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Faculty of Engineering & Information Technology

Department of Computer Engineering

Software Graduation Project:



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1 Disclaimer

This graduation project report was written by Mohammad Halaweh and Haytham Saleh from the Department of Computer Engineering at Najah National University, this graduation project is a requirement for Bachelor degree completion.

A disclaimer for this report is that it is worth noting that it might contain human errors and we used real shops as to provide well-known examples for shops but it is only used for educational purposes only, so Najah National University does not bear or is responsible for any of this.

2 Acknowledgment

Before we begin, we must thank Allah for everything we have accomplished as without his blessing we would not be able to achieve anything neither the project nor anything in our journey in life, so it is a priority for us to always thank God.

We would like to take this opportunity to sincerely thank our Instructor Dr. Abdullah Rashed for providing us the guidance we needed and for giving us the confidence and courage to complete the project and to give it all we got, which led us to overcome the difficulties we faced and achieved our goal in finishing a project that we gave our heart in.

We would also like to thank all other shop owners that gave us their council and feedback on the application.

And finally, our deepest gratitude to our families and friends who played an important part in being supportive and helpful in every step of the way, so we could accomplish a project that was just an idea and now is a real thing.

3 Abstract

First thing that comes in mind to people when we talk about shopping is that they expect to go to different shops to find what they need and even so after going to different shops and spending an enormous amount of time they might not find what they were looking for specifically[1], also taking in mind the unexpected prices for the products which they would spend time also in negotiating, let's also not forget the shops that they might like but they are unfamiliar with them nor their location.

In our application we seek to help people who want to go shopping but also want to avoid all the troubles they face which is considered stressful and to help shop owners that want people to know about them[2], but it might be difficult for them for a variety of reasons which might be location or being a new shop ...etc. and let's not forget that a lot of times shops want to announce offers but a lot of times it might go unnoticed.

Our project tends to seek out these sorts of issues and provide a solution for them and considering that it is also a mobile application gives us the benefit that it is available for everyone taking in mind that most of the people nowadays in our society carry a smart phone, and it is a user-friendly application[3].

4 Introduction

This project offers a solution for the problems that we mentioned and provides other features to also make the shopping experience more convenience and comfortable, this project is a smart mobile application and a website which is used by people in general, it gives an option for people who wish to shop to register as customer and for shop owners to register as a shop owner, shop owners can represent their shop and their products with details about them which then customers can view and they have the option to order them in a simple way, in addition

customers have the ability to see offers provided from different shops.

These features along with the ability to provide shop's locations would allow customers to find exactly where the shop they are buying from is located, the ability to freely look up the products of each shop and to know in advance if the shop they are browsing have what they need or not, it also allows them to view the products' prices so that they would not feel unease when they find out that the products are worth much more than what they can afford, they can use the cart feature to gather all the products that they wish to buy and they can choose whether to go shopping for these products which now they exactly know where the shop location is ,so they would not be lost and they know exactly if the product is available and how much it cost, or they can simply make a transaction and order the products that the user picked and ship them to their home.

We used Flutter programming language to create this project and because in development we developed the application to be responsive which means that it is cross platform, and the product will function in both mobile application and website, we used NodeJS to build and implement the backend which was deployed on Heroku API which used Mongo Atlas for the database.

5 Methodology

After what we have seen from the issues that people face while shopping and after discussing them with the potential solutions in our project with the help of several shop owners and two kinds of customers those who go shopping a lot, and those who rarely go shopping, we got an image of what users of the application expect the features to be.

5.1 Technical Preference

As we know there are a lot of different approaches for programming languages and development technologies to

choose from to which we chose the most suitable and appropriate one.

5.1.1 Framework

We used flutter as a frontend programming language to design the user interface, it is highly reliable framework that is used to design and create fast applications for mobile, web, and desktop due to it supporting writing a responsive code, and what also makes it special is that it is a free, and open source.

5.1.2 Design

After choosing the language that we are going to design the user interface with, we need to have an idea of how the design of these pages should look like, so we first choose the logo that will define us and we choose carefully the colors that are relaxing for the eyes and we want to have leave a good feeling for the user of this program so we choose suitable colors and choose a good implementation design of the frontend and it most importantly should be user friendly so that the user experience leaves a good impression in anyone that deals with this application[4].

5.1.3 Back End

For the backend of the project, we used three stages:

We built a Client-Server Model, and we will describe this model:

- 1) Client: the user sees the GUI interface and from this interface the user can send queries to the backend in which it processes and executes to return back results so that it displays the results on the interface to the user.
- 2) Server: we used Heroku to receive the different requested queries from the client and these requests are dealt by its API so it can perform the operations. These operations are written in NodeJS and deployed to the API of the Heroku.
- 3) Database: we used Mongo Atlas as the database that will create our schemas and store the data, it will be accessed by the Heroku API to perform the operations with the data from the database.

5.2 Planning

First, we needed to decide who and why would use this application. We developed this application for people that want to display their shops and their products on our application and for people that would browse the application for these products, in short the users for this application are shop owners and customers. We take in mind that the reason for developing this application is to ease the process of shopping on customers and to benefit shop owners to display their products and to gain more recognition through this app.

5.3 Development

We will start talking about how we developed our application in this part.

5.3.1 Common things for all users

-Application logo



Figure 1: Application logo

-Splash Screen



Figure 2: Splash screen

-Boarding Screen

For first time users, these screens will be displayed to provide a tutorial for the user about the application.

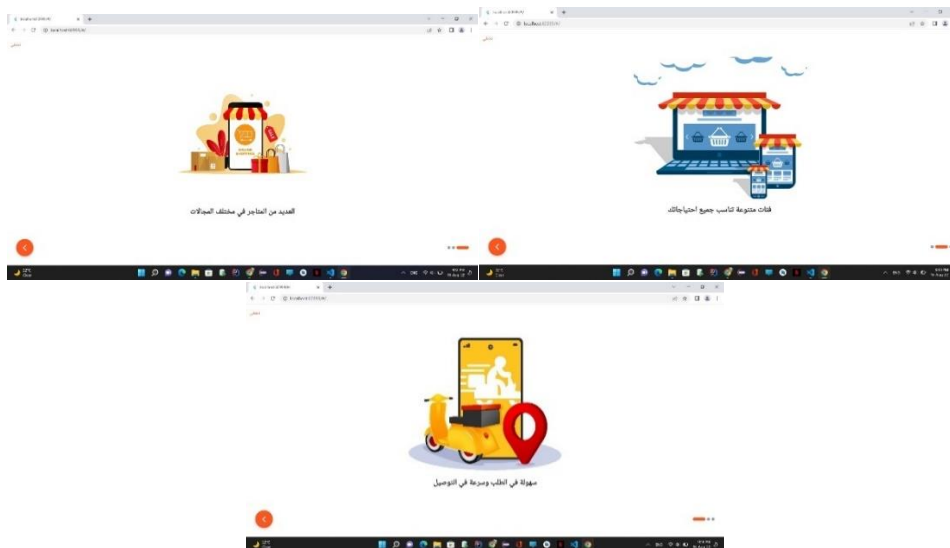


Figure 3: On Boarding screen

-Signup for the customer

To use this application the user should have an account, and the user could sign up as a customer.

