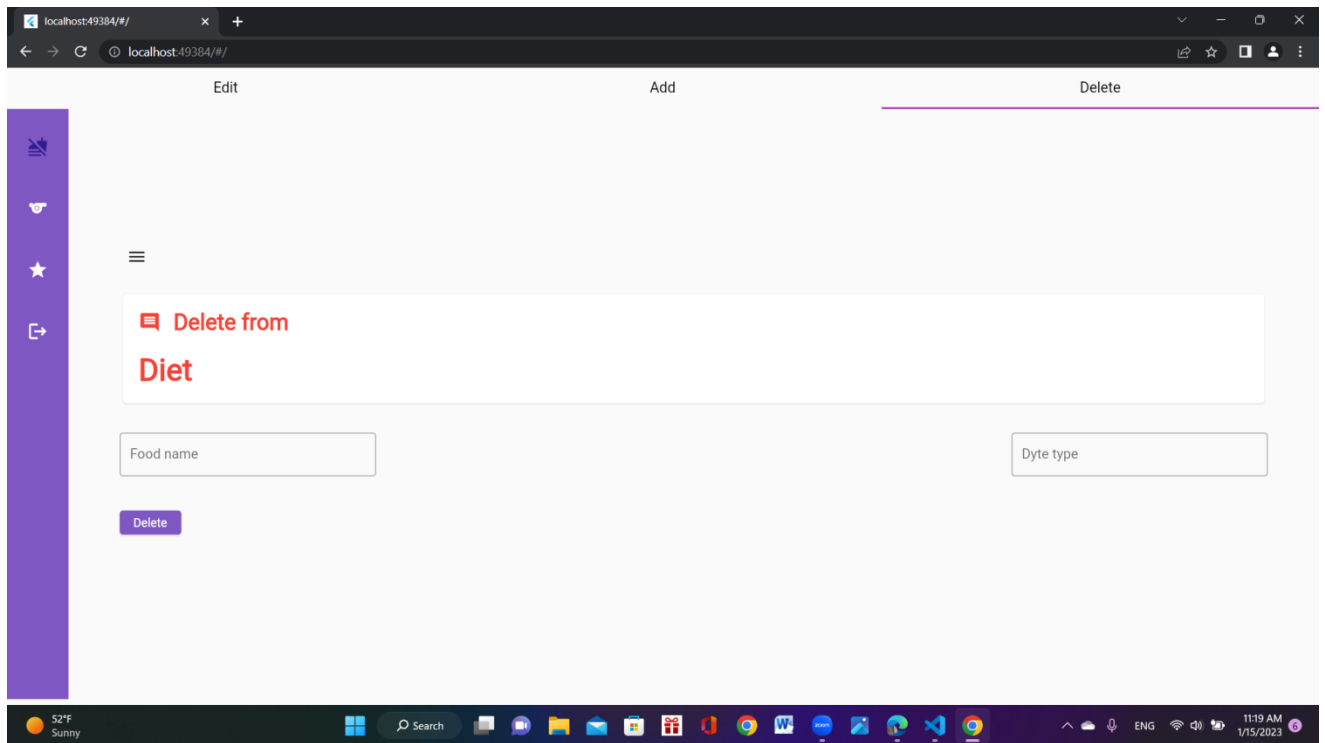


Figure 39 Delete page

4.3.5 Add page

After the admin enters the diet type , he enters the name of the food he needs to Add , if the food already exist , a warning message will appear, if it doesn't exist the add is done successfully.

