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ChaletPS

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”

- Ibrahim, Moayad

Disclaimer

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Chapter 1

Abstract

We noticed that many people face difficulty when booking a chalet, whether it is because they do not know the names of the chalets and the difficulty of searching for them or the difficulty of communicating as they need to communicate with the owner to know the empty reservations.

Therefore, we will make a website and application that makes it easier for the user to know the many chalets and the dates available to book the chalet without the need to communicate directly with the owner and know the road to the chalet through the GPS in addition to the possibility of communicating online with the owner and do not forget that it is easy for the chalet owner to advertise his chalet on the site and not only limited to advertising on social media.

This project makes it easier for people who want to book a chalet to know the dates of the empty reservations and saves them a lot of time in searching for a chalet on social networking sites and knowing the prices instead of communicating directly with the owners of the chalets in addition to knowing the location of the chalet on the map.

At first, the user is logged in, whether he is a regular user or the owner of a chalet, to show a page with many shared chalets on the site, when he clicks on the name of the chalet, a page appears with the details of the specifications mentioned previously, the price and the available days, and when the reservation is made, the admin is notified that the reservation has been made On a certain date, and if the reservation is confirmed, the reservation appears on the user's reservations list and a number appears to contact the person who will carry out the delivery process, and in the end the user rate the chalet.

Chapter 2

Introduction

2.1 Background

People are always looking for what makes them happy and spending enjoyable vacation times with family and friends by renting a private place equipped for them and they want it to be smooth without complication and for everything to be clear to them and save them time and effort while they are looking for a place or a chalet.

2.2 Problem Statement

We noticed that many people face difficulty when booking a chalet, whether it is because they do not know the names of the chalets and the difficulty of searching for them or the difficulty of communicating as they need to communicate with the owner to know the empty reservations.

2.3 Purpose

This project makes it easier for people who want to book a chalet to know the dates of the empty reservations and saves them a lot of time in searching for a chalet on social networking sites and knowing the prices instead of communicating directly with the owners of the chalets in addition to knowing the chalet location on the map.

2.4 Objectives & Scope

This project is an application that helps people rent chalets and display them in a clear way, according to what they desire, and easily search for them.

To meet the needs of the user, the project do the following :

1. Users **create an account** on the application by filling in their information, and upon correct registration, an email notification is sent to them.
2. **Recommend chalets** to the user by displaying the highest rated chalets.
3. The user can leave a **comment** or review about the chalet so that other users can see it.
4. Users can **Rate** chalets, which helps in improving the recommended chalets for users.
5. **Filter** chalets to the user by specifying some properties that the user wants, such as the city, etc.
6. Send **Notifications** to inform the user of accepting or rejecting the rent in addition to other properties.

2.5 Report Organization

- In the next chapter (**Constraints & Earlier Coursework**) , we will discuss what difficulties we faced in our project and how we were able to overcome them, in addition to the courses that helped us in this project.
- In the fourth chapter (**Literature Review**) , we will review some of the works and projects similar to ours and how our project differs from these projects.
- In the fifth chapter (**Methodology**) , we will discuss in detail the system process, what is included in the project in detail and what technologies we used.
- The sixth chapter (**Results & Discussion**) is talk about the project results and what is the expected from project.
- In the final chapter (**Conclusion**) , we will briefly discuss the most important things that went through the project and what we learned from it, in addition to some recommendations that may be developed to be implemented in the future.

Chapter 3

Constraints & Earlier Coursework

3.1 Constraints & Limitations

On our way to accomplish this project, we faced many difficulties and challenges that stood in our face and required us to stand and confront them and get the best possible result.

Building an application from scratch for the first time is a great challenge for us, as we need to learn new technologies that we have not dealt with before, and this takes a lot of time even before we implement it and during its implementation we encounter several problems or discover that we need more features that we want to use, so we take a look on other educational resources.

3.2 Earlier Coursework

There are many courses taught in the Department of Computer Engineering, in addition to external courses and online videos.

- **Data Base Management course** which gave us an idea about how to store data in the system and how to deal with it, access it and link it together.
- **Web Development course** which is interested in the programming languages that help to accomplish websites and applications such as HTML, CSS and JavaScript.
- **Software Engineering course.** All of the principles and approaches covered in this course, such as software requirements, architecture, and user acceptability, have been shown to be effective and helpful, and they were implemented in this project.
- Online courses that we used to learn the new techniques and deal with it.

Chapter 4

Literature Review

ChaletPS is a project that aims to facilitate as much as possible for users who want to book chalets by displaying many available chalets and saving time and effort in searching for chalets, although it is not the first project for this idea as there are projects like this before, such as :

1. **Mabeet** :

It is an effective website that aims to facilitate the process of booking chalets for people and display some important information about the chalet, but it lacks many important characteristics that we tried to treat in our project.

4.1 What did ChaletPS bring?

Our project differs from the previous one in that it is a mobile application, in addition to that it contains many features that are not found on the previous website, as it is concerned with displaying the highest rated chalets, and the user can rate the chalet and leave a comment.

We also took care that a notification reaches users when responding to their reservation, whether by acceptance or rejection, in addition to that it contains a map to display the location of the chalet so that it is easier for users to identify and access the location of the chalet.

In addition to this, users who own chalets can close dates that they do not want the chalet to be booked without referring to the admin.

Chapter 5

Methodology

In this chapter we will discuss in detail the system process, what is included in the project in detail and what technologies we used.

5.1 Used technologies

In this section we are going to talk about the technologies that we used to build our project.

5.1.1 ReactJS

React is a free and open-source JavaScript library for building user interfaces, React makes it painless to create interactive UIs. Design simple views for each state in your application, and React will efficiently update and render just the right components when your data changes.

Why ReactJS?

Since component logic is written in JavaScript instead of templates, you can easily pass rich data through your app and keep state out of the DOM.

React can also render on the server using Node and power mobile apps using React Native.

5.1.2 ExpressJS

ExpressJs is back-end web application framework that's fast, minimalist web framework for NodeJs available as free and open-source software. It is intended for the development of web applications and APIs.

Why ExpressJs?

ExpressJs framework builds APIs that facilitate communication through HTTP requests and responses, allowing for instant connection formation with databases such as MongoDB. It has excellent modules, packages, and additional resources, which helps developers to create reliable and scalable web applications.

5.1.3 MongoDB

MongoDB is a source-available cross-platform document-oriented database program. Classified as a NoSQL database program, MongoDB uses JSON-like documents with optional schemas. MongoDB is developed by MongoDB Inc. and licensed under the Server Side Public License (SSPL).

The following technologies, which are related to MongoDB, were used in the project:

1. **Mongodb Atlas**, it is a multi-cloud database service by the same people that build MongoDB. Atlas simplifies deploying and managing your databases while offering the versatility you need to build resilient and performant applications.
2. **Mongoose**, is an Object Data Modeling (ODM) library for MongoDB and Node.js. It manages relationships between data, provides schema validation, and is used to translate between objects in code and the representation of those objects in MongoDB.

Why these technologies?

1. Because the database utilized in this project is NoSQL, MongoDB was adopted, which delivers excellent speed and minimal latency.
2. Models in Mongoose do the majority of the work, such as setting default values for document attributes and collection validation of the MongoDB database can be done easily..
3. Queries employ function chaining rather than incorporated mnemonics, resulting in code that is more flexible and understandable, and hence more maintainable.

5.1.4 Expo

Expo is a framework to build React Native apps. It is a set with tools and services built for React Native. It provides a list of tools that simplify the creation and testing of React Native app.

5.1.5 Other technologies & tools

We also used some technologies that helps us to make more features and be more functionality like **Nodemailer**, **Google Cloud Platform**, **Routes**, **bcryptjs**, etc ...

5.2 Website pages

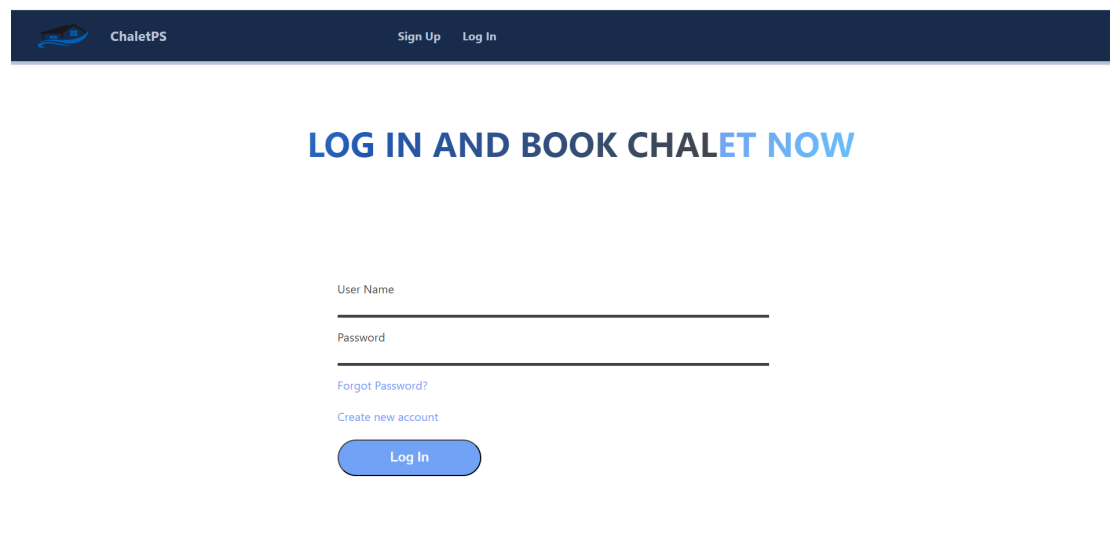
Website is basically made for admin functions.

