



An-Najah National University

Faculty of Engineering & Information Technology

Department of Computer Engineering

Software Graduation Project



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1- Disclaimer

This report was prepared by Ameer Yaish and Abd Al kareem Salah in the Department of Computer Engineering, College of Engineering, An-Najah National University.

It may have both linguistic and content mistakes since it has not been altered or fixed outside of editorial changes as a result of the examination.

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2- Acknowledgment

We would like to express our gratitude to Dr. Alaadin Al Masry and our Computer Engineering Department committee who gave us the opportunity to do this delightful project on the theme of Education City. The opportunity to work on this project helped us to improve our skills in many aspects, learn new languages and think differently, to reach the solution in more than one way and choose the best solutions. We would also like to thank every member of our family, especially our parents, who gave us all the psychological and moral support we needed and that we would not be where we are now without them. We are also deeply indebted to every member of our department family without exception, from teaching assistants to professors, for what they have given us throughout our study journey. Knowledge is invaluable; they gave us their efforts without asking for anything in return, we are very grateful. Finally, our friends who helped us when we needed them and provided support of all kinds, especially when we felt tired or stressed in completing this project on schedule.

3- Abstract

This project entitled “TravelMate” is a network based application designed and developed in Flutter and NodeJs, The name suits the purpose it was set for as it provides the facilities for booking hotels, houses, apartments and other accommodations.

The said system was intended to replace the manual process of transactions such as the booking of rooms, payment and billing. With the use of the database driven application, it will and can eliminate the problems encountered in the manual process, the problems and troubles includes the inaccurate records that causes to the delay of business transactions.

4- Introduction

This project offers a solution for the problems that we mentioned and provides other features to make the booking experience more convenience and comfortable. It is a smart mobile application and a website dashboard for admins and owners of the properties, it gives an option for people who wish to book to register as a user and for properties’ owners to register as an admin to manage their hotels, apartments or any type of accommodation, as they can represent their properties with details and then customers can view all changes, offers or other details.

These features along with the ability to provide facilities locations would allow customers to find exactly where the facility they want to book, giving the ability to freely look up the rooms of each hotel, apartment, house etc. and to know in advance if the facility they are browsing corresponds to their needs or not, it also allows them to view prices so that they would not feel unease when they find out that the rooms are worth much more than what they can afford, Credit Card can be used as a payment method for some types of facilities and others can pay to the owners on checkout.

We used Flutter programming language to create this project and developed the application to be responsive which means that it is cross platform, we used NodeJS to build and implement the backend which was deployed on Render API which used Mongo Atlas for the database. Therefore, servers and necessary databases to run the application have been linked to ensure a stable, reliable and secure connection between all parts of the system.

5- Literature Review

Before starting the implementation of the project idea, we searched a lot for applications outside and ideas similar to the idea we want to implement, and we found many applications that are somewhat similar to the idea we want to implement, but these applications were limited to booking hotels only, in addition to that, these applications do not allow users to register as owner or admin, only as a customer, so we had to think outside the box and sought to expand this idea to other facilities and types of accommodation, also allowed owners to control their properties under the admin controlling who manages owners effectively.

We discovered that there is a lack of this type of applications in Palestine particularly and the tourism sector needs to be enhanced and distributed over the world and the features of hotels, or any other type of accommodation facilities and entertainments plays an important role to cultivate the tourism sector.

We got inspired from the customers and hotel owners who was asking and looking forward to online reserving apps. This application made it easy for them to display their facilities on the app and from customers side, saved the effort of searching and physical transitions payments.

6- Constrains and earlier work

Over time, doing anything consistently gets simpler. Learning a new language will initially be challenging, but as you practice the words, it will become easier. Due to a lack of experience in creating mobile apps, learning was required in order to complete this project, and practice what we learned was also vital. It was hard especially the lack of time needed more effort. The lack of courses and sometimes not having what it takes to learn a particular thing especially how to deal with used programs like Android Studio and some of languages like Flutter.

Despite the many obstacles we faced, these weren't the first in any other projects.

It is nothing but the production of four academic years in which we got used to solve any problem we face. In addition, organizing time to accomplish what is required of us at the right time and learning new languages.

We return to subjects we studied through these four years such as web programming, databases, critical thinking. Our development process in this project began with collecting the largest amount of information and requirements to complete this project. Then we created an initial database so that it could be increased or modified during the design in proportion to what we want.

First, we started the design phase, which is the administration's side. It was a preliminary design. Then from the owners side. Every addition we add, we see if we need to add something to the administrator's part. After completing it, we started with users side. In addition, the same thing, we work and see if the admin's part needs to modify, delete or add. The admin controls the owners, users and all the advantages of the application, taking into account the attention to the minute details to obtain a smooth and easy application.

7- Methodology

After all the studies, statistics and surveys that we made, with the help of facilities owners and various kinds of customers who travels, needs an educational housing or entertainment properties, etc. , we conclude that the idea of this project is very necessary and useful to meet these needs.

7.1 Technical Preference

In the world of programming, there are many technologies and languages that can be used, especially when it comes to mobile development. In this section, we will explain everything that was chosen meanwhile there were choices that were disputed at the beginning, but in the end the most appropriate and best choice was made.

7.1.1 Framework

Designing our application, for user app we chose to use Flutter language because it was introduced by Google in 2018. Furthermore, it supports fast encryption, error correction and multiple operating systems (android and iOS). What distinguish this language is that in terms of performance it is better than others because there is no need to combine additional operating system components, which keeps its performance smooth and faster. for admin, owner dashboard we used html, css for the design and php for connecting apis related to admin and owner.

7.1.2 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 chose the logo that will define us and we chose carefully the colors that are relaxing for the eyes as we want to have leave a good feeling for the user of this program so a good implementation design and user friendly design app was presented so that the user experience leaves a good impression in anyone that deals with this application.

7.1.3 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 Render 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 Render.
- 3) Database: we used Mongo Atlas as the database that will create our schemas and store the data; it can be accessed by the Render API to perform the operations with the data from the database.

7.2 Planning

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

7.3 Development

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

7.3.1 user application

Application Logo

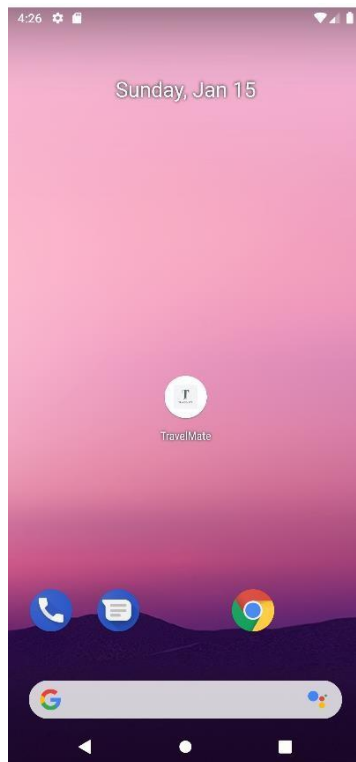


Figure 1: Application logo

Splash Screen



Figure 2: Splash screen

Language Screen

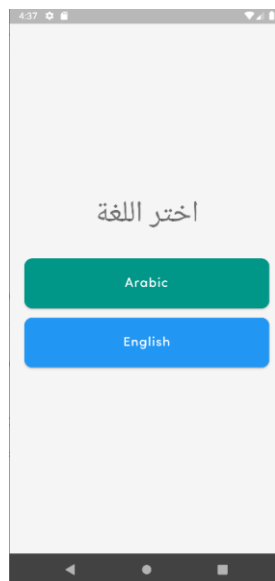


Figure 3: Choose language screen

Boarding Screen

These screens used to provide the user a glimpse about application's use

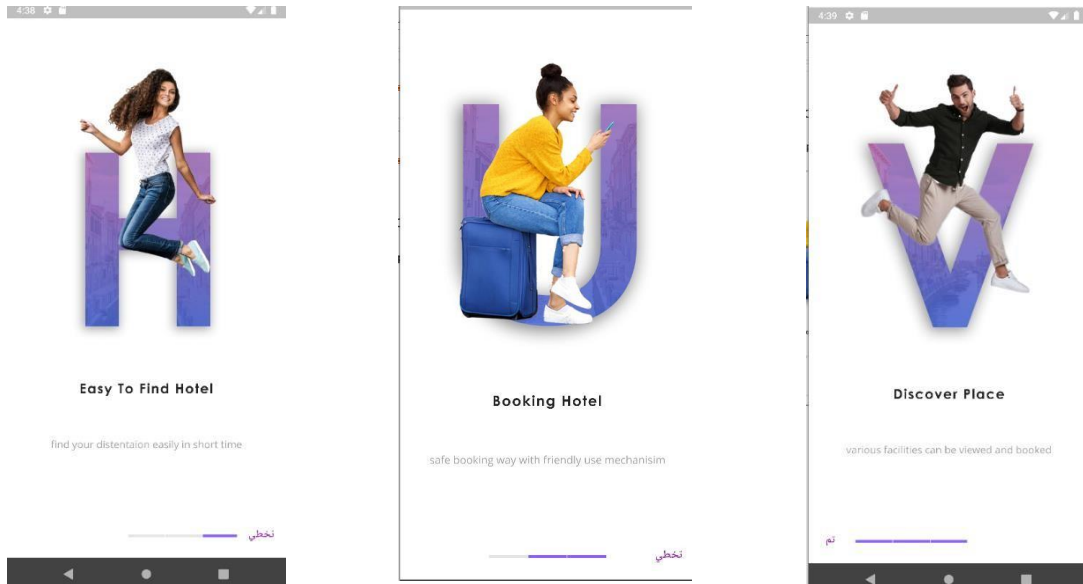


Figure 4: On Boarding screen

On boarding video

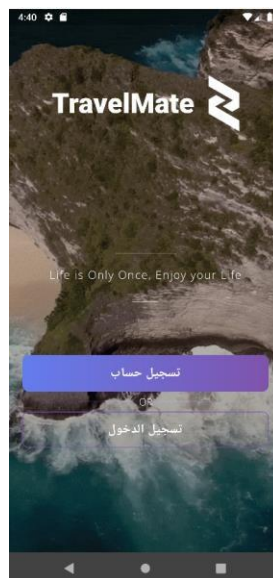


Figure 5: On Boarding video

Sign in



Figure 6: Sign in screen

Sign up



Figure 7: Sign up screen

Forget Password

If the user happens to forget his email password, the user can receive an OTP code to his email and verify it then change the password

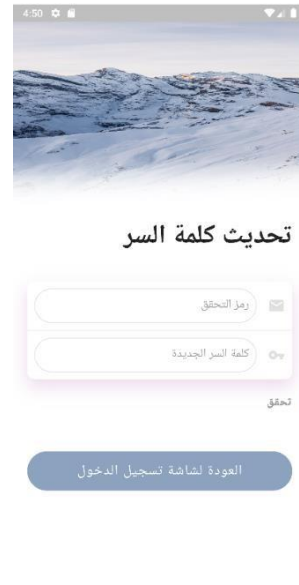


Figure 8: Reset password screen

Favorite Destination Widget

In this widget user can choose which the nature of the destination that he which to book facilities and hotels nearby it

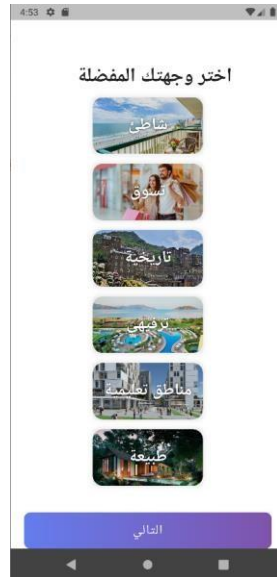


Figure 9: Intro screen

Here user select his destination or his location will be taken automatically if he permits the app on map then nearby facilities like hotels houses...will be shown in the destinations bar in main screen



Figure 10: Search map screen

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.