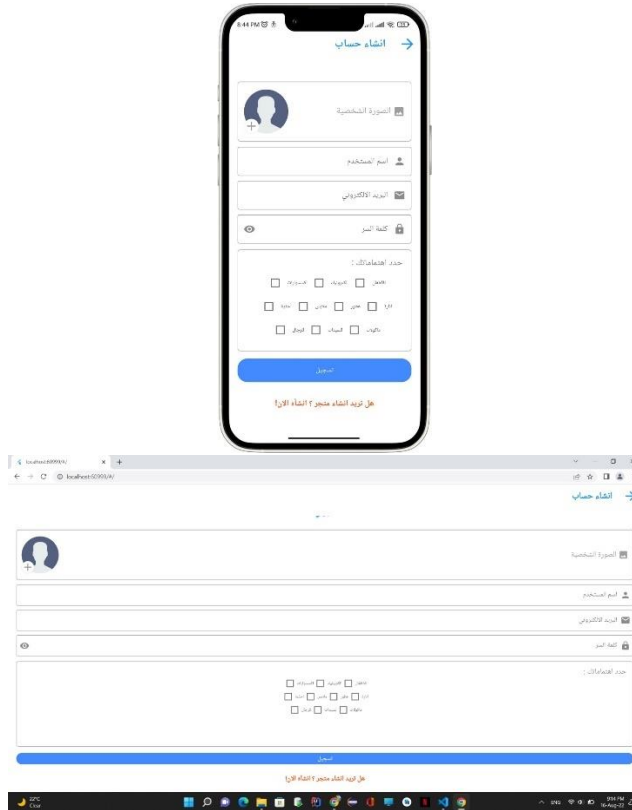


Figure 4: Signup screen

-Signup for the shop owner

The shop owner can represent his shop and fill out information about the shop to sign up.

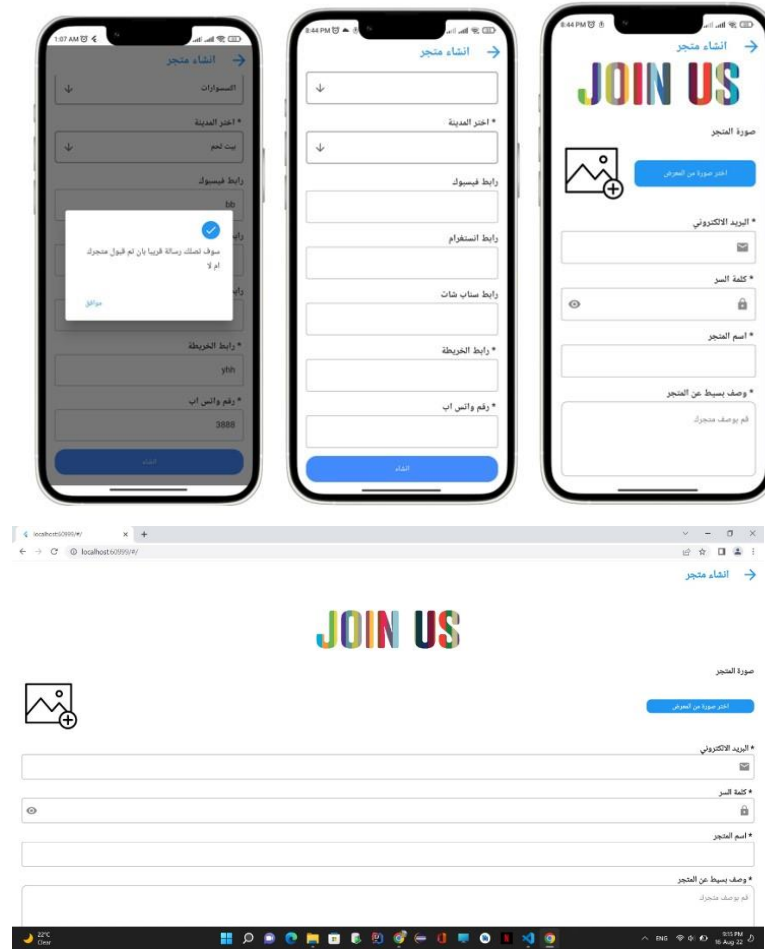


Figure 5: Join app screen

-Login screens

You can login first either as a customer or as a shop owner or as admin to access the application.

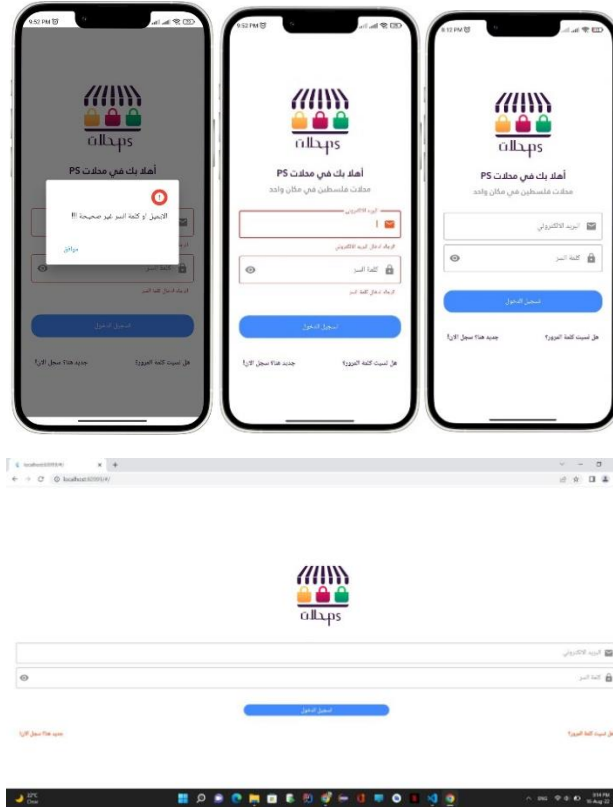


Figure 6: Login screens

-Forget Password

If the user happens to forget his email password, the user can receive a new password to login to which he can change later.

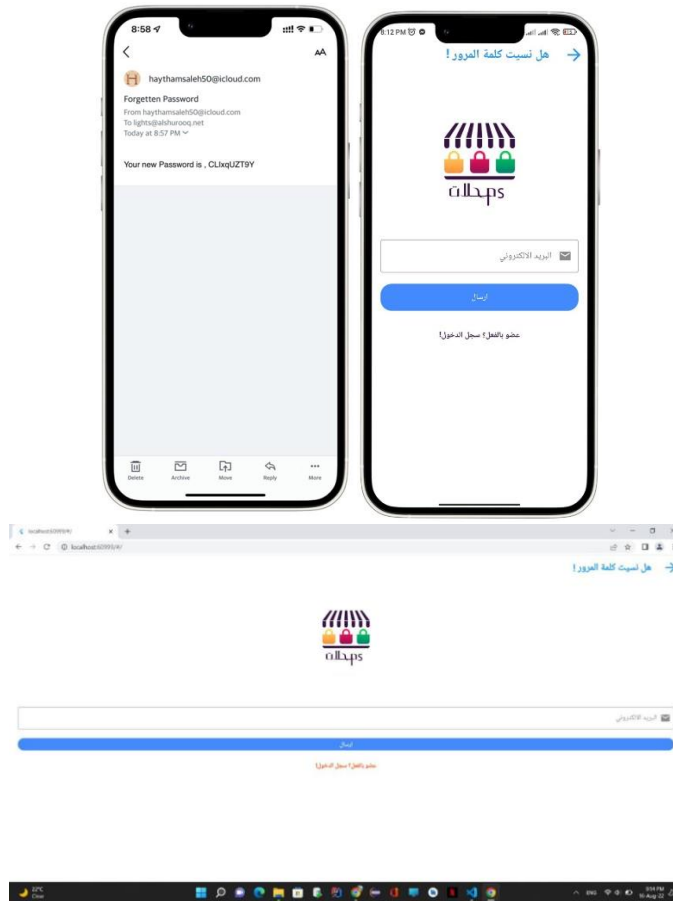


Figure 7: Password screen

5.3.2 Application Pages

We will display the different pages that will appear for :
Customers, Shop owners, Admin.

5.3.2.1 Customer

-Main Page

For the Main Page, it is worth mentioning that it should be well designed with different features accessibility and it should

be user friendly, so we will discuss what exactly every feature does.

