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Department Of Computer Engineering

AM Gym

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Disclaimer

This report was written by Adel halawa and Mustafa saad AL-deen at the Computer Engineering Department, Faculty of Engineering, An-Najah Na-tional University. It has not been altered or corrected, other than editorial corrections, as a result of assessment and it may contain language as well as content errors. The views expressed in it together with any outcomes and recommendations are solely those of the students. An-Najah National University accepts no responsibility or liability for the consequences of this report being used for a purpose other than the purpose for which it was commissioned.

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Abstract

Our Application is an Application which will be used to provide online registration with the gym using Visa/master card, reserve personal training with the chosen trainer and the chosen times using visa/mastercard, also this Application provide an easy way to the members of the gym to communicate with the gym trainers, admin or the users of the application in general, also this Application provides an easy way for the trainers to upload sport programs to the members who take a personal training with them, and finally this Application has a store which can be used by users of the Application to buy from it online using visa/master card.

Chapter 1

Introduction

1.1 Problem Statement:

We saw that most of gyms in Palestine does not have an Application and most of the gyms does not provide a way to register online with them using visa/mastercard most of them use the traditional way which you need to go to gym and pay a money for them to register in the gym, also they don't have an online store to showing and marketing their products, so this is the main two points why we make a gym Application.

1.2 Objective:

Convenience and Accessibility:

Develop a gym application to provide users with the convenience of accessing fitness resources and tracking their progress anytime, anywhere.

Enable users to have a flexible workout schedule by offering exercise routines, video tutorials from their trainers within the app.

Provide a new way of registration with the gym using visa/mastercard.

Enable users to communicate with gym trainers and Application users through chat.

1.3 Scope of the work & importance of your work:

This Application primarily focuses on a development of a software which will facilitate workout planning, sports programs uploading, and users engagement within the gym by providing online registration.

Chapter 2

Constraints, Standards/ Codes and Earlier course work

2.1 Constraints:

learning new programming languages and skills, which took a lot of time that we spent learning on our own. In order to complete this project, we had to learn due to a lack of experience creating mobile apps and practice what we had learned.

2.2 Standards/ Codes:

We have used VisualStudioCode, Android studio IDE to write code for Flutter and NodeJs , Android emulator to debug the application view , Express server, Mongo NoSQL database.

2.3 Earlier course work:

Flutter for front-end development language and NodeJs for back-end development language.

Chapter 3

Literature Review:

The advent of gym applications has revolutionized the fitness industry, providing users with convenient and personalized tools to track their workouts, register online, and communicate with trainers and administrators. The integration of online registration systems within gym applications has streamlined the membership process, making it more efficient for both users and gym operators. Research has indicated that these features enhance user satisfaction, reduce administrative burdens, and improve overall customer experience, also one of the significant advantages of gym applications is the facilitation of communication between users and trainers, even outside of the gym premises. These applications provide users with direct access to trainers, allowing them to seek guidance, ask questions, and receive personalized feedback remotely, studies have shown that these features enhance user motivation.

Chapter 4

Methodology:

As we see that the number of gyms in Palestine is in an increasing style, number of people register in gym is also increased and the need for a new way in registration , workout tracking, communication with gym stuff becomes important, so this application also becomes important .

4.1. Tools, Programming Languages, and Technologies:

4.1.1. Mobile application:
There are a lot of languages, frameworks to build our mobile application , so we have chosen the most suitable and easiest languages for us to build our application.

4.1.2. Design:

After we had saw some mobile applications for gyms , we decide to build our own user friendly interface without using any template we had been built it from scratch

4.1.3.Frameworks:

we had been chosen to work with flutter as a front-end language for building mobile application user-interface and we use flutter because of Flutter's cross-platform capability, fast performance, hot reload, rich UI capabilities, extensive widget catalog, community support, and cost-effectiveness make it a compelling choice for building mobile applications.

4.1.4.Back-end programming language:
We have decided to use NodeJs as a back-end programming language and we have used the express server for serving as an application server. Express server is a package provided by node package manager (NPM).

Combining Node.js with Flutter allows for full-stack JavaScript development, real-time communication capabilities, efficient data processing, code sharing, scalability, performance, and rapid prototyping. This combination empowers developers to build powerful, scalable, and responsive mobile applications with a streamlined development workflow, this is why we have chosen NodeJs as a back-end language.

4.1.5.Database:

We have used the Mongo NoSQL database. MongoDB's advantages lie in its flexible data model, scalability and performance capabilities, high availability features, powerful querying and indexing capabilities, developer-friendliness, and thriving community. These qualities make MongoDB a compelling choice for applications that require flexibility, scalability, and efficient data management.

4.1.6.IDEs:

We have used VisualStudioCode to write code for Flutter and NodeJs , Android emulator to debug the application view , Express server, Mongo NoSQL database. We have used Visual Studio Code because of its extensibility, lightweight nature, cross-platform compatibility, integrated terminal and debugging, intelligent code editing features, version control integration, and supportive community make it a popular choice for developers, providing a powerful and efficient environment for coding and development tasks.

4.1.7.Version control:

Since we work as a team in our project, we need a website or a version control system to share our code between us, so we use github as a version control system.

4.1.8.Restful Api testing:

For testing our back-end restful APIs we have used postman popular collaboration platform and API development tool for testing these APIs. Postman allows developers to design, test, and document APIs. It provides a user-friendly interface for making HTTP requests, testing APIs, and inspecting the responses.

4.2.Architecture:

When building a mobile application with Flutter and Node.js, a common architectural pattern is to follow a client-server model.

4.3 Implementation:
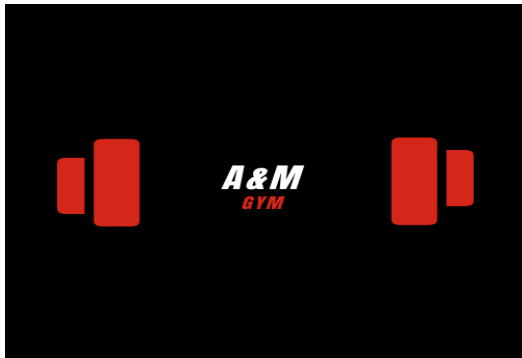
4.3.1.1 Common Side :

-Application logo

Figure1: logo

As is Shown in the Picture, we designed the logo and named it AM GYM .
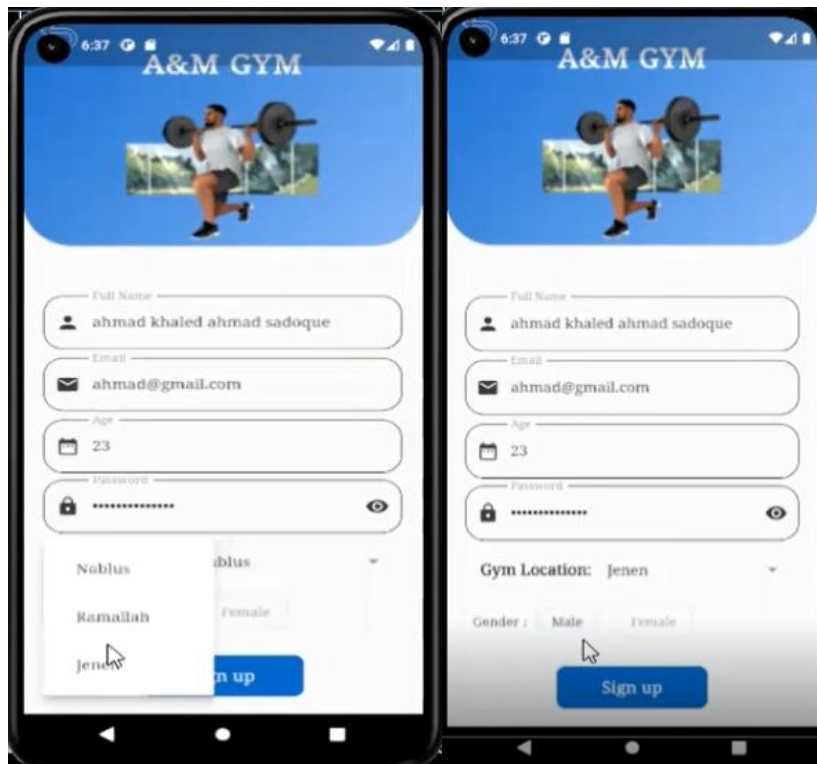
- ⚲**User sign-up**

Figure 2: user sign-up

This is the user sign-up page, as we see the user must enter his username and the username is unique i mean you can't find any two users have the same username because i check if the entered username has been used before or not , so the username must be unique, also the same for email, user email must be unique i also check if the email has been used before, also he entered his age, password he needs to register with and here the password must be strong before registering the user we check if the password length is at least 8 characters, contains at least one small letter, one capital letter, one symbol and two digits, if those requirements founded in the entered password the application will accept it, If these conditions are not met, an error message will be displayed, he must specify the gym location he will register with it as you can see there is a three locations he can choose from them, finally he must choose his gender.
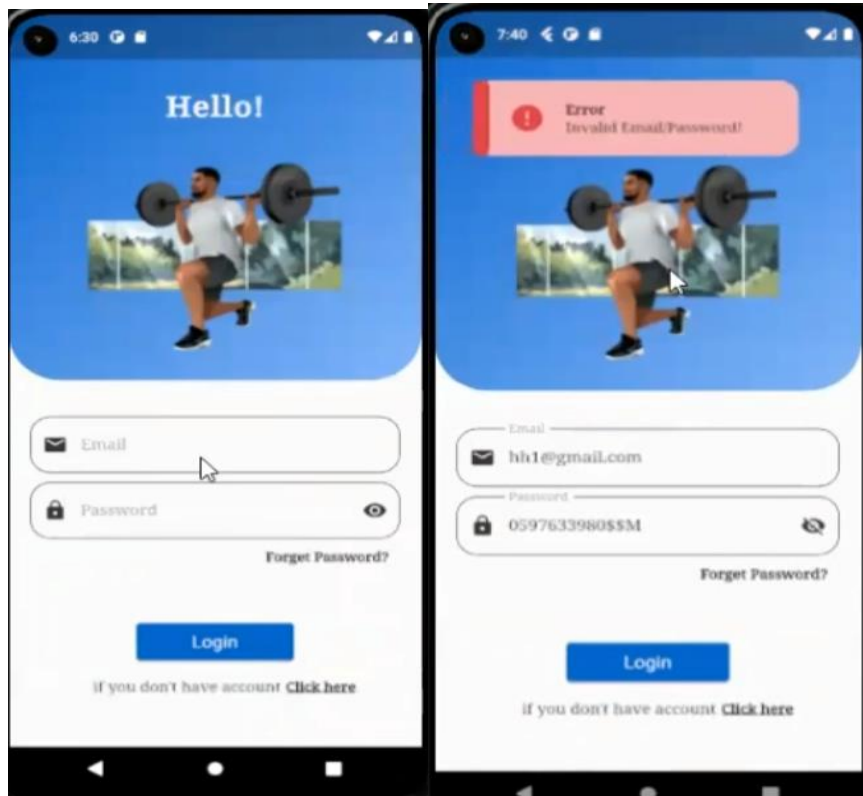
- **Sign-in page.**

Figure 3: sign-in

In this image we see the login page, the first field is to enter the email and the second field is the password. When logging in there are 3 main pages: user home page, trainer home page and administrator home page, and each of them uses their email and password to enter their page, and

As any application if he entered invalid email or password an error message will be displayed, click here link is used to navigate user to user sign-up page and finally the forget password link if he clicks on it he will be navigated to forget password page as shown below in the next page.

- **Forget Password page.**

In this picture, we see a forget password page. The user enters his email in the email field, and if the email is not existing in the database, or i mean this is not a real email for a user then a message appears stating that the email was not found. If he enters the correct email here, a random PIN code of four digits will be sent to that email, and then the user will be navigated to the PIN code verification page, asking him to verify the PIN code.
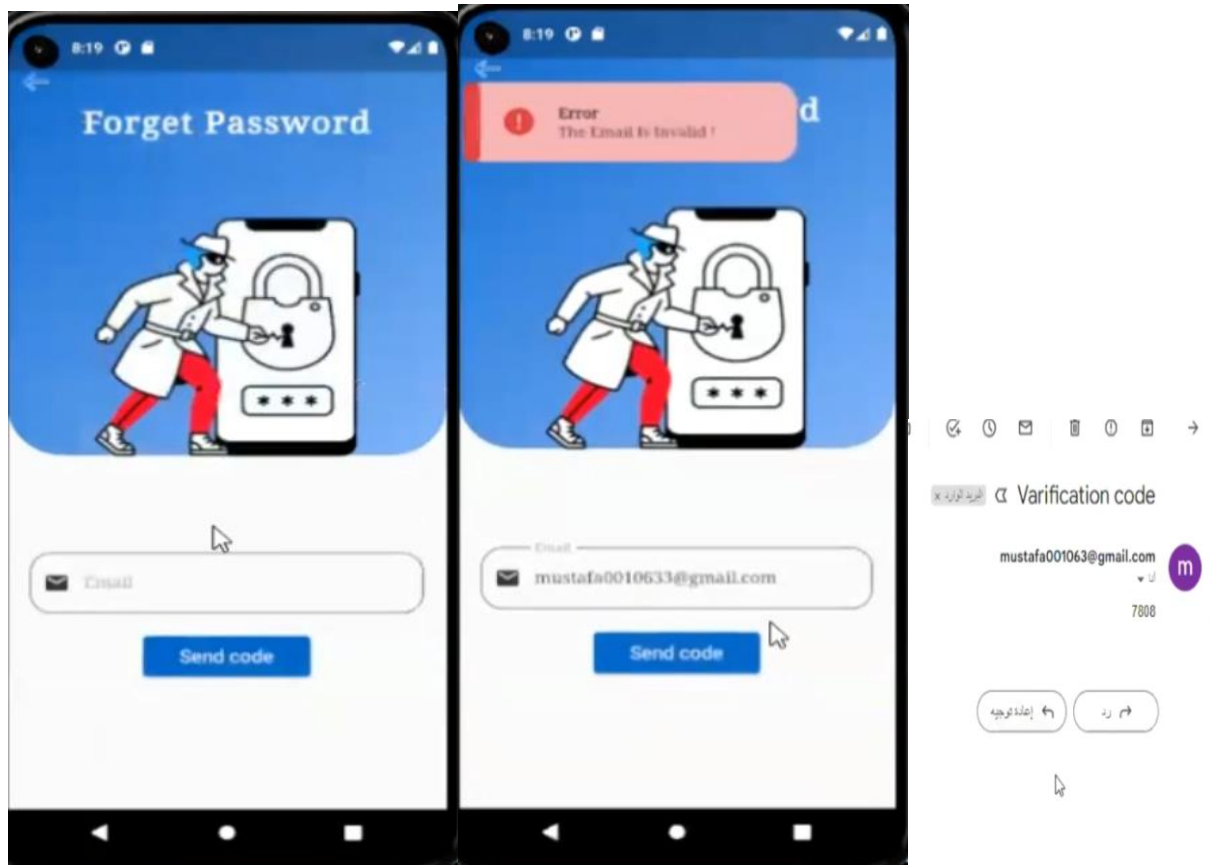

Figure 4: forgot password

from the pictures you can see that mustafa0010633@gmail.com is not a valid email so an error has been shown and when i entered mustafa001063@gmail.com this is a correct email and a pin code has been sent to that email as you can see in the third picture, and you can see this process in detail when you watch our demo.
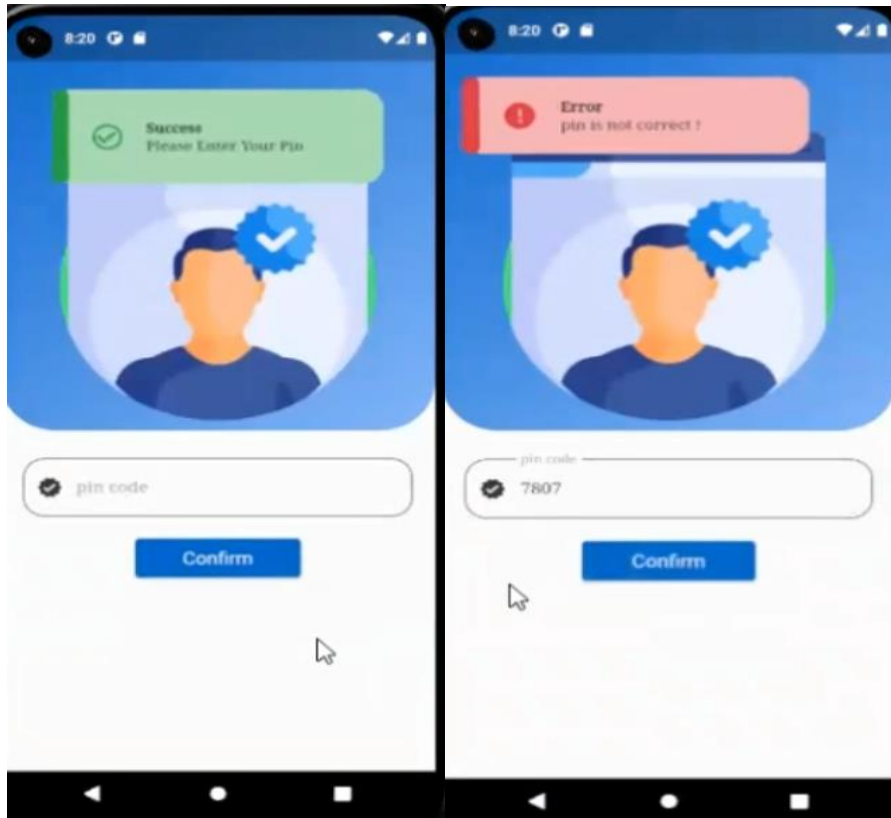
- **Verify Account page.**

Figure 5:verify account

In this picture, we see the verify account page, the user enters a PIN code in the PIN code field, and if the user enters a wrong PIN code, an error message is displayed, and if the PIN code is correct, it is moved to the change password page.

And from pictures you can see if he entered 7807 this is invalid pin code so an error message has been shown and he can't change his password but when he enters 7808 this is a valid pin code and the user will be navigated to change password page to update his password. You can see this process in detail in our demo.
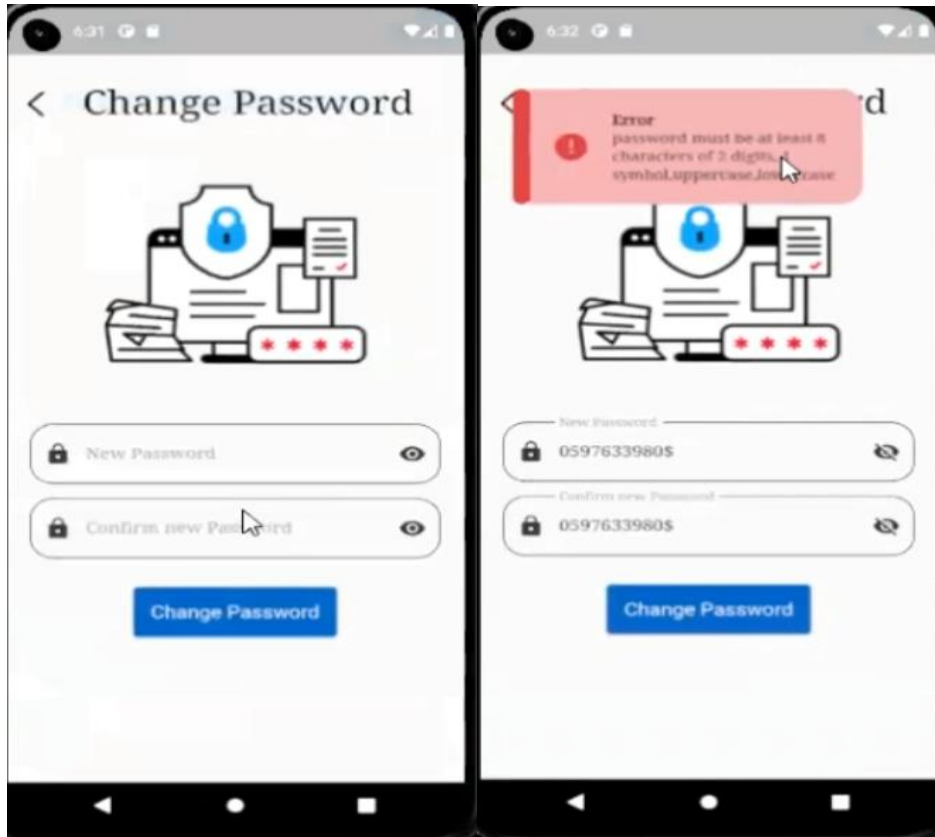
- **Change Password page.**

Figure 6:change password

In this picture we see the change password page, the user enters the new password in the first field, and confirming the password in the second field by retyping it, the password must be strong, the application checks if the user password length is at least 8 characters, contains at least one small letter, one capital letter, one symbol and two digits, if those requirements founded in the entered password the application will accept it. If these conditions are not met, an error message will be displayed.
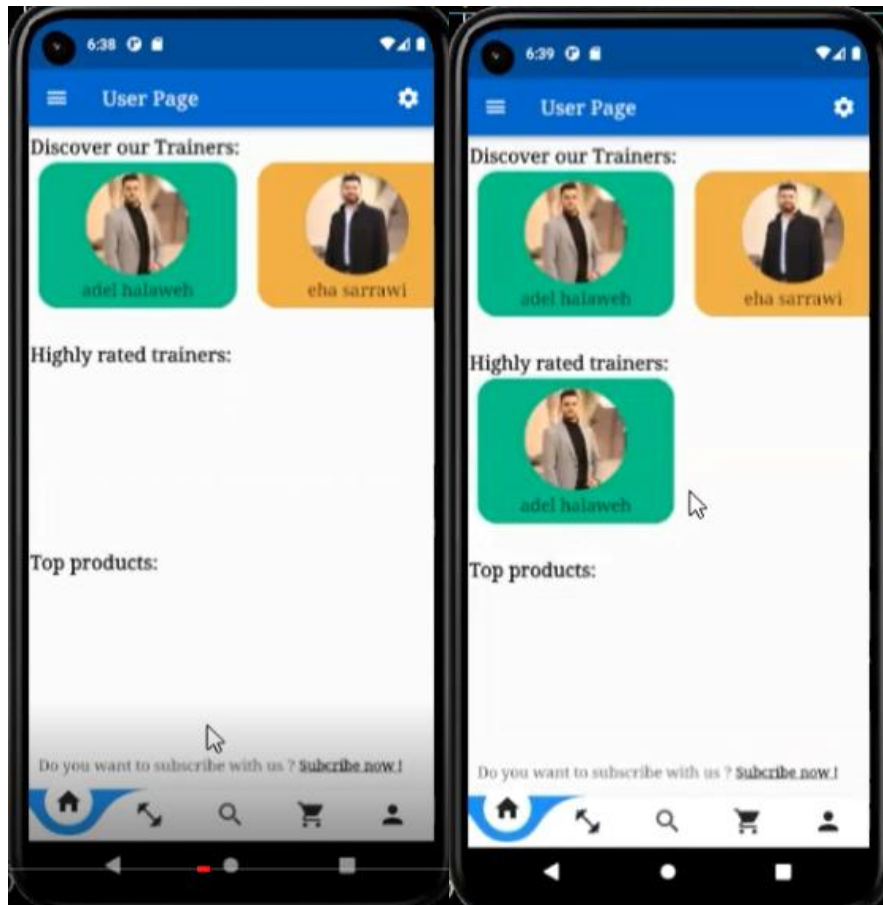
User side:

- **User home page:**

Figure 7:homepage(user)

this is the user home page, user home page will contains a bottom tab bar that user will use it to navigate between pages, now let me clarifying this tab bar by starting from left to right on it, the first icon (home icon) he will use it to navigate to home page, second icon (dumbbell icon) for navigating to program page as we said the user can take training programs from trainers, so from this icon he will reach his programs if he has a a programs from trainers, the third icon (search icon) he will use it to navigate to search for trainers page i mean if he want to search for trainer he will navigate to this page to search for a trainer, the fourth icon (bag icon) he use it to navigate to store page and the final icon for navigating to personal profile page, now let's talk about the first two lists, the first list as you can see is discover our trainer list, this list will contains all trainers working in the gym in all locations, user can take advantage from this list to take personal training with the trainer he clicks on or see his information such

as trainer email and we will see this page later (page that the user will navigate to it when clicking on a trainer).