Figure 11: Home page

Edit profile

Here user can edit his profile information



Figure 12: Edit profile screen

Search bar

User can search for anything related to rooms, hotels, houses, apartments...

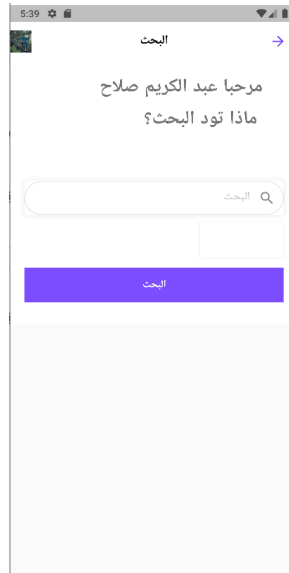
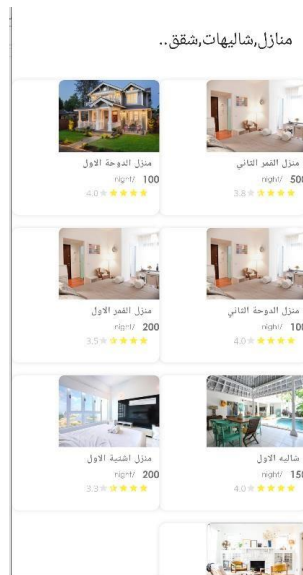


Figure 13: home search screen

For example if he searches for keyword=منزل results will be



Filter

User can filter the intended results and select city, budget, features of rooms and type of accommodation and distance from city center

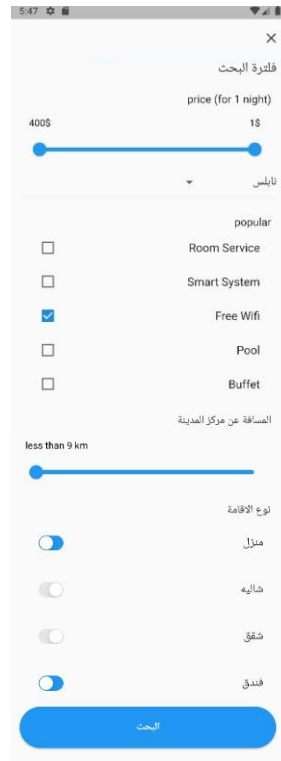
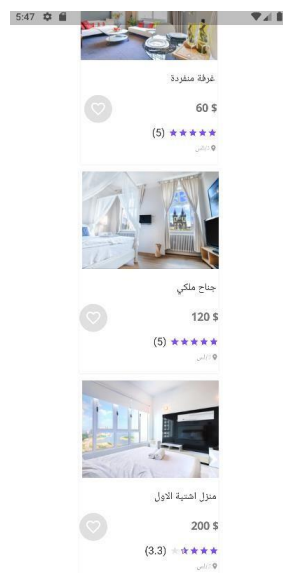


Figure 14: Filter screen

Result of this filter for example



The first bar in main screen includes the offers on rooms and other types of accommodation

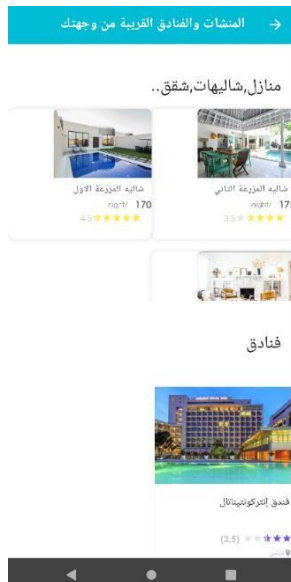


Second bar is the favorite destinations that the user chose it before

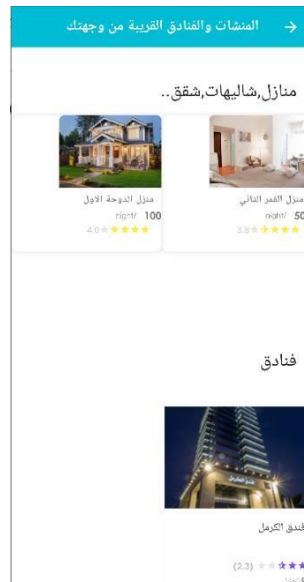


Figure 15: Favorite destination screen

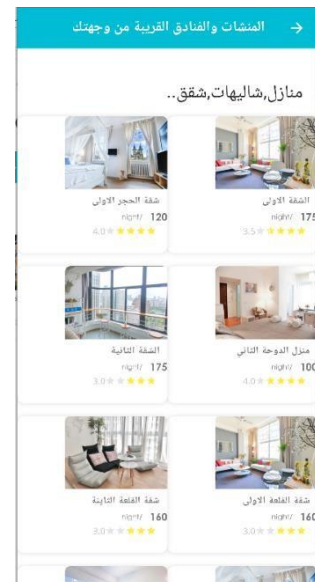
If we click on each one we will see the nearby facilities to the location that the user chose in the map



Beach

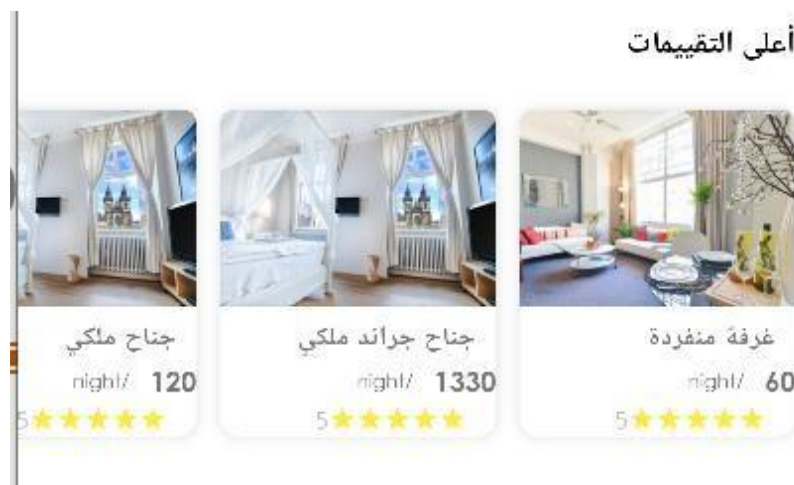


entertainment




educational areas

This is the Top rating bar, which shows the top rated rooms and other types according to users' average rating in order



This is the Top booking bar, which shows the top booking rooms and other types in order, according to users' bookings

أعلى الحجوزات

 <p>غرفة الكرمل night/ 150 4.5 ★★★★★</p>	 <p>شاليه المزرعة الاول night/ 170 4.5 ★★★★★</p>	 <p>جناح ملكي night/ 120 5 ★★★★★</p>
---	---	--

This bar includes the types of facilities like hotels, apartments, villas, houses, etc.

اصناف		اصناف	
 <p>شاليه الخيار الأفضل للحصو</p>	 <p>شقق لقد جهزت الغرف بعناية فائقة لتتضمن أفضل وسائل الراحة</p>	 <p>منزل الخيار الأمثل لمنازل</p>	 <p>فندق حسن الضيافة العالي والقامة لا تنسى</p>

If we click on each type, the related facilities to it will be shown

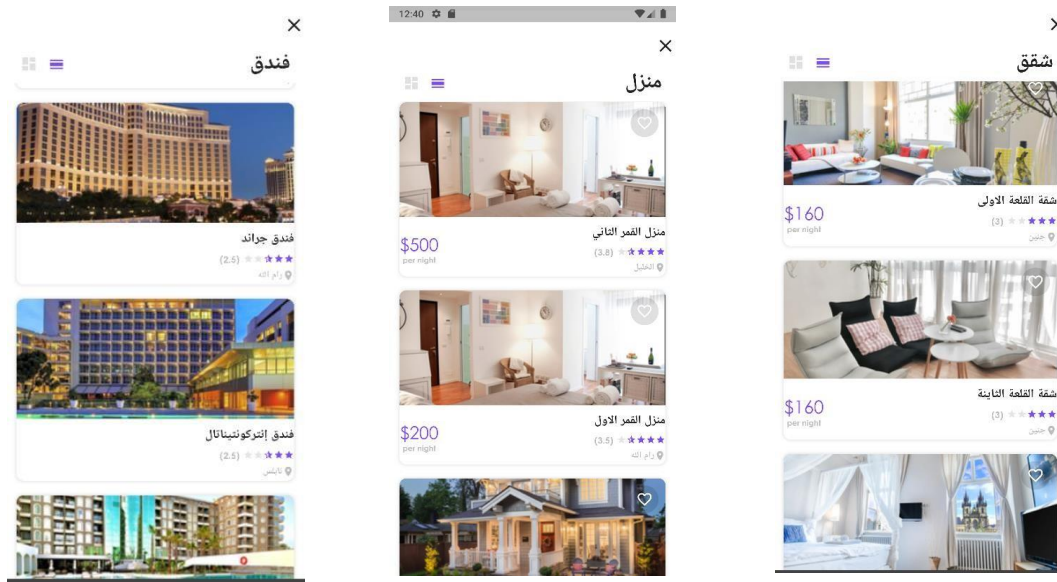
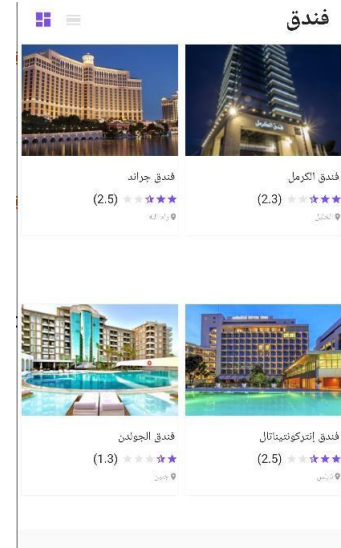
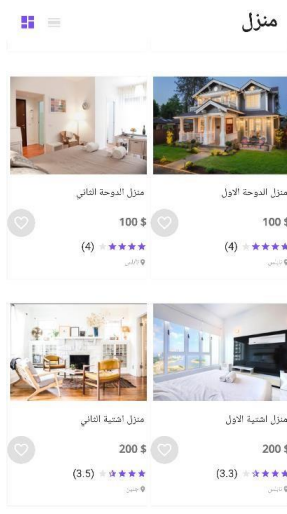
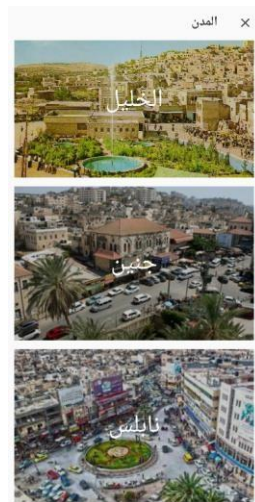
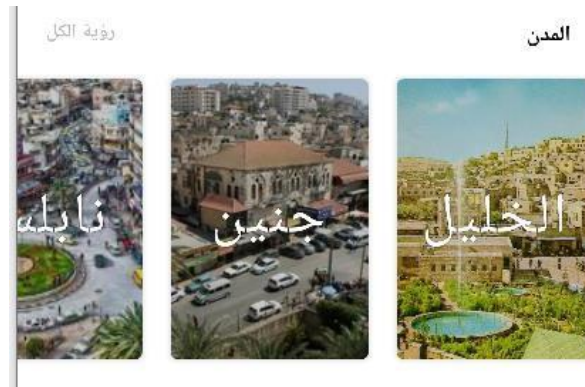