5.2.1 Authentication & Validation

In our application, users must register an account so that the system can communicate with them and access all features, and here the admin is logged in to be able to access and take administrative decisions.

Login

In order to be able to access the site, you must enter the correct email and password as shown in the figure:

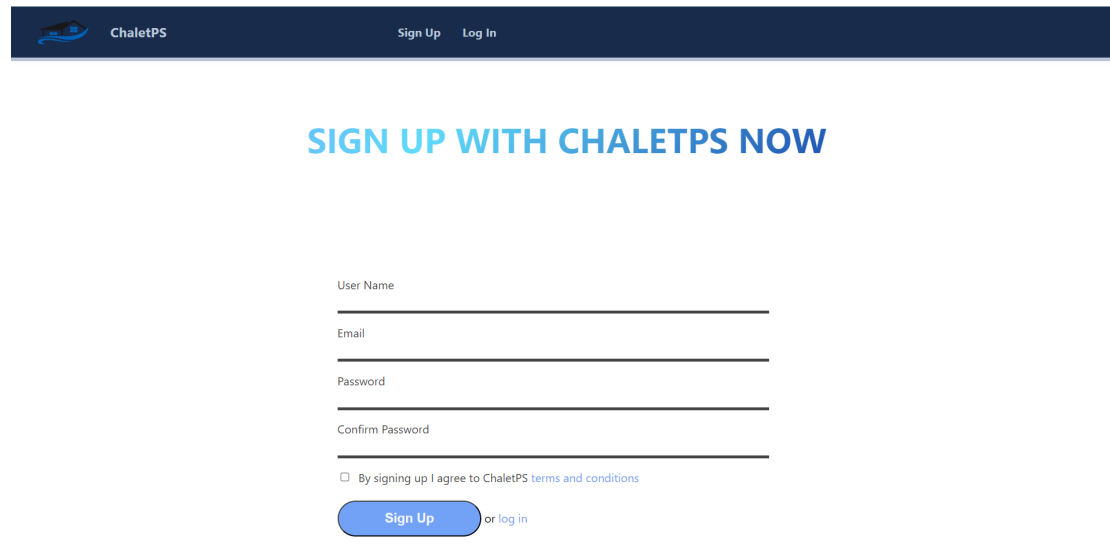


The image shows a web browser window displaying the login page for 'ChaletPS'. The page has a dark blue header with the 'ChaletPS' logo on the left and 'Sign Up' and 'Log In' links on the right. The main content area is white and features the heading 'LOG IN AND BOOK CHALET NOW' in blue. Below the heading, there are two input fields: 'User Name' and 'Password'. Underneath these fields are two links: 'Forgot Password?' and 'Create new account'. At the bottom of the form is a blue rounded button labeled 'Log In'.

Figure 5.1: Login Form

Sign Up

If you do not have an account, you can create one easily by filling in a number of your information, such as username, email address, and password, as shown in the figure below:



The screenshot shows the ChaletPS website's sign-up page. At the top, there is a dark blue header with the ChaletPS logo on the left and 'Sign Up' and 'Log In' links on the right. Below the header, the main heading reads 'SIGN UP WITH CHALETPS NOW' in blue. The sign-up form consists of four input fields: 'User Name', 'Email', 'Password', and 'Confirm Password'. Below these fields is a checkbox with the text 'By signing up I agree to ChaletPS terms and conditions'. At the bottom of the form, there is a blue 'Sign Up' button followed by the text 'or log in'.

Figure 5.2: Sign Up Form

After successfully registering an account, a message will be sent to the e-mail account stating that the registration was successful, see the figure below:

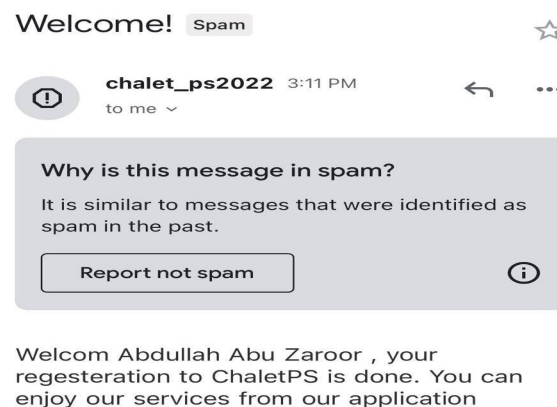
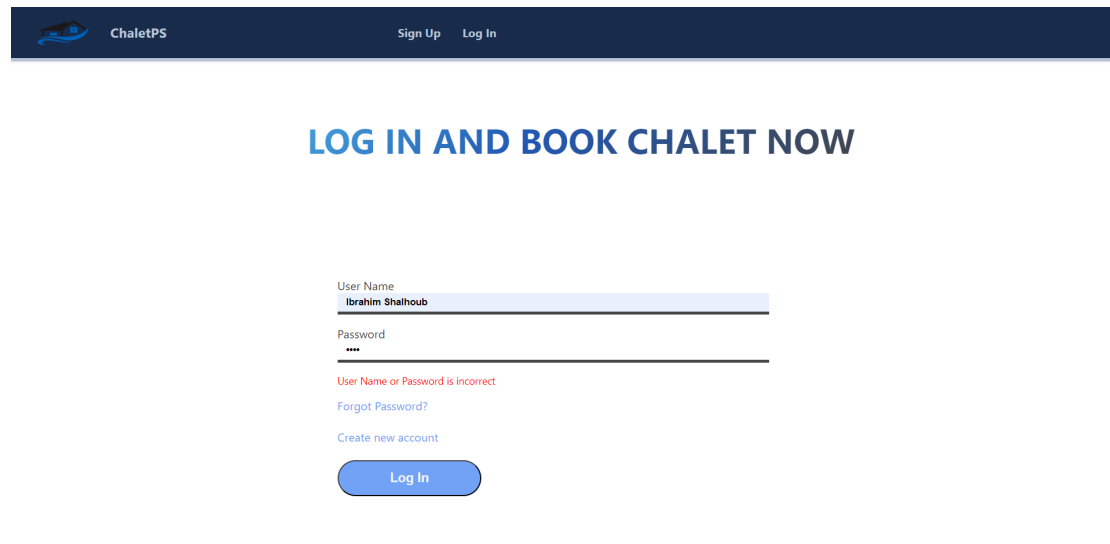


Figure 5.3: Welcome E-mail

Validation

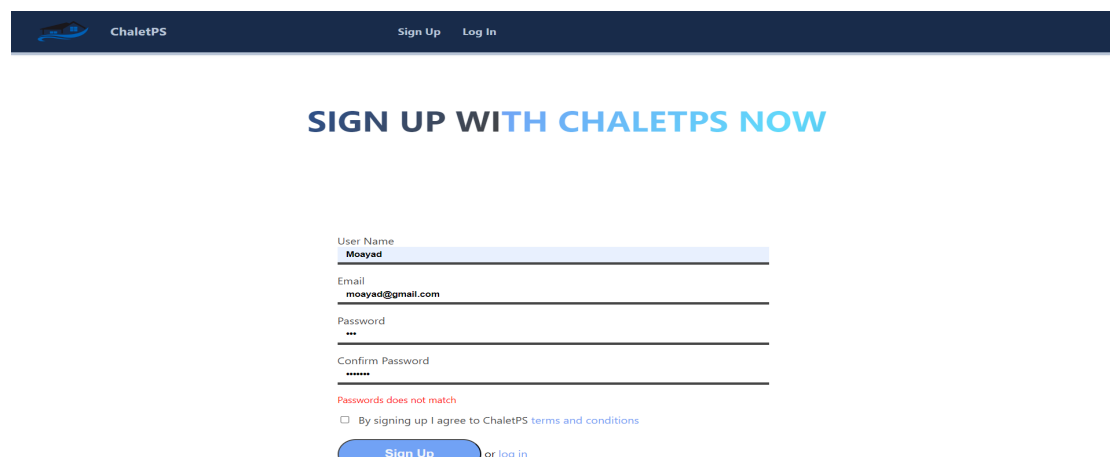
When the user tries to log in with the wrong username or wrong password, he will be alerted to try again:



The screenshot shows the ChaletPS website's login page. At the top, there is a dark blue header with the ChaletPS logo on the left and 'Sign Up' and 'Log In' links on the right. The main heading is 'LOG IN AND BOOK CHALET NOW' in blue. Below the heading, there are two input fields: 'User Name' with the text 'Ibrahim Shalhoub' and 'Password' with three asterisks. A red error message 'User Name or Password is incorrect' is displayed below the password field. There are also links for 'Forgot Password?' and 'Create new account', and a blue 'Log In' button.

Figure 5.4: Invalid log

In addition, during the registration process, if the user makes a mistake in entering the information, he will receive an alert message:



The screenshot shows the ChaletPS website's sign-up page. At the top, there is a dark blue header with the ChaletPS logo on the left and 'Sign Up' and 'Log In' links on the right. The main heading is 'SIGN UP WITH CHALETPS NOW' in blue. Below the heading, there are four input fields: 'User Name' with the text 'Moayad', 'Email' with the text 'moayad@gmail.com', 'Password' with three asterisks, and 'Confirm Password' with six asterisks. A red error message 'Passwords does not match' is displayed below the confirm password field. There is also a checkbox with the text 'By signing up I agree to ChaletPS terms and conditions'. At the bottom, there is a blue 'Sign Up' button and a link 'or log in'.