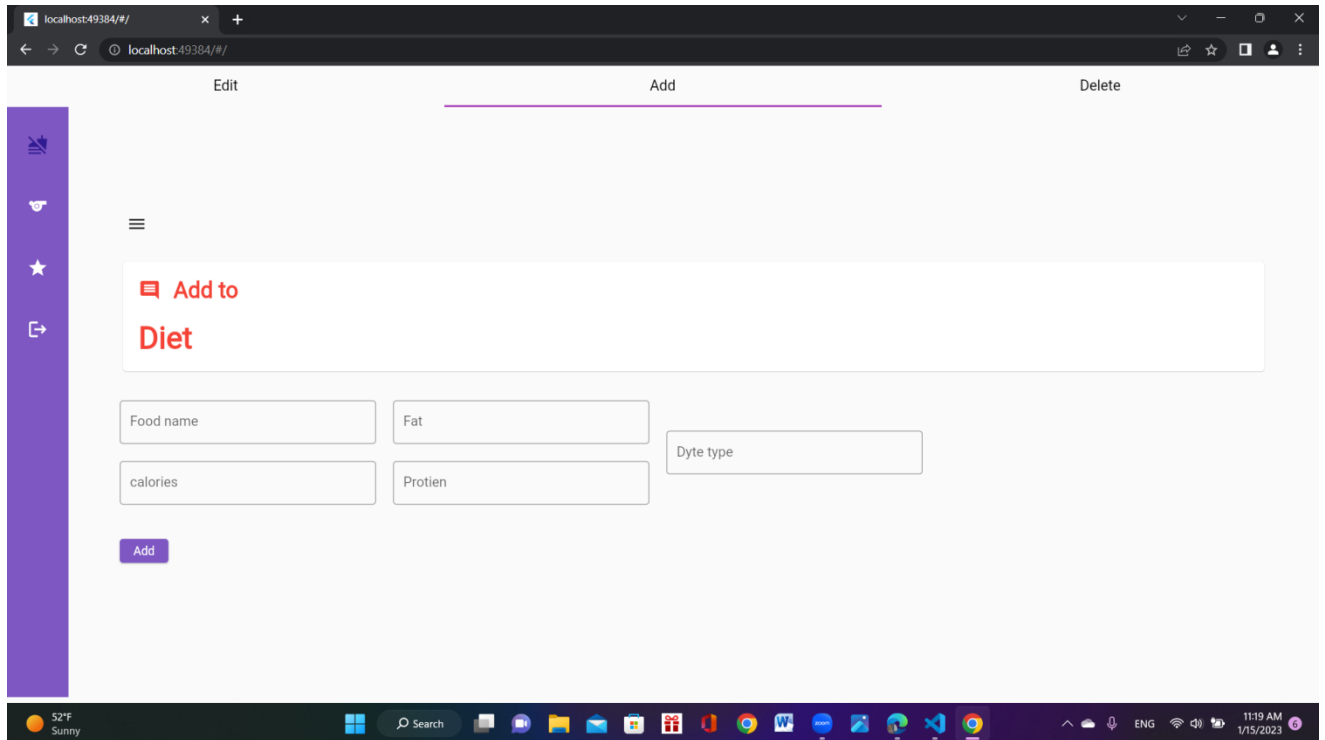


Figure 40 Add page

Chapter 5:

Conclusion & Recommendation

5.1 CONCLUSION:

People who suffer from obesity or excessive thinness, or who need fitness, or people who need to regulate their eating within certain standards and certain types of food, all these people need our application, as it provides them with everything they need from organizing food and sports according to their weight and needs and reminding them to drink Water and others, in a free method, and they can easily deal with the program, it is suitable for people who cannot go to a gym or agree with a nutritionist, as it provides a complete monthly plan.

Many applications focused on sports or on regulating food, but our application focused on both and within specific criteria that suit the user, so each user has different information from the second, so the program will provide each user with exercises according to his BMI scale, in addition to choosing between 6 types of diet, he chooses What suits him and according to what is available in his area of food.

5.2 RECOMMENDATION:

In order to improve the application, we can:

- Make the application support multiple languages, so people around the world can use it.
- Allow users to communicate with a nutritionist.
- Link the program to a specific gym, and exercises can be performed with the coach online remotely via the camera.
- Add an extra feature where multiple users can chat together, so they learn from their experiences.

References :

- ◆ <https://www.nutritionix.com/>
- ◆ <https://www.calorieking.com/us/en/>
- ◆ <https://www.calorieking.com/us/en/>
- ◆ <https://www.eatingwell.com/article/291245/complete-keto-diet-food-list-what-you-can-and-cannot-eat-if-youre-on-a-ketogenic-diet/>
- ◆ <https://www.mayoclinic.org/healthy-lifestyle/nutrition-and-healthy-eating/in-depth/paleo-diet/art-20111182>
- ◆ <https://www.trifectanutrition.com/blog/low-carb-foods-list-60-healthy-foods-other-than-lettuce>
- ◆ <https://www.healthline.com/nutrition/vegetarian-diet-plan>
- ◆ <https://www.healthline.com/nutrition/raw-food-diet>
- ◆ <https://www.onnit.com/academy/the-no-sugar-diet-plan/>
- ◆ <https://www.webmd.com/fitness-exercise/features/7-most-effective-exercises>
- ◆ <https://blog.decathlon.in/articles/weight-gain-exercise>
- ◆ <https://www.healthline.com/nutrition/best-exercise-for-weight-loss>