Figure 16: Categories screen

The displaying method could be row by row or like a grid



This is cities bar



The page of each city includes historical overview about it, the top destinations inside the city, city character and the recommended rooms, houses, shale's, etc. in the city

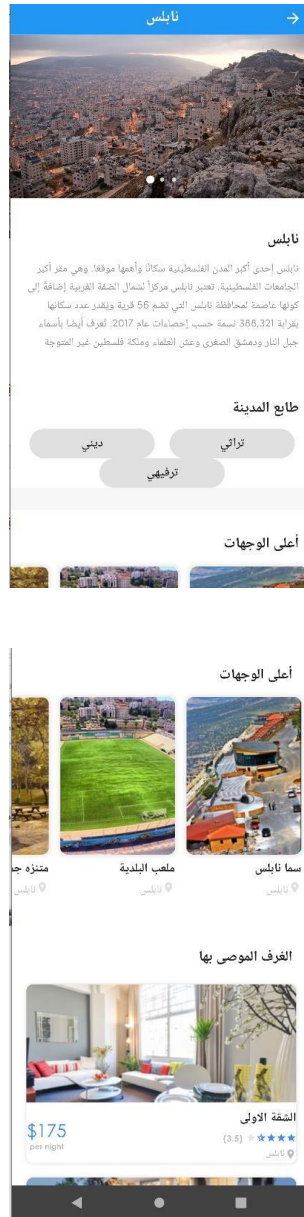
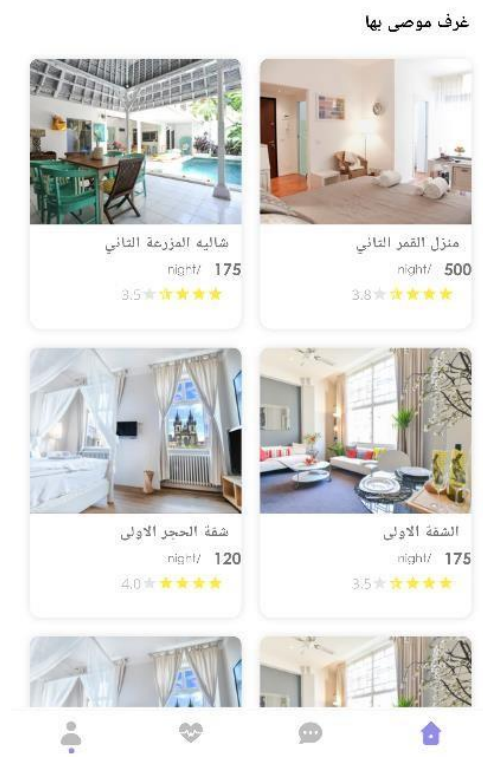


Figure 17: getCity screen

A content-based recommendation system. The system works by using the user's previous ratings of properties that he reserved and try it to create a user ratings matrix, which represents the user's preferences for different categories of property. The code then uses this matrix to calculate a weighted category matrix, which represents the relative importance of each category to the user.

Next, the code queries the database to retrieve information on all the property in the database, and creates a properties matrix which represents the categories of each property. The code then uses this matrix and the weighted category matrix to generate a property scores object, which assigns a score to each property based on how well it aligns with the user's preferences.

Finally, the code sorts this object in descending order and returns the top 10 number of properties **as recommendations for the user**. This way, it recommend the properties to the user based on the categories that the user liked in the past, it is called Content based recommendation system.



Room Page

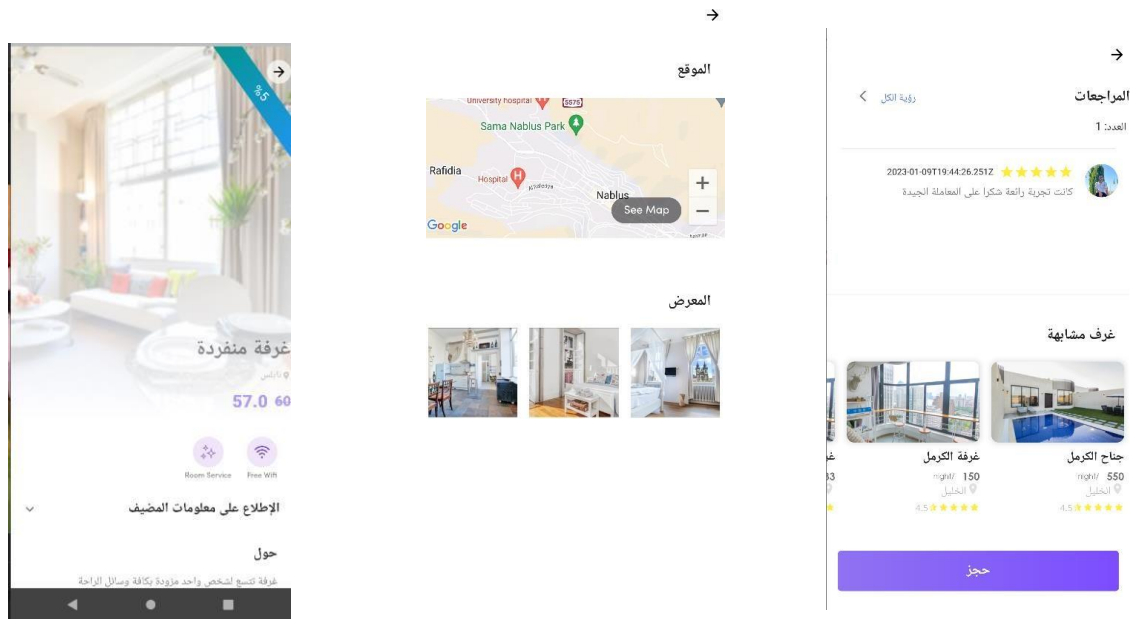
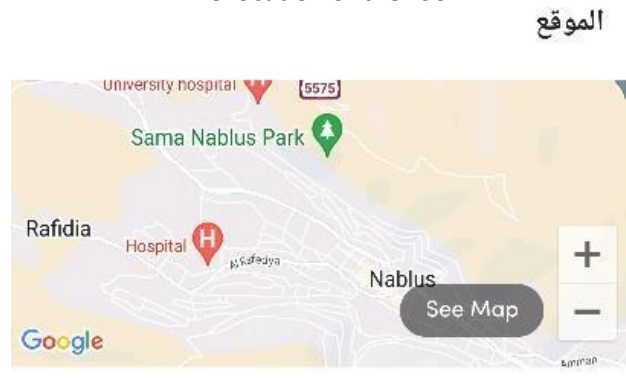


Figure 18: Room page

Host details



The location of the room



The gallery of the room



Reviews page of room

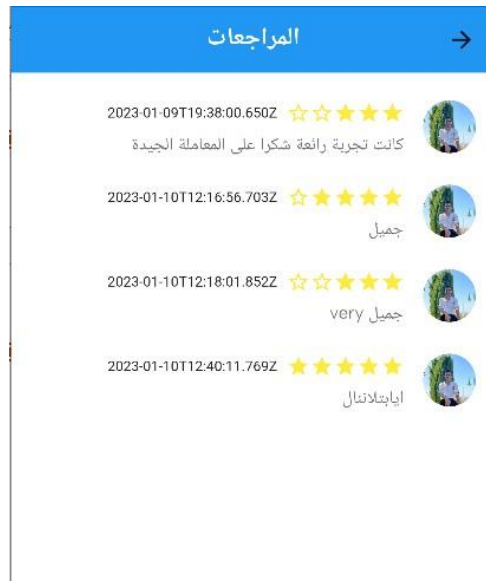
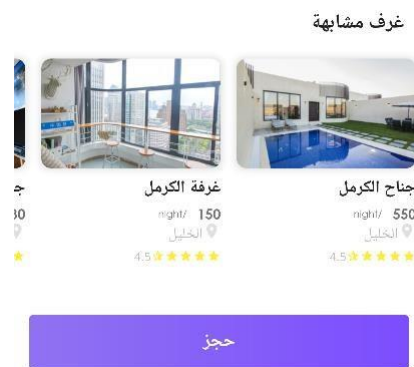


Figure 19: Reviews page

The related rooms



The booking pop up

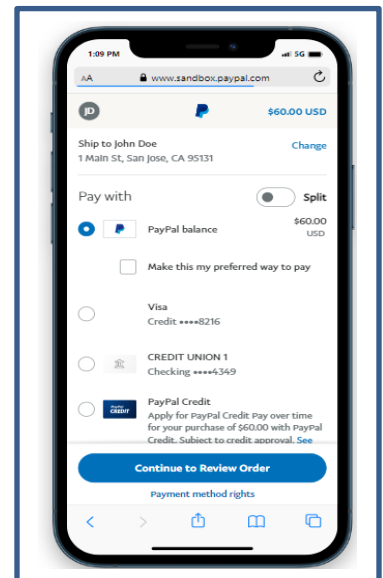
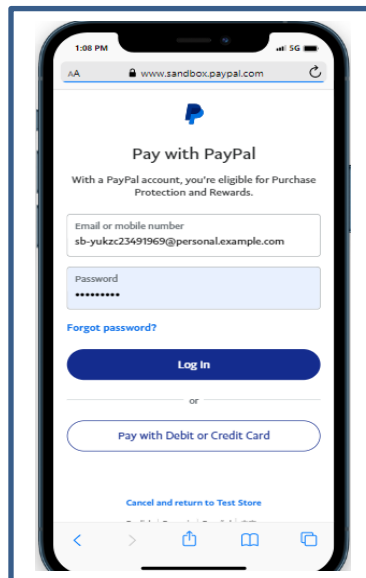
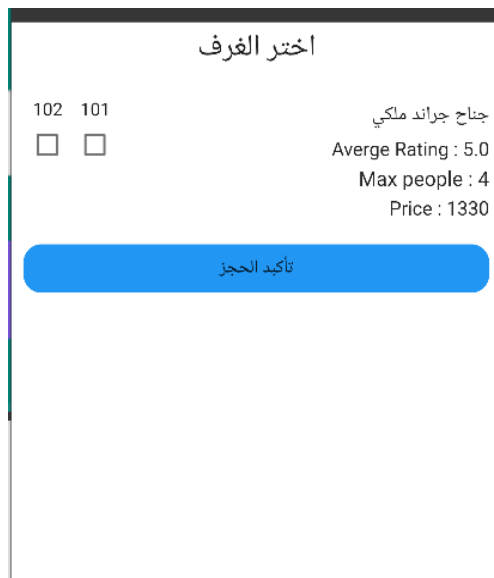
User selects the date he wants to book the facility or the room by it



Figure 20: Booking screen

User selects the room if there was more than one room like sweets in hotels

Then if the chosen date was available, he will be directed to payment page of PayPal and %20 of the reservation value will be deducted in case of non-attendance of the person who made the reservation



If the booked facility was house, apartment or shale's... user select the date and if it is available he will be directed to payment page since user books the whole facility not certain room inside it and he will pay only 20% of the value of the property reserved as an arrears