Figure 5.5: Invalid sign

5.2.2 Home Page

When the login is successful, this page of the admin will be entered and we will see a different navigation bar and a background image of the site in addition to all the chalets on the site and some details about them such as number of pools and rooms, etc ... The admin can delete the chalet that he does not want.

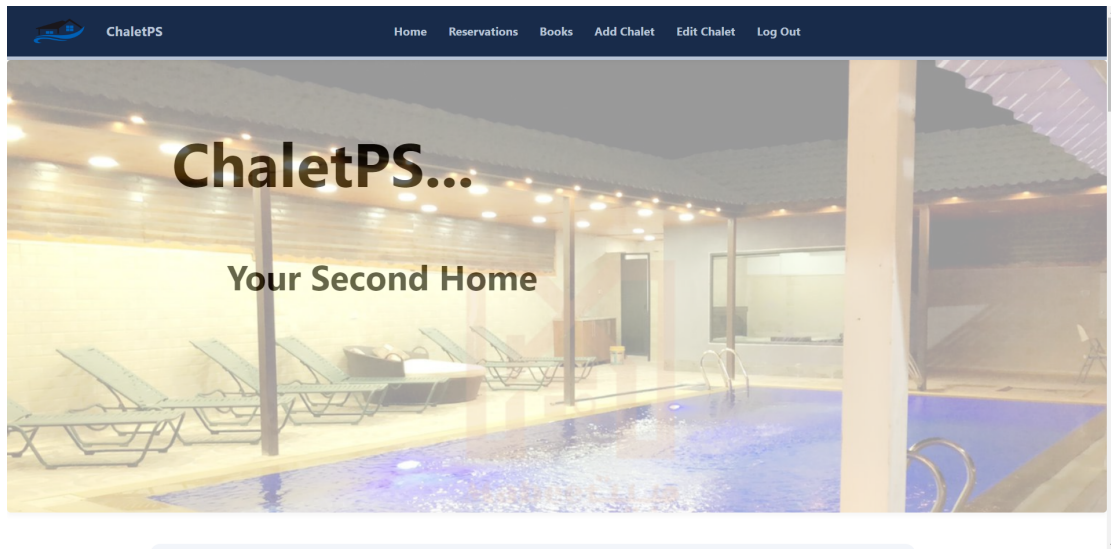


Figure 5.6: Home Navigation Bar

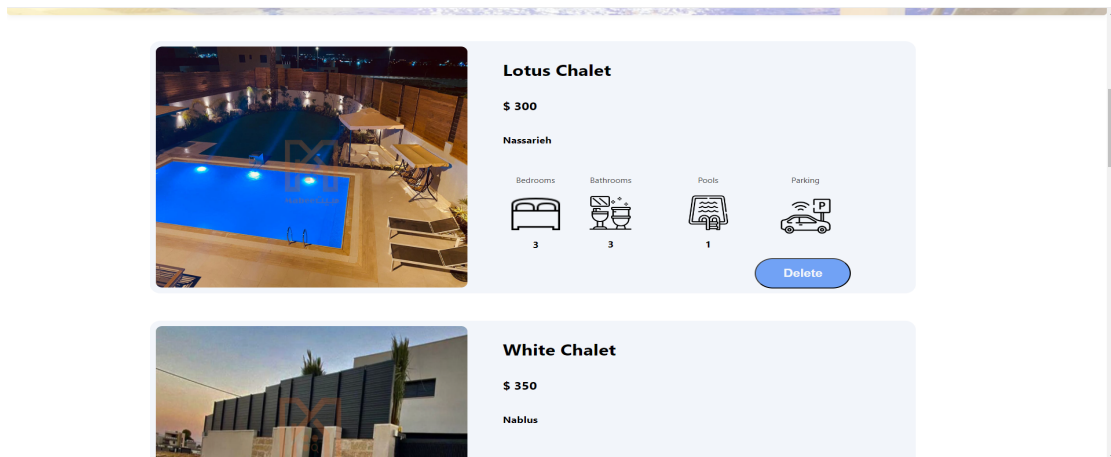


Figure 5.7: Home Page

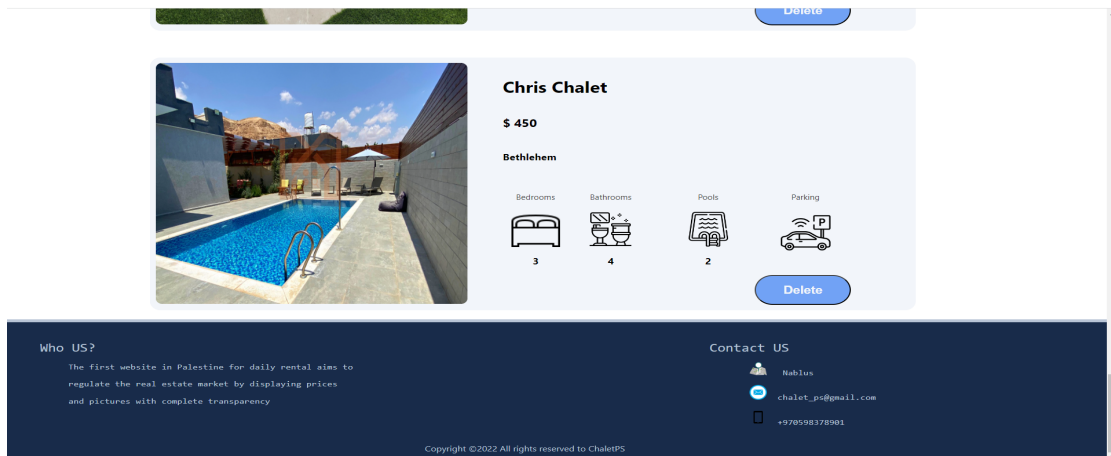


Figure 5.8: Home Page

5.2.3 Reservations Page

On this page, all reservations awaiting acceptance or rejection are displayed in the form of slides showing the name of the chalet, the name of the customer and his phone number to communicate with him in addition to the date of reservation, as shown in the figures below:

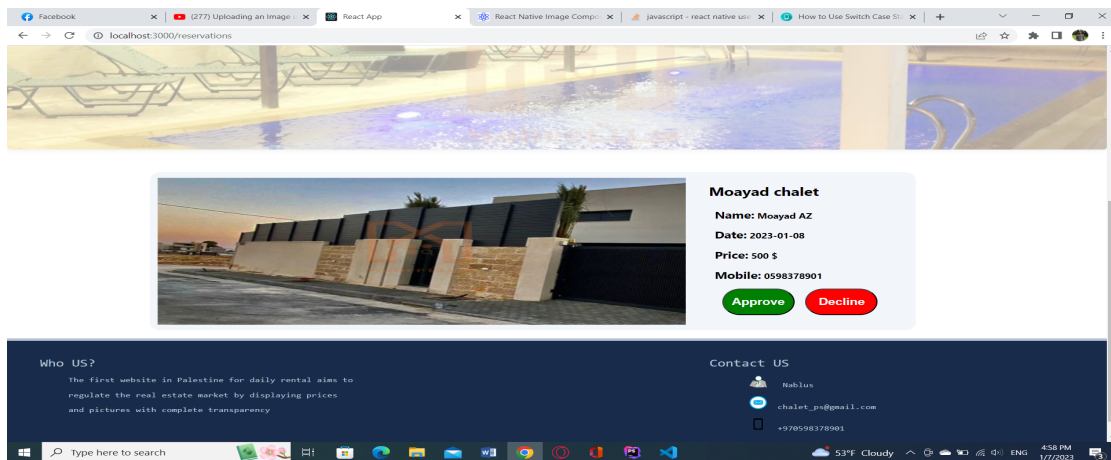


Figure 5.9: Reservations Page

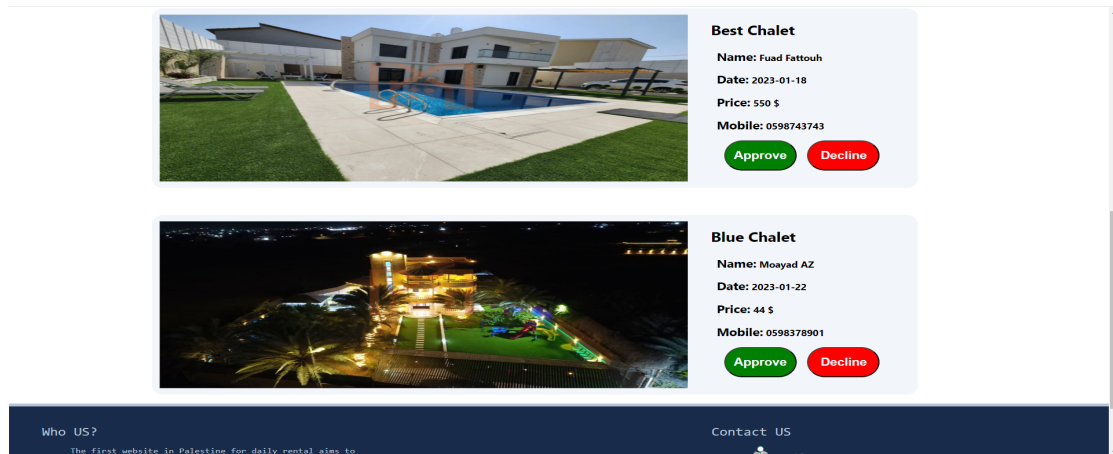


Figure 5.10: Reservations Page

When a user submits a request to rent a chalet, a message arrives on the admin email address stating that there is a reservation for a specific chalet on a specific date and he can see the details on this page.