(our application also provides a dark mode display option for users)

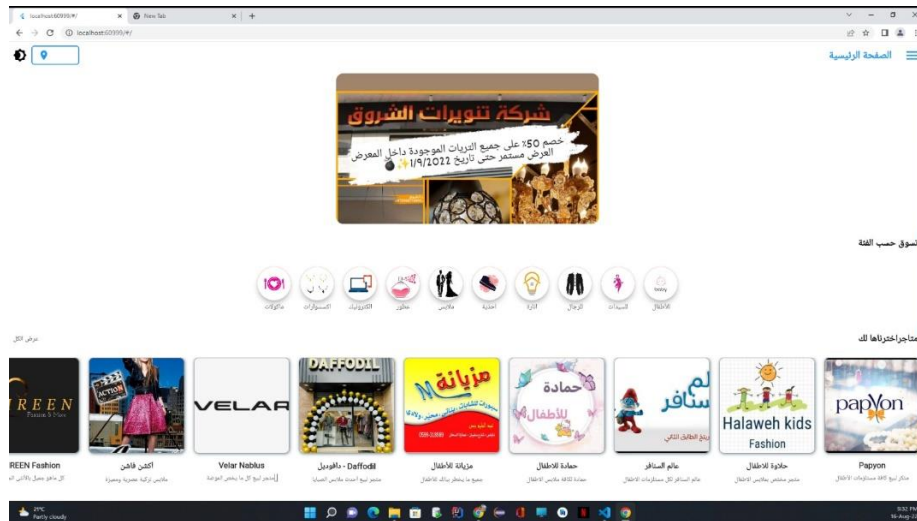
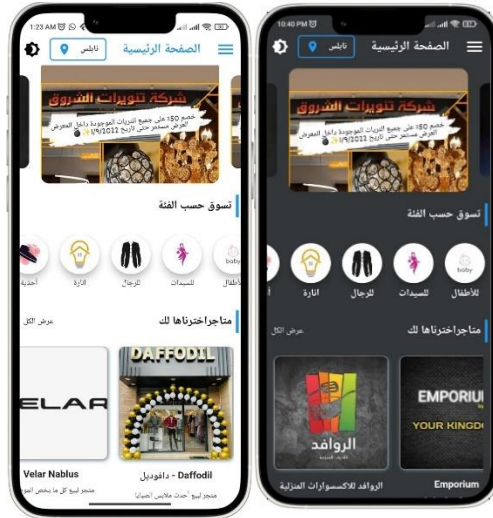


Figure 8: Main page screen

-Location

When the customer provides their location it can present them with shops in that location, or they can choose to select

all to provide them with all the shops in despite of their location.

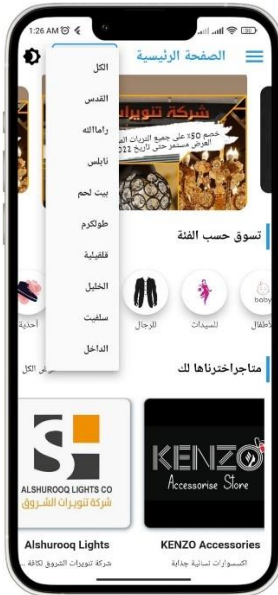


Figure 9: Location screen

-Drawer

The user can see this page if he slides his finger across (in mobile) or by pressing on the icon on the corner.

In the drawer you have a bunch of different options to choose from: main page, account information, your orders, notifications, choose a language, create a shop owner account, about the application, and the log out option



Figure 10: Drawer screen

-account information

The customer can change his information and he can change his password.



-Customer Orders

Here the customer can see all the orders he made through the app from different shops, and he can see the details of each order.

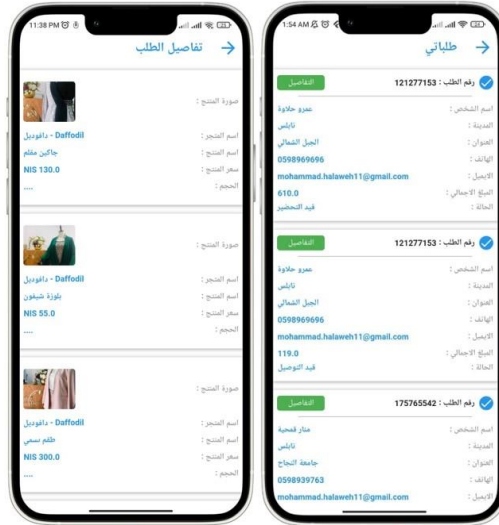


Figure 11: My order

-Notifications

The customer can receive notifications from shop owners , so they are aware of different offers and important informations. The customer can also receive notifications from the admin of the application for announcements



Figure 12: Notifications

-Language

Here the customer can change the language of the labels in the application, and the application will now be displayed differently depending on the language (When we switch to English for example the drawer will be displayed on the left opposite of how it was in Arabic on the right and so on).



Figure 13: Select language

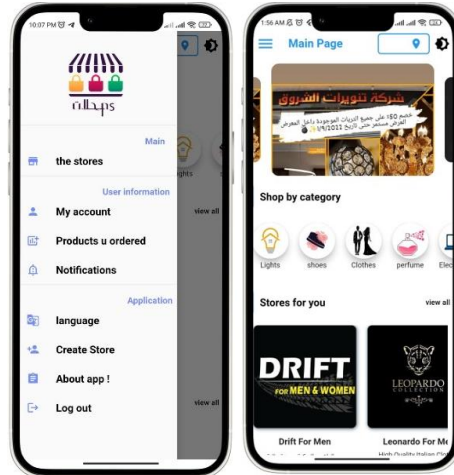


Figure 14: Main screen in english

-Create a shop

If the Customer wishes to make his shop appear in the application, he can create a shop owner account which will be a different account than the one for customer (we will display them later in the report in shop owner section).

-About us

The user can see the description on our application.



Figure 15: About us

-Log out

The user can log out of his account.

-Shops Categories

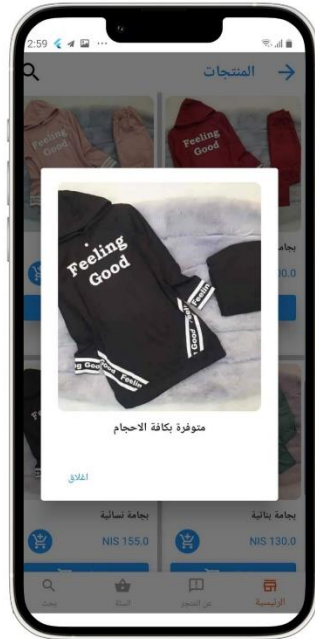
In the main page, the customer can see the different categories of the shops and depending on the location provided the shops of that location will be displayed.



Figure 16: Shops screen

When selecting a category you can search for the shop's name (note if you selected a location it will also filter the location in the search result).





- Cart Screen

In every order the customer make he will get 5 points from the application and then he can use these points to have a discount he can use either 50 or 100 or 150 points. The customer can view the products which he added on cart , and he can continue to make the order or he can use his points to have a discount to that order .

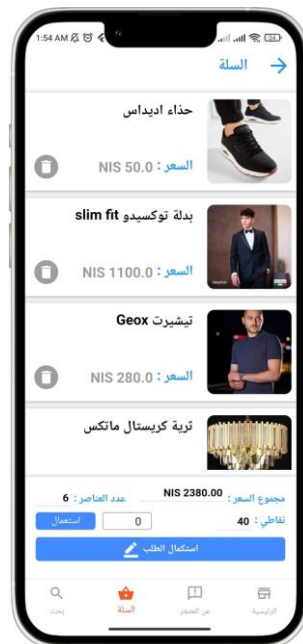


Figure 19: Cart

-Order

This page will be displayed once the user choose to buy now or once the order is opened from complete the order in cart.