The hotel page, which contains hotel description, overall rate, reception or host info, location of the hotel, gallery and the rooms inside the hotel

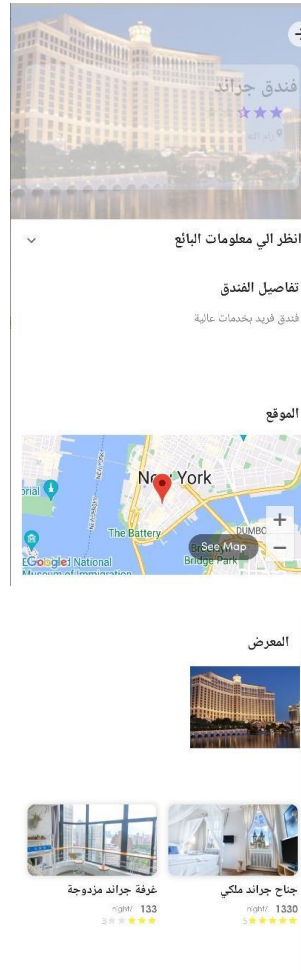


Figure 21: Hotel screen

Favorite list page

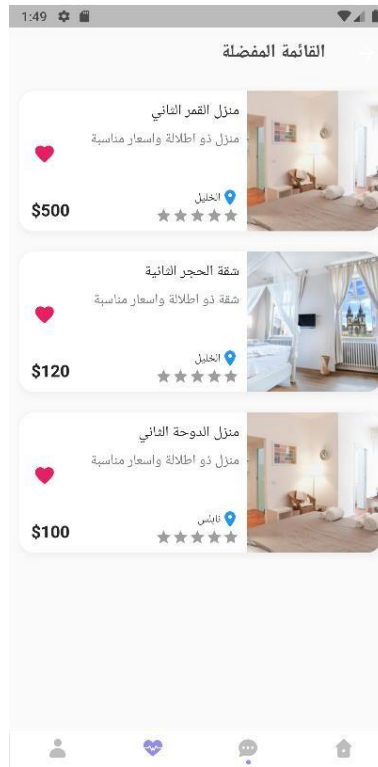
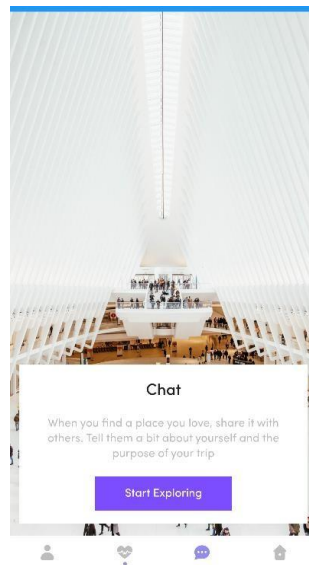


Figure 22: Favorite list screen

Chatting page



User can chat with other users using the app and share their experience

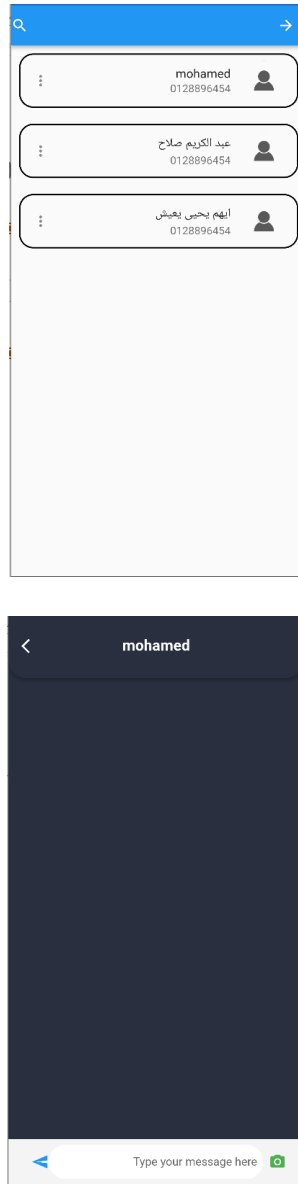


Figure 23: Chat screen

This page provides the user with different sections we will explain each one in detail



Figure 24: Profile screen

Notification page

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

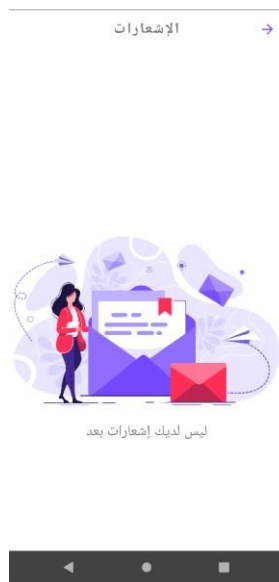


Figure 25: Notifications screen

FAQs page

It includes the most important topics and its questions with answers where user can search on any topic

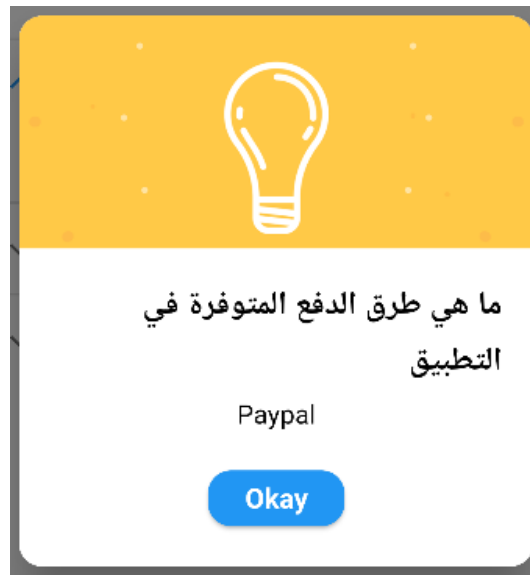
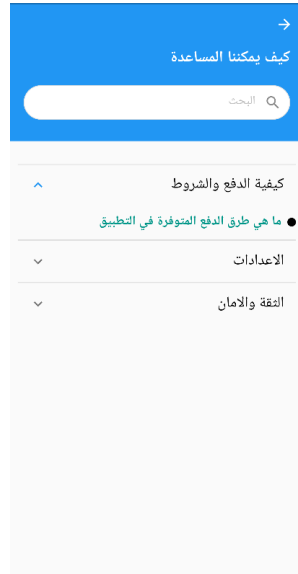


Figure 26: FAQs screen

Invite friends' page

User can share this application with others

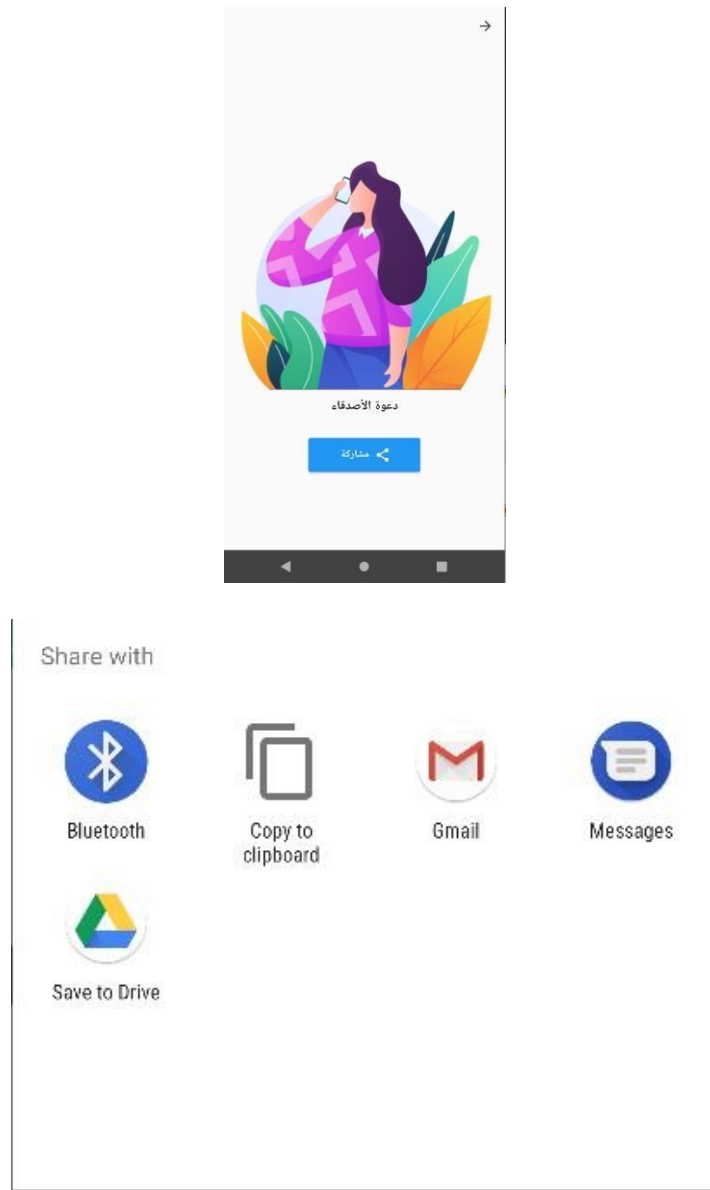


Figure 27: Invite friends screen

Call center page

If user faced any issue he can contact the admin where he provides his email, the subject and the message

مركز الدعم

نحن سعيدون بخدمتك

البريد الالكتروني

sub

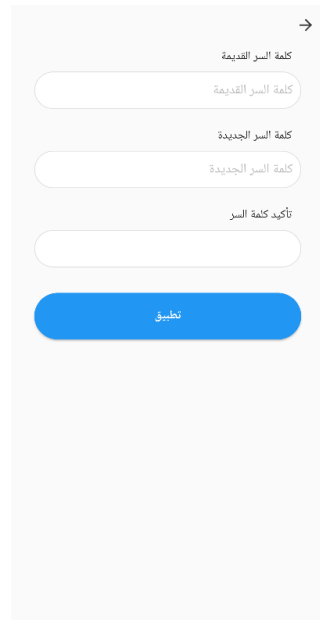
mes

ارسال

Figure 28: Call center screen

Change password page

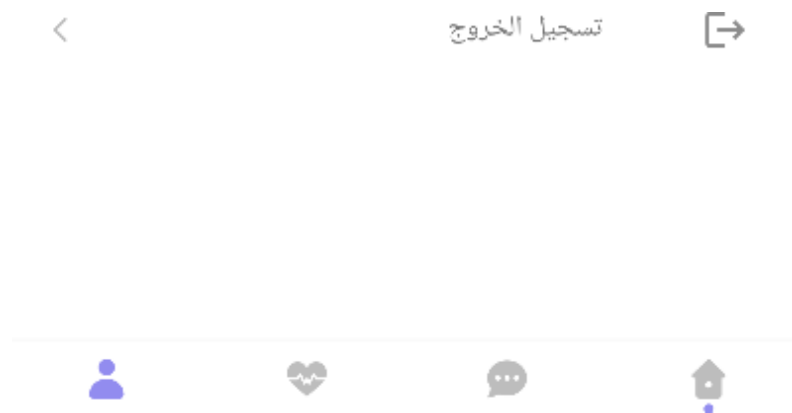
User can change his password easily



The screenshot shows a mobile application interface for changing a password. It features three input fields: the first is labeled 'كلمة السر القديمة' (Old password), the second is 'كلمة السر الجديدة' (New password), and the third is 'تأكيد كلمة السر' (Confirm password). A blue button labeled 'تطبيق' (Apply) is positioned below the input fields. A right-pointing arrow is located in the top right corner of the form area.