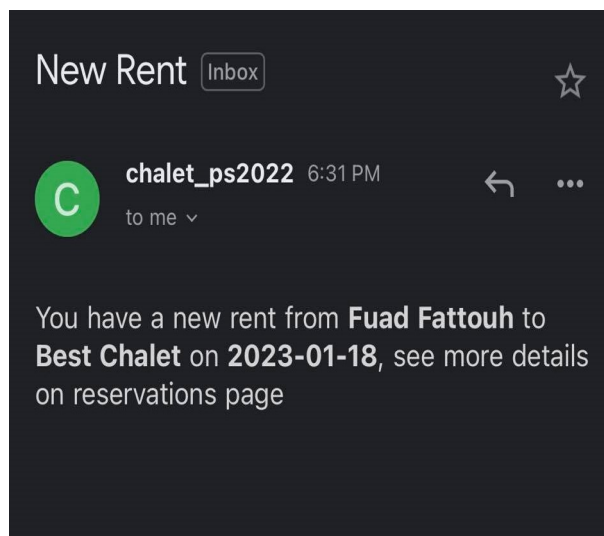


Figure 5.11: New rent email notification

5.2.4 Booked Chalets Page

On this page, all booked chalets are displayed, and the admin can delete the reservations as he wants in the event that the reservation has been canceled or has already been made.

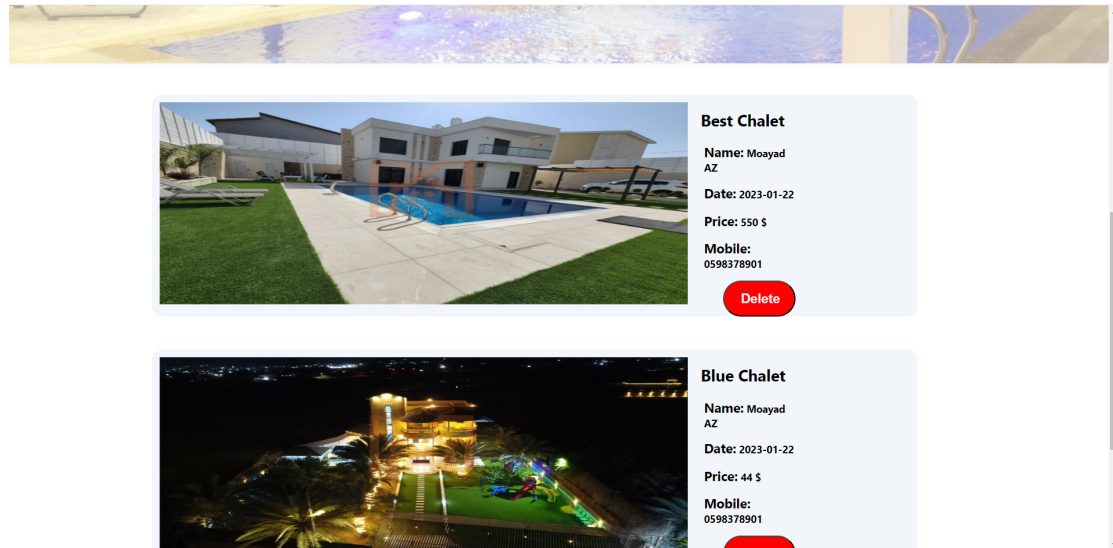


Figure 5.12: Booked Chalets Page

5.2.5 Add, Edit Chalet Pages

The admin can add chalets through this page, where he enters all the necessary information about the new chalet, such as its name, owner's name, price, and coordinates on the map, a short description of the chalet, and all other details that are required for users, such as the number of swimming pools, rooms, bathrooms, and pictures of the chalet.

He can also edit some information about the chalet by entering his name and the new information he wants to edit.

See the figures below:



Chalet Name

Owner Name

Price

Location

X

Y

Figure 5.13: Add Chalet Page

Description

Pool

Bedrooms

Bathrooms

 Air Conditioning
 Kitchen and accessories
 Parking
 Wi-fi
 TV
Upload Images
Image 1 No file chosen
Image 2 No file chosen

Figure 5.14: Add Chalet Page

5.3 Mobile Application

5.3.1 Login & Sign Up

Login

As is the case on the website, the user logs in, and if the username or password is wrong, he is alerted and not allowed to log in.

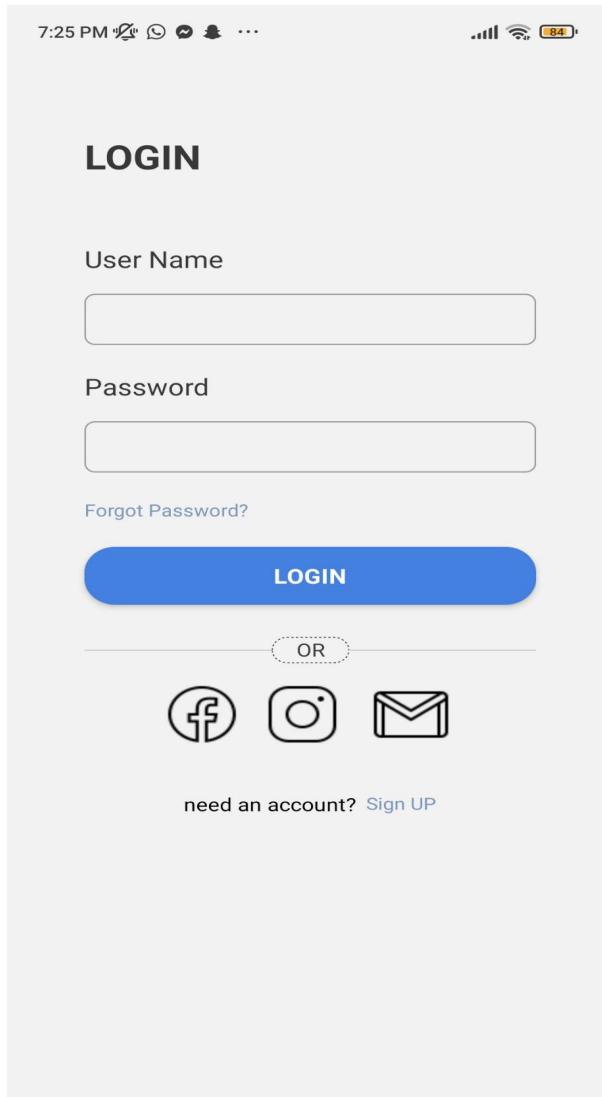


Figure 5.15: Login Mobile Page

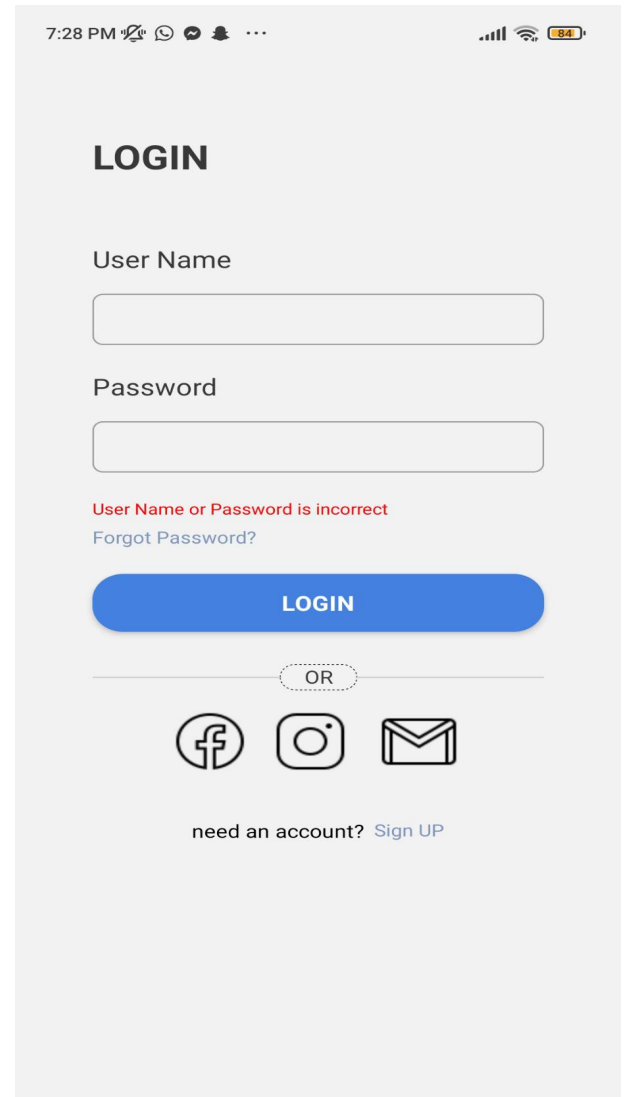
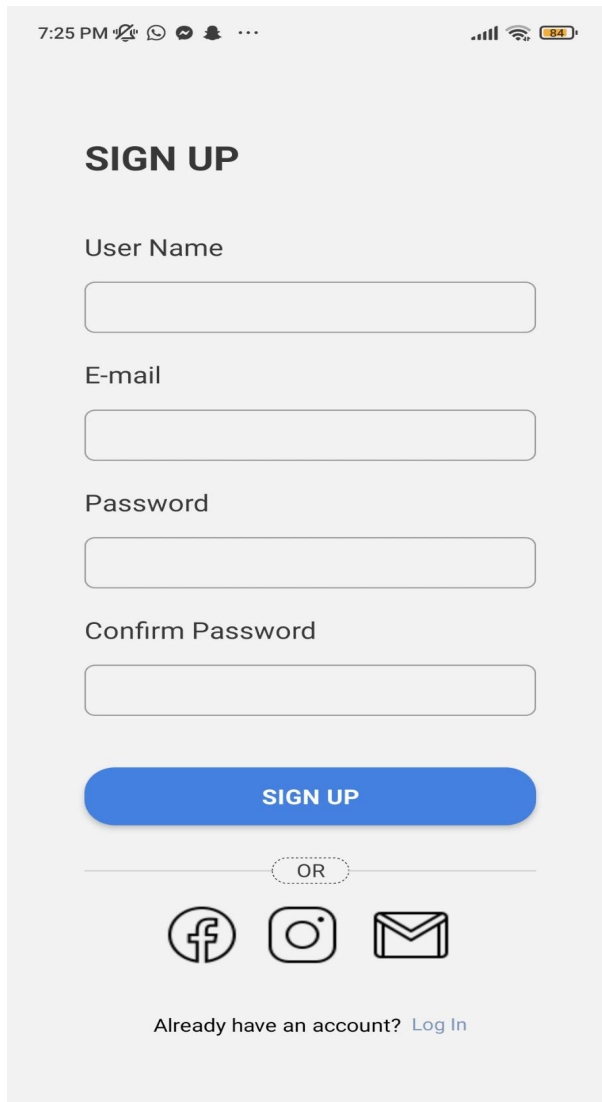