The screenshot shows a mobile application interface for placing an order. At the top, there is a header with the text 'استكمال الطلب' (Complete Order) and a right-pointing arrow. Below the header, the title 'معلومات الاتصال' (Contact Information) is displayed. The form consists of several input fields: 'الاسم' (Name) with a text input field, 'الهاتف' (Phone) with a text input field, 'العنوان' (Address) with a text input field, and 'الحي' (City) with a dropdown menu. There are also two more dropdown menus, one for 'الحي' (City) and another for 'الحي' (City). A blue button labeled 'ارسال' (Send) is located at the bottom of the form. The status bar at the top shows the time as 7:54 AM and the battery level at 100%.

Figure 20: Order

-Search

The customer can search within the shop's products either to search by name or to be given a range of the prices of the products so he could browse in the range of his interest and he can also filter the results in ascending or descending order depending on the price.



Figure 21: Search

5.3.2.2 Shop Owner

-Main Page

After the shop owner logs in, the following main page will be displayed.



Figure 22: Shop Owner Main Page and drawer

The user can either pick one of the options either by pressing on one of the icons on from the drawer.

-Account Information

The Shop owner can change his personal information.



Figure 23: Account Information

-My Shop

Selecting my shop from the main page will display the following page

Here the user can see the information about his shop and he is given the option to edit them, and to view his shop's profile as a view from a customer.

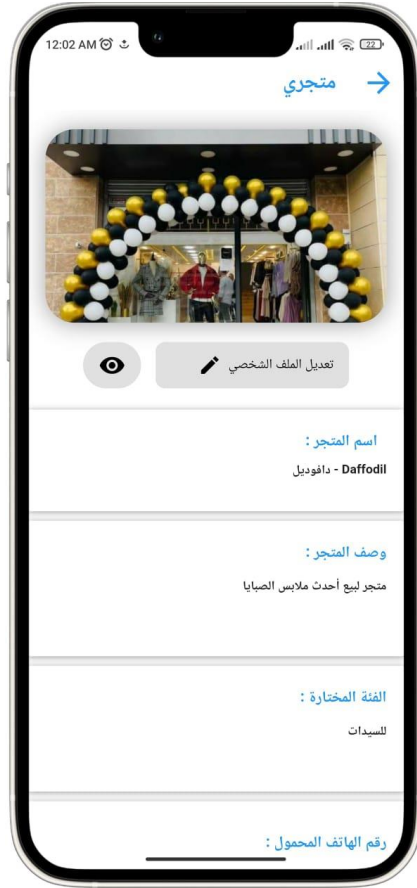


Figure 24: Shop Owner profile page

Viewing as a customer:



Figure 25 :Shop Owner profile Viewing as a customer page

Editing the shop's profile:

The shop owner can edit the shop's profile that will appear for customers.



Figure 26: Shop Owner Editing the shop's profile page

-Sending notification

The shop owner can send notifications to every customer which is used for announcements such as offers, a new branch for the shop and so on.



Figure 27: Shop Owner send notification page

-Adding Product

The shop owner can add new products to the shop, adding an image of the product, price, and a description of the product.



Figure 28: Shop Owner add product page

-My Products

The shop owner can view all the products uploaded to the app and customer can see, and from this page he can select any product to edit or delete them.



Figure 29: Shop Owner all product page

Selecting a product:

Upon selecting on a product, the user can edit the information of the product or to delete it.



Figure 30: Shop Owner edit and delete product page

-Requesting an ad:

The shop owner can request to add an advertisement which can be approved by the admin, in which the ad will be displayed on the customers main page.

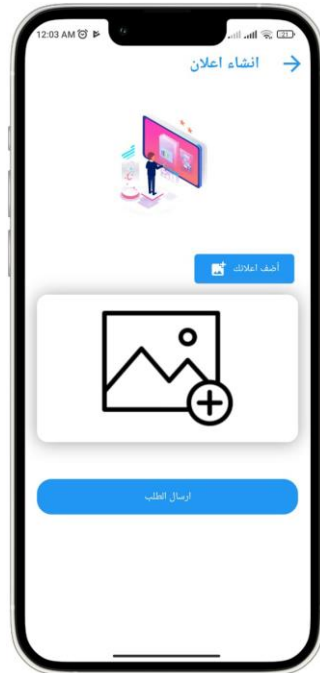


Figure 31: Shop Owner create ad pages

-New orders

The shop owner can view the orders made from the customers in the application.

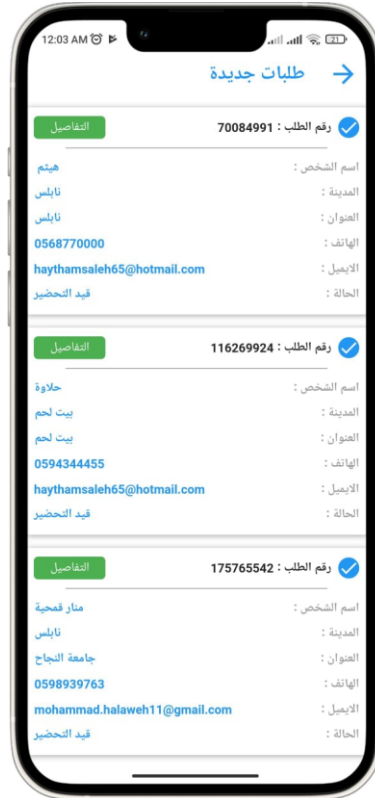


Figure 32: Shop Owner new orders page

Upon pressing on any of the orders a page will be displayed providing the details of the order and there is an option to send the order so the order status will change to being delivered .

(it is worth noting that if a customer orders from cart products from different shops each shop will get an order of its own items).

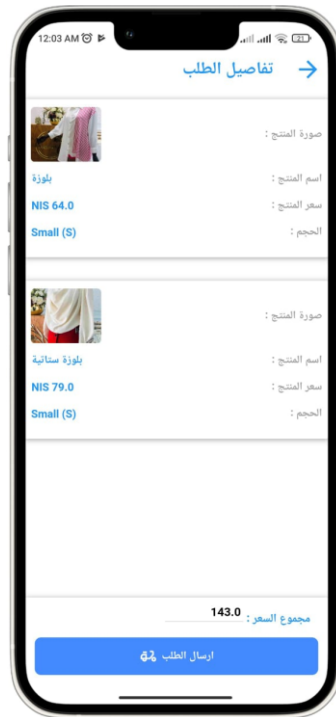


Figure 33: Shop Owner order details page

-Orders being delivered

Once an order is approved by the shop owner it is in the process of shipping and it will appear on this page and once it is delivered the shop owner will change the order status from shipping to shipped.



Figure 34: shop Owner delivery Orders page

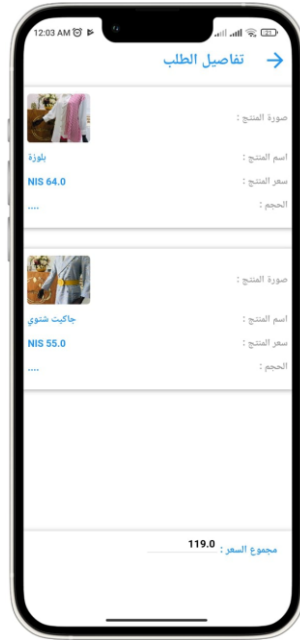


Figure 35: shop Owner delivery order details page

-All orders

The shop owner can see all the orders that was made through the application.