Figure 29: Change password screen

The last section is logout



7.3.1 Admin web pages

Login Page

The login page is a shared access point for both the owner and administrator. Depending on the type of account used to log in, it will redirect you to either the admin or owner's account

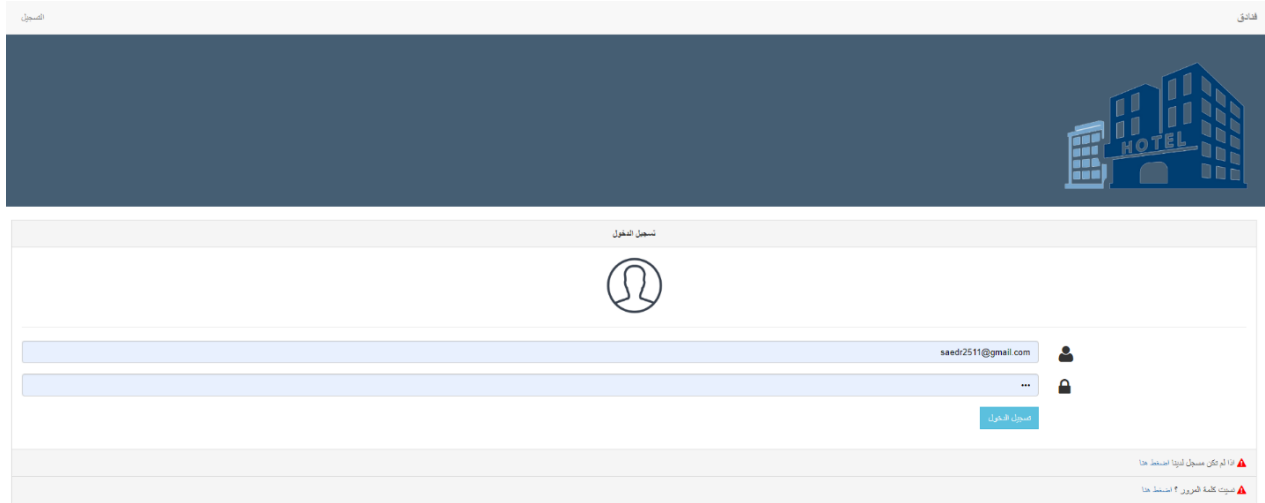


Figure 30: Login Page

Register Page

The registration page allows you to create an owner account on the website, but it will not become active until it is approved by an administrator

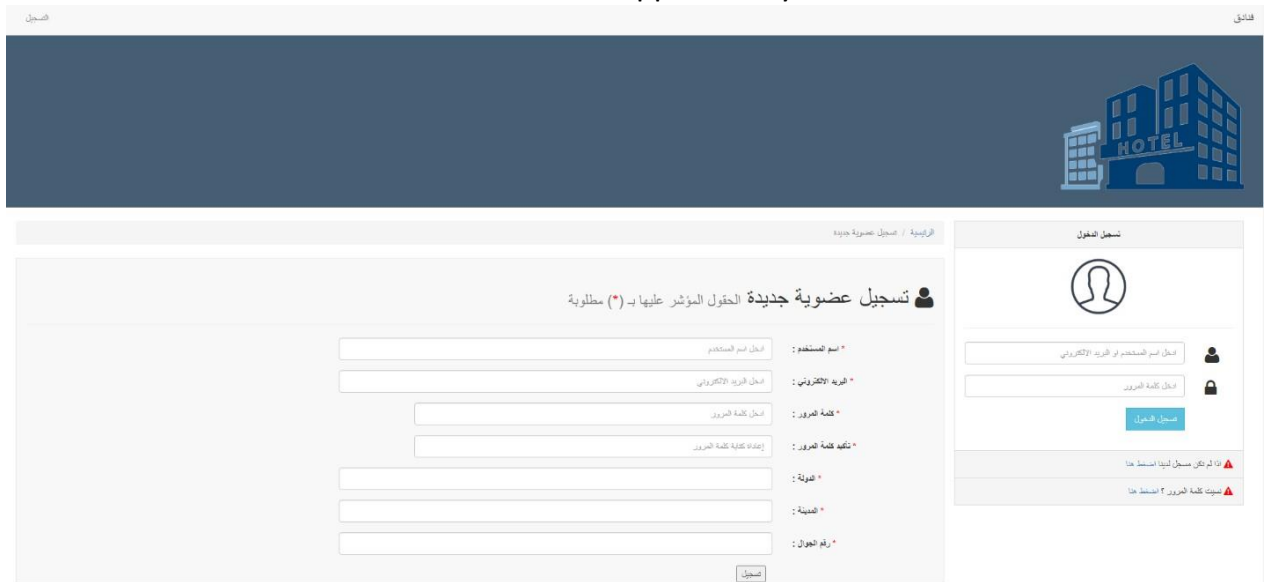


Figure 31: Register Page

Reset Password Page

The password reset page is used to change a forgotten password. An OTP (One-time password) will be sent to the email associated with the account to verify the request

الرئيسية / استرجاع كلمة المرور

تسجيل الدخول

استرجاع كلمة المرور

الحقول المؤشر عليها بـ (*) مطلوبة

البريد الإلكتروني : *
البريد الإلكتروني

تسجيل

تسجيل الدخول

البريد الإلكتروني

كلمة المرور

تسجيل الدخول

إذا لم تكن مسجل فليدا اضغط هنا

هنا كلمة المرور ؟ اضغط هنا

The password confirmation page allows you to change your password after entering the OTP sent to your email.

الرئيسية / تأكيد كلمة المرور

تسجيل الدخول

تأكيد كلمة المرور

الحقول المؤشر عليها بـ (*) مطلوبة

البريد الإلكتروني : *
البريد الإلكتروني

الرمز السري : *
الرمز السري

كلمة المرور الجديدة : *
كلمة المرور الجديدة

تسجيل

تسجيل الدخول

البريد الإلكتروني

كلمة المرور

تسجيل الدخول

إذا لم تكن مسجل فليدا اضغط هنا

هنا كلمة المرور ؟ اضغط هنا

Instagram Google+ Facebook Twitter

Figure 32: Reset password screen

Admin Main Page

The main page of the admin account displays all the options available to the administrator, as well as the number of users and owner accounts in the application.

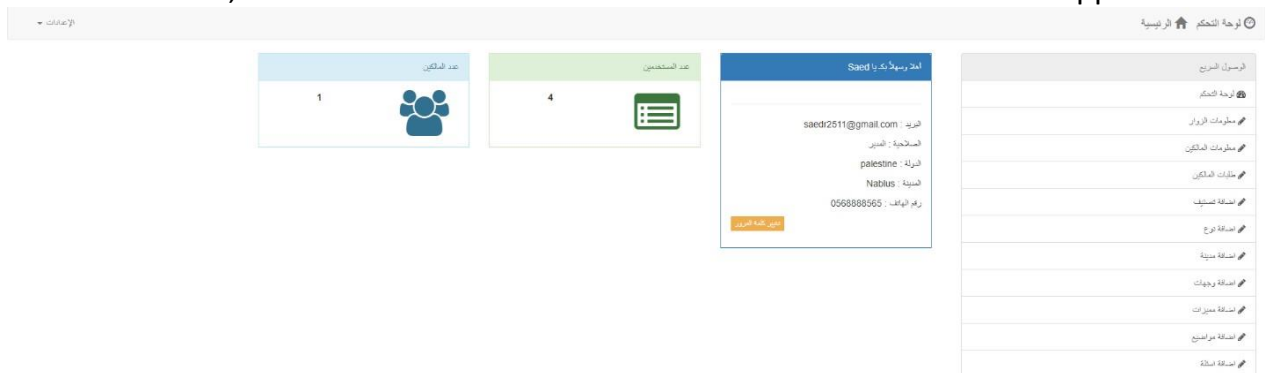


Figure 33: Admin main screen

Users' information page

The users information page displays details of all users, except for the owner accounts

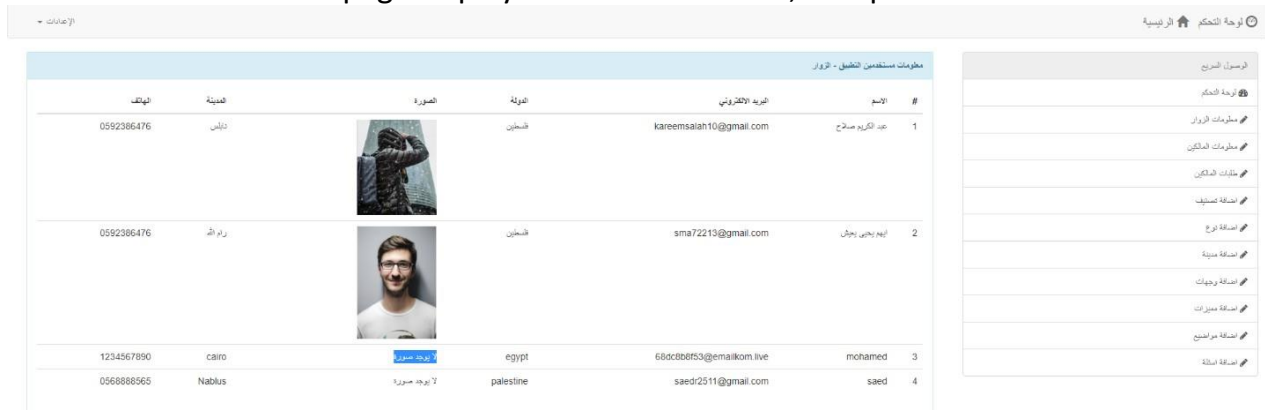


Figure 34: Users' information page

Owners Information Page

The Owners Information Display Page shows details of all individuals who possess owner accounts.

The screenshot shows the 'Owners Information Page' in an Arabic interface. At the top right, there are navigation links for 'الرئيسية' (Home) and 'لوحة التحكم' (Control Panel). Below the navigation is a header for 'معلومات مستخدمين التطبيق - المالكين' (Application Users Information - Owners). The main content is a table with the following columns: #, الاسم (Name), البريد الإلكتروني (Email), الهوية (Identity), الصورة (Image), المدينة (City), الهاتف (Phone), and التفاصيل (Details). A single row is visible with the following data: # 1, الاسم امير يحيى بديش, البريد الإلكتروني ameer1momoi@gmail.com, الهوية فلسطين, الصورة [Profile Picture], المدينة نابلس, الهاتف 0592386476, and التفاصيل عرض. To the right of the table is a sidebar with a list of navigation options: 'الرسول السريع', 'لوحة التحكم', 'معلومات الزوار', 'معلومات المالكين', 'معلومات المالكين', 'إضافة تصنيف', 'إضافة نوع', 'إضافة مدينة', 'إضافة وجهات', 'إضافة مييزات', 'إضافة مرافق', and 'إضافة أسئلة'.