Figure 5.16: Invalid Login

Sign Up

The user can also create an account in the event that he does not have an account, and he will receive a message on the e-mail address if his registration is correct, but if it is wrong, he will be alerted of that.



7:25 PM

SIGN UP

User Name




E-mail

Password

Confirm Password

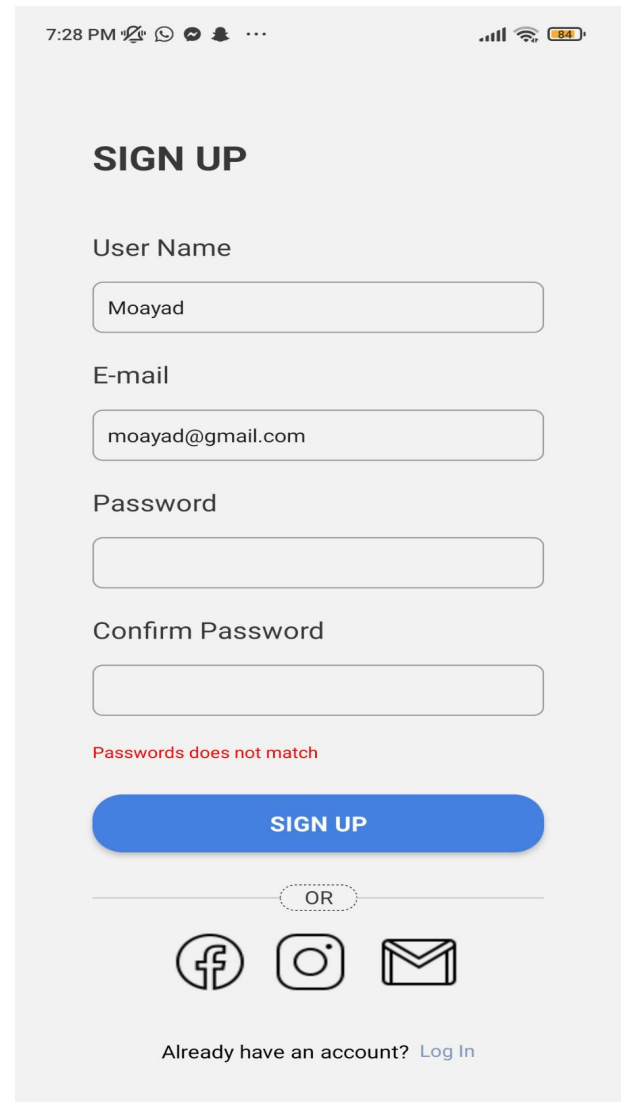
SIGN UP

OR

Already have an account? [Log In](#)

Figure 5.17: Sign Up Mobile



7:28 PM

SIGN UP

User Name

E-mail




Password

Confirm Password

Passwords does not match

SIGN UP

OR

Already have an account? [Log In](#)

Figure 5.18: Invalid Sign Up

5.3.2 Forget Password

If the user forgets the password, he can get a new password by clicking on forget password and entering his email to receive a message on the email address containing a random code to be entered into the application and be able to change the password.

If user entered a wrong email address he will be alerted that the email is wrong, and if he does not write the right code the password will not be updated.