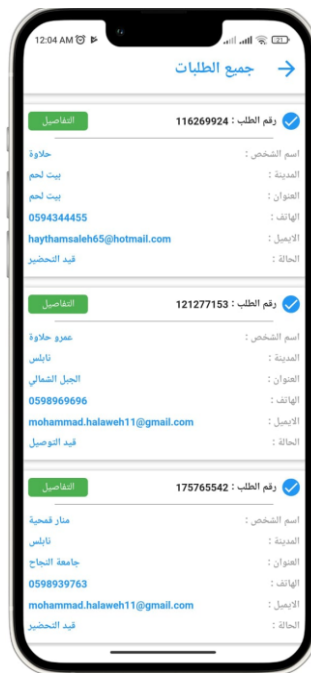


Figure 36: Shop Owner all orders pages

5.3.2.3 Admin -Main Page

The main page provides all the options for the admin to choose from or the admin can choose these options from the drawer.

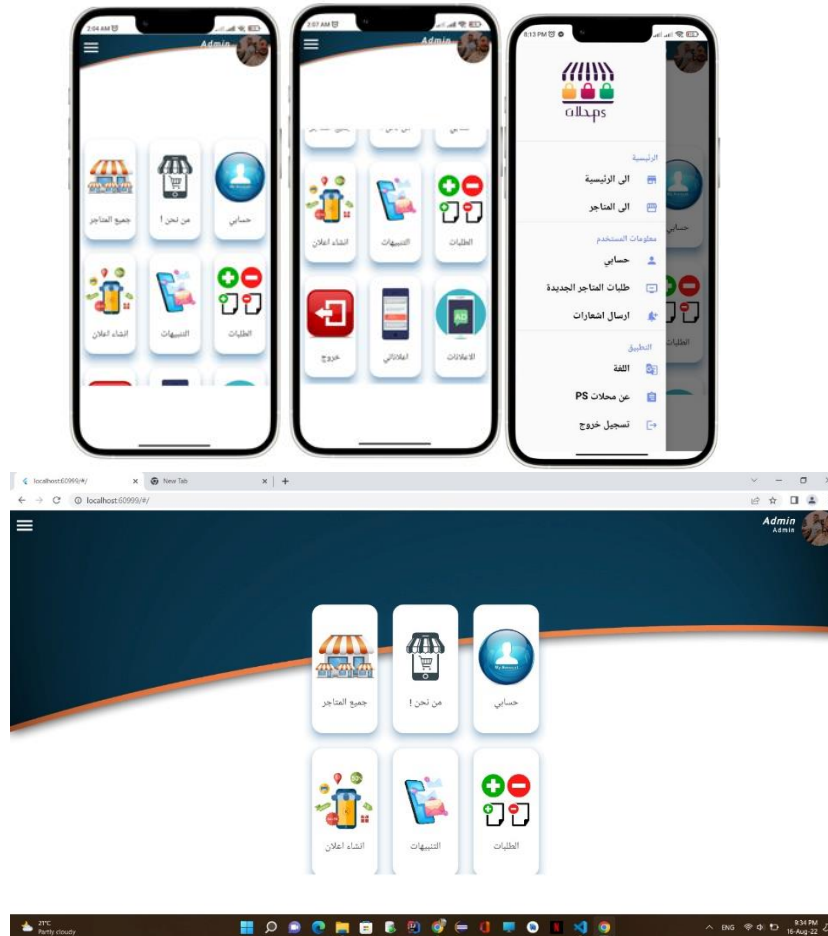


Figure 37: Admin main pages and drawer

-Account Information

The admin can change his personal information.

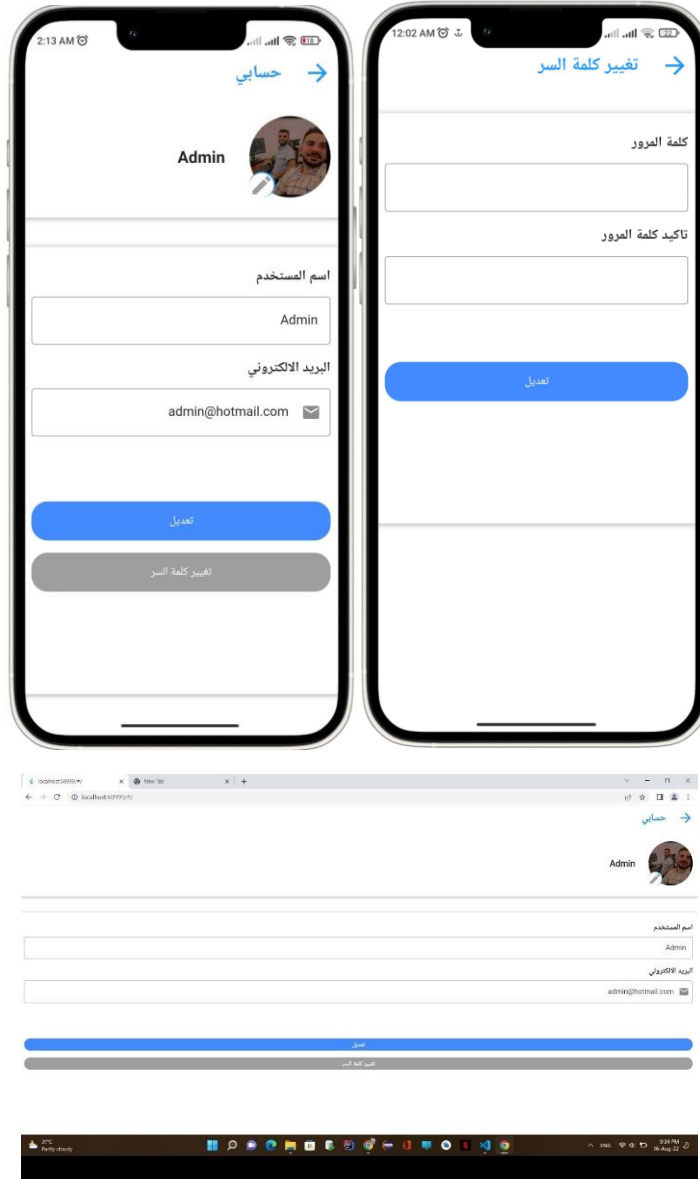


Figure 38: Admin account pages

-About us

The admin can change the about us page that will appear to all user, which contains Information about the application.

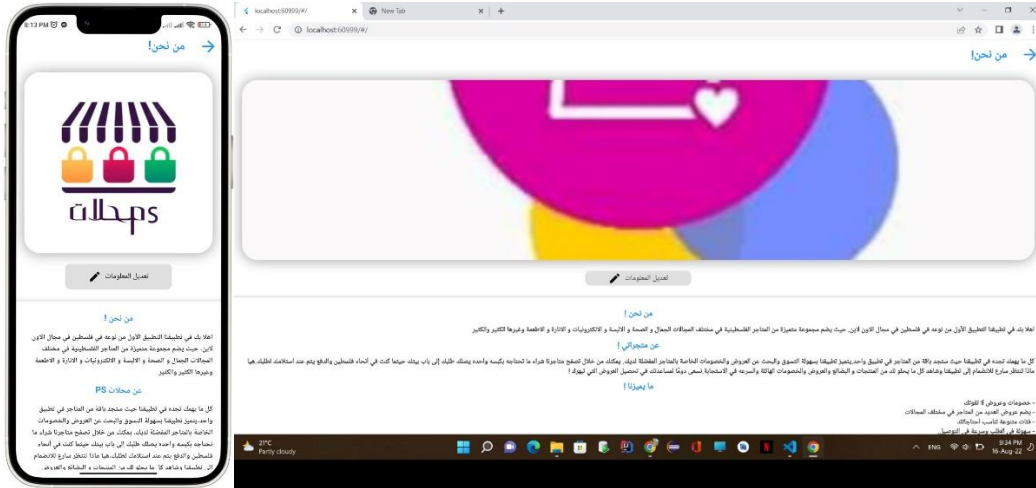


Figure 39: Admin about us pages

Editing about us:

The admin can change about us information when necessary.