Figure 35: Owners information page

Account approval request page

The account approval request page displays all requests made by individuals seeking approval for their owner account activation by an administrator

The screenshot shows the 'Account approval request page' in an Arabic interface. At the top right, there are navigation links for 'الرئيسية' (Home) and 'لوحة التحكم' (Control Panel). Below the navigation is a header for 'معلومات مستخدمين التطبيق - طلبات المالكين' (Application Users Information - Owner Requests). The main content is a table with the following columns: #, الاسم (Name), البريد الإلكتروني (Email), الهوية (Identity), الصورة (Image), المدينة (City), الهاتف (Phone), موافقة (Approval), and التفاصيل (Details). A single row is visible with the following data: # 1, الاسم saed, البريد الإلكتروني saedr2511@gmail.com, الهوية palestine, الصورة 7 يرد، سوريا, المدينة Nablus, الهاتف 0566888565, موافقة [Approval Button], and التفاصيل [Approval Button]. To the right of the table is a sidebar with a list of navigation options: 'الرسول السريع', 'لوحة التحكم', 'معلومات الزوار', 'معلومات المالكين', 'معلومات المالكين', 'إضافة تصنيف', 'إضافة نوع', 'إضافة مدينة', 'إضافة وجهات', 'إضافة مييزات', 'إضافة مرافق', and 'إضافة أسئلة'.

Figure 36: Account approval request page

Owner's profile page

The owner's profile page displays detailed information and properties of a specific owner.

The screenshot shows the 'Owner's profile page' with a header containing 'الإعدادات' and 'لوحة التحكم الرئيسية'. The main content area is titled 'المنازل والعقارات الخاصة من' and contains a table of properties. The sidebar on the right is titled 'الرسول السريع' and contains a list of navigation links.

#	الاسم	النوع	التقييم	الصورة	عرض
1	منازل النخبة	منازل	3.3		عرض
2	اشكال النور	تفاح	1.8		عرض
3	شاليهات النخبة	شاليه	2		عرض
4	منازل الفرس	منازل	1.5		عرض
5	منازل الواجهة	منازل	2		عرض
6	شقق النخبة	شقق	1.5		عرض

الرسول السريع

- لوحة التحكم
- معلومات الزوار
- معلومات المالكين
- طلبات المالكين
- إضافة تصنيف
- إضافة نوع
- إضافة مدينة
- إضافة وجهات
- إضافة مجازات
- إضافة مواقع
- إضافة أسئلة

Figure 37: Owners profile page

Owner's chain information page

The owner's chain information page displays all the chain information owned by a specific owner

The screenshot shows the 'Owner's chain information page' with a header containing 'الإعدادات' and 'لوحة التحكم الرئيسية'. The main content area is titled 'اسم الشقة: منازل النخبة' and contains a large image of a house. Below the image is a table of properties. The sidebar on the right is titled 'الرسول السريع' and contains a list of navigation links.

اسم الشقة: منازل النخبة

الوصف: شقة منازل فريدة بأفضل الامتيازات

#	الاسم	المساحة	التقييم	عدد مرات حجز	الصورة	عرض
1	منازل النخبة الأولى	200	3.3	0		عرض
2	منازل النخبة الثاني	200	3.5	10		عرض

الرسول السريع

- لوحة التحكم
- معلومات الزوار
- معلومات المالكين
- طلبات المالكين
- إضافة تصنيف
- إضافة نوع
- إضافة مدينة
- إضافة وجهات
- إضافة مجازات
- إضافة مواقع
- إضافة أسئلة

Figure 38: Owner's chain information page

Owner's hotel details page

The owner's hotel details page displays all information of a specific hotel owned by the owner, including its location, rooms, and evaluations of each room

Figure 39: Owner's hotel details page

Hotel room details page

The hotel room details page shows the information and details of a specific room within a hotel, accessed by clicking on it.

Figure 40: Hotel room details page

Chain house information page

The chain house information page displays the location and details of a specific house belonging to a particular chain

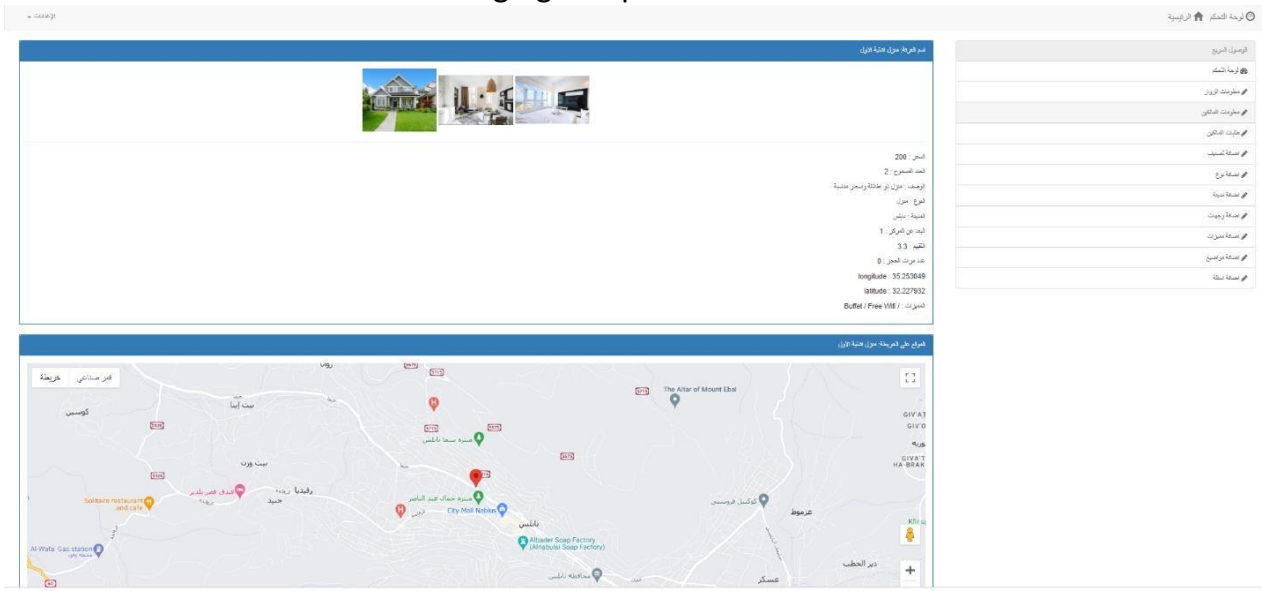


Figure 41: Chain house information page

Add Category

The Add Category page allows an administrator to create a new category and view all previously existing categories, with the option to delete them

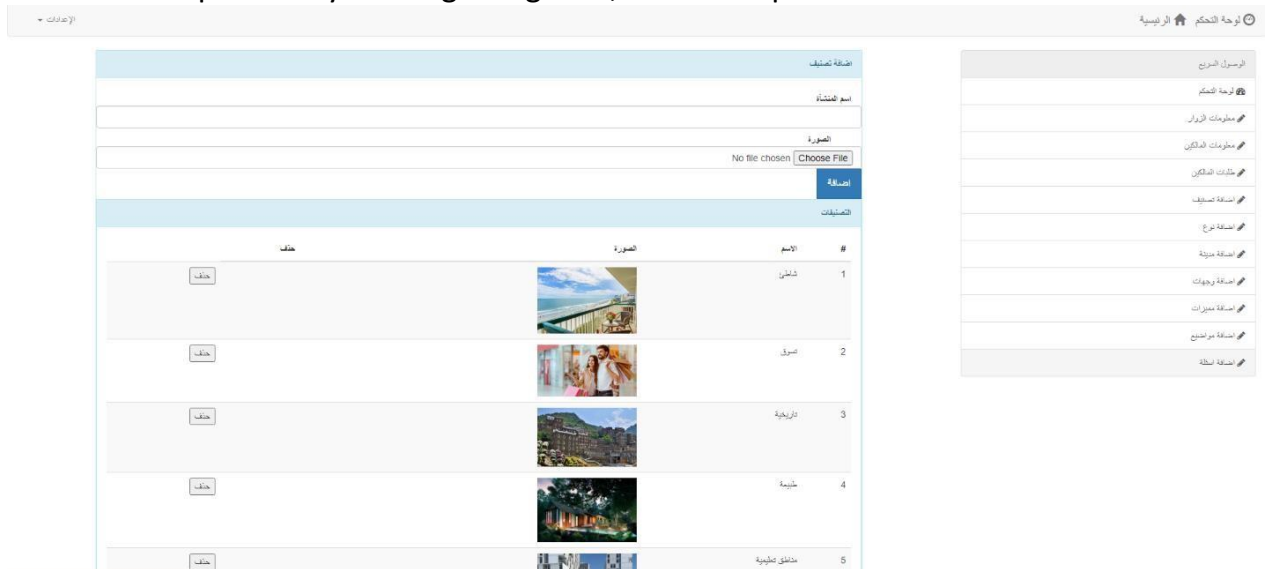


Figure 42: Add Category page

Add City page

The Add City page allows the administrator to add a new city to the application and view all previously added cities, with the option to delete or modify them.

Figure 43: Add city page

Add Famous Destination page

The Add Famous Destination page enables the administrator to add a popular tourist destination for a specific city and view all previously added destinations for that city

Figure 44: Add Famous Destination page

Add Feature

The Add Feature page allows the administrator to add or delete features that can be added to a property.

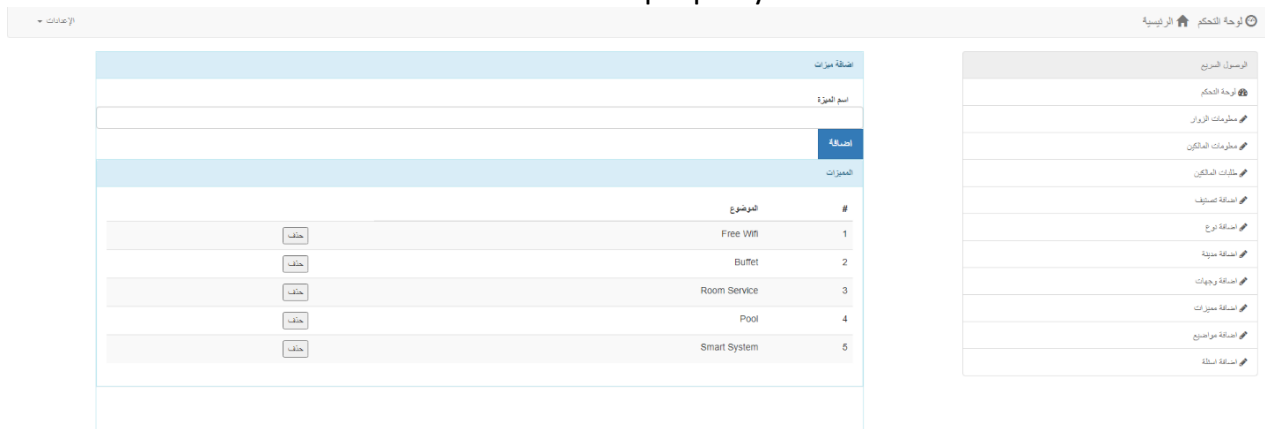


Figure 45: Add feature page

Add Property Type page

The Add Property Type page enables an administrator to add a new type of property that can be created by an owner, and displays all existing property types with the option to delete them