The second list as you can see from it's name it will contains the highly rated trainer, all trainers whom rated 3+ will be shown in this list, and when user click on a trainer in the list the user will also take advantage from this list to take personal training with the trainer or see his information such trainer email and we will see this page later (page that the user will navigate to it when clicking a on trainer).

The final list (third list) will contains the highly rated products (top products), products that are rated 3+ will be shown in this list, this list will help the gym for marketing his store products and when the user clicks on a product in this list he will navigate to this product page to buy from it and we will see this page later, the below picture is showing this list (third list or top products list):

Now finally as you can see the bottom line in the page (subscribe now), this line the user can click on it to register a public registration with gym, we will see this page later, but i mean with public registration

is that he can from this page register 1 month membership , 2 months , etc…,so in summary when user click on it he will be navigated to public registration page.

- **Subscriptions page (public registration page):**

Figure 8: subscriptions page

this is the public registration page, this page will work like this, in this page the user choose how much months he wants to register in the gym, every month we considered it as a 30 days, so after choosing how many months he needs to register in the gym he must click on subscribe my choice button in this step the online payment process will start and he will pay through visa/mastercard as we will see in a moment, but before i show you the payment process i want to talk about a feature we were provided here, assume the user registers 1 month and paid online through visa for it and after a time assume two days he returns to register another one month in this case we take in consideration the remaining days for his first registration so in the given example a 28 days will remain for his first membership and a new 1 month he want to register with the gym, so we will give him 58 days membership, in summary i mean

if he had an old membership and his membership is not end and he want to register a new membership the remaining days in the old membership will be taken in consideration and from my demo to the project i clarify this when i register 3 months and i paid for them online and then i returned to register 1 month in the same time you will see that his membership will be end after 120 days because he has 90 days in his old membership and finally every time he want to register respective he had an old membership or not he will pay for the months he wants to register through visa/mastercard and the membership date end after 120 days or after any days will be calculated for the user from application and he will see this date in his profile page as we will see later and if you watch my demo the idea will be clear.

And this is the payment process as in the below pictures:
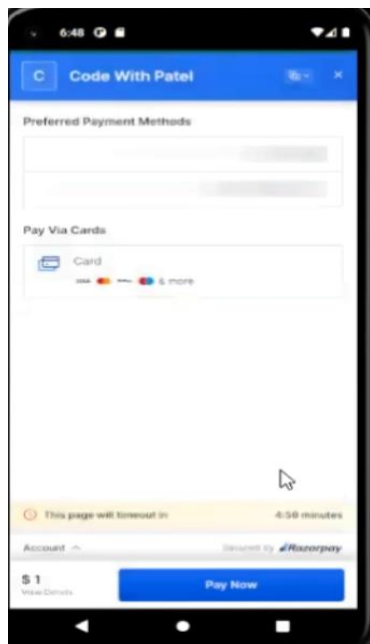
this is the home page for online banking payment by clicking on account at the bottom of the page he will enter his account information such as his phone number and email as you will see in this picture:
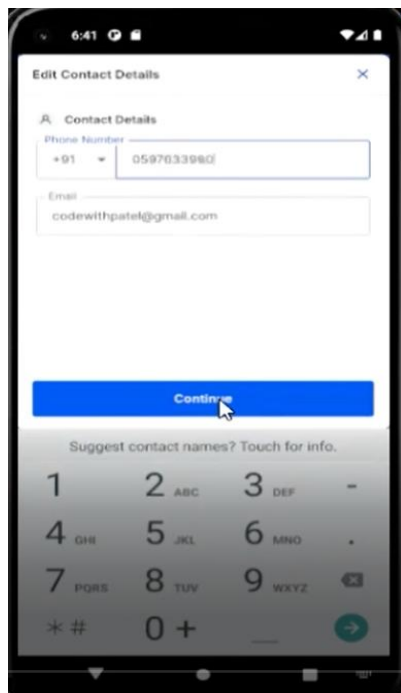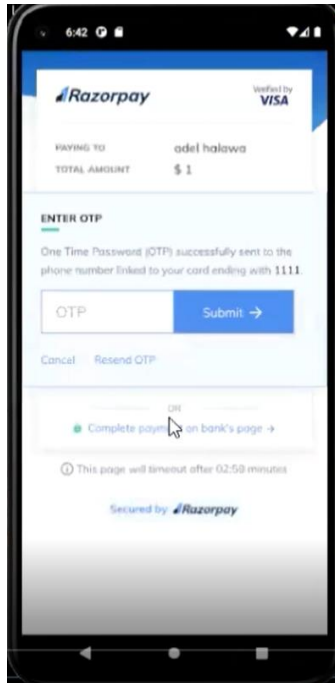
the other thing as you notice there is a card button at the top of the page by clicking on this button you will now enter your visa information to continue payment.
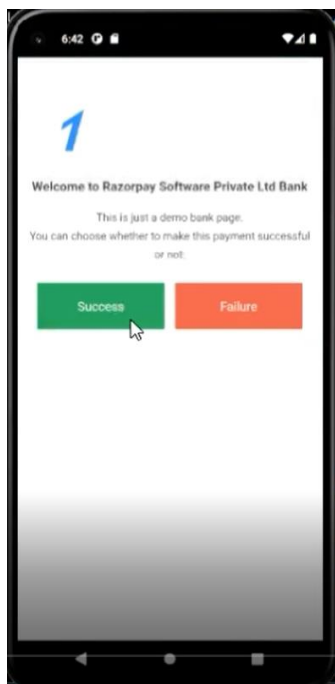
As you can see in this picture:
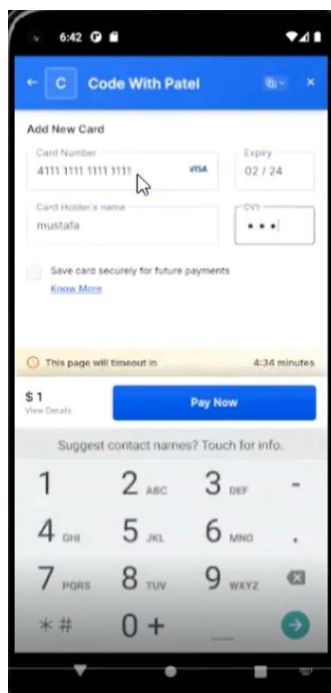
after clicking on pay now user will be navigated to this page:

and after entering those information or you can choose the choice to complete payment on bank's page

then you will be navigated to this page:

by clicking on success now your membership is registered and user will got this message:

As you can see he got reserved successfully message, so in this step his membership starts in the gym according to the number of months he chooses.

- **Trainer profile (Trainer information page):**

we still talk about user home page we talk previously about the discover our trainer list and highly rated trainers list on the home page and we said when the user clicks on a trainer he will take the advantage from register personal training with that trainer if he want and see some information about that trainer, so this is the page that the user will be navigated to it when click on a trainer, as in this picture by clicking on adel halaweh trainer in discover our trainer list or on highly rated trainer list the user will see information about adel halaweh such as his email,name,experience,working hours, now the two important things in this page he can rate this trainer see by clicking on the number of stars he want to rate that trainer with it and in my demo i were rated the trainers and you can see from my demo that i gave a rate for the trainers, so from this page user can rate the trainer and see his current rate also, finally there is a reserve button at the bottom of the page this button will navigate user to personal training reservation page to reserve personal training classes with that trainer and also he will pay online by visa for that personal training reservation as we will see more about this in a moment.

Now let's talk about the reserve button in the trainer profile page, when user clicks on the reserve button and from the previous picture user is selected Adel halaweh from the highly rated trainer list or
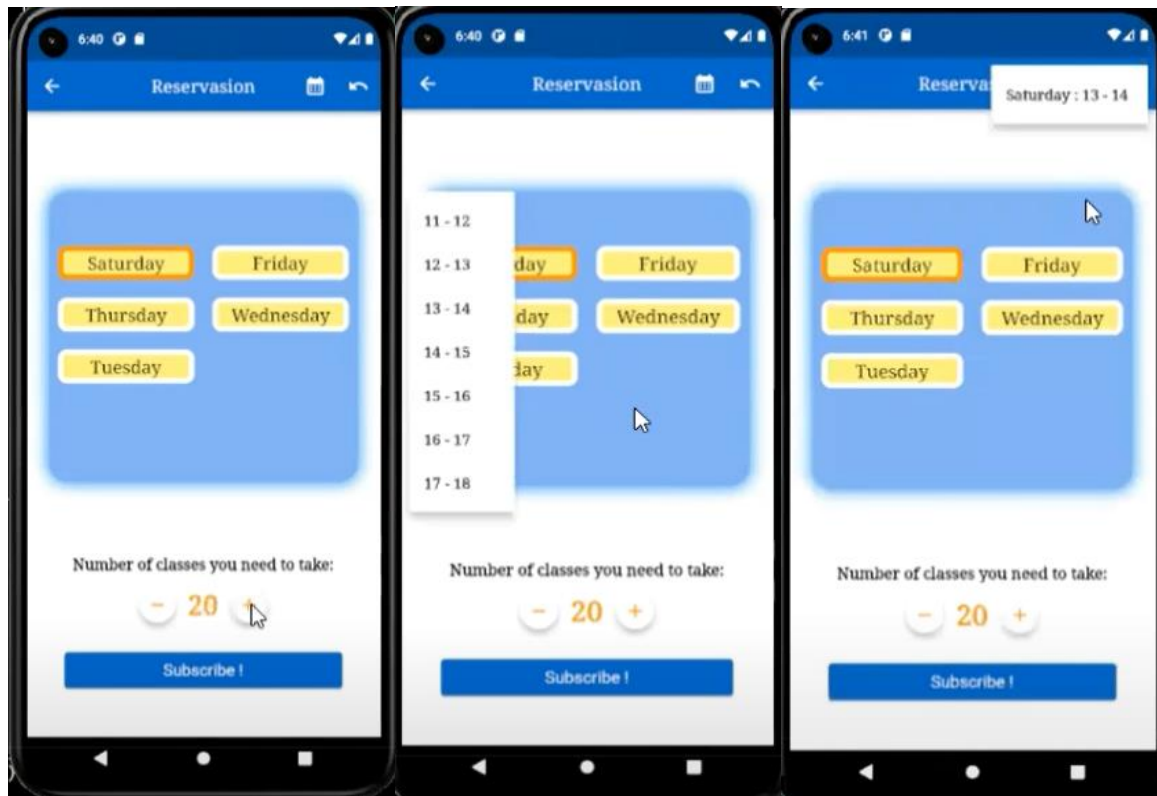
discover our trainers list, then the user will be navigated to the page that he will use it to register personal training with adel halaweh trainer.

The page i talk about is in the picture below:

(1)   **(2)**   **(3)**

this the page i talked about, their is a few things we want to talk about in this page, firstly as you can see at the bottom of the page before subscribe button there is a plus and minus buttons these buttons the user is using them to increase or decrease the number between them and this number is specifying the number of classes the user wants to register or take them with that trainer and the number of classes is at least 12 classes, secondly as you can see in the first picture also there is a list of days in the blue box the user will see them, these days are the working days in the gym for the trainer the user wants to register with him, so for this trainer he will work five days in the week as shown in the first picture, in the second picture you can see a list of times this is a list of free times for that trainer in the chosen day or in the day the user clicks on, to make it more clear assume the user clicks on the day saturday then a drop down list as in second picture will be shown and this list will contains the free time that the user can take personal training class with that trainer in that day and the same idea for other days, we make it like this because we give the user a flexibility to choose the most suitable day and time for him to take his personal classes, for example assume he wants to take 20 personal classes or any number he wants then he can for example choose saturday:13-14, sunday:10-11,... and as you noticed i said free times i

said that because any time is reserved by the user with a trainer then this time will be hidden from other users, i mean assume the time 13-14 on saturday is being reserved by a user with Adel halaweh trainer if other user comes to register with Adel halaweh trainer and clicks on the day saturday the time 13-14 will not be in the list of times on saturday since this time is being reserved and the same for other days and in the pictures i will show what i mean.
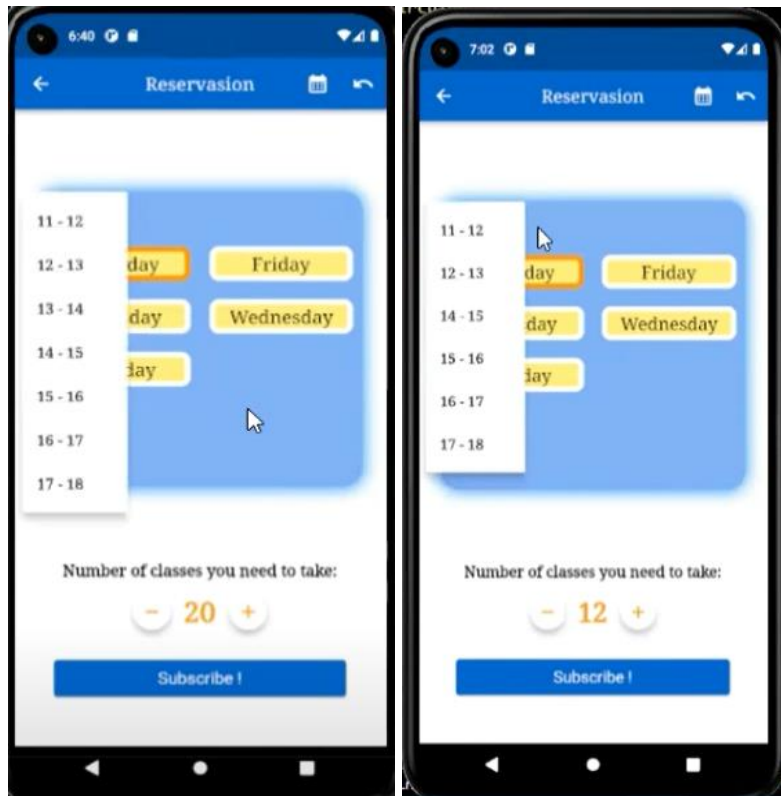
before: **after:**

Figure 9: reservation page

If you watch my demo you will see when I entered with the second user and I had selected Adel halaweh trainer the time 13-14 is being hidden because it's being reserved by the first user and the same idea for other days.

Now let's return to the third picture from page 25, as you can see on the page appbar there are two icons on the right corner of the bar (table icon, arrow icon) as you can see in the third picture when user clicks on the table icon he can see the day:time he choose them but until now those times is not being reserved because the times will be reserved when he clicks subscribe button and pay cost of them online using visa/mastercard i will return to this later and as i said the table icon is like a bag for the times being chosen to show him what times he was chosen, and the arrow icon is undo icon to undo the last choice when the user clicks on that icon.

The final thing i want to talk about before i talk on the subscribe button is the conflict detection, since in our application the user can reserve personal training with one or more trainer so a conflict in times may occurs, i mean by that assume if the user already reserved a personal training with Adel halaweh trainer and he had a personal class on saturday at 13-14 and the user wants to reserve personal training with Ehab sarrawi trainer and he goes to personal training reservation page which we talked about in pages 25 and 26 and he try to choose and reserve a class on saturday at 13-14 with Ehab sarrawi trainer then a scheduling conflict message will appear because you already have a class with Adel halaweh trainer so you could not take personal class with Ehab at that time so he couldn't reserve that time at all and the message will appear as below and from my demo all that things will be clear:


The final thing is the subscribe button this button the user will click it after choosing the suitable days and times for him to reserve them and by clicking on it the online payment process using visa/mastercard will be started as we already show and describe this process before when we talk about public registration and here it will be the same process as in pictures below:

(1)   **(2)**   **(3)**
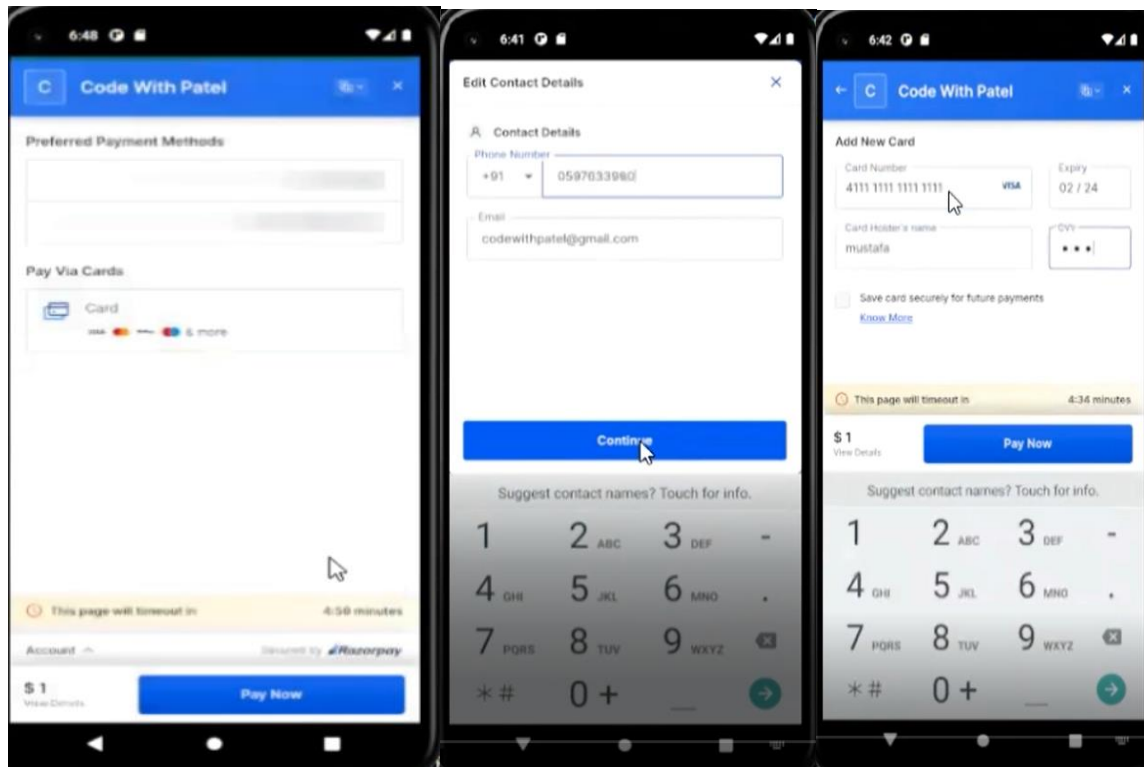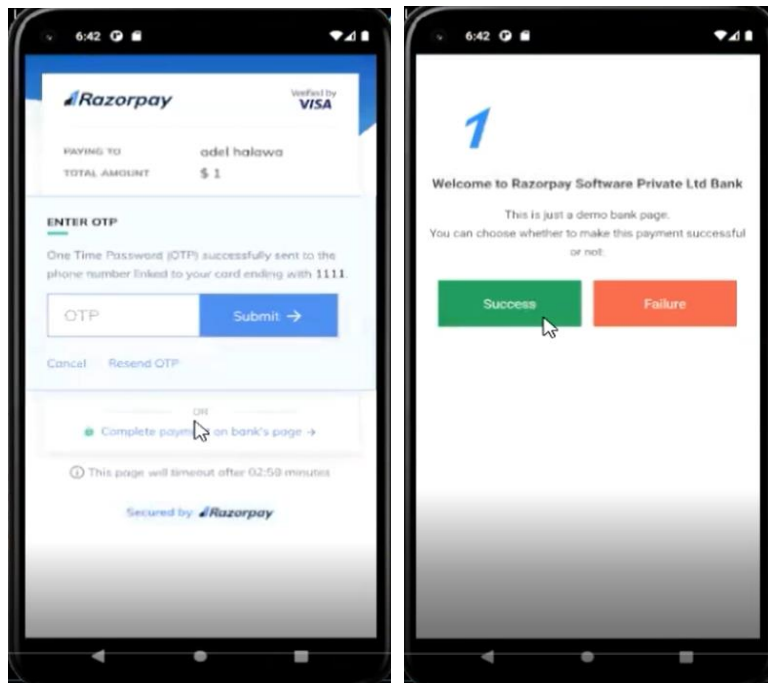