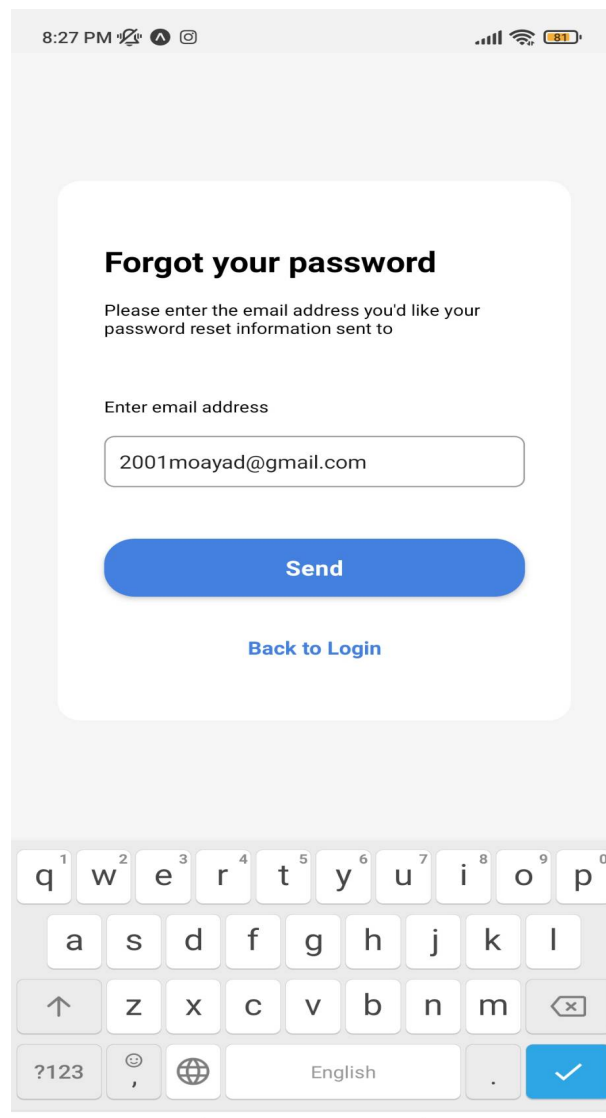


Figure 5.19: Enter Email

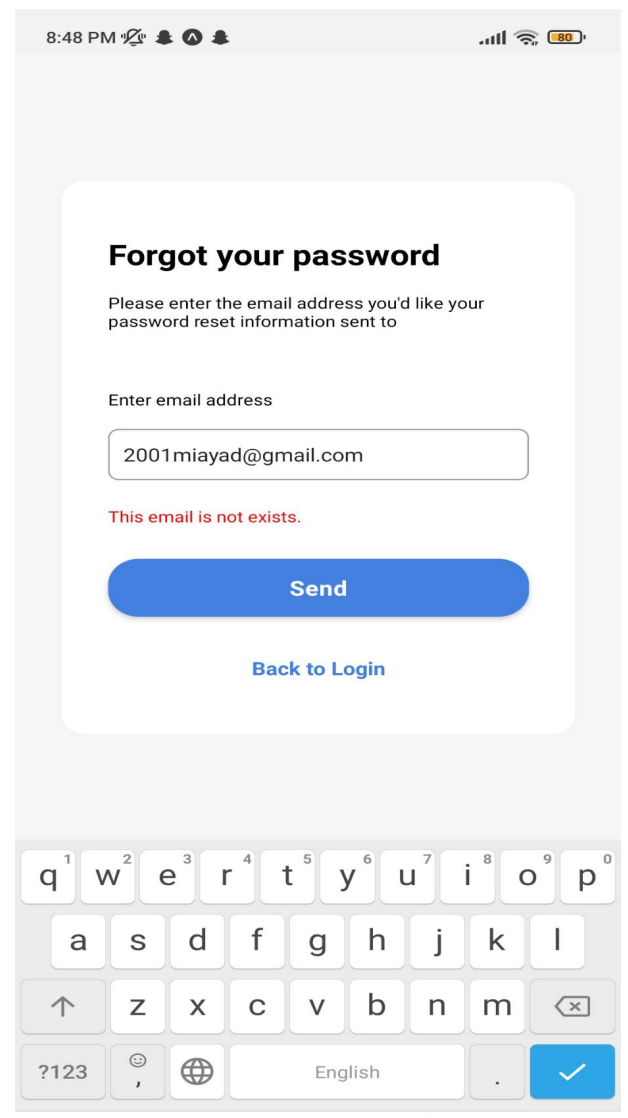


Figure 5.20: Wrong Email

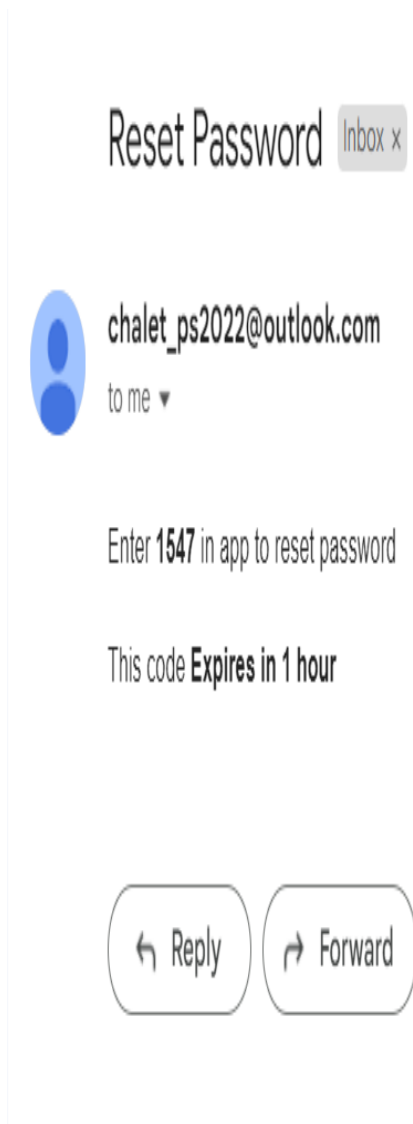


Figure 5.21: Send code

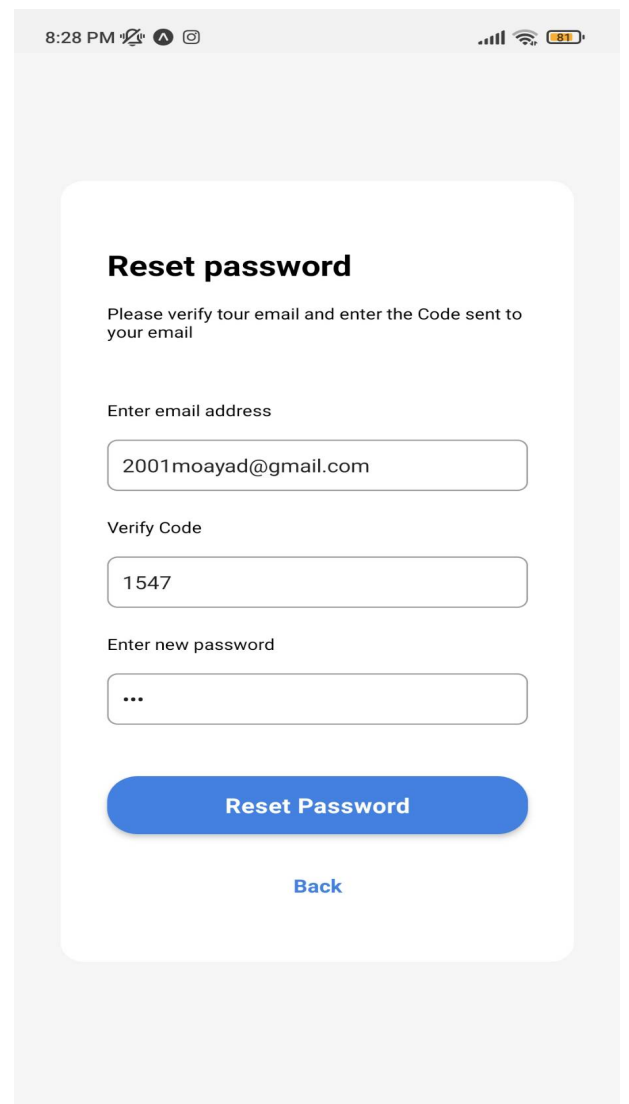


Figure 5.22: Change Password

5.3.3 Mobile Home Page & Recommendation

This is the main page that appears to the user after logging in, in which the name of the application appears in the middle, on the right we see a menu button, when you click on it, the user enters a page that contains his details, while at the bottom, chalets are presented to the user, arranged according to the more chalets that he browsed, and next to it we see a button View all When clicking on it, the user will go to a page that contains all the chalets in the application.

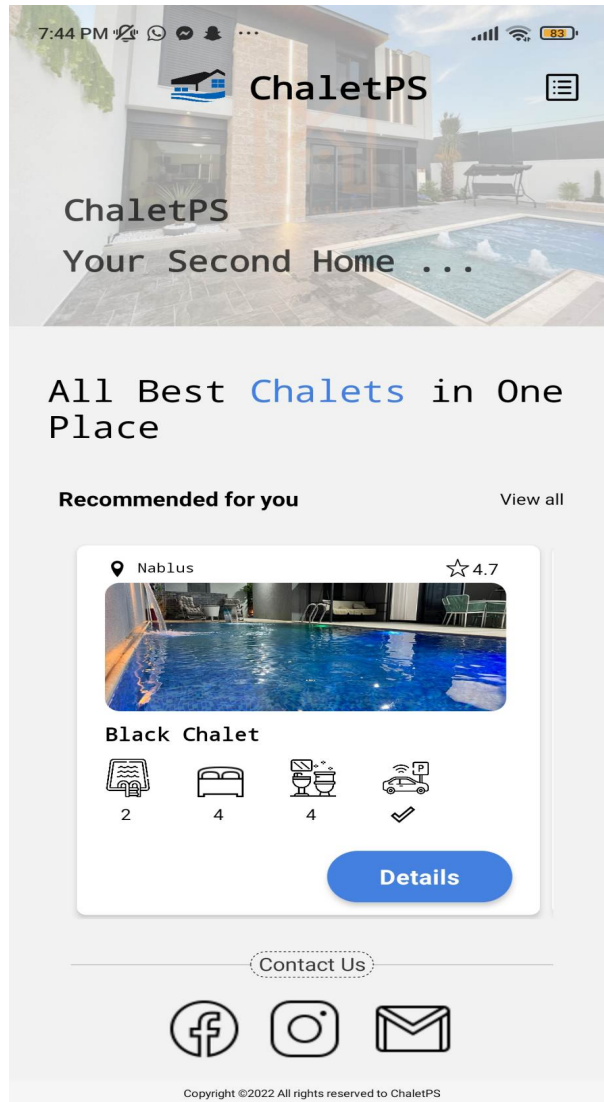


Figure 5.23: Mobile Home Page

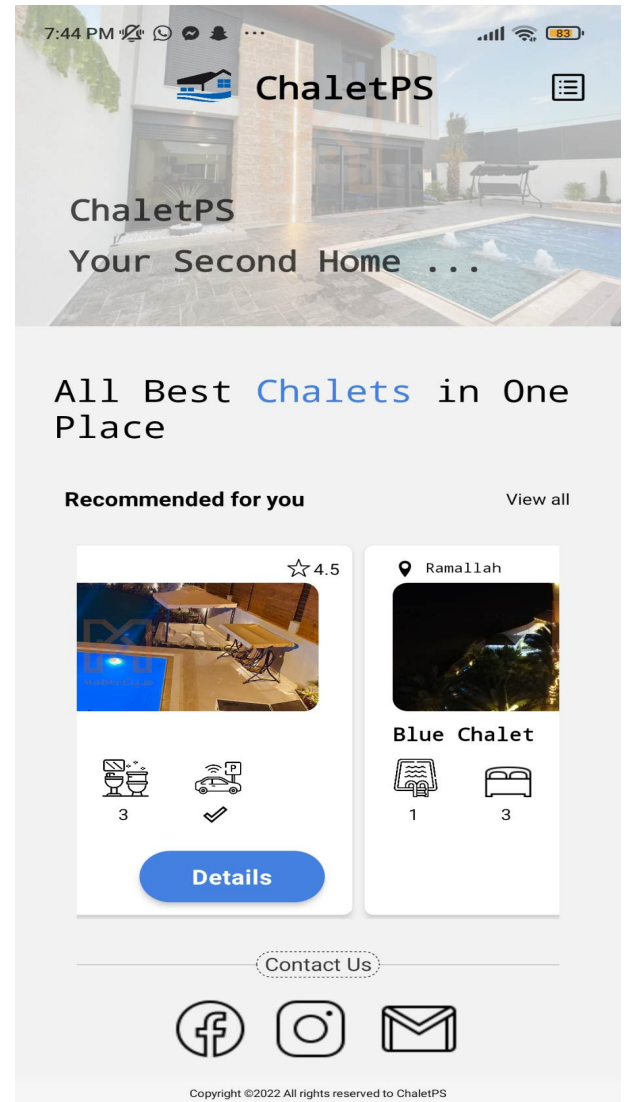


Figure 5.24: Mobile Home Page

5.3.4 User Profile

On this page, the user sees his name and email, and he can modify them. He can also see the reservations that he made and were accepted, we also see on the top right a button to log out of the application.