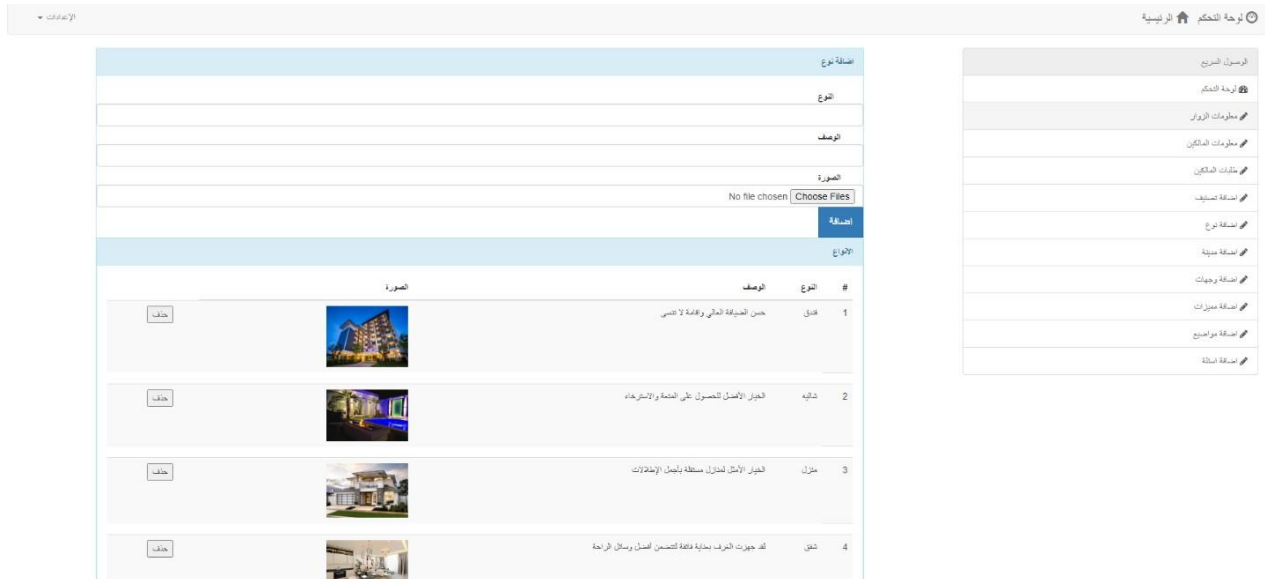


Figure 46: Add Property Type page

Add Topic page

The Add Topic page enables an administrator to create a new topic and add related common questions under it. The page also displays all previously created topics with the option to delete the topic along with all its associated questions.

التصنيف	اسم الموضوع	التصنيف
المواضيع		
#	الموضوع	
1	Settings	عرض الأسئلة حذف
2	Paying for a reservation	عرض الأسئلة حذف
3	Trust and Safety	عرض الأسئلة حذف

Figure 47: Add topic page

Add Question page

The Add Question page allows you to create a new question under a specific topic and view all previously added questions under that topic, with the option to delete them

#	السؤال	الاجابة	
1	change language	go to settings	حذف

Figure 48: Add question page

7.3.1 Owner web pages

Account owner's homepage

The account owner's homepage serves as a central hub for displaying relevant information pertaining to the account holder. This includes personal details of the owner and a tally of reservations made. Additionally, the page also features a graphical representation of the profit rate for the said owner.



Figure 49: Account owner's homepage

Password Change Page

The "password change" page is a feature intended for the account owner to update their account password

The screenshot shows the password change page. It features a form titled 'تغيير كلمة المرور' (Change Password) with three input fields: 'كلمة السر القديمة' (Old Password), 'كلمة السر الجديدة' (New Password), and 'أعد كلمة السر' (Confirm Password). A 'تغيير كلمة المرور' (Change Password) button is located at the bottom right of the form. The page also includes a navigation bar at the top with 'الرئيسية' (Home) and 'لوحة التحكم' (Dashboard), and a sidebar on the right with 'الرسول السريع' (Fast Messenger) and a list of messages. The footer includes 'Canvas3D Title' and 'Canvas3D.com'.

Figure 50: Password change page

Add Property Series

The "add property series" page is a platform for the addition of various types of properties, including houses, hotels, apartments, and more. The information required for the addition of a property will vary depending on the type of property being added

The image displays two screenshots of the 'Add Property Series' page. The top screenshot shows the basic form with fields for 'اسم الشركة' (Company Name), 'الوصف' (Description), 'الصورة' (Image) with a 'Choose File' button, and 'النوع' (Type) dropdown. A 'إضافة' (Add) button is at the bottom. The bottom screenshot shows an additional field 'النوع من برقي المدينة' (City type) and a 'التصنيف' (Classification) dropdown, along with a Google Map of Sydney.

Figure 51: Add property series page

Add to Series

The "add to series" page allows the owner to select an existing series and subsequently add the required information to it. This includes various details pertaining to the properties being added to the series.

The screenshot shows the 'Add to Series' page in Arabic. The page is titled 'إضافة سلسلة' (Add Series) and is part of the 'لوحة التحكم الرئيسية' (Main Control Panel). It features a dropdown menu for selecting an existing series, a table of series details, and a form for adding new information. The form includes fields for name, address, phone number, and various service options like Smart System, Pool, Room Service, Buffet, and Free WiFi. It also has a map of Sydney, Australia, for location selection.

الرمز	الاسم
1	سلسلة 1
2	سلسلة 2
3	سلسلة 3
4	سلسلة 4
5	سلسلة 5
6	سلسلة 6
7	سلسلة 7
8	سلسلة 8
9	سلسلة 9
10	سلسلة 10

الإعدادات - لوحة التحكم الرئيسية

إضافة سلسلة

اسم السلسلة:

العنوان:

الرقم:

الاسم:

العدد المسموح:

Smart System Pool Room Service Buffet Free WiFi

المميزات:

اسم المدينة:

العنوان:

التعليق:

التصنيف:

التصوير: No file chosen

خريطة

Enter a location

Sydney

Figure 52: Add to series page

Add to Hotel

The "add to hotel" page is a feature that allows the owner to add a room type, specify the quantity of rooms of that type and their respective numbers, as well as input any additional details as depicted in the accompanying image.

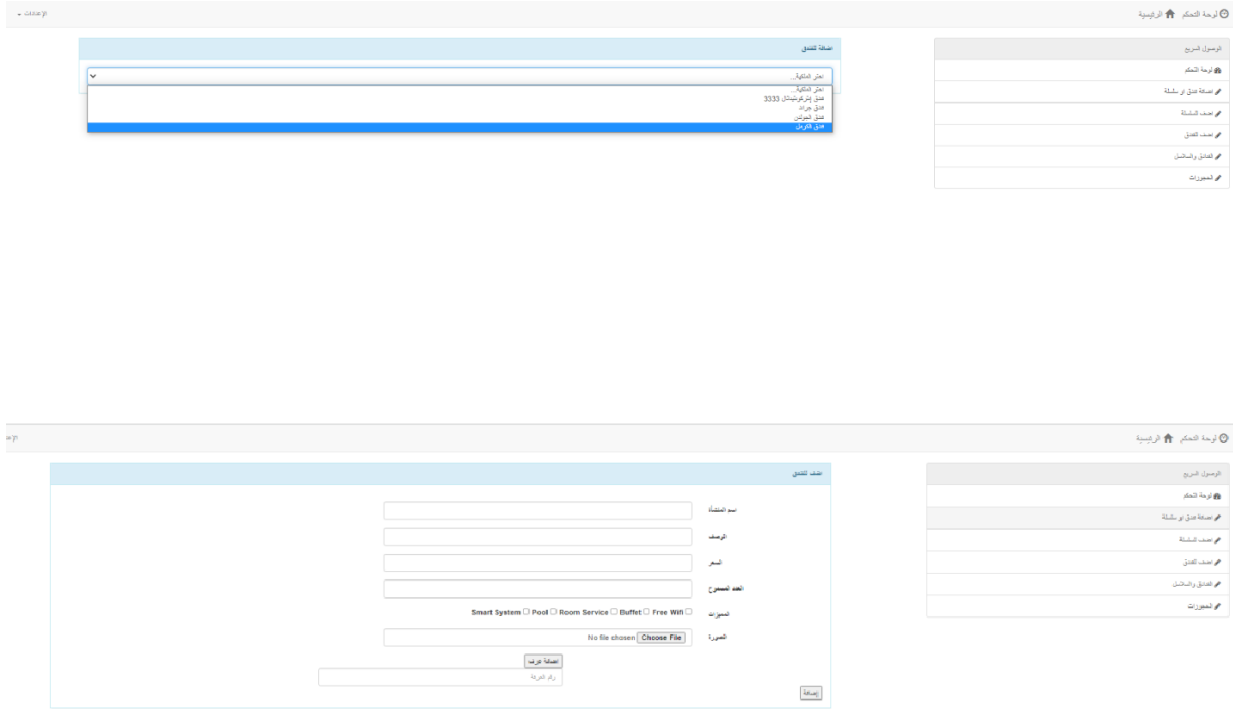


Figure 53: Add to hotel page

Property Display page

The "property display" page for the owner is a feature that lists all the chains and hotels owned by the said owner. This page provides an overview of the properties under the account holder's ownership.

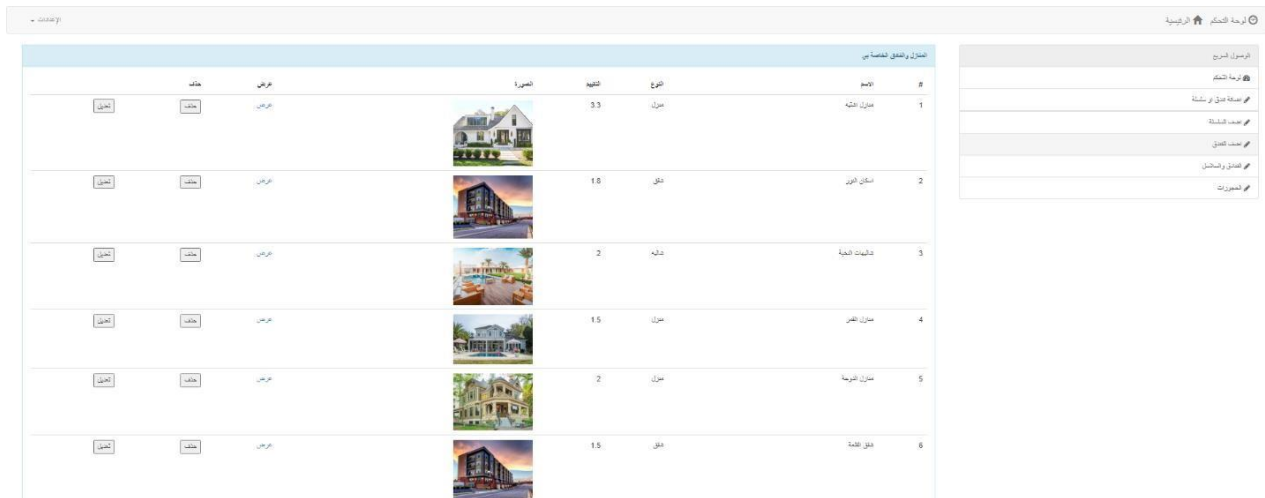


Figure 54: Property display page

Series Display Page

The "series display" page is a feature that lists all the components of a specific series and the details it contains. This page provides an overview of the properties in the series and the information associated with them.