(4)   **(5)**

Figure 10: payment page
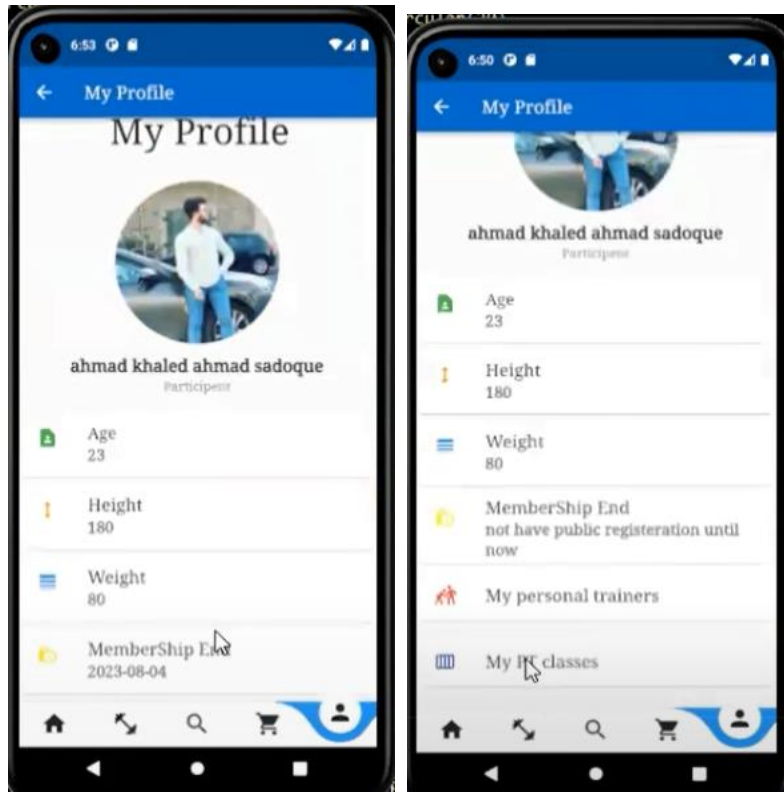
● **Personal profile page:**

Figure 11: profile page(user)

as you can see in the two pictures this is the personal profile page which shows the user his personal information, it shows him his profile picture, age , wight , height , membership end this field shows the user when his public registration will end and we were talked about public registration previously so this field shows him the ending date of his public registration if he has public registration as in the first picture, his personal trainers if he has and in the previous pages we said that the member(user) can register personal training with one or more trainers so when he clicks on this field he will see a list of his personal trainers as we will show you after a moment and the last field when the user clicks on it he will see his registered personal classes day , time and the trainer that will give him each class in a calendar view and i will show you this in a moment.

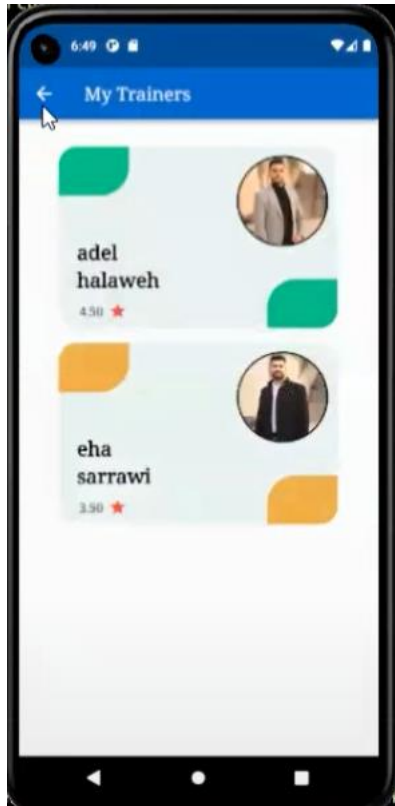- **User personal trainers page (My trainers page)**

Figure 12: my trainers page (user)

From the previous page I said that the user when he clicks on my personal trainer field he will see a list of his personal trainers and this is what I say about for the current user he registered personal training with two trainers so he will see them in a list like in the picture above.

When the user clicks on any trainer in the list then he will see informations about that trainer as in the picture below:
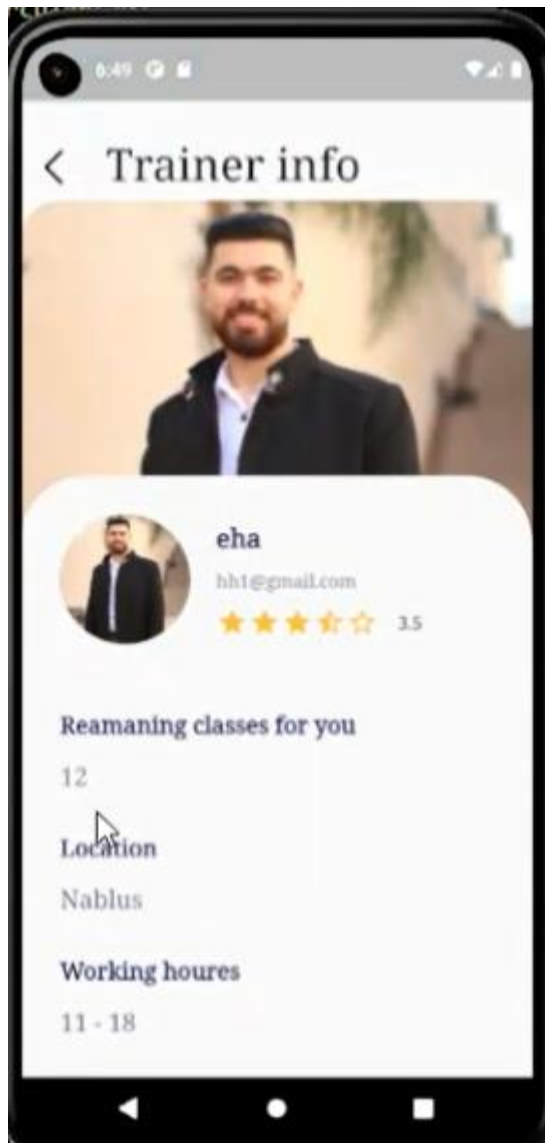
as you can see he can see some information about this trainer such as his profile picture, name, location, current rating for this trainer, gym location that the trainer works in, working hours for that trainer and finally he can see very important information which is the remaining number of personal classes to that subscriber with that trainer.

And it's clear from the picture that he can also give a rating to that trainer not only see the current rating for this trainer.

- **Calendar page (My classes time page)**

**Week view**   **Day view**
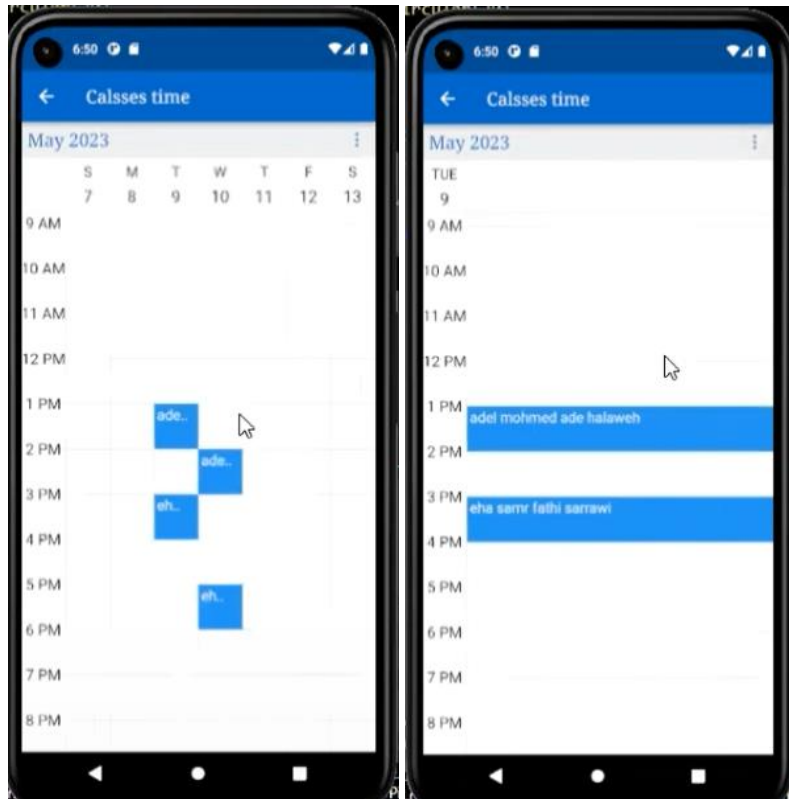
Figure 13: Calendar page

as we said in the personal profile page there is a field called my PT classes and this field when the user clicks on it then the user will be navigated to this calendar page and this page as you can see will show him the time of the personal classes he has registered , day of the personal classes he has registered and the name of the trainer that he will give him each personal class, to make it more clear let me describe the above pictures, as you can see from the first picture which called the week view of the calendar page this member (user) has a personal class at 1PM-2Pm on tuesday with adel trainer, at 3PM-4Pm on tuesday with ehab trainer and so on and the same idea for the other picture which is called the day view of the calendar as you can see he will see the same informations that he can see them in the week view but in another view, so the user in this page can see all informations about all of his personal classes that he were registered them and i describe previously in detail how he can register personal training and it will be more clear when you watch my demo.

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- **Show programs page(user)**
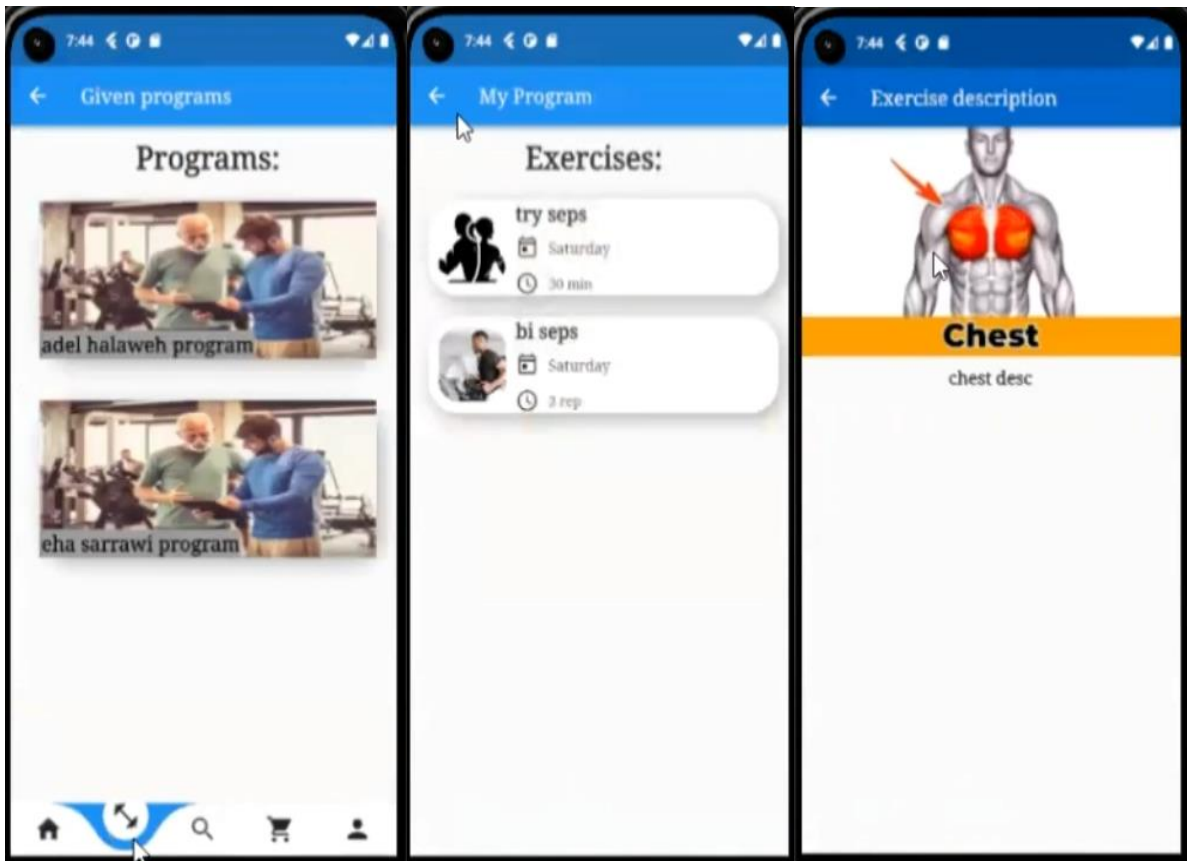
The first page will be shown when the user clicks on the dumbbell icon in the bottom bar the user can see the programs uploaded by his personal trainers for him and as you can see in the first picture he will see the name of the trainer uploaded each program and when he clicks on an item in this program list he can see the exercises uploaded by that trainer ,for example when the user clicks on adel halaweh program he can see the exercises uploaded for him from adel trainer as in the second picture and when he click on an exercise from the exercises list he can see a video tutorial and a description for that exercise as in the third picture.

- **Search page**
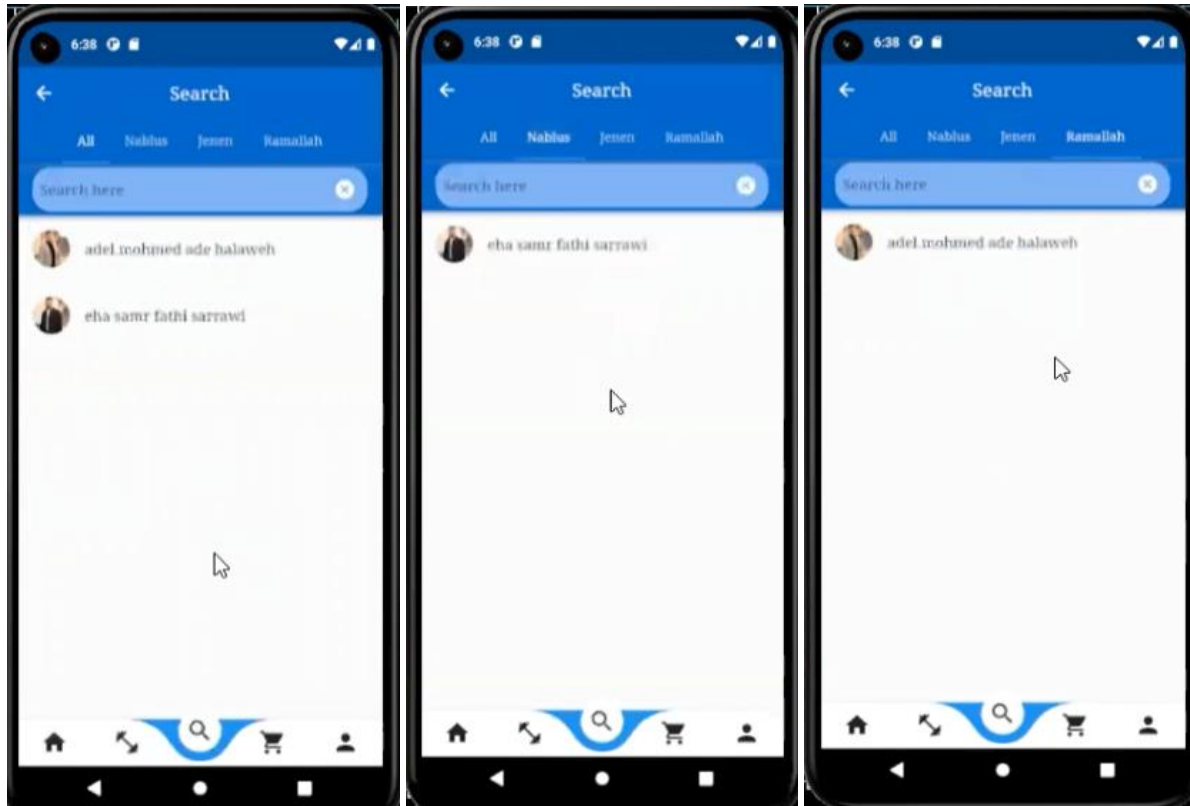
**Figure 14: search page (user)**

This page in the pictures appears when the user clicks on the search item on the bottom tab bar on the user home page. It contains the name and the photo of the trainer. The page also contains a search bar the user can use for searching on any trainer he wants by typing his username. The page has a filter feature where the user can search for the trainer based on the location of the gym where the trainer is registered , i mean that assume if the user wants to see all trainers in Nablus only or wants to search for a trainers that have been registered in Nablus only he can select Nablus from the locations list and search for the trainer he wants from Nablus and the same idea for other locations. As we can see in the first picture when clicking on "All" from the locations list all trainers in all locations will appear and he can search for any trainer as we said, for our application state in the pictures By clicking on the nablus branch we notice the presence of registered trainers in the nablus gym,and By clicking on the Ramallah branch we notice the presence of registered trainers in the Ramallah gym also by clicking on the trainer, the trainer's page will appear, which contains his personal information, assume we choose Ahmad's subscriber as shown in the picture below:

This picture shows the trainer's personal information. This page has been explained in detail above

before we go to other thing let's talk about the third list which is highly rated product list (Top product list) in the user home page, this list as we said before the gym can take advantage from it to marketing gym products, when the user clicks on any product in this list the user will be navigated to the product page to buy this product by adding it to shopping cart if he want or see information about this product such as product description, product price, etc…

Below is the picture for the page the user will be navigated to it when he clicks on a product in the list:
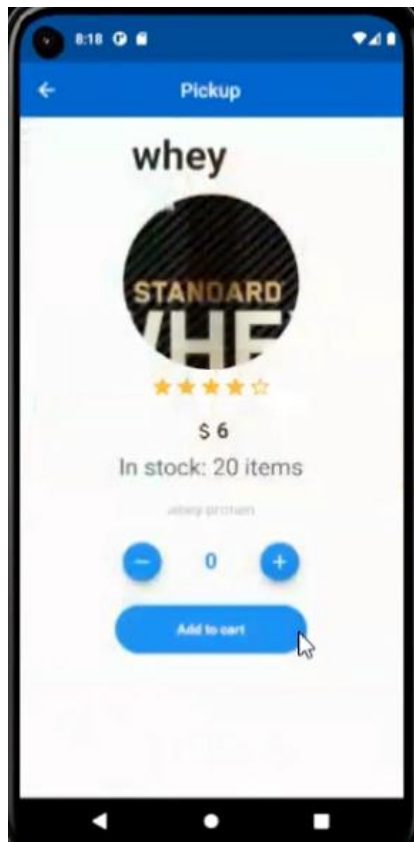
● **Show Product Page (Store page)**
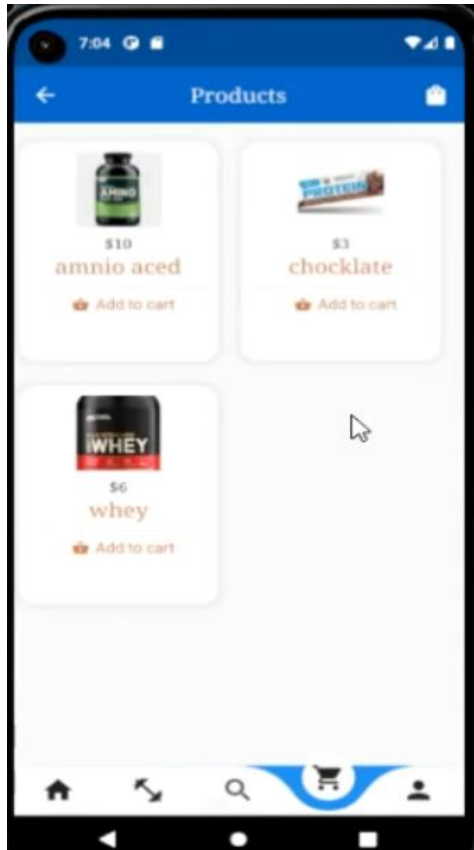
Figure 15: store page