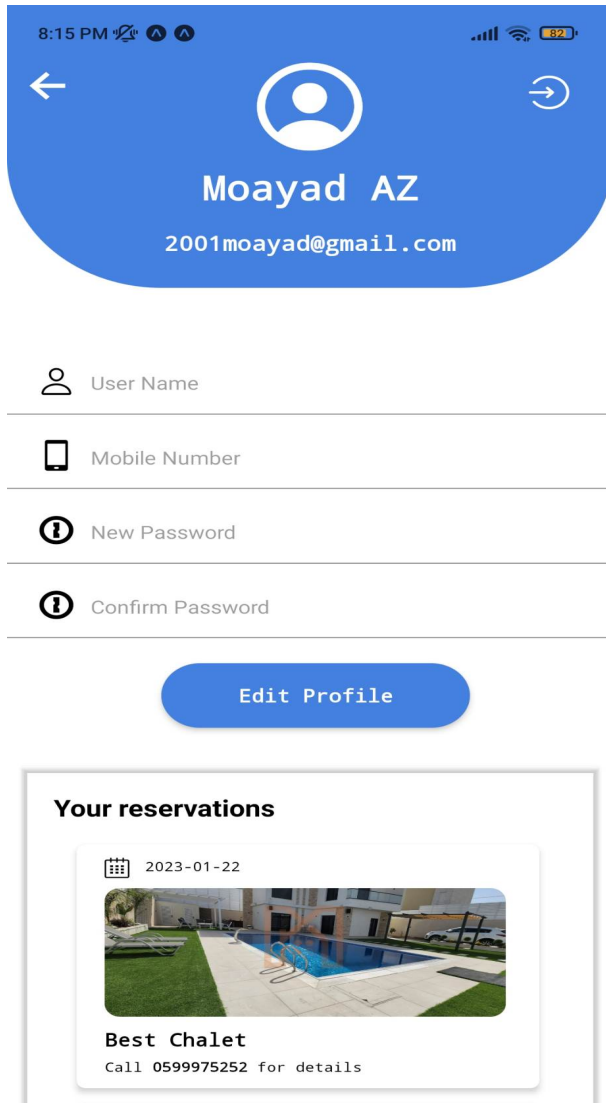


Figure 5.25: User Profile Page

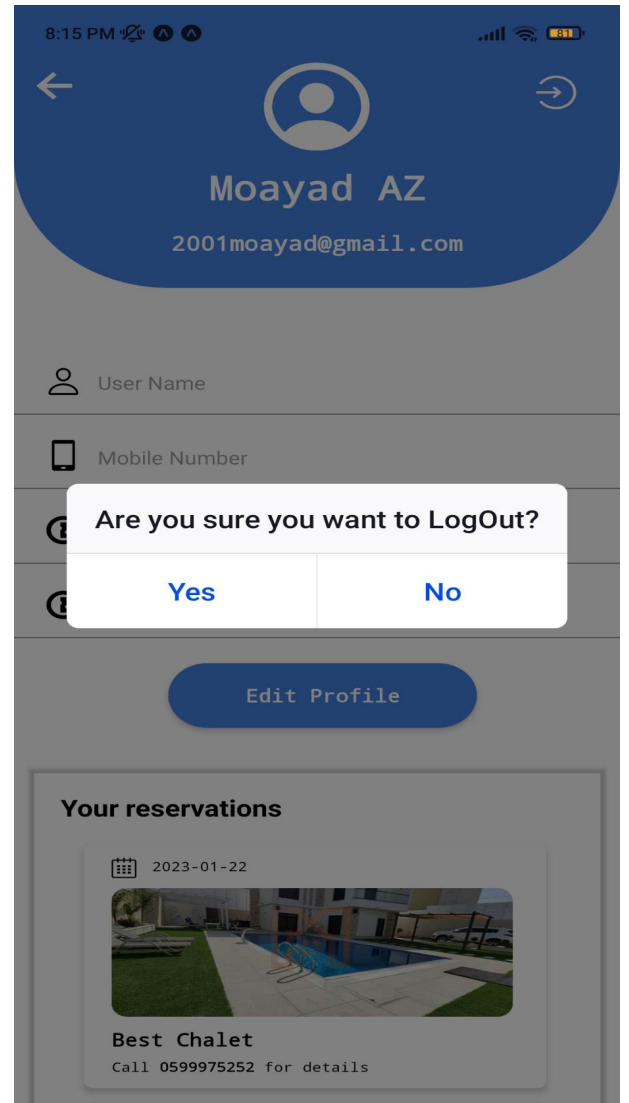


Figure 5.26: Log Out Button

If the user owns a chalet, he can see the name of his chalet the calendar of reservations, and he can also close reservations on certain dates if he wants to by choosing the date and close it.

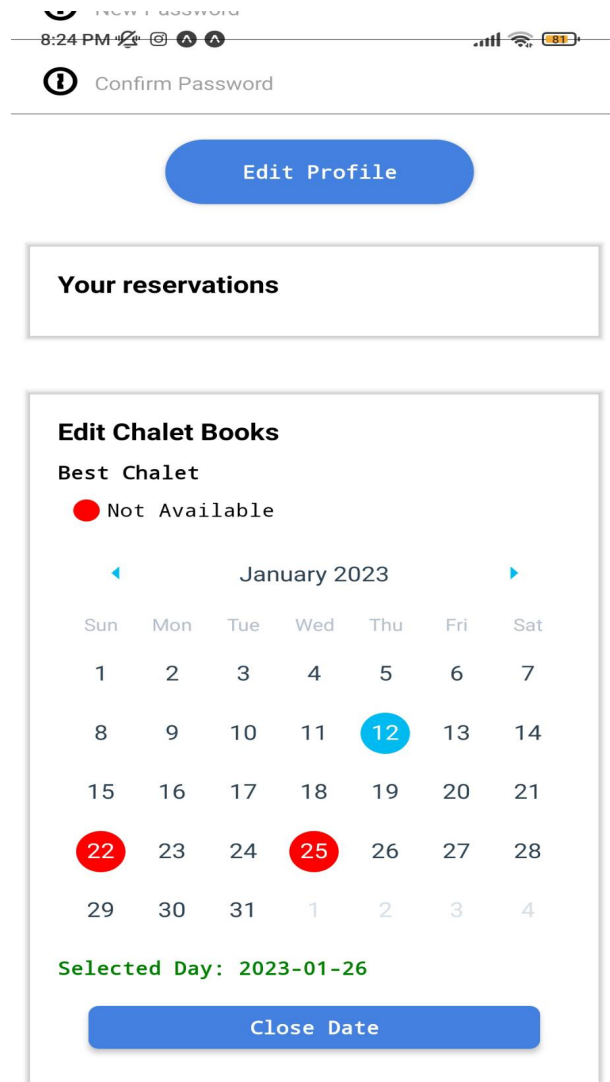


Figure 5.27: Chalet Calendar

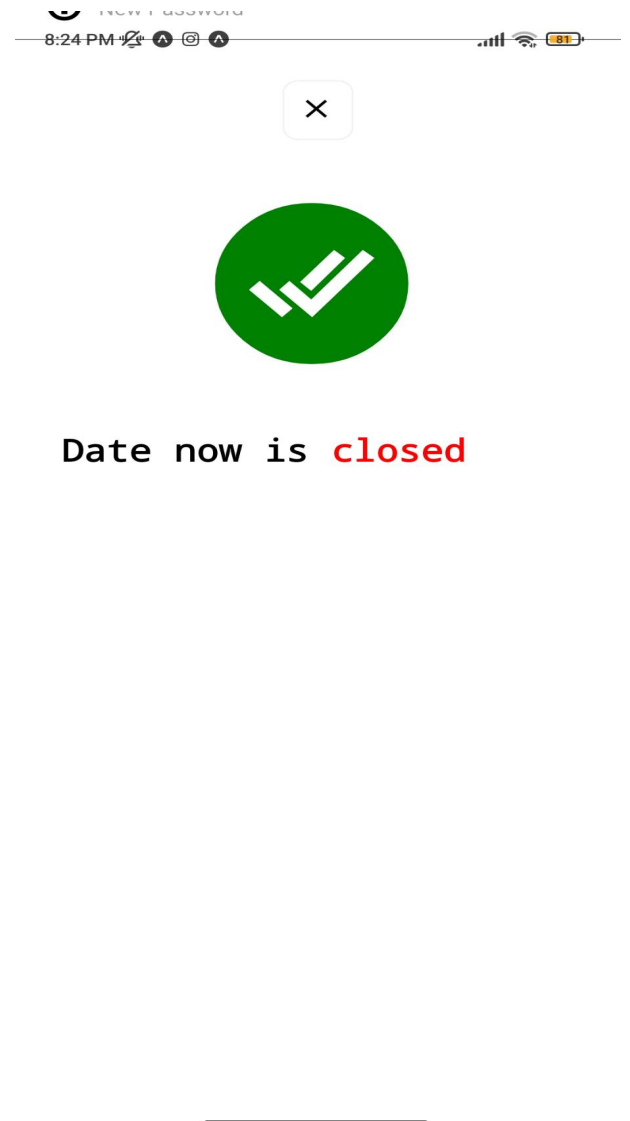


Figure 5.28: Close Date

5.3.5 View All Chalets

On this page, all chalets are shown in the application in the form of slides that contain a picture showing the chalet, and some details such as location, rating, price, number of rooms, etc. When clicking on the details button, the user enters a page containing all that he needs regarding the chalet, how to book, and so on.