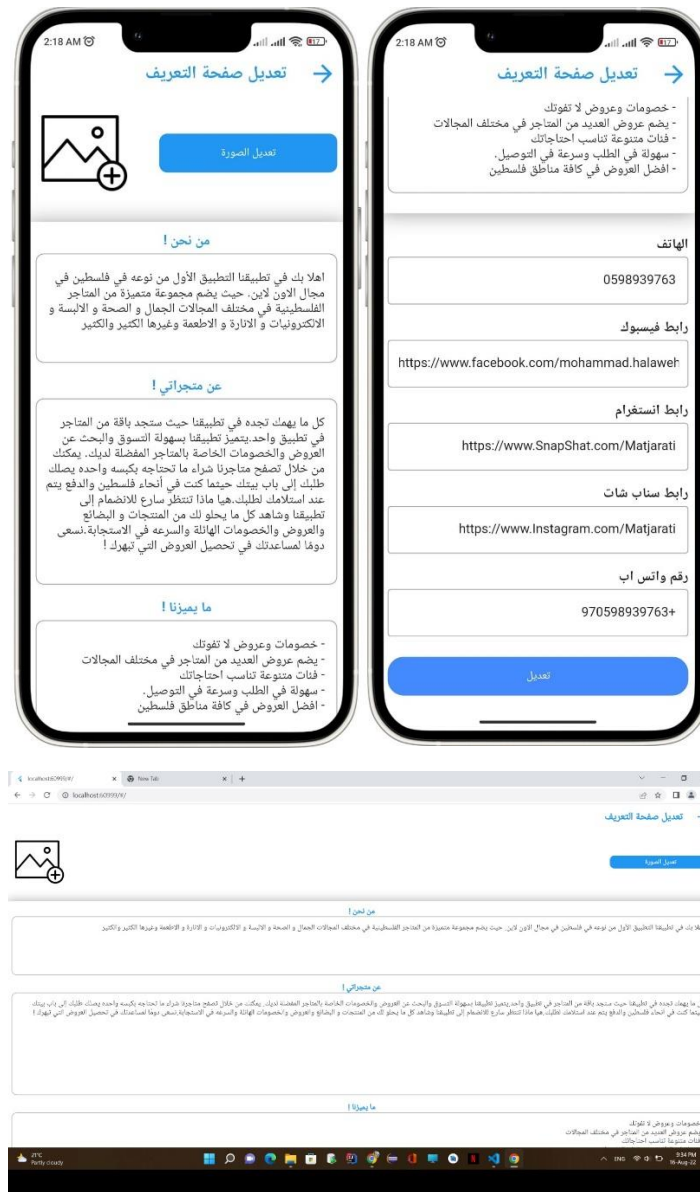


Figure 40: Admin edit about us pages

-Shops

The admin can view all the shops registered in the application, and upon choosing any of them the shop's profile is displayed, and the admin has the authority of deleting the shop.

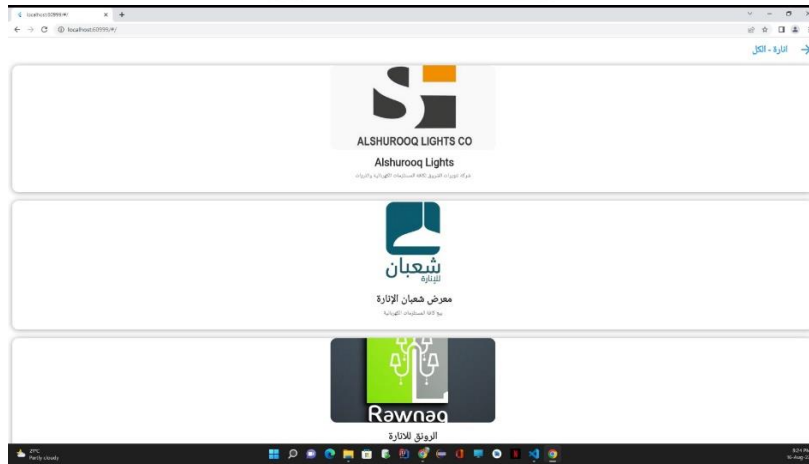


Figure 41: Admin all shops pages

Page displayed upon pressing:

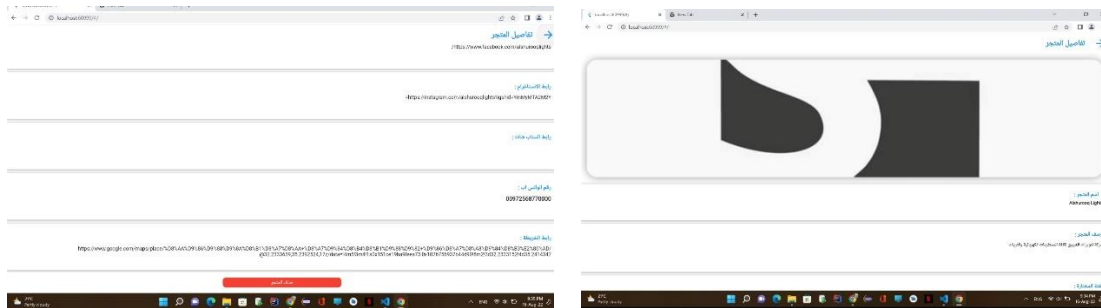
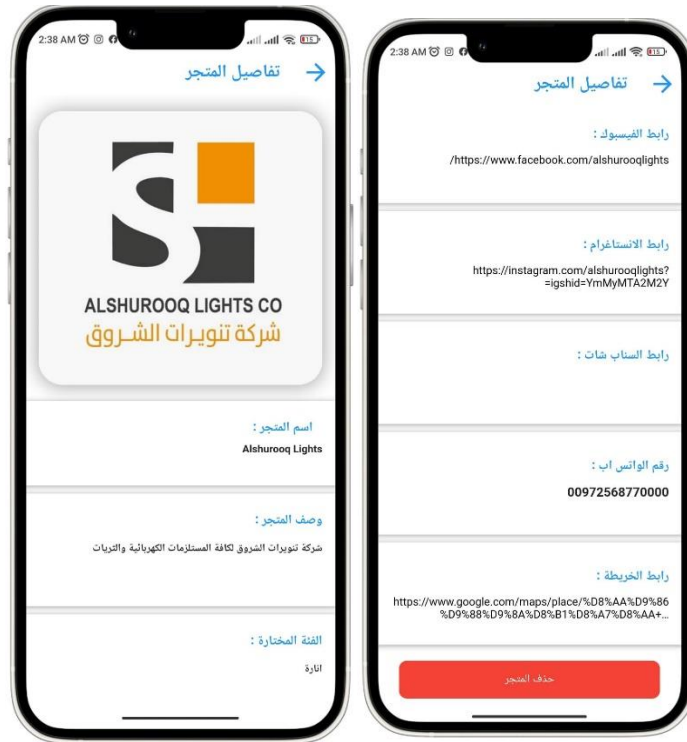


Figure 42: Admin shops details pages

-Notification

The admin can send notification to all users for announcements.