When the user clicks on the shopping item in the tab bar of their home page this page will appear which contains all the gym products the admin has added, in this case we have added three products and the page above has a bag icon which we will it to it later, the user can choose a product By clicking "Add to Cart". The user will be taken to the product detail page, selecting the quantity, which we will see later.
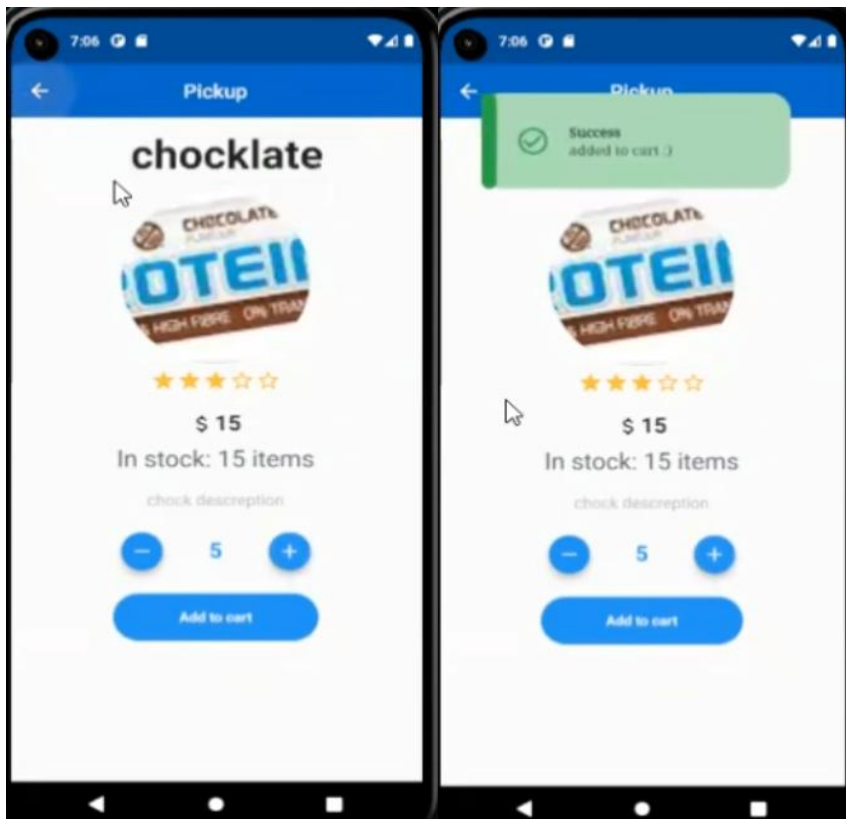
- **Show Product Details Page**

Figure 16:show product page

This page will appear when the user clicks on Add to the shopping cart in the store home page. This page contains the product name, product image, product rating and also the user can rate the product from this page, product price and the total price determined by the amount that the user wants to buy it and the quantity in the store (in stock). The page also contains two buttons, minus and plus buttons, and the quantity to be purchased. The quantity is determined by controlling these two buttons. When the user clicks On adding to the shopping cart, the product is added to the shopping bag, which we will see later, and a success message appears.
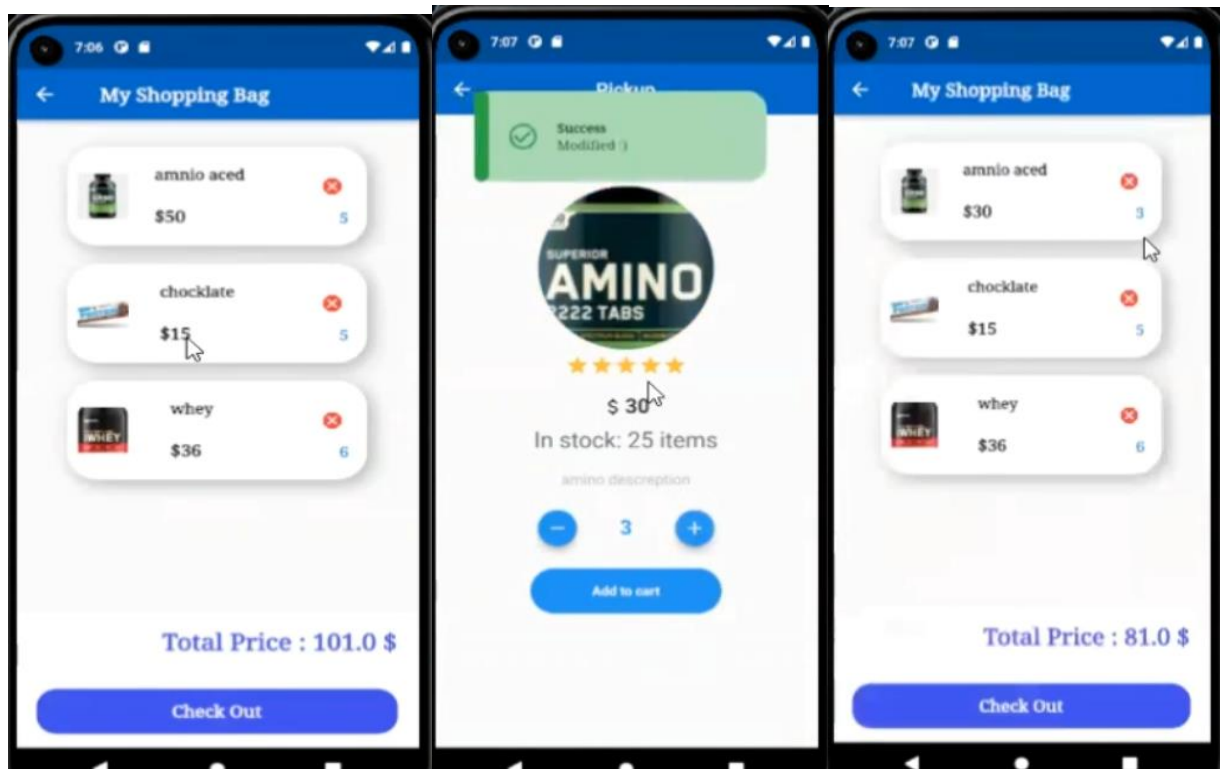
- **MY Shopping Page (Bag page)**

Figure 17: bag page

This page will appear when the user clicks on the bag icon at the top of the store page. On this page, the user is asked to confirm his purchase. On this page, a list of all the products that the user has selected and added to the shopping cart appears. Also in this list, there is a delete button when the user clicks Accordingly, the product is removed from the shopping bag. We notice in the image that the total price is 101.0$. Also, if the user wants to modify the product quantity before purchasing, he clicks on the product in the list and modifies the quantity as in the second image.

We note here that in the first picture, the amount of amino acid was five, and after the adjustment, as in the third picture, the amount of amino acid became three, and the total price also changed, it became 81.0$.

The last thing is the checkout button this button the user will click on it after selecting the products and by clicking on it the online payment process will start using Visa / mastercard as explained in the subscription process.
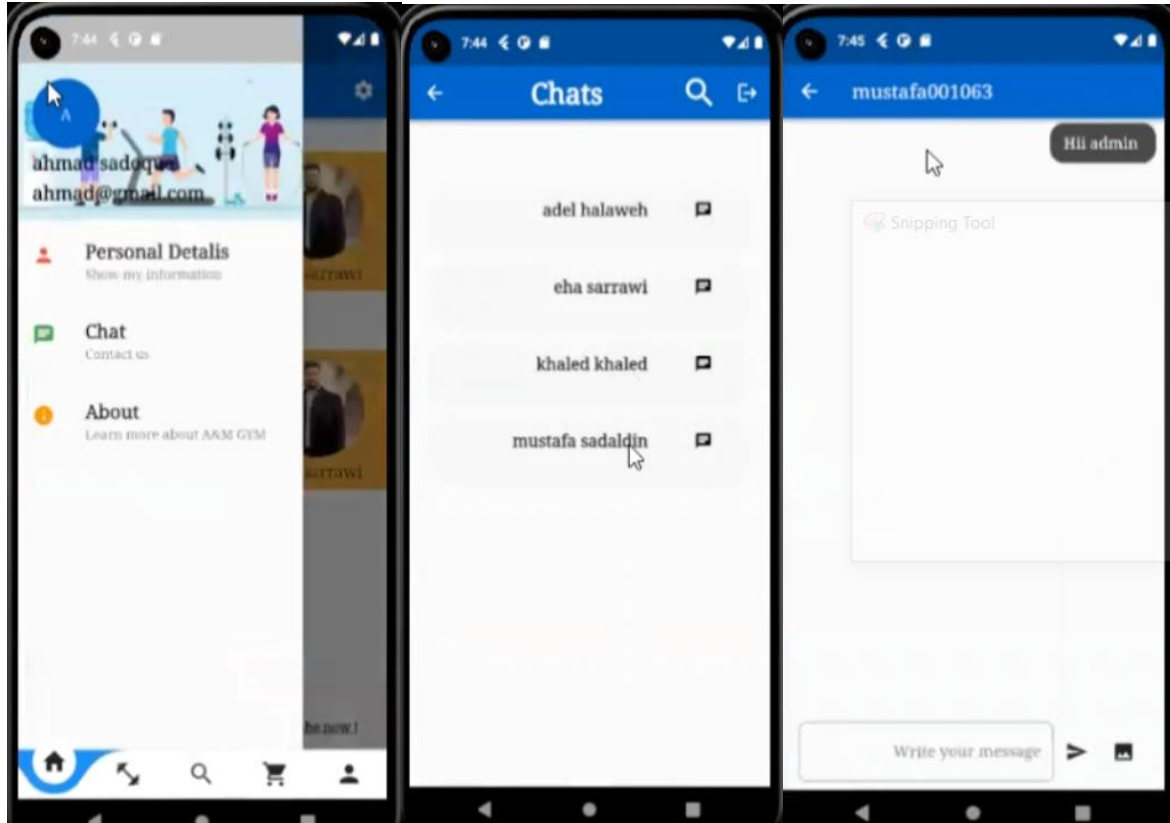
- **Chat page**

Figure 18: chat page

In the first picture, this menu appears when the user clicks on the menu at the top of the home page, and in the second picture appears when clicking on Chat. On this page, all users appear, whether they are trainers, admin, or users and respective the user is trainer or admin or member he can make chatting with all the users registered on the application. When clicking on the name, the third picture appears, and the user starts chatting with him. The user can start chatting with anyone he wants. For example user Ahmed wants to send a message to the administrator, as in the third picture.

from ahmad to admin :　　　**from admin to ahmad:**
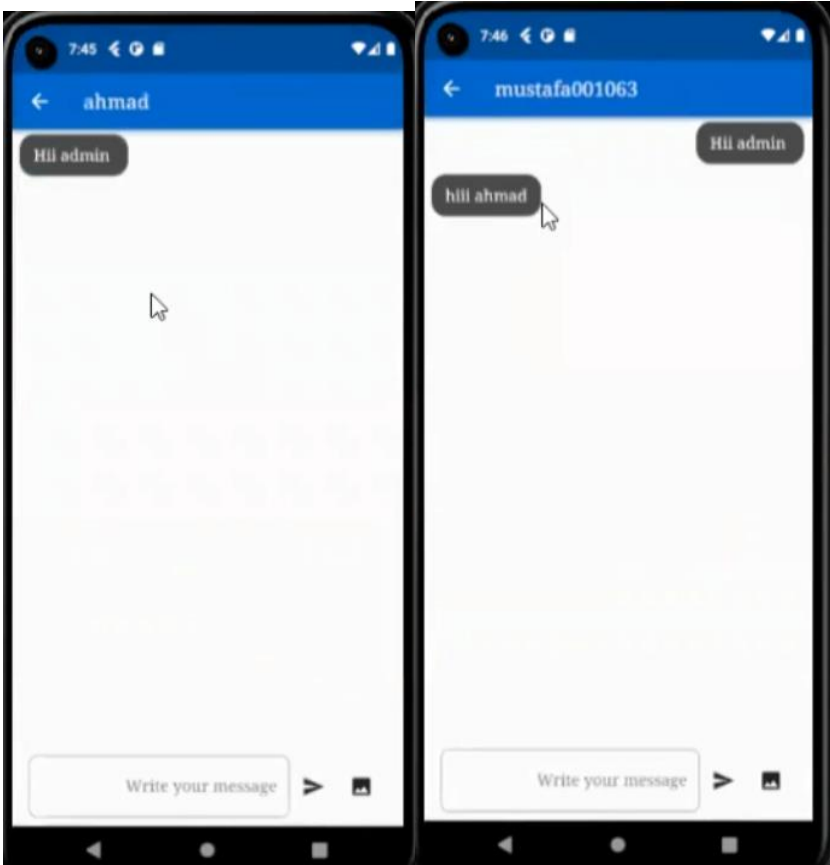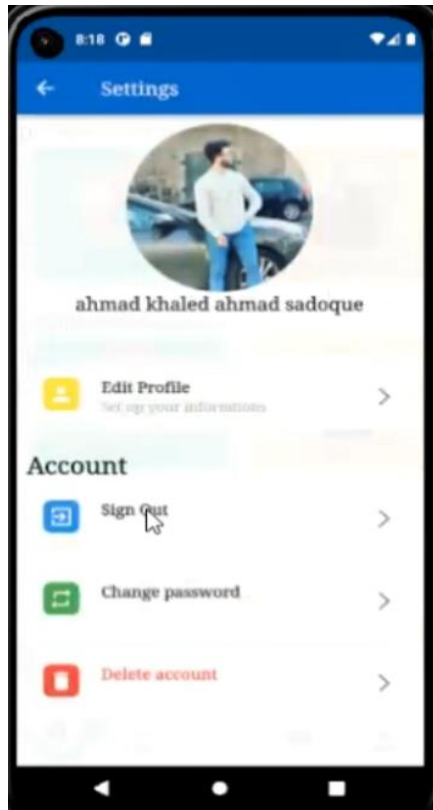
- **Settings page(user)**

Figure 19: settings page

This picture appears when the user clicks on the settings item in the app bar. This page contains the user's picture, name, and button to edit the profile. When clicking on this button, the edit profile page will appear, which we will see later. Also, this page contains the logout button. When he clicks on it, he will be logged out from the application. Also, the page contains a button to change the password, when the user clicks on it, the password change page will appear, as we will see later, and also the delete account button, when you click on it, the account will be deleted from the application.
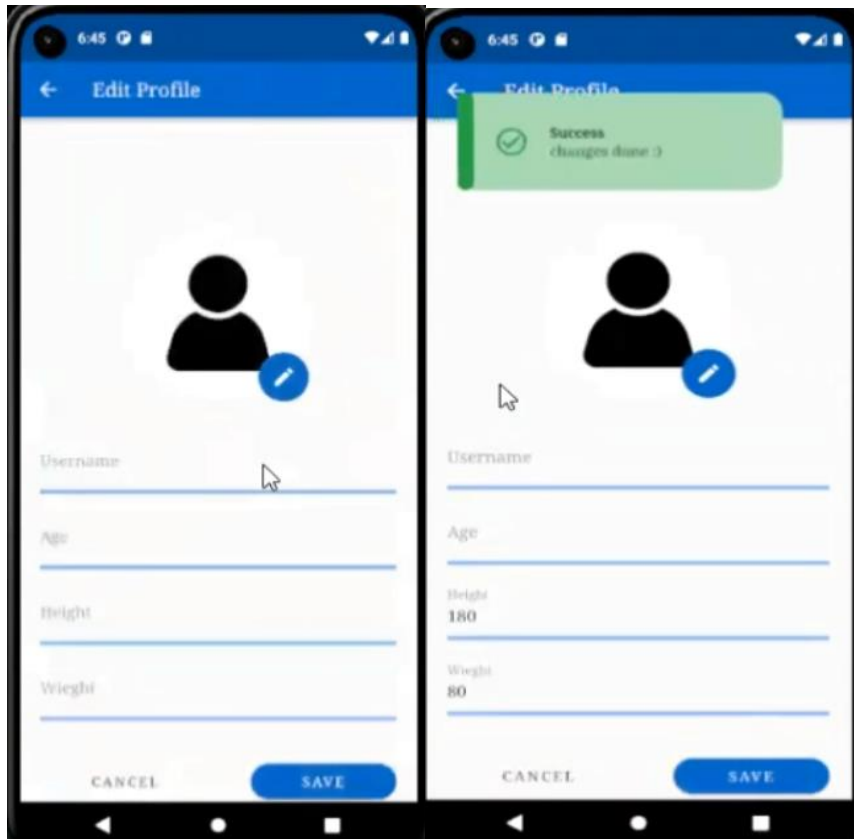
- **Edit Profile page(user)**

Figure 20: edit prfile(user)

This picture appears when the user clicks on the edit profile button on this page. The user can modify one or more information about his profile, i mean that he can update only a user image without anything else or he can update only user username or height, and age and so on,in summary this page is responsible for modifying the user image, user name, user age, user weight or user height. When he clicks on the save button, the user information is modified in the database and the app, and a success message (updated) appears as in the picture.

Trainer Side

In this part, we will talk about the trainer who gives private classes and sends programs to each private subscriber.

- **Homepage .**

 Figure 21: homepage(trainer)

This is the trainer home page, trainer home page will contains a bottom tab bar that trainer will use it to navigate between pages, now let me clarifying this tab bar by starting from left to right on it, the first icon (home icon) he will use it to navigate to home page,the second icon (search icon) he will use it to navigate to search for subscribers page i mean if he want to search for subscriber he will navigate to this page to search for a subscriber, the third icon (bag icon) he use it to navigate to store page and the final icon for navigating to personal profile page, now let's talk about the first list, the first list as you can see is my subscribers list, this list will contains all subscribers(users) that are taking or reserved a personal training with that trainer and we already described how personal training reservation process with a trainer previously when we talked about personal training reservation page in the user side , trainer can

also take advantage from this list to see information about the subscriber (user) he choose by clicking on that subscriber he can see his weight, height,The number of personal classes remaining, etc… and he can also uploading a programs for the subscriber we will see this page later (page that the trainer will navigate to it when clicking on a subscriber).

The second list as you can see from it's name it will contains personal classes reserved with that trainer and each class as you can see will be described by it's time , day and subscriber name(the subscriber reserved this class) and only the first three classes from all classes will be shown in this list, i mean assume the trainer has a 100 personal classes the first three classes will appear and when trainer click on a"see all" he can see all of the classes reserved with him in our example if he has 100 classes reserved then when he clicks on see all he can see all of them(100 classes) and also each class will be described by it's time , day and subscriber name(the subscriber reserved this class) .
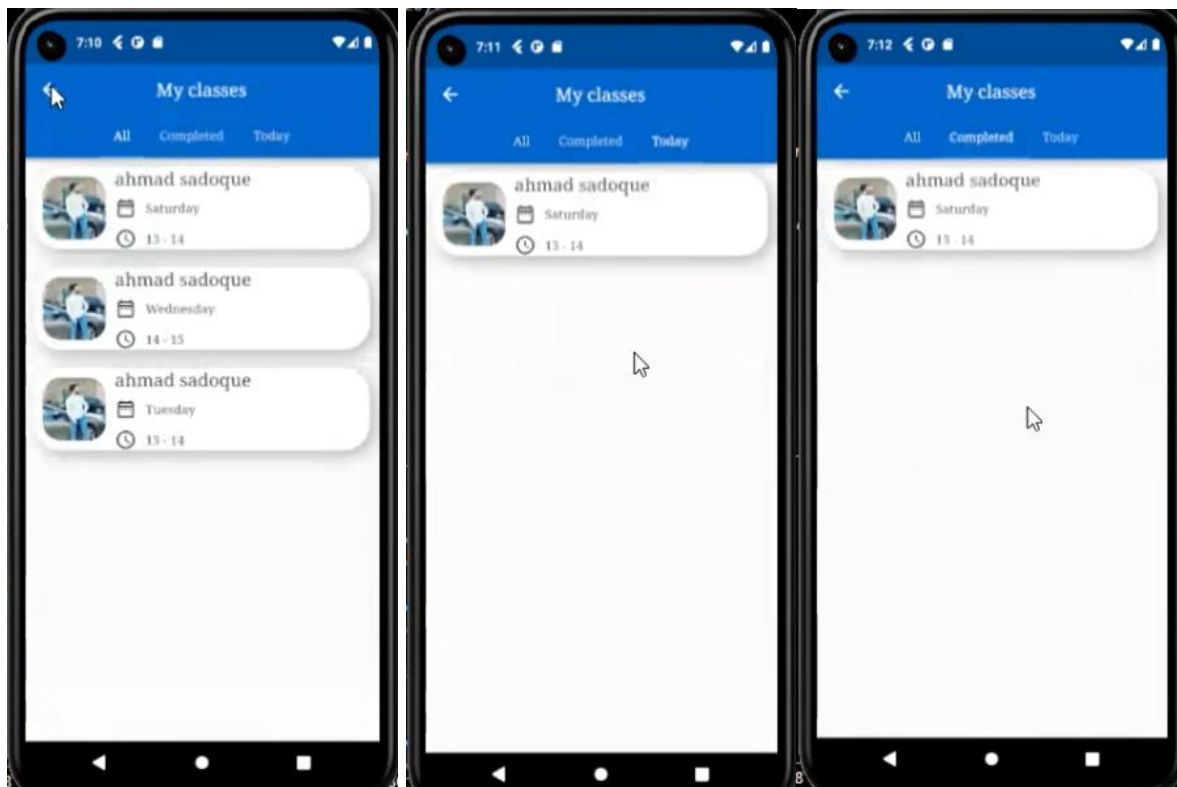
● **Trainer classes page**


Figure 22: trainer classes page

Now let's talk about when the trainer clicks on see all in the trainer home page, he will see a filter list with three things (all, completed, today) and i will describe each one in detail in a moment.

let's firstly talk about the first choice "All" choice, when the trainer selects that choice he will see all the personal classes registered with him as we described before a moment, so if he has 100 classes registered with him then he will see them all and each class will be described by it's time , day and the subscriber registered or reserved this class by showing his name and picture.