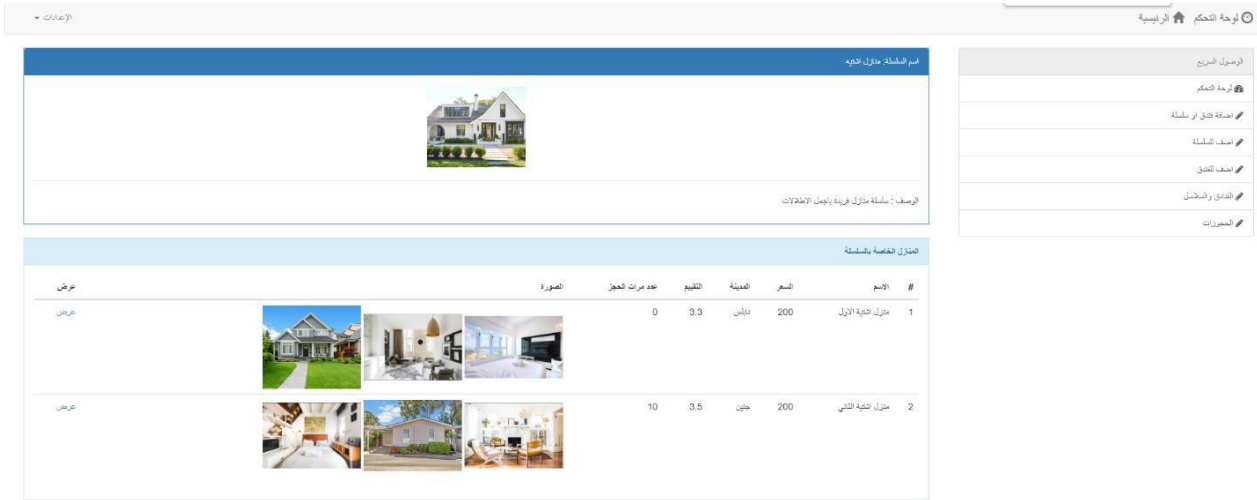


Figure 55: Series display page

Property Series Details Display Page

The "property series details display" page is a feature that provides a detailed view of the properties within a selected series, along with its properties and characteristics, after being clicked on from the website

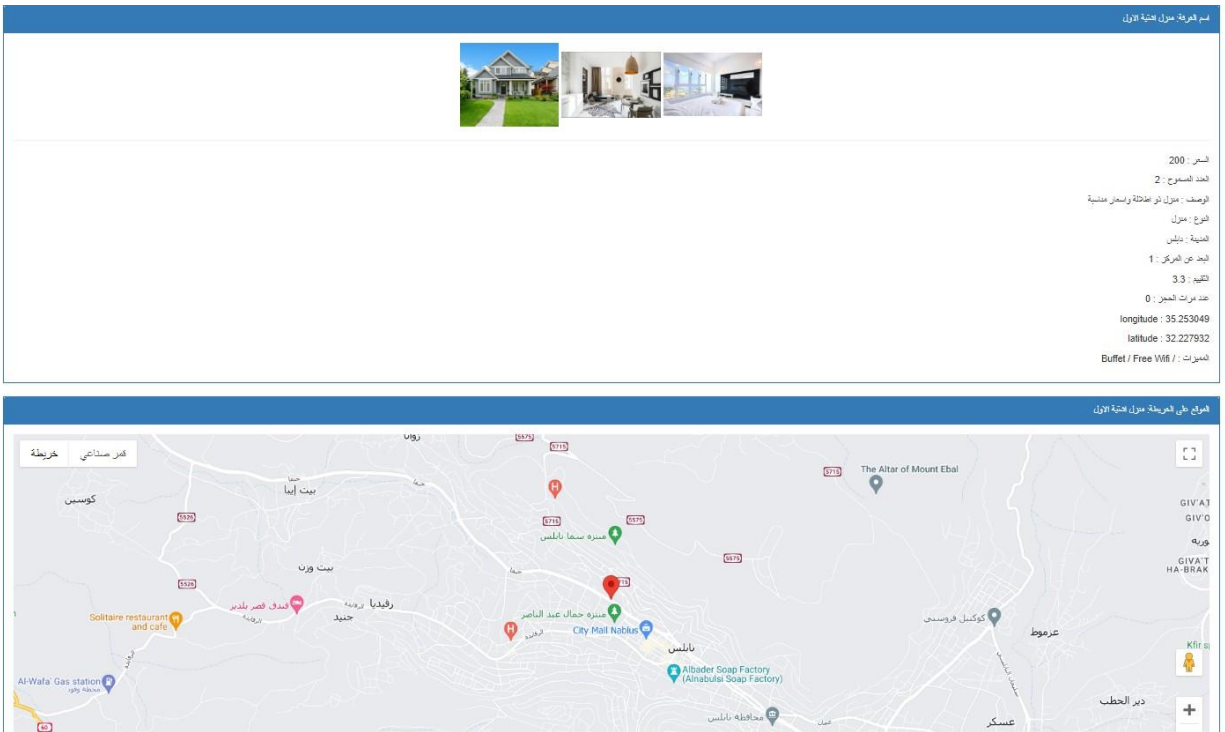



Figure 56: Property Series Details Display Page

Hotel Display and Details Page

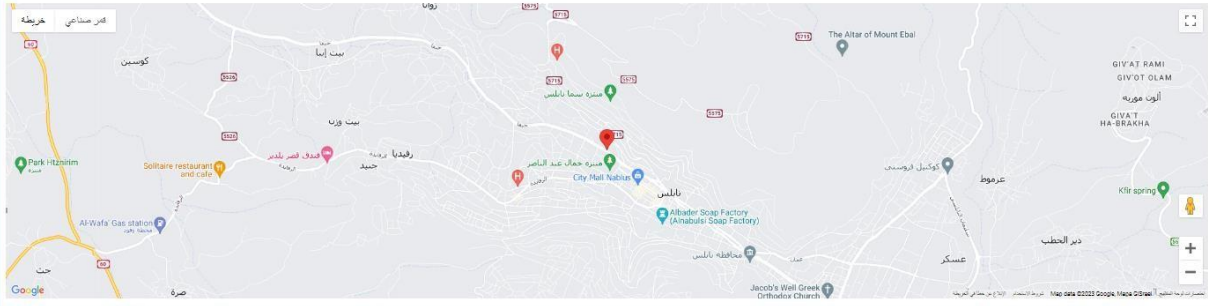
The "Hotel display and details" page is a feature that displays information about the hotel owned by the owner, including the types of rooms available. This page provides a detailed view of the hotel and its amenities.

اسم الفندق: فندق حرد



المدينة : رام الله
 المسافة عن المركز : 5
 latitude : 32.227632
 longitude : 35.25304
 الوصف : فندق فيه خدمات خاصة

العنوان على الخريطة: فندق حرد



تعارف الحجوزات داخل الفندق



#	الاسم	السعر	التعليق	عدد مرات الحجز	الصورة	حرف
1	غرفة حرد ملكي	1330	5	0		حرف
2	غرفة حرد لزوجات	133	3	0		حرف

Figure 57: Hotel Display and Details Page

Hotel Room Display Page

The "Hotel room display" page is a feature that displays information about the rooms within the hotel, including details about a specific room type, the quantity of rooms of that type, their numbers, and also any upcoming reviews from users of that room

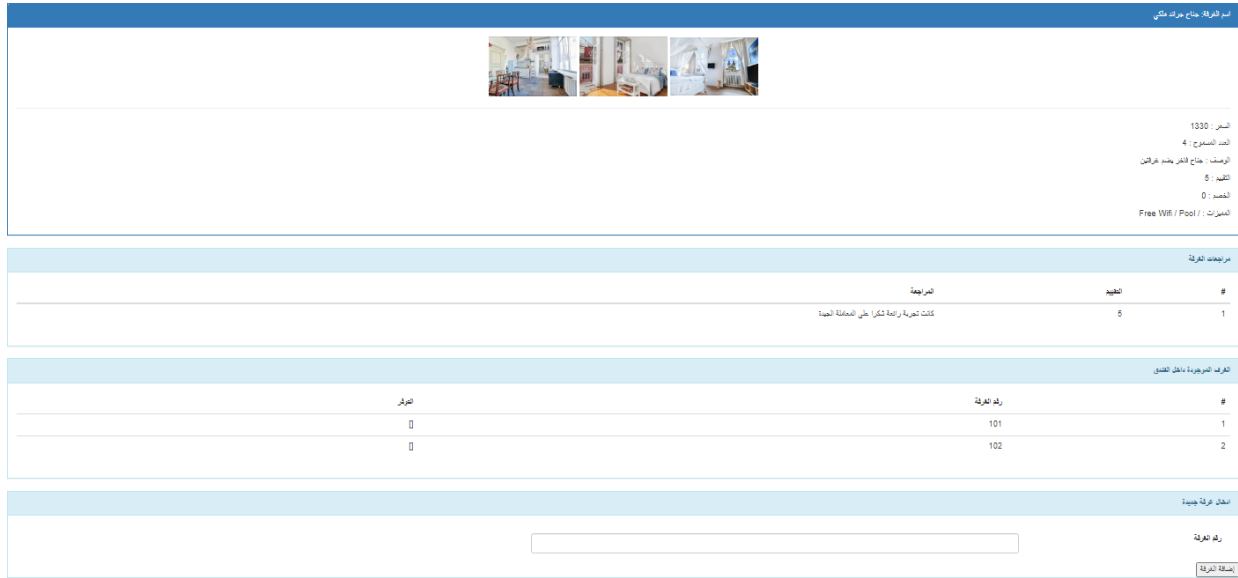


Figure 58 Hotel Room Display Page

Reservation Display Page

The "Reservation display" page is a feature that lists all reservations made for properties owned by the said owner. It displays information about the person who made the reservation, the property that was reserved, and the date of the reservation. Additionally, upon check-out, a notification will be sent to the person who made the reservation to allow them to evaluate the property they have booked and also if the guest not showing up, a penalty fee of 20% of the reservation value will be charged



Figure 59: Reservation Display Page

8- Results and Discussions

We were able to create an application that enables owners to add their hotels, houses or other types of accommodation, users can discover all these facilities with its details and then they can book it with smooth mechanism. We used many software technologies such as machine learning and maps to complete the project and facilitate its use for the user. We searched a lot about many topics to find solutions to some problems within the application, and we focused on a task that makes the application smoother, such as recommended rooms and algorithm for distributing bookings. We also used flutter web to create admin and owners web pages.

At the end, the project fulfilled the purpose for which it was created and will help many people to enter the booking technology in an electronic way. In the future, the project can be developed to make it expand in the Arab world or the world, not only in Palestine, and add other features to it to make it meet more needs of people.

9- Conclusion

9.1 Learned Subjects

- Flutter cross-platform.
- Rest API
- Php curl
- MongoDB database
- Google Maps
- AI and Machine Learning
- Handling with GitHub

9.2 Summary

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 facilities owners to ease the process of booking without facing all the problems that we discussed in this report.

This application aims to concentrate on hotels, other types of accommodation and the process of booking, but can be further developed to include other fields so that a lot of services and work can be known and done through the application.

9.3 Things we learned

- Mobile device development using flutter language.
- Creating efficient servers and APIs using apache http.
- Designing a consistent application in terms of interfaces and colors
- Dividing the time efficiently.
- Dealing with stress and solving problems, we encountered.
- Have a spirit of partnership work.
- Writing a clear and detailed project report.

10- References

- [1] Strategic Management for Tourism, Hospitality and Events" by Neil Taylor**
- [2] Online Travel Distribution: The Economics of Strategy" by Jochen Wirtz**
- [3] Tourism Management: Analysis, Behavior and Strategy" by Stephen J. Page**
- [4] Hospitality and Tourism Marketing" by Alastair M. Morrison**