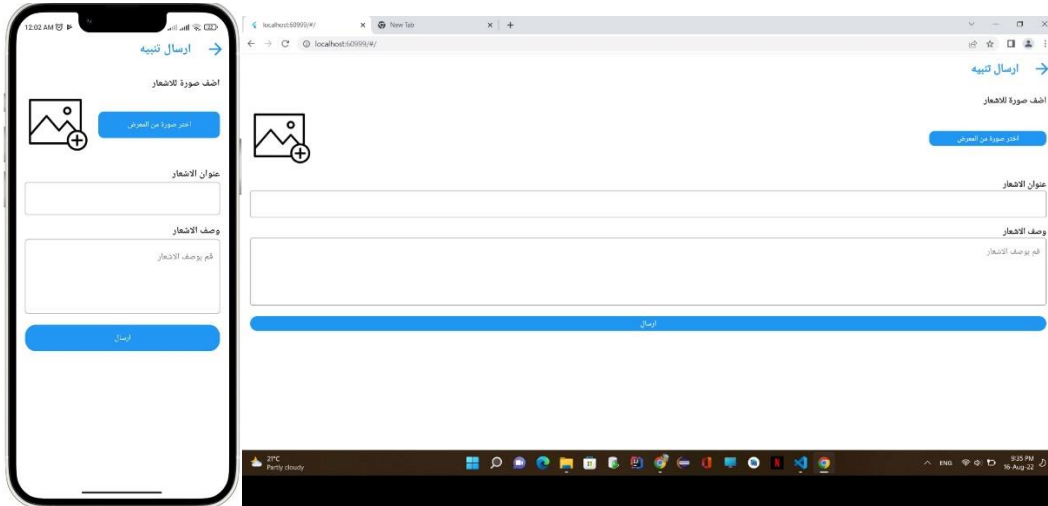


Figure 43: Admin create notification pages

-Adding an ad

The admin can publish an advertisement on the application and it will immediately appear for customers (unlike requesting an advertisement for shop owners).

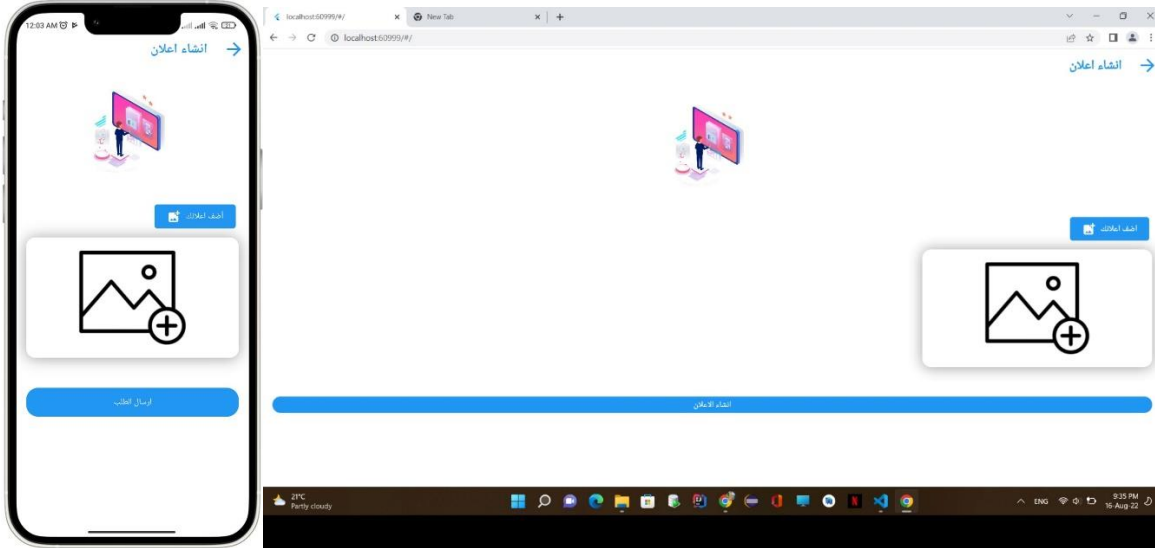


Figure 44: Admin create posters pages

-Ad Requests

The admin can view the advertisement requests from shop owners and decide whether to accept them so they appear on main page for customers or decline them.

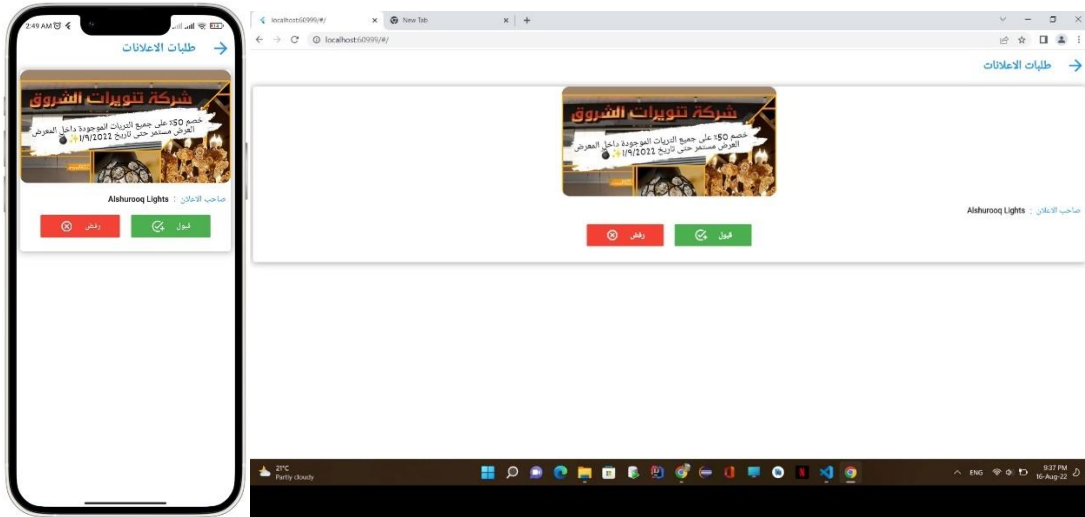


Figure 45: Admin all posters pages

-All ads

The admin can view all the advertisement that were accepted and has the option to delete them.

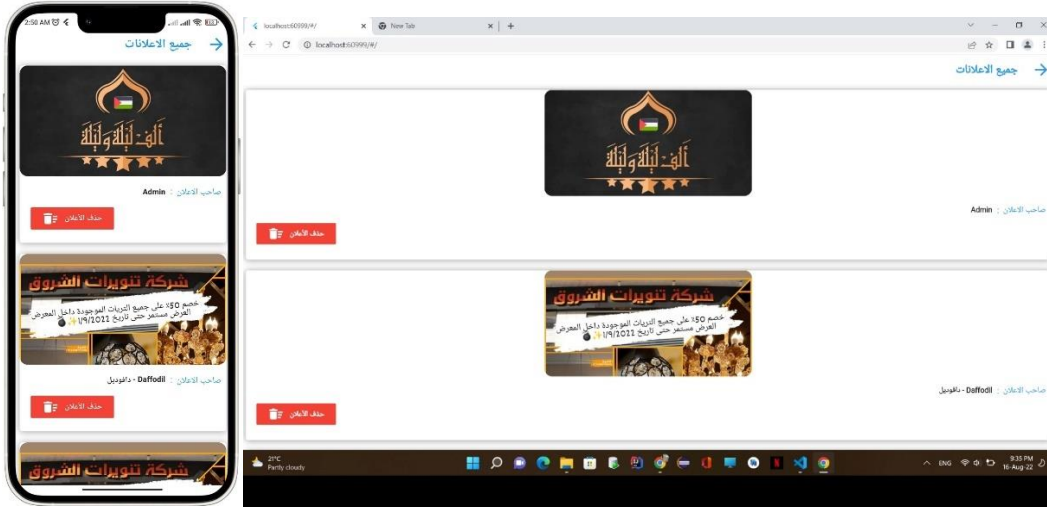


Figure 46: Admin posters pages

-Shop Requests

The admin can view all the requests from shop owner accounts to display their shops on the application, shop's profile is provided for the admin to see.