The third choice in the second picture is "Today" choice this choice will show the trainer all of the classes that he must give them for today, to make it more clear let me describe the second picture, those picture has been taken from my demo video and when i made my demo i made it on saturday so as you can see in the second picture if the day is saturday it will show the trainer all of the classes he must give them on saturday only and if the day is sunday he will see all the classes he must give them on sunday only and so on, so in summary the classes that he will see them when he clicks on today will be dynamically shown depending on the current day.

Since the trainer can see the classes that he must give them for today the trainer has another feature that he can mark the class he wants for today as completed and this class will be removed from today classes list and it will be added to the completed classes for today list and by marking the class as completed this will automatically decrease the number of classes remaining for that subscriber.

in the picture below i will show you how the trainer can marks the class as completed and for the picture below in my demo i have marked the class in the second picture above as completed, i mean by completed that the trainer already gave this class to the subscriber for today:
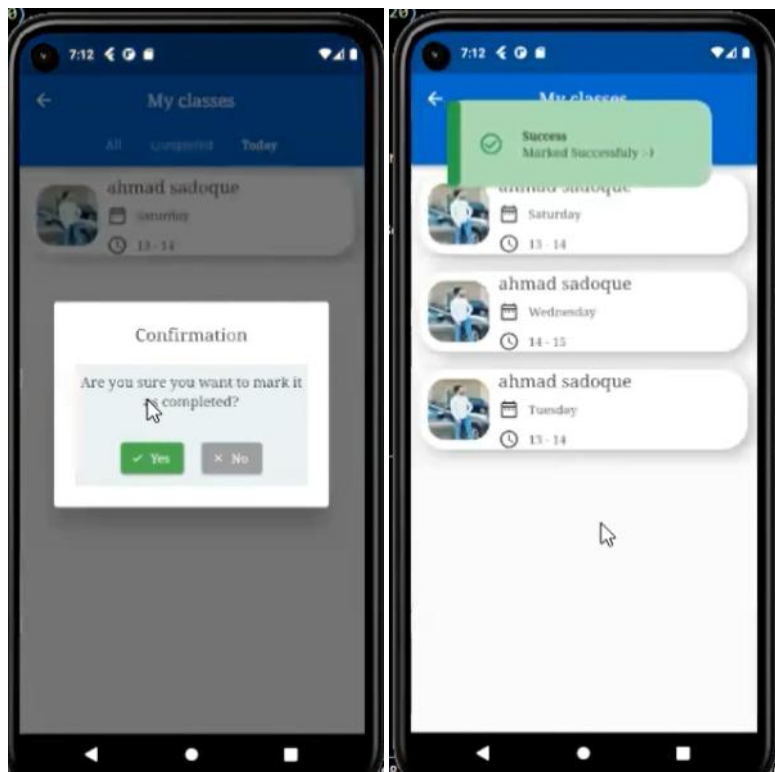
When the trainer clicks on the class that he wants to mark it as completed a confirmation message will appear as above and when he clicks on" yes" a message "marked successfully" will appear as in the second picture and this class will be moved to the completed classes for today list as in the third picture above.

and in the below picture i will show you how the subscriber classes will be decreased from 20 to 19 after marking the class as completed:
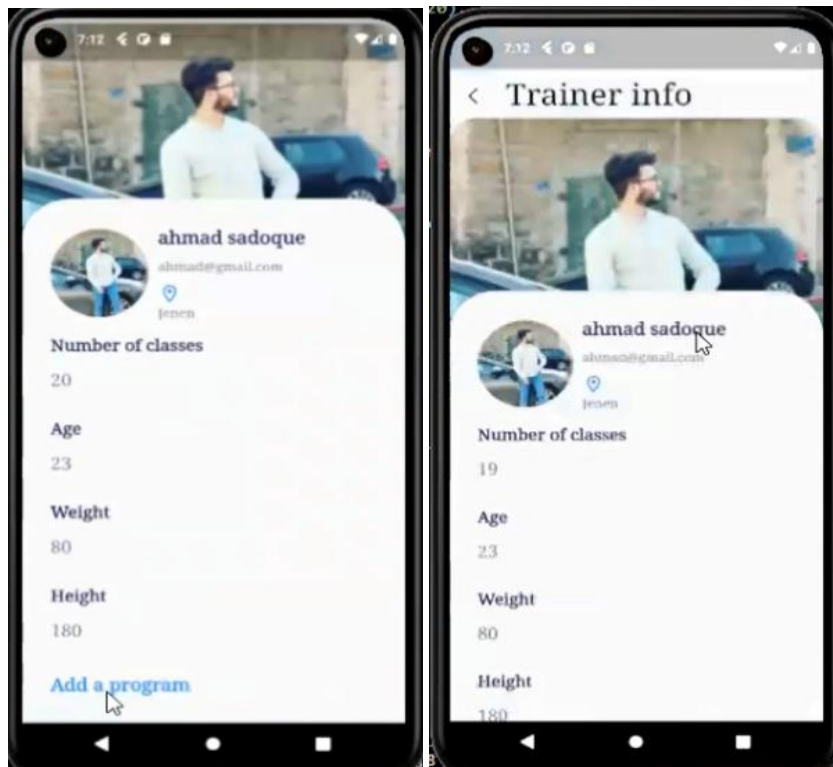
before marking   **after marking**

Figure 23: user information page

and also as we have seen before in the user side the user can see the remaining classes for him with each personal trainer he registered with.

Also this is not all after a trainer marking a subscriber class as completed a notification will be sended to that subscriber with the name of the trainer that has marks the subscriber class as completed since if the subscriber see there is something wrong and he does not take this class or something else then from this notification he can directly send a message to that trainer from the application chat

in the picture below i will show you this notification:

49
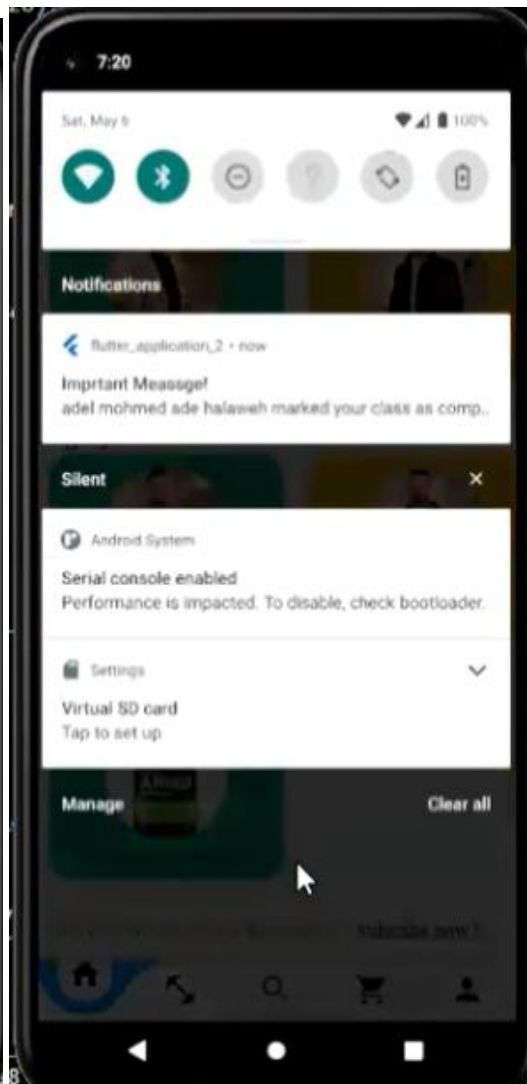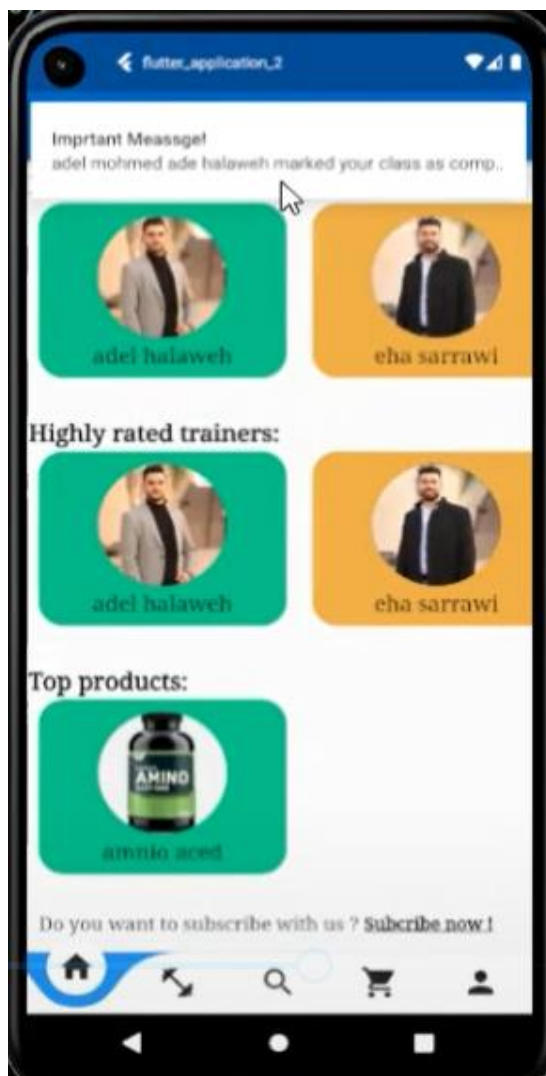
● **Subscriber profile (subscriber information page):**
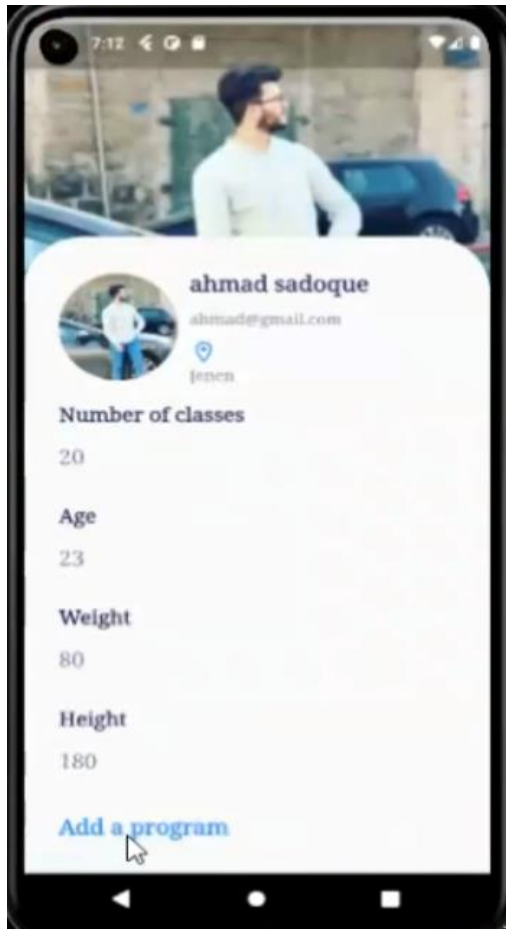
On this page, we will talk about the subscriber information display page. When the trainer clicks on a subscriber in the list of subscribers in the trainer home page, he will take a benefit from the personal information identifier about this subscriber like his weight, height and age to upload his sport program. Also he can see other information about the subscriber such as the subscriber's picture, the subscriber's name, the subscriber's email, the location of the club he is registered with, the age of that subscriber, and the number of classes remaining for that subscriber, the main idea from showing the number of the remaining classes is for helping the trainer to know how many personal classes remained for this subscriber to take them.

We will see later that the number of remaining classes will be decreased automatically when the trainer marks the subscriber class as completed, which means that the trainer gave the user the class which has been marked as completed. Now the important thing on this page is uploading a sports program. When the trainer clicks on Add a program he will be moved to the page for adding exercises, as we will see in a moment.

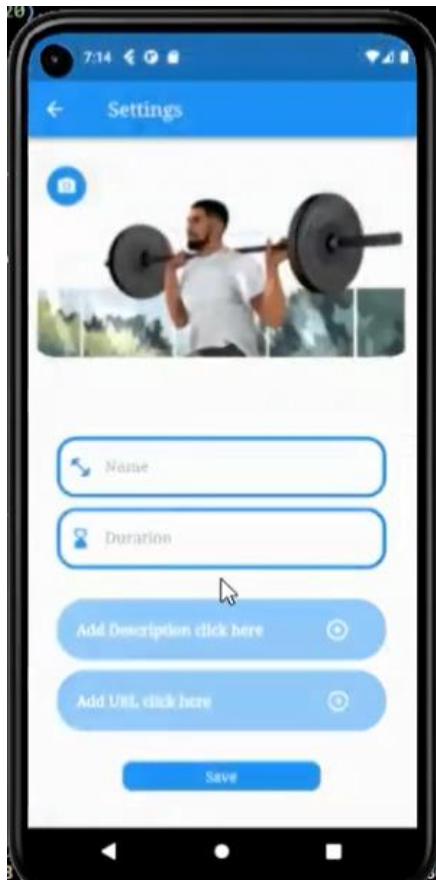- **Upload a program page (Add a program page)**

Figure 24: add program page(trainer)

we said before a moment that when the trainer navigates to the subscriber information page th trainer has an option to upload a program for this subscriber, so when the trainer selects that choice and clicks on "Add a program" option in the subscriber information page which we were talked about in the previous page then the trainer will be navigated to that page in the above picture.

Now let me describe how the programs uploaded from this page, the trainer every time fill informations about the exercise he want to give it to the subscriber the trainer has choose him, so the trainer will fill informations about that exercise like the exercise picture, name , duration, description about this exercise and a youtube video tutorial about the exercise by specifying the video url if he want and then when he click on save button this exercise will be the first exercise in the subscriber sport program and by repeating this process a program with multiple exercises will be created to that subscriber (user), to make it more clear let me give you an example, assume the trainer want to give the subscriber a

program with five exercises then he will repeat the same process five times every time he will fill informations about the exercise he wants give it to the subscriber and i were said what informations the trainer will fill and then the trainer will click on save button so this exercise will be added to the program and by repeating this process five times a program with five exercises will be uploaded, in summary every time he clicks save a new exercise will be added to the subscriber program.

- **Notification:**

When a user (subscriber) registers a personal training with a trainer a notification will be sended to that trainer with the name of the subscriber (user) that registers with him a personal training.

The pictures below shows this:
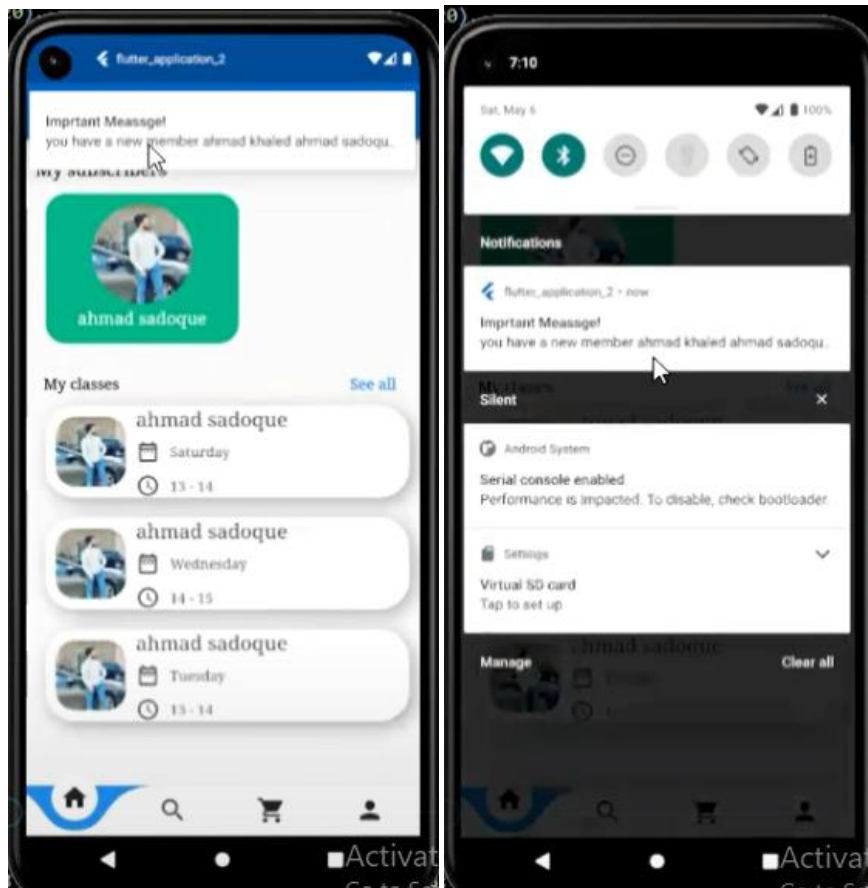
Figure 25:notification

- **Search Subscribers:**
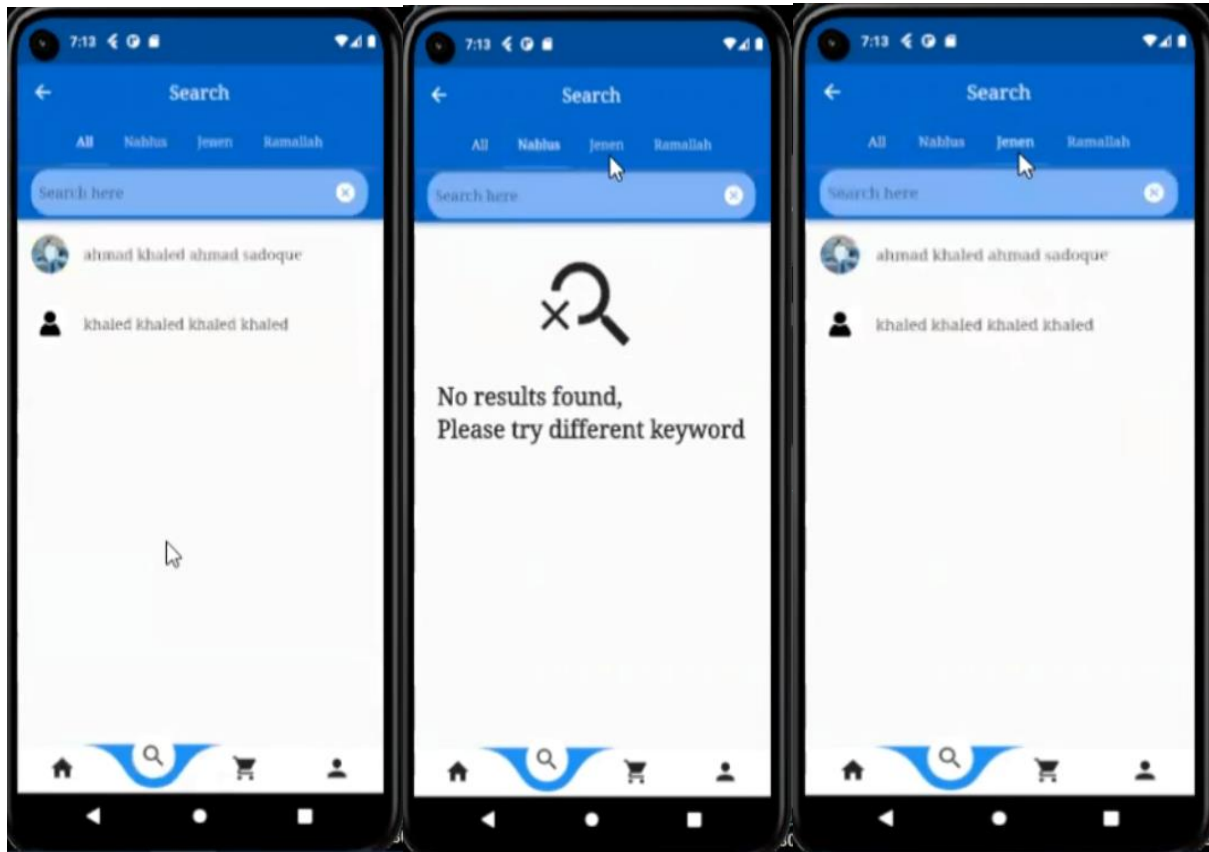
Figure 26:search page(trainer)

This page in the pictures appears when the trainer clicks on the search item on the bottom tab bar on the trainer home page. It contains the name and the photo of the subscriber. The page also contains a search bar the trainer can use for searching on any subscriber(user) he wants by typing his username. The page has a filter feature where the trainer can search for the subscriber based on the location of the gym where the subscriber is registered , i mean that assume if the trainer wants to see all subscribers in Nablus only or wants to search for a subscribers (users) that have been registered in Nablus only he can select Nablus from the locations list and search for the subscriber he wants from Nablus and the same idea for other locations. As we can see in the first picture when clicking on "All" from the locations list all subscribers in all locations will appear and he can search for any subscriber as we said, for our application state in the pictures By clicking on the Jenin branch we notice the presence of registered subscribers in the Jenin gym and by clicking on nablus no subscribers are registered in nablus gym as you can see from picture and so on, also by clicking on the subscriber, the subscriber's page will appear, which contains his personal information, assume we choose Ahmad's subscriber as shown in the picture below:
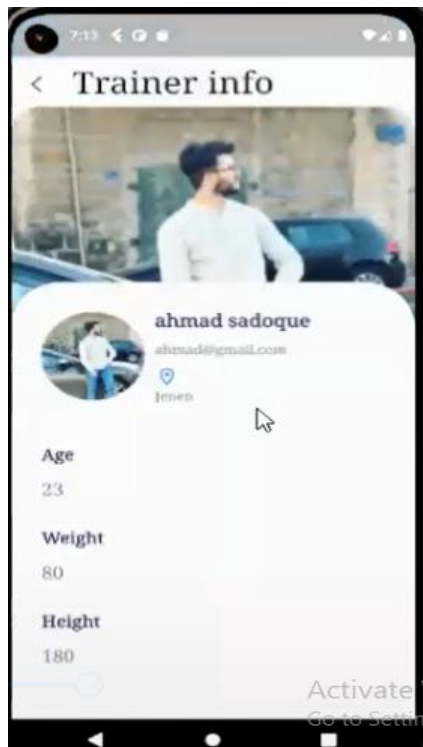
- **Show Product Page (Store page)**

as same as the user pages that explained above
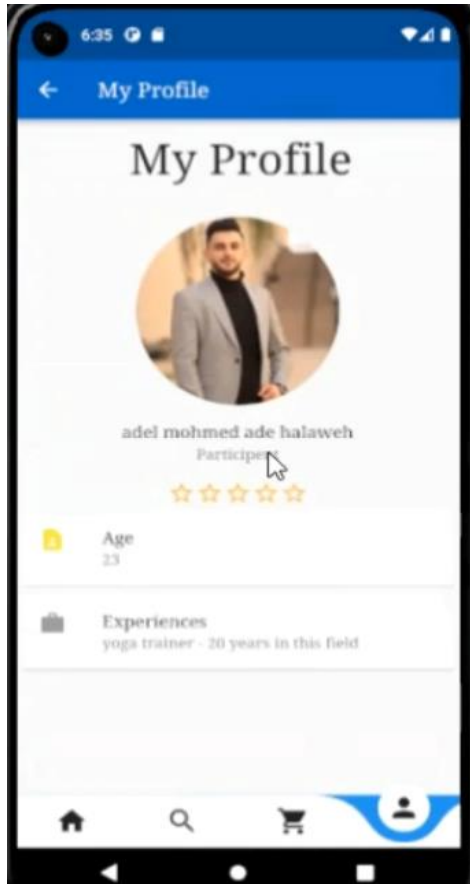
- **personal profile page**

Figure 27 :profile page(trainer)

This picture appears when the trainer clicks on the Profile item in the tab bar on the trainer's home page. This page contains the trainer's personal information, such as the trainer's picture, name, and the trainer's rating. In this picture, the rating appears empty because the trainer has not been rated yet, and also the trainer's age and experiences. The trainer meant here in the trainer's experiences is the specialty of the trainer. For example, here the trainer specializes in yoga training for example.

- **Settings page**
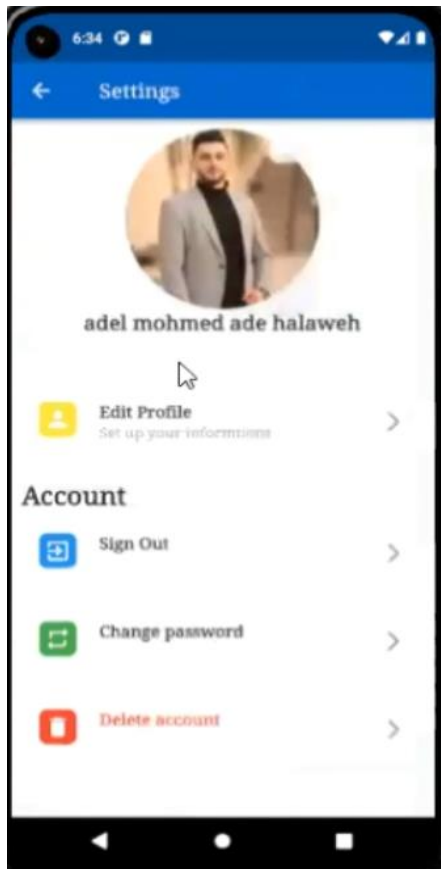
Figure 28 :settings page(trainer)

This picture appears when the trainer clicks on the settings item in the app bar. This page contains the trainer's picture, name, and button to edit the profile. When clicking on this button, the edit profile page will appear, which we will see later. also, this page contains the logout button. When he clicks on it, he will be logged out from the application. Also, the page contains a button to change the password, when the trainer clicks on it, the password change page will appear, as we will see later, and also the delete account button, when you click on it, the account will be deleted from the application
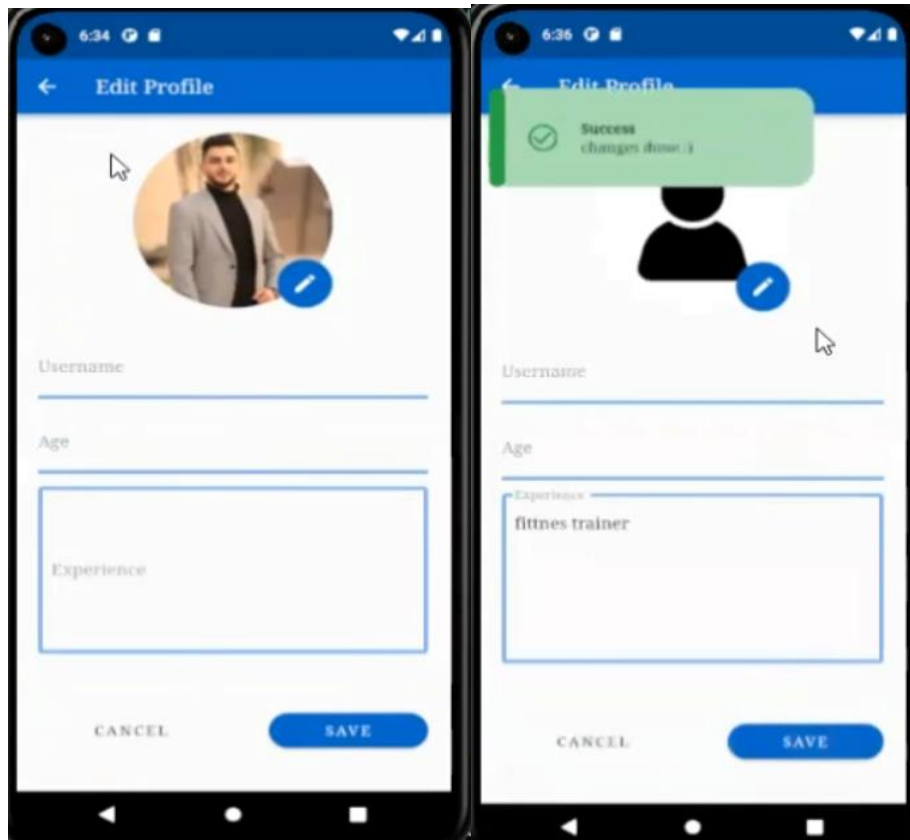
- **Edit Profile page**

Figure 29: edit profile page(trainer)

This picture appears when the trainer clicks on the edit profile button on this page. The trainer can modify one or more information about his profile, i mean that he can update only a trainer image without anything else or he can update only trainer name or experience, and age and so on,in summary this page is responsible for modifying the trainer image, trainer name, trainer age, or trainer experience. When he clicks on the save button, the trainer information is modified in the database and the app, and a success message (updated) appears as in the picture.

- **Change password page**
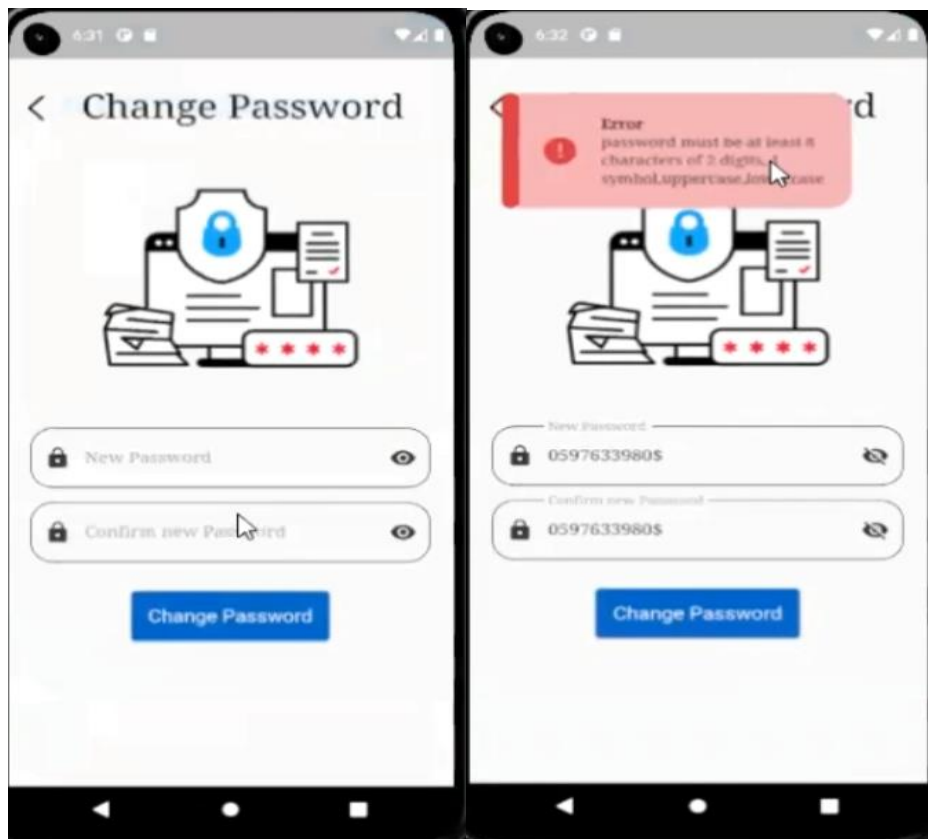
This picture appears when the trainer clicks on the change password button on this page, The same process is described above

4.2 Admin Side

In the part, we will talk about the admin who controls everything within the application
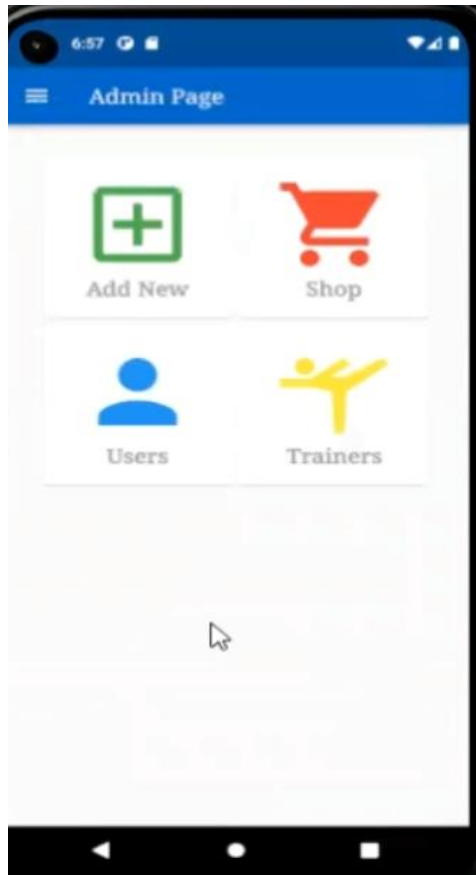
- **Homepage .**

Figure 30:homepage(admin)

In this picture, we can see the Homepage of the admin, it contains 4 main elements, as we notice the first element is add new when admin clicks on it he will be navigated to the add new page this page takes control adding of a new product, as well as adding or hiring a new trainer, as we will see later, when admin clicks on the second element he will be navigated to a page which contains a table for all products in the store and he can update or delete a product from this page as we will see later, when admin clicks on the third element he will be navigated to a page which contains a table for all users or subscribers in the gym as we will see later, and the last element when the admins clicks on it he will be navigated to a page which contains a table for all trainers working in the gym as we will see later.
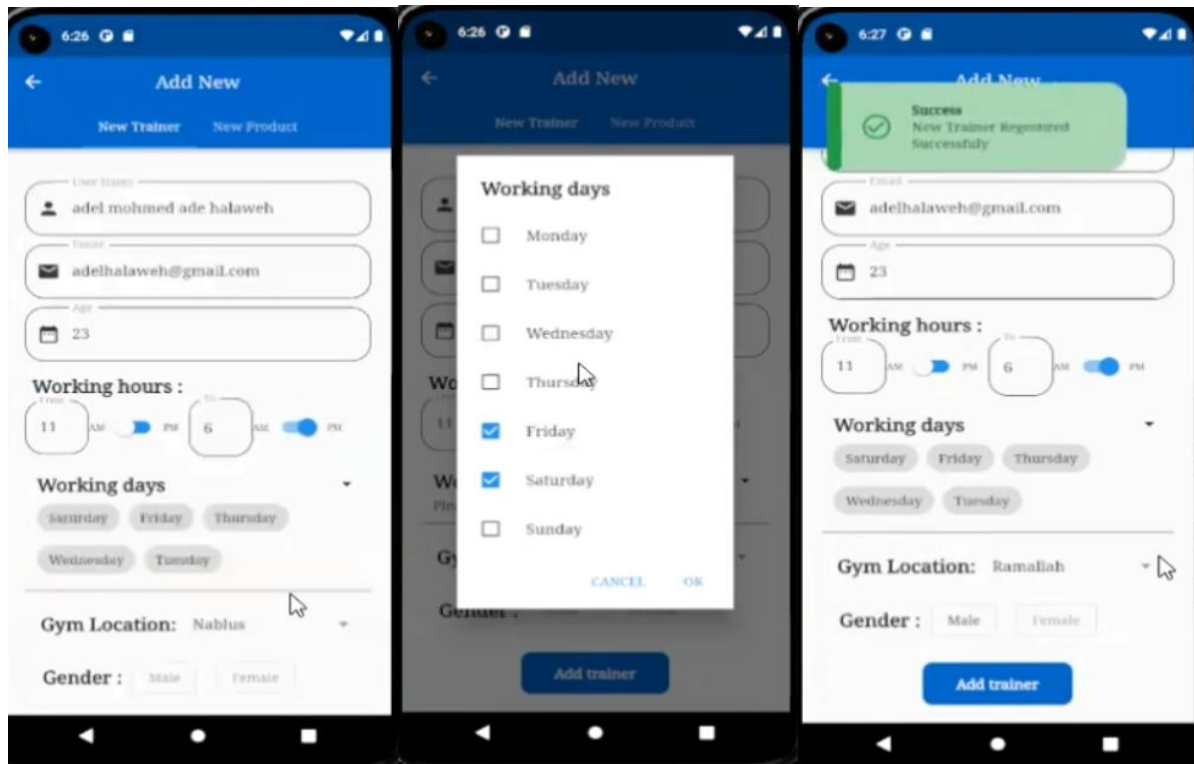
- **Add new(New Trainer) page .**


Figure 31:add new page(admin)

This picture contains two parts. The first is hiring a trainer page (sign-up a trainer) . In this page the admin is hiring a new trainer by entering the trainer information based on what has been agreed upon between them. He enters his name and his username must be unique and not used before by any user or trainer, a unique email which is not already existing, age, working hours, gender, days of working for this trainer and gym location he will work in, as we saw before in the user sign-up there are three locations and also here there are three locations. Upon completion of the registration process, a message is sent to the trainer email containing a random login password that will be generated randomly from the application and sended to the specified email, so only the trainer knows it and the admin does not knowing it and then the trainer can change it after logging in with it for the first time.also as you can see in the first page he can specify the starting hour and ending hour can be specified as AM/PM so for our example it will be considered from 11 AM to 6 PM

● **Add new(New Product) page .**
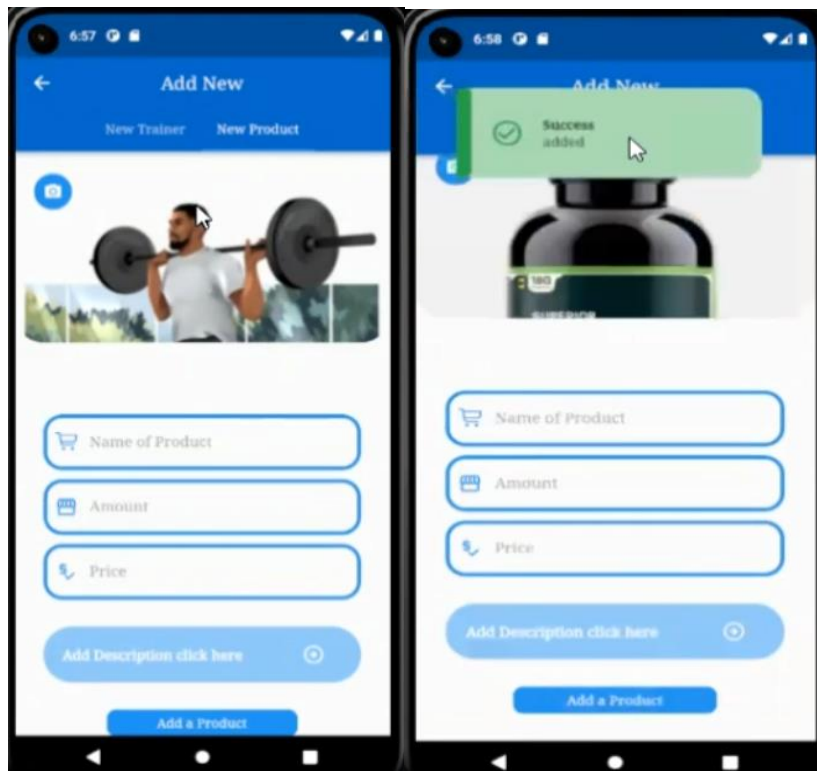
 This image is for the page that will be using it for adding new products. Admin enters the product image, name, quantity, price, and description of the product, and then by clicking on add a product button the product will be added to the store and then users and trainers can see it in the store page and buy from it if they want.

- **Shop page.**
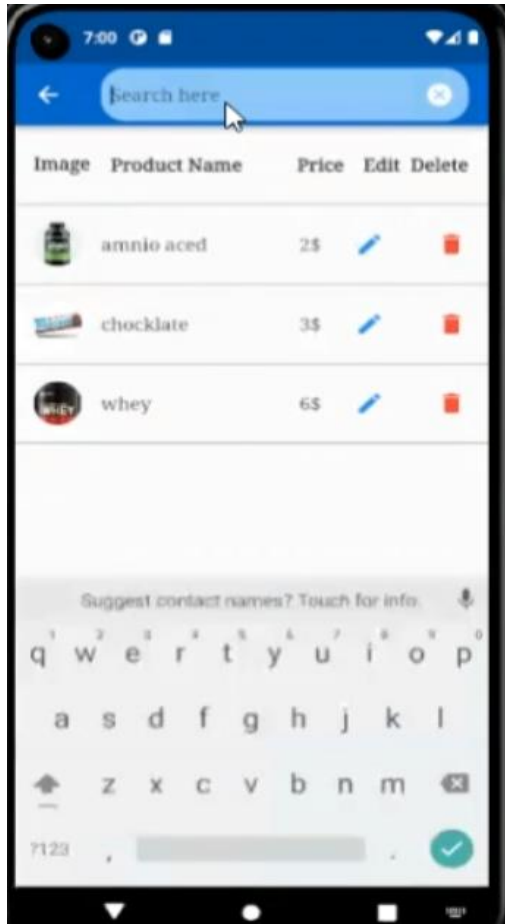
This image displays a table that contains all the products inside the gym. Every row in the table consists of a picture of the product, name of the product and the price of the product. At the top of the page there is a search bar admin will use it to search for any product by entering the name of the product he is looking for, he can see any product information by clicking on it admin will be navigated to the product information page that contains details about the product and we will see this page later , he can update any product information by clicking on that product edit button admin will be transferred to the product editing page that we will explain it later and he can delete any product by clicking on the delete button for this product it will removes this product from the table and from the database hence from the store.