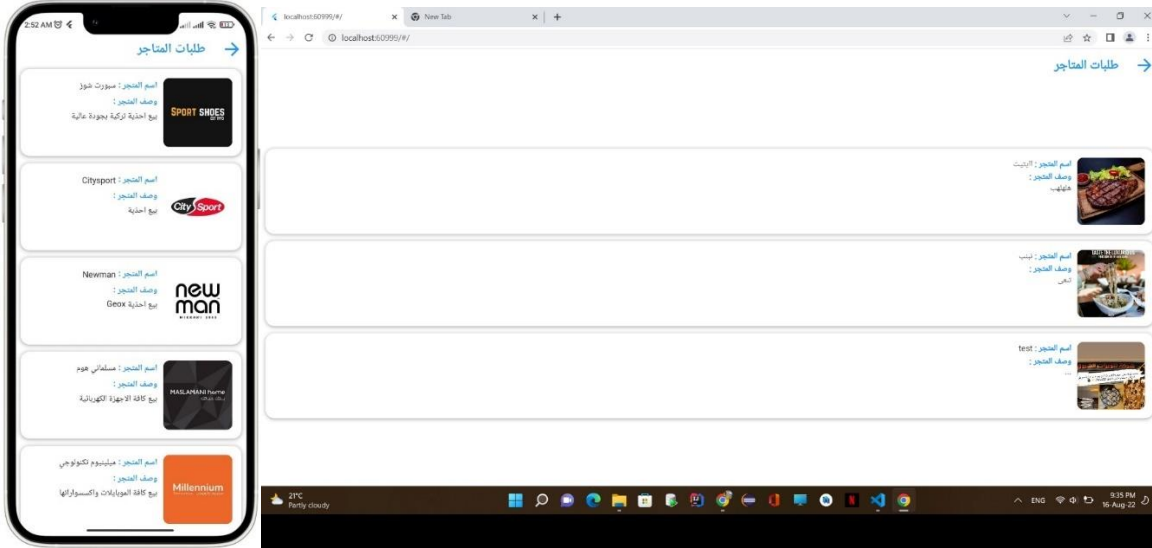


Figure 47: admin orders pages

Upon selecting a shop:

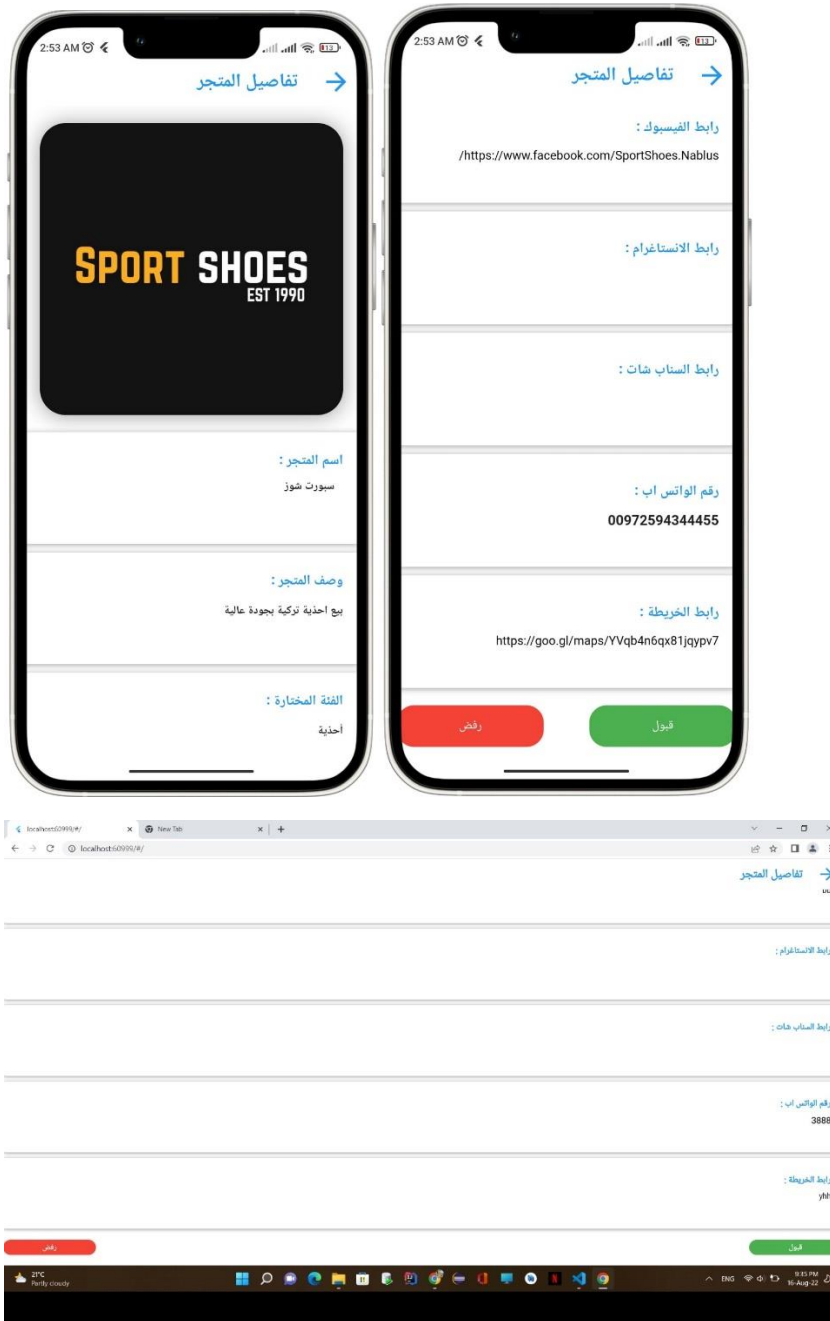


Figure 48: admin shops details pages

6 Results and Discussions

We succeeded in building a mobile application and a website that fulfils the needs of both people who want to go shopping (customers) and people who want to display their shops on the application (shop owners).

Customers can view and check products and order them which in simple words to go shopping without the need to be going from one shop to another and dealing with such stressful process, customers can always be aware of things like new products, offers, important announcements from the notifications in the app, also when visiting another city the customer is not familiar with the shops there, so the application help them on that they could simply pick their location and the app will show them all the shops in that location.

Shop owners can upload their shop's products on the application, and have customers view the products which is an opportunity for them, because the shop's products can be viewed 24/7 from the application so the shop's product are always available for customers to browse, another thing is that the shop's location might be unfamiliar for customers, so it is also an advantage to have your products reachable in the hands of the customers, the shop owners can also add products from their mobile application.

The admin also can manage the application, from accepting shops or advertisement from his mobile application in addition to the web, which means that he is not limited to a specific time or place to work in, the admin work is always accessible.

Having a mobile application in the reach of people is an important thing for every application, most people always have their mobiles with them, and they prefer to access shops via their mobile which is for both customers and shop owners far more convenient.

The application acts as a shopping platform for users which means that the users can also view products in their leisure time rather than only viewing them when they need to go shopping, which means that the shopping is highly active and it is much more convenience process for all users.

7 Conclusion and Future Work

We succeeded in providing a solution for an issue that is not given enough attention, it is a problem that our society deals with and our application offers a practical choice for customers and shop owners to ease the process of shopping without facing all the problems that we discussed in this report.

Our application can be improved so that customers can get in the main page shops that are likely to be in there interest which can be achieved through machine learnings and algorithms.

It can also be improved by searching for products through images and to match products that are available in shops.

This application aims to concentrate on shops and the process of shopping but can be further developed to include other fields like independent workers profiles so that a lot of services and work can be known and done through the application.

8 References

[1] Emmanuel Ravalet, Andrew Mills, Bruce Sterling, 2013. The Value of Time (Mobile Lives FORUM Vies Mobiles). Postautomobility, 28 January. accessed August 2022.

[2] Rahul Khosla, Daniel Kahnemen, 2021. How much people prefer purchase through apps. Heady, 4 May. accessed August 2022.

[3] Palestinian Central Bureau of Statistics, 2019. Statistics of Number of mobile phones lines in Palestine. The ministry of communication, 18 July.

[4] Effie Lai-Chong Law, Paul Van Schaik, Virpi Roto, 2017. Why User Experience is Key to Digital Marketing Success. International Journal of Human-Computer Studies 72 (6), 3 January. pp. 68-74.