- **Show Product page.**
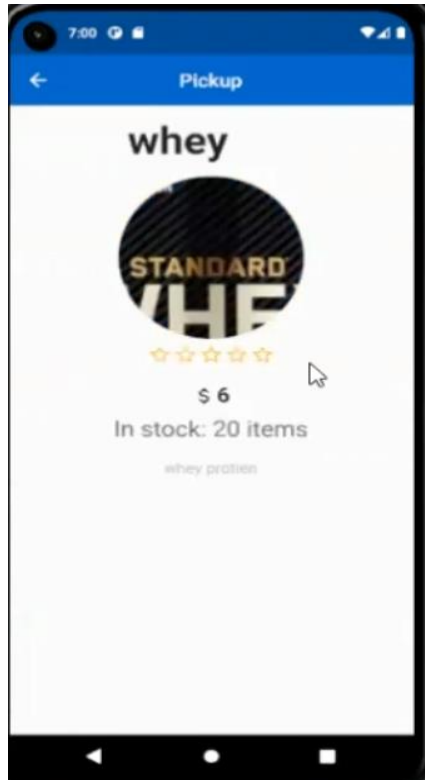
This picture appears when the admin clicks on the product. In this picture, information about the product appears, such as the product name, product image, product rate but in this picture the product is still unrated by any user , product price, product quantity (in stock items), and a description of the product.
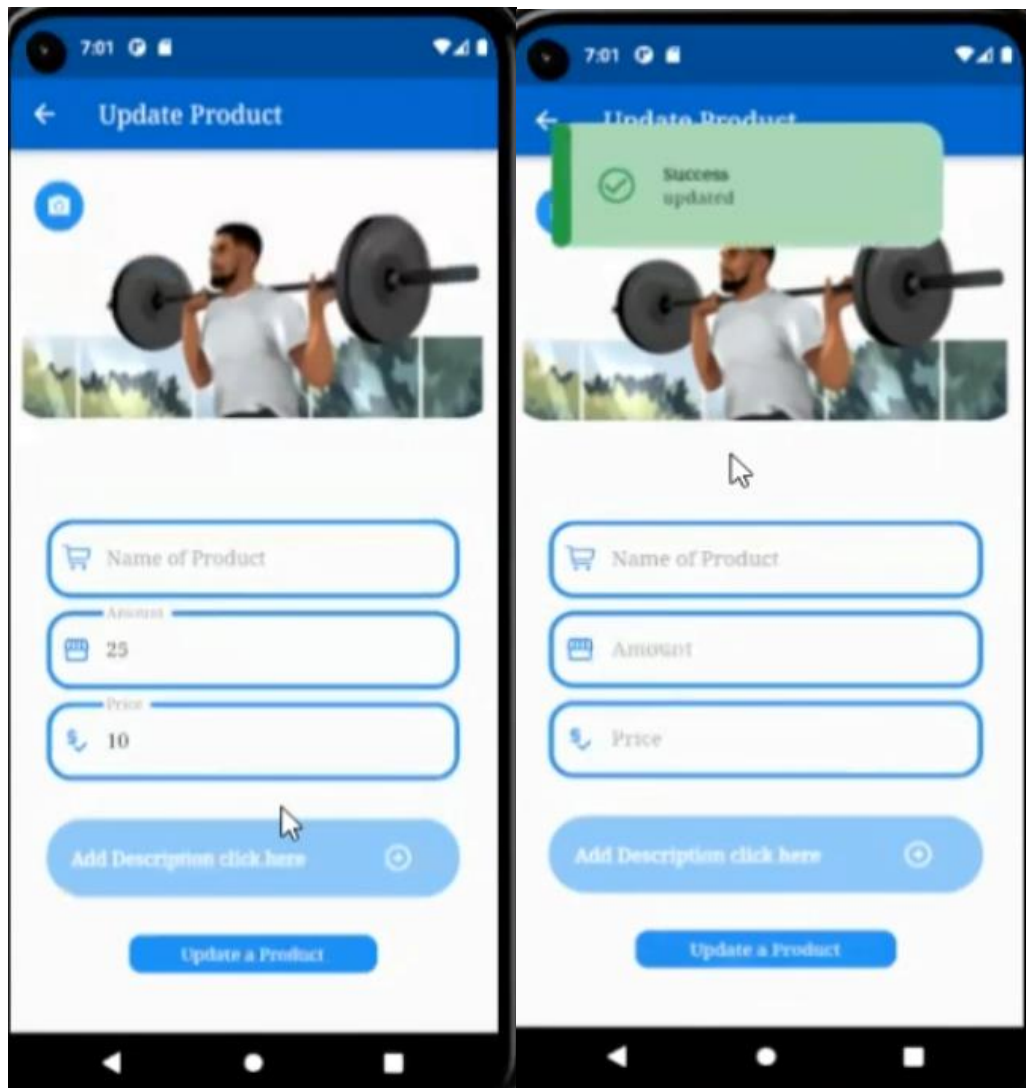
- **Update Product page.**

Figure 32:updata product page

This picture appears when the admin clicks on the edit product button on this page. The admin can modify one or more information about a product, i mean that he can update only a product image without anything else or he can update only price or price and amount and so on,in summary this page is responsible for modifying the product image, product name, product price, or product quantity. When he clicks on the update a product button, the product is modified in the database and the store, and a success message (updated) appears as in the picture.

- **Show users page.**
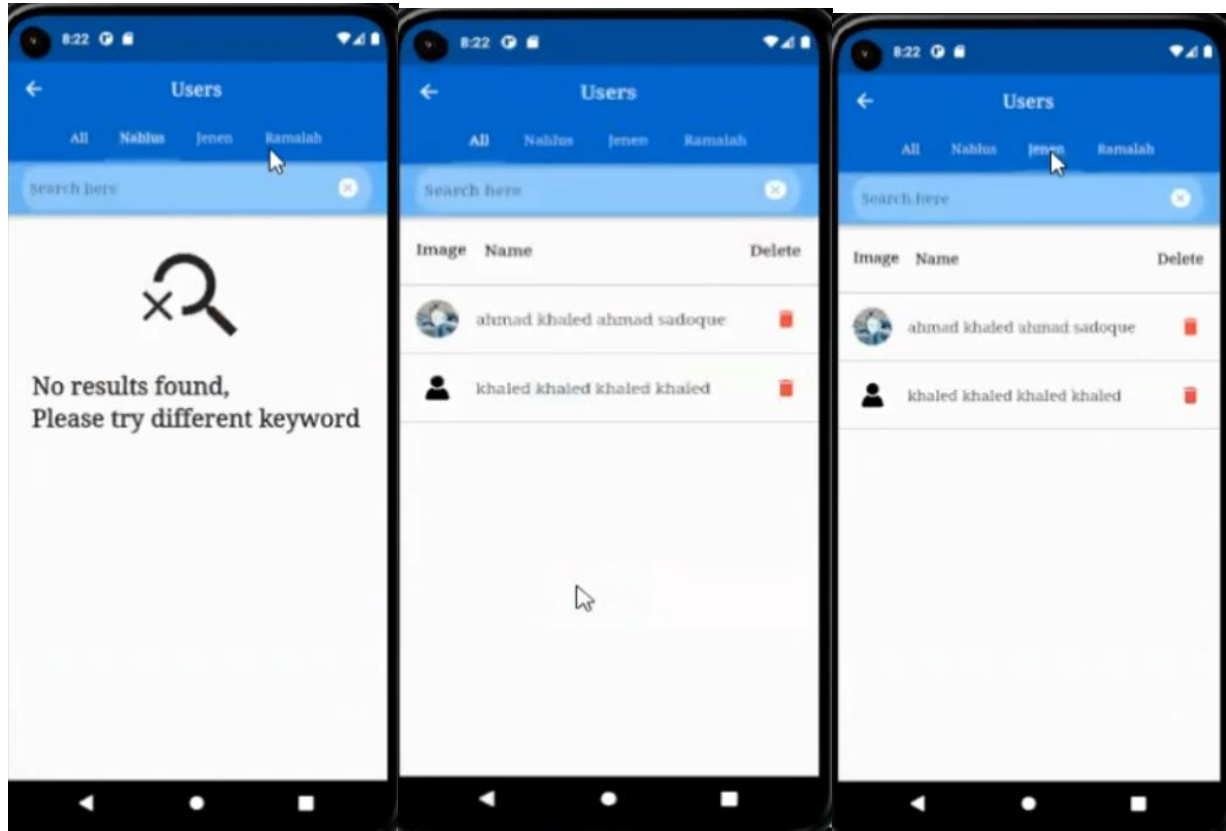
Figure 33:show users page

This picture appears when the admin clicks on the Users element in the home page. Each row in the table contains the user's username, the user's photo, and a delete button. By pressing the delete button, the user is deleted from the table and from the databases. The page also contains a search bar.The admin searches for any user or subscriber he wants. The page contains a filtering feature where the admin can search for the user based on the location of the gym where the user is registered. Also, when clicking on "All" all subscribers in all locations will appear as we notice in the picture. Also, by clicking on Nablus we notice that there are no subscribers since no members are still registered in Nablus gym, and you can see more about this filter when you watch my demo. By clicking on the Jenin branch, we notice the subscribers registered at Jenin gym, and so on. Also, when clicking on the subscriber, the page below appears that contains the subscriber's information .

This picture appears when the admin clicks on the user on the previous page. This page contains the user's information, such as the user's image, the user's name, the user's age, and the end date of the membership. The page also contains the user's personal trainers button, which we will explain later.

- **User trainers page.**
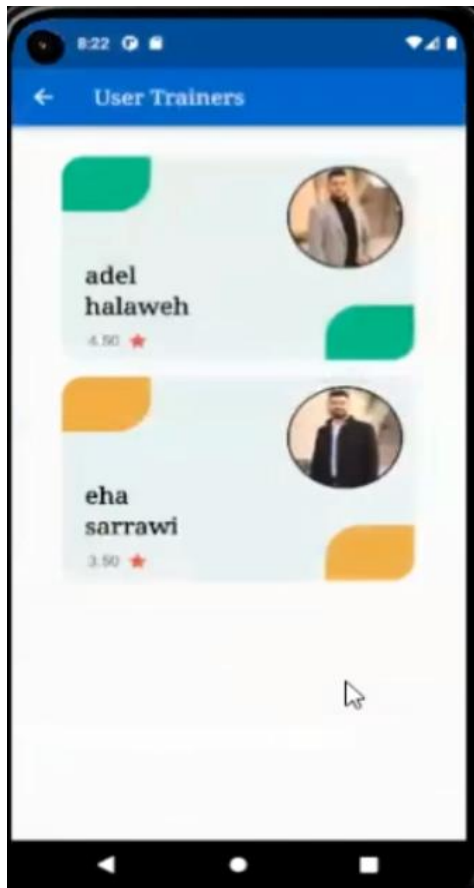
This picture appears when the admin clicks on the user personal trainers button. This page displays a list of all the user's trainers.
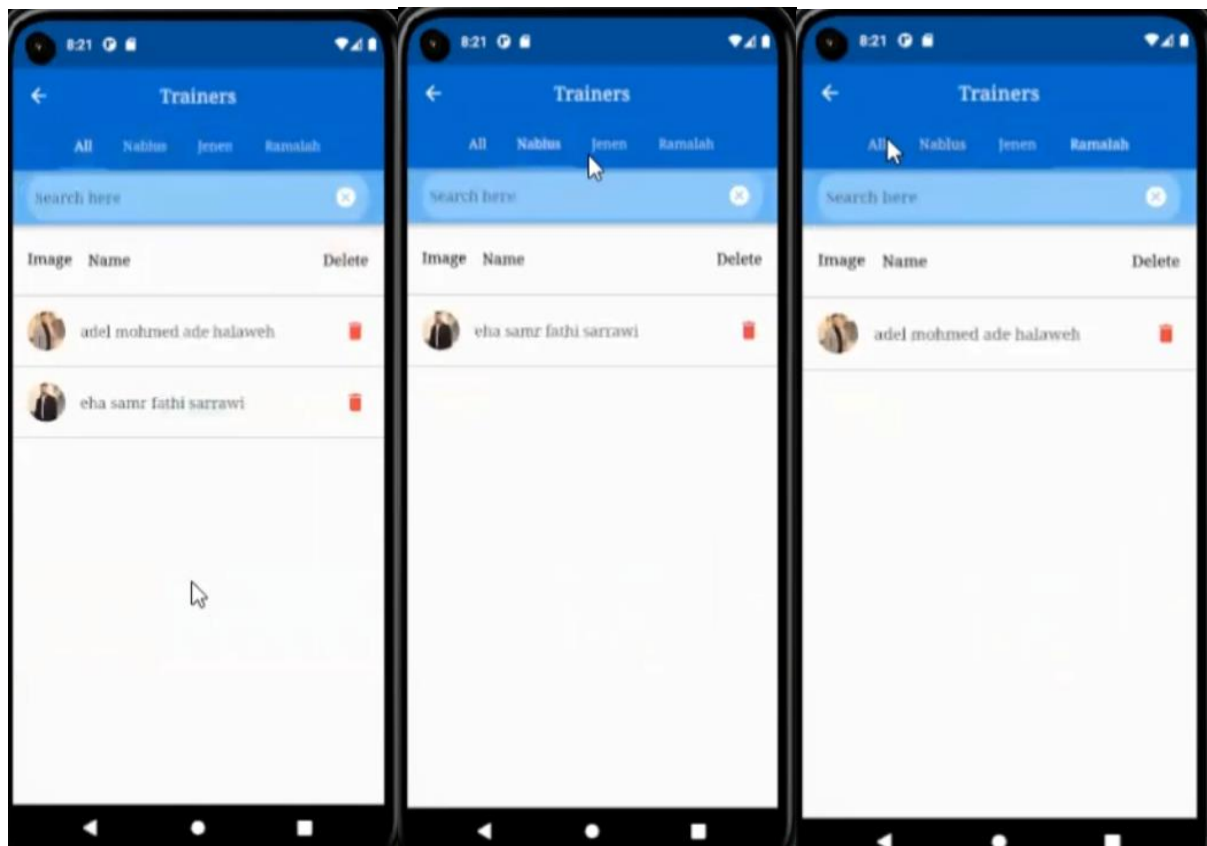
- **Show trainers page.**

Figure 34:show trainers page

   This picture appears when the admin clicks on the trainers item on the home page. Each row in the table contains the name of the trainer, the image of the trainer, and the delete button. By pressing the delete button, the user is deleted from the table and from the databases. The page also contains a search bar. The supervisor is looking for any coach he wants. The page has a filter feature where the admin can search for the trainer based on the location of the gym where the trainer is registered. Also, when you click on All, all coaches will appear in all locations, as we can see in the image. Also, by clicking on Nablus, we notice that there are no trainers registered in Nablus, and you can see more about this filter when you watch my demo. By clicking on the Ramallah branch, we notice that there are trainers registered in the Ramallah gym, and so . As we can see also when clicking on the trainer it will display the trainer's information page.

● **Website.**

the website surely will do the same functionality as the mobile app.

You can see all of it in my demo for the website but i put a few images from admin and trainers page since they are the same as mobile as you can see but they are larger because it's responsive to the browser window.
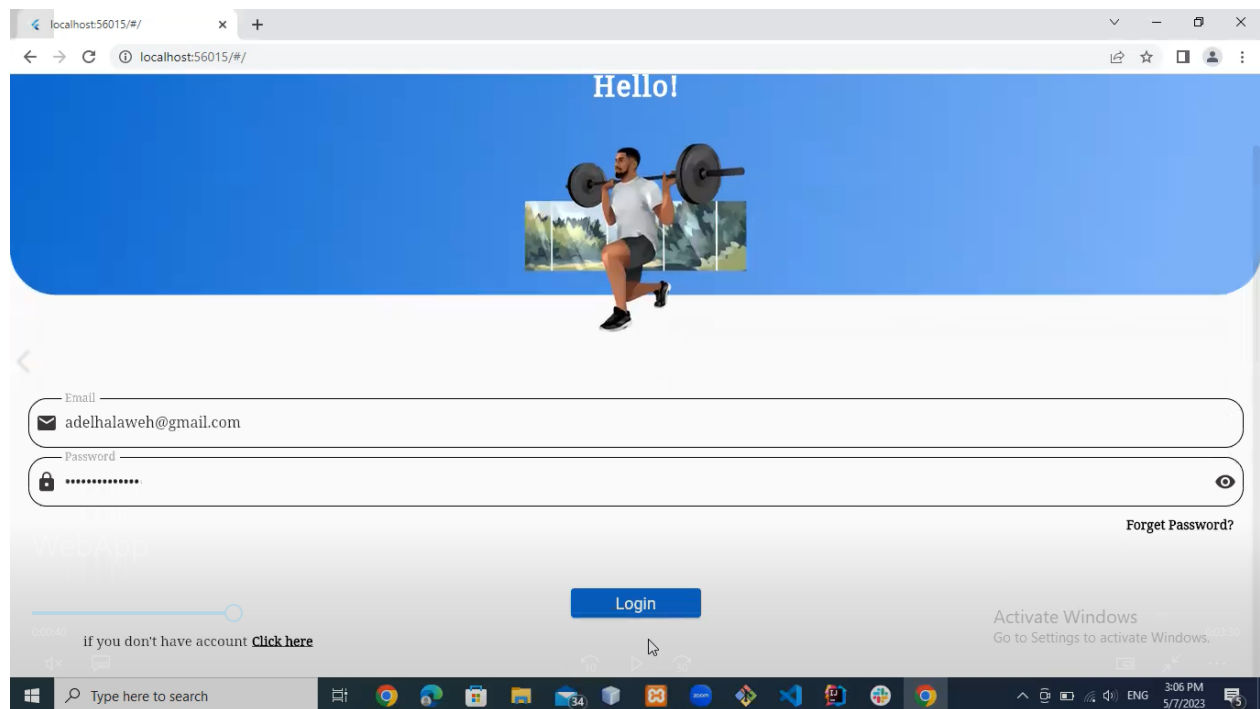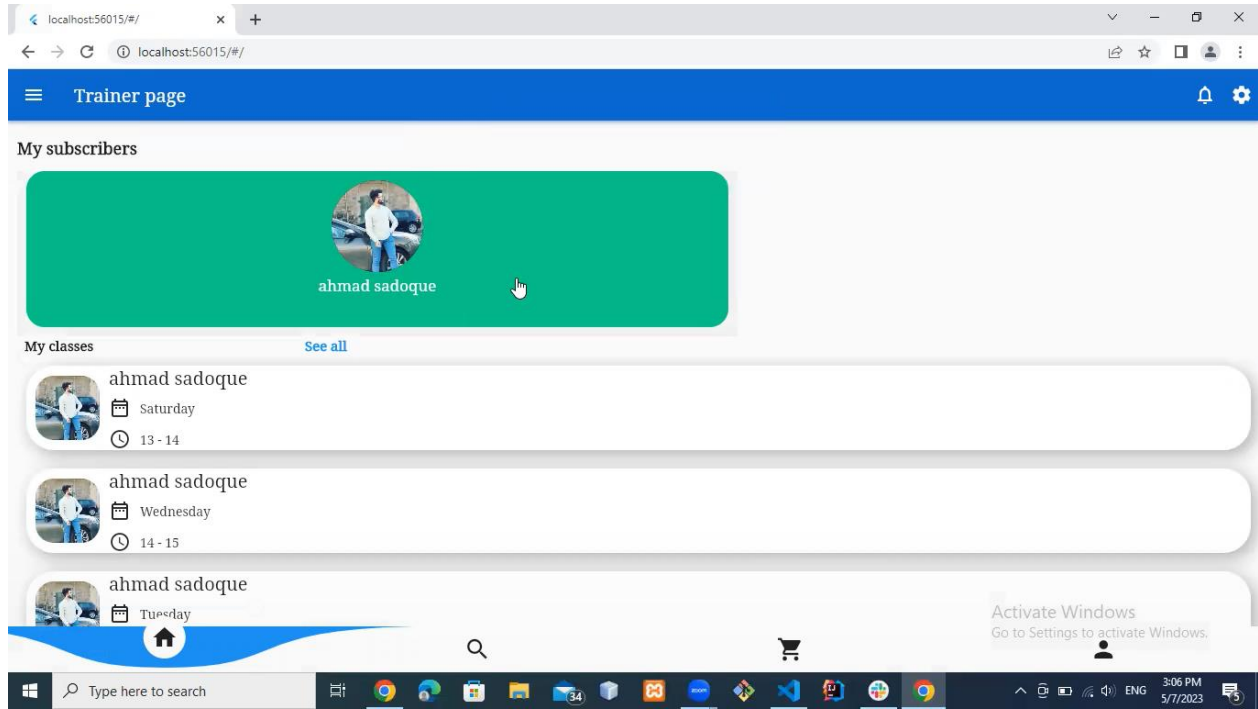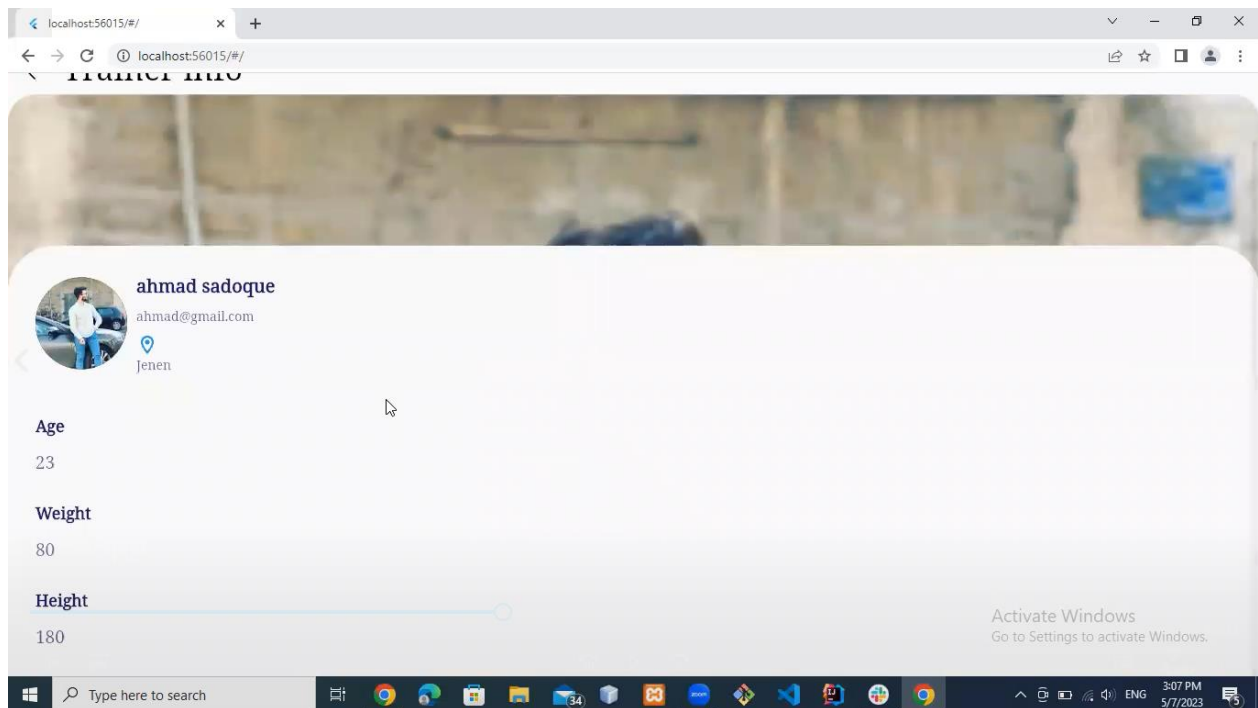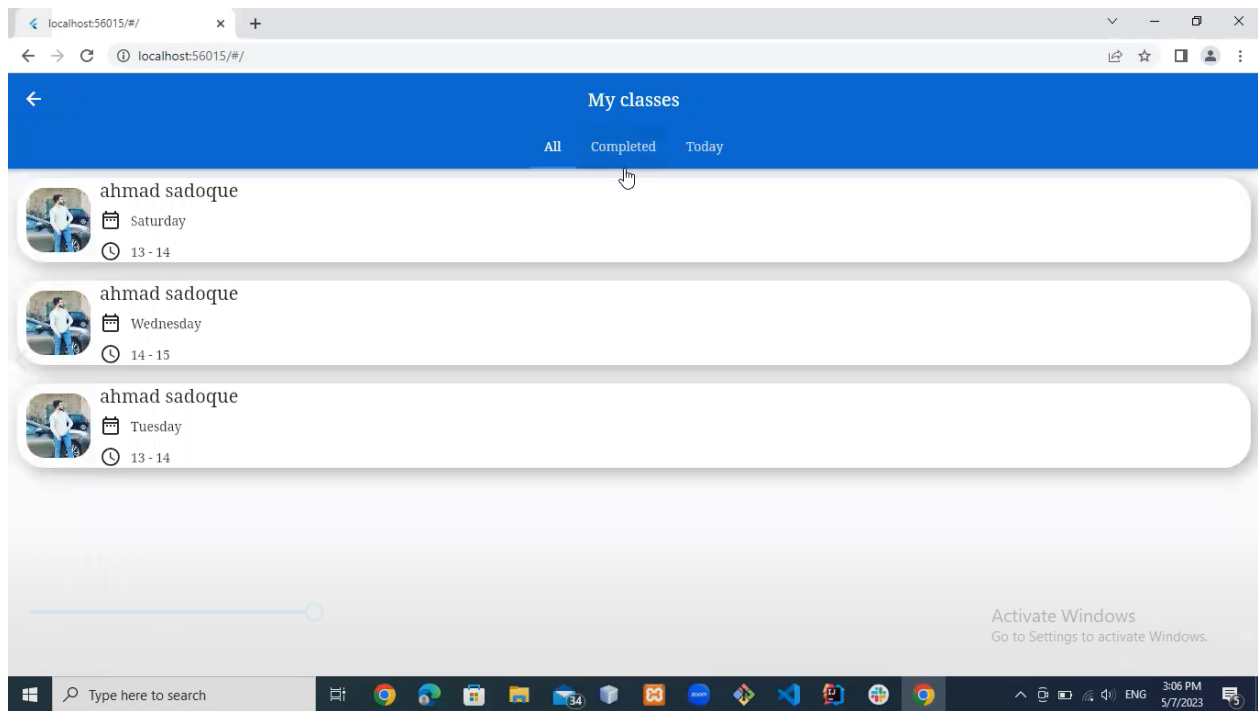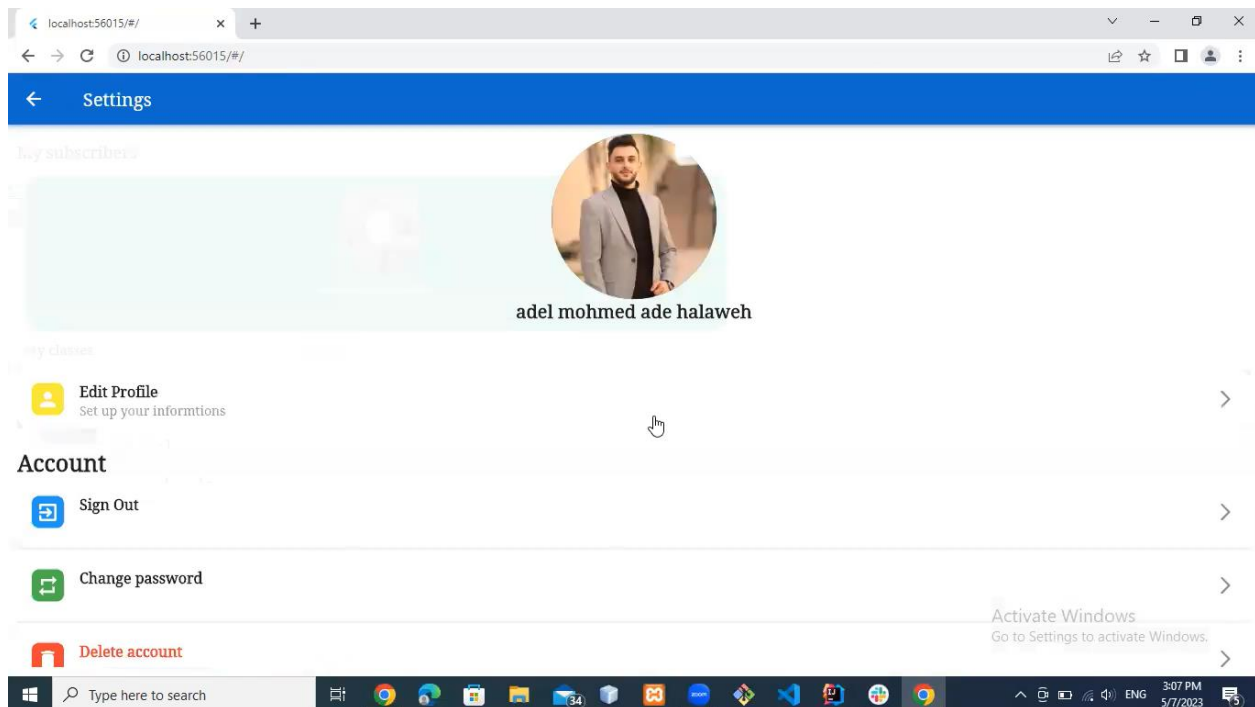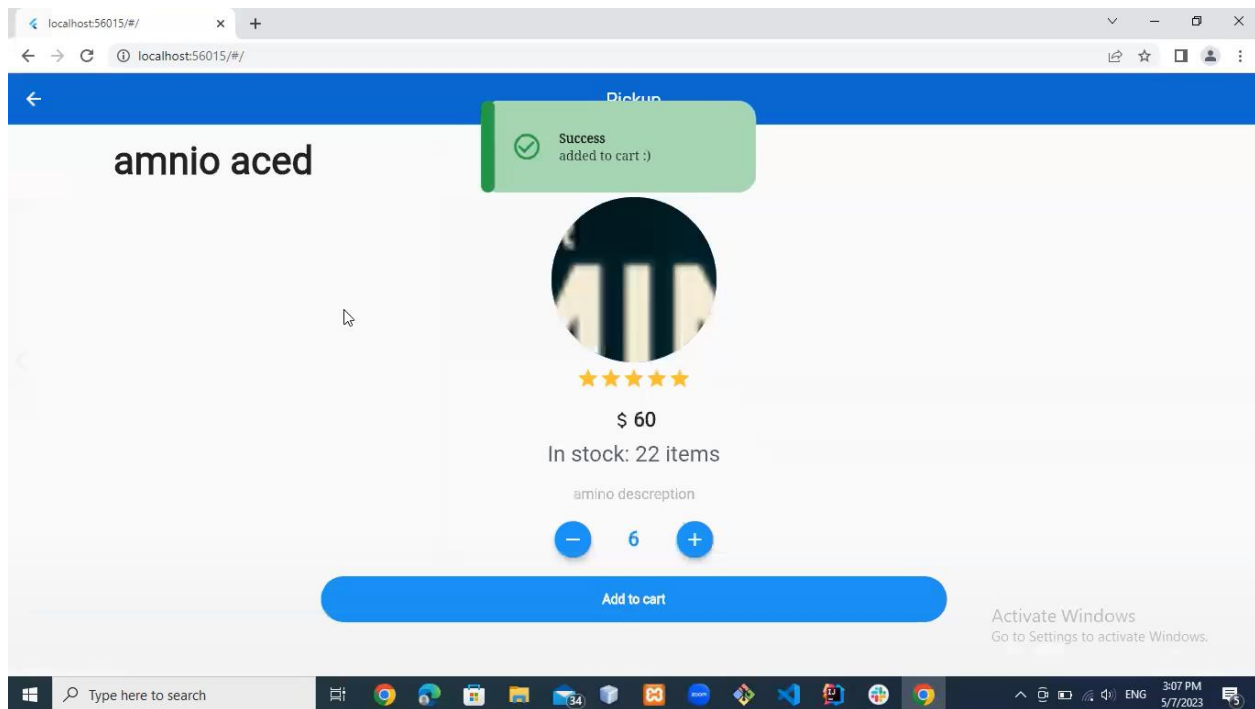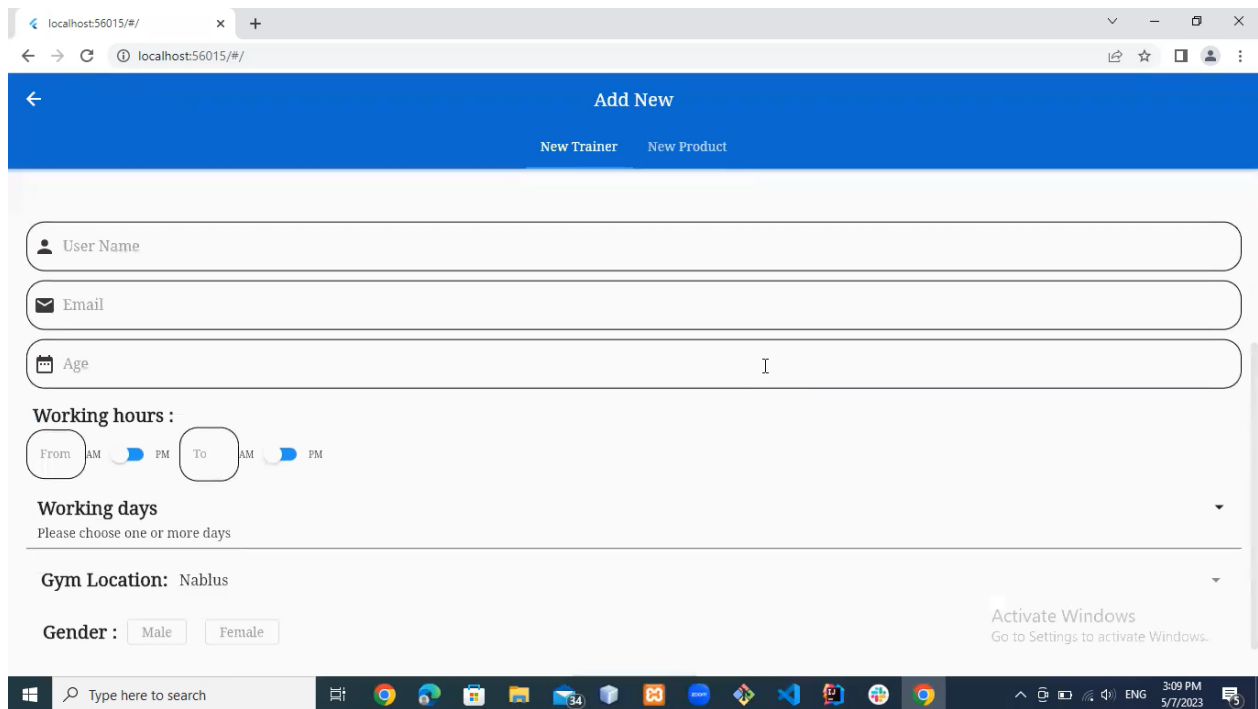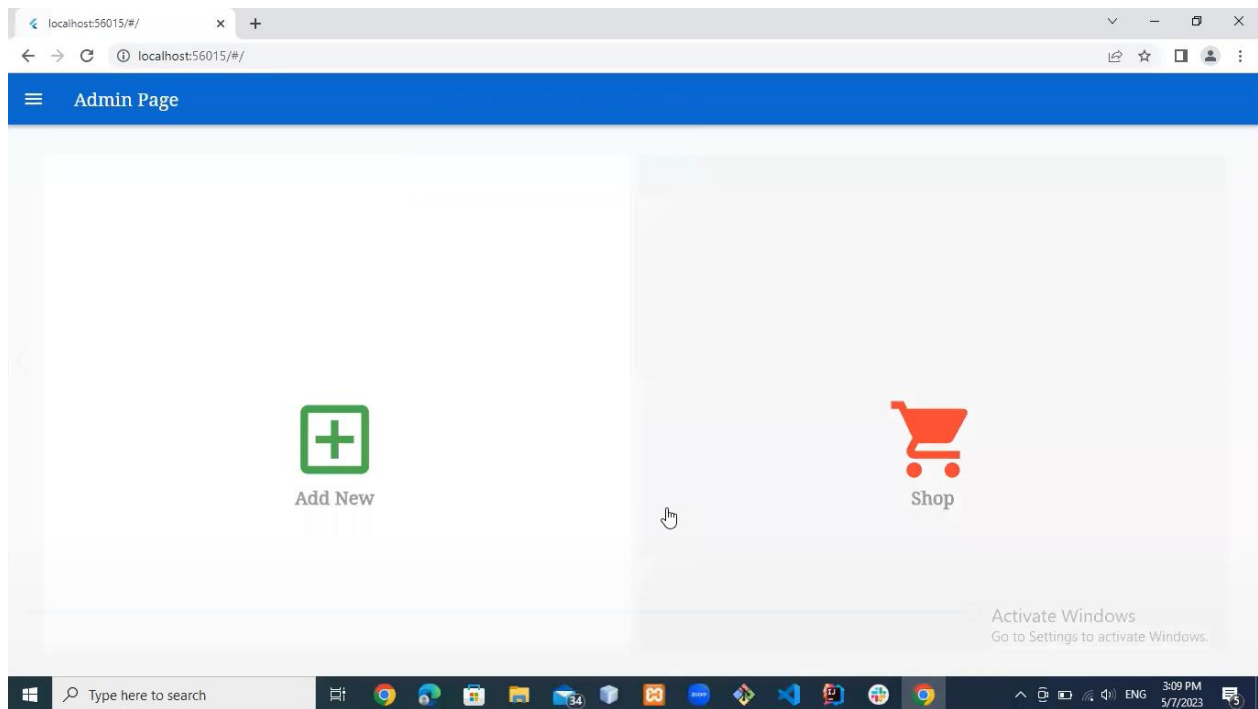

Figure 35:website
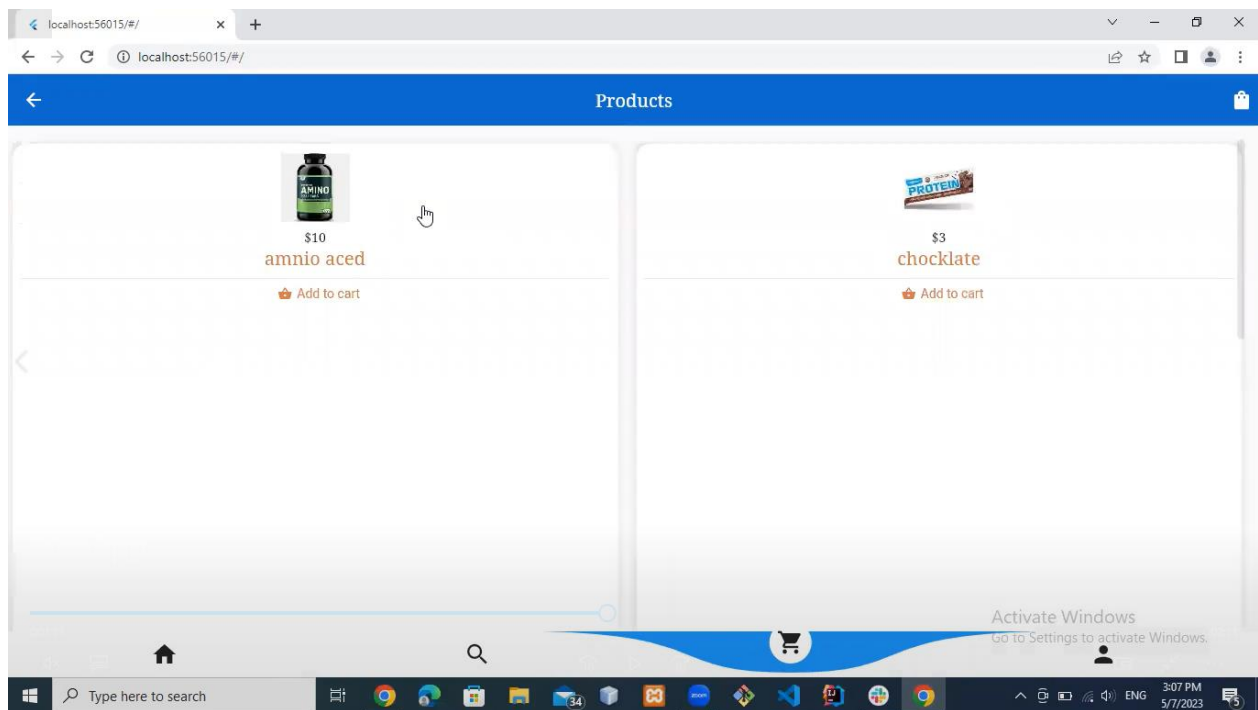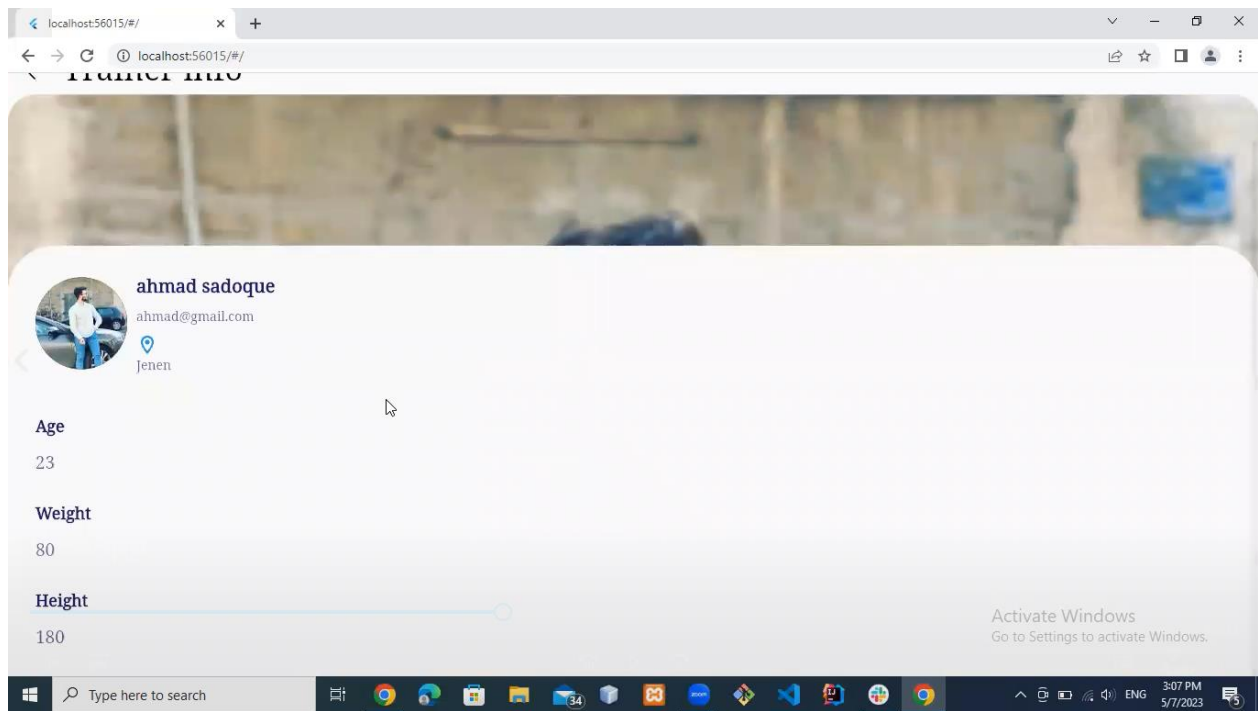
Chapter 5

Results and Discussions:

The gym application aims to improve the gym experience for both users and club owners. our application aims to follow up on online exercises compared to traditional applications. Through our application, users can get exercises easily, monitor their progress over time, and give advice by trainers.

In addition to this, our application addresses the issue of online registration by allowing users to register and register remotely via the Internet

Our application also provides a chat feature that facilitates communication between users and trainers and helps users who need guidance and ask questions.

The application also provides the purchase of products through a visa, and one of the most important features is the reservation and personal training feature. The user books appointments with the trainer he wants, so the user sees all the appointments available to the trainer. If the appointment is reserved, it also disappears from the trainer's appointment list. The subscriber has the advantage of renewing the subscription.

Also, our application supports the cost saving feature. The remote online registration process and the online payment process helped these features save time and effort for both users and gym workers.

Chapter 6

Conclusions and Future word:

Finally, developing a fitness application could have a significant effect on both users and gym operators. By addressing common problems like online exercise monitoring, online registration, and simple trainer communication, a gym application can enhance the whole gym experience. The software allows users to get personalized training regimens, keep track of their efforts, and communicate with coaches remotely. Gym owners can further improve their processes by automating registration processes, keeping track of memberships, and giving members personalized messaging, The application can be developed by adding the service of knowing the clubs near the area in which it is located. We employ artificial intelligence in this service, adding the discount feature on the bill for subscribersﻝ

Chapter 7

References

[1] https://www.youtube.com/watch?v=9cWm74DteMQ

[2] https://www.youtube.com/watch?v=uNadUSC6bC4&list=PLkzDzmo9y3VG_pByjuxE7uuLYvmW

gfBub

[3] https://docs.flutter.dev/