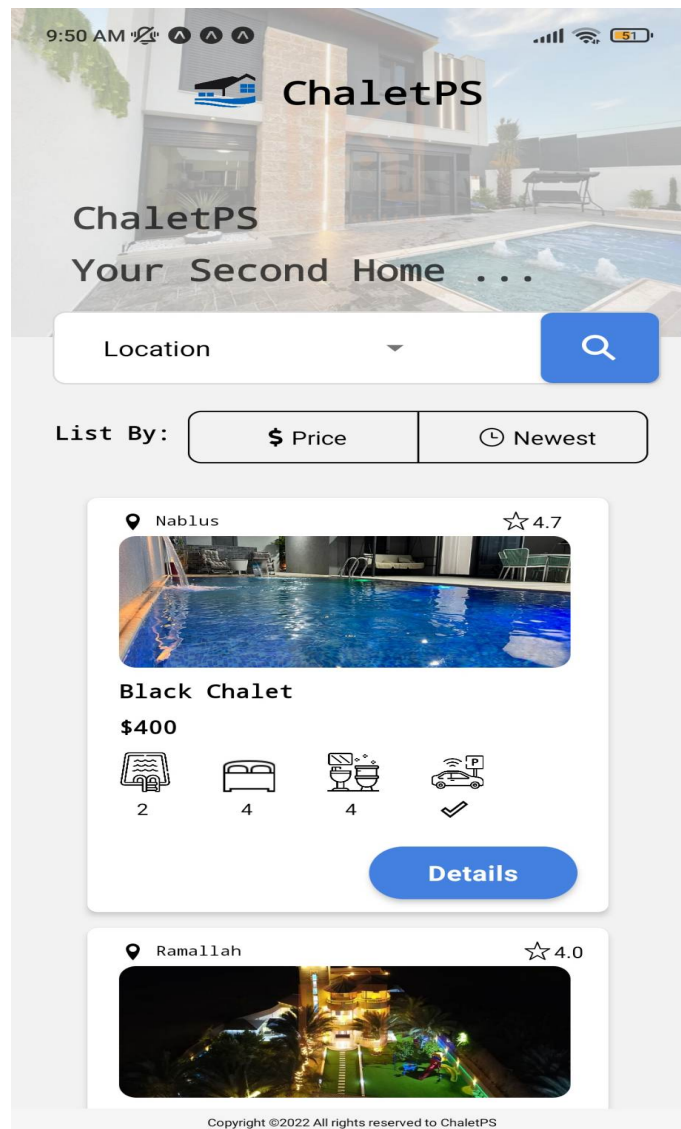


Figure 5.29: All Chalets Page

5.3.6 Filter Chalets

The user can reach the chalet he wants more easily when specifying some details such as location, arrangement by price, or the newest chalets.

Location

Here the user can choose the location in which he wants to rent by choose the location from the list, so the list of chalets in this location will appear only.

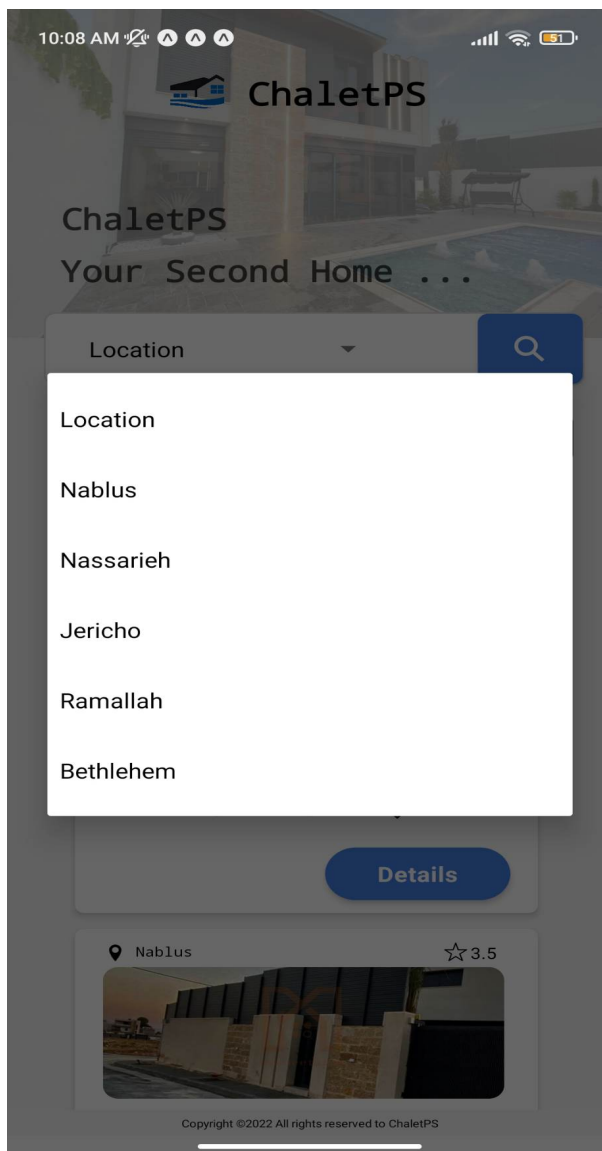


Figure 5.30: Select location

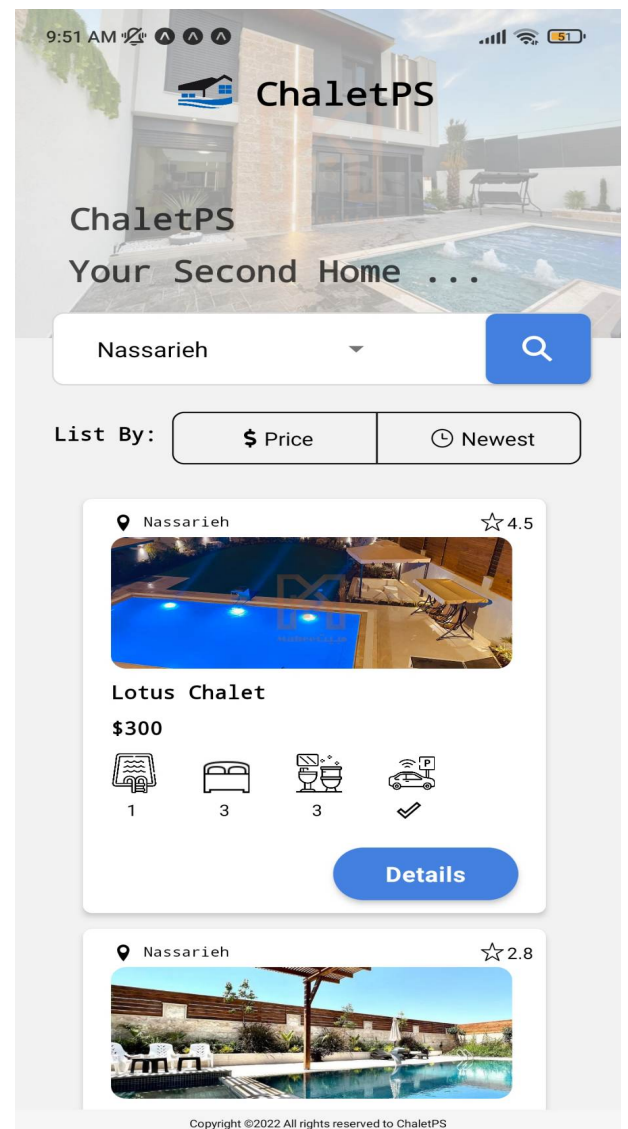


Figure 5.31: View by location

Price & Newest

Here the user can change the order of the chalets according to the lowest price or view the most recent chalets by clicking on the Price button or the Newest button.

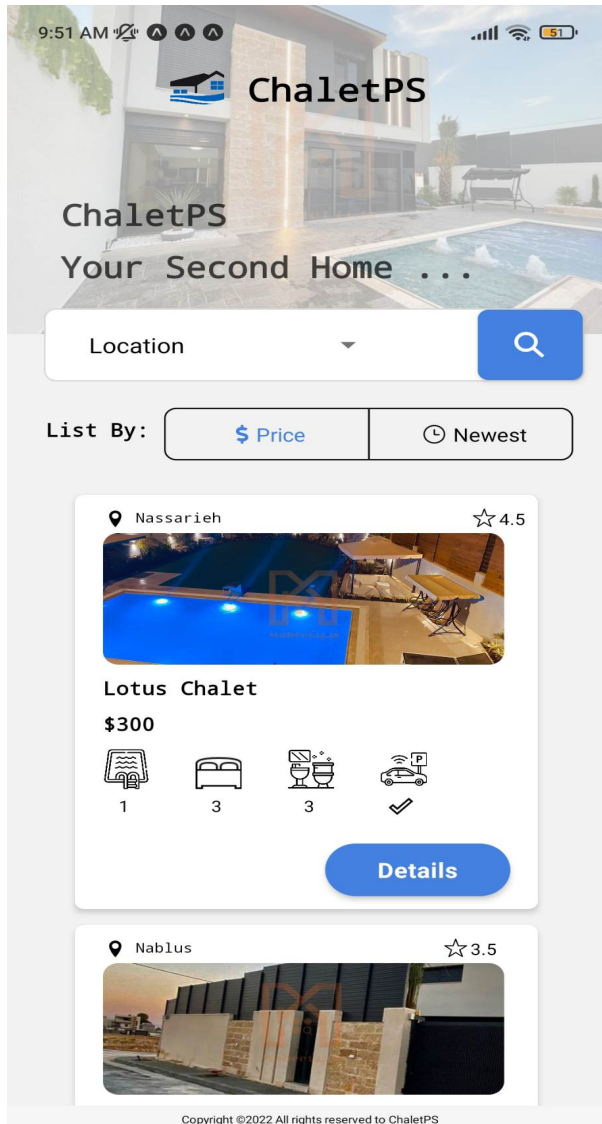


Figure 5.32: List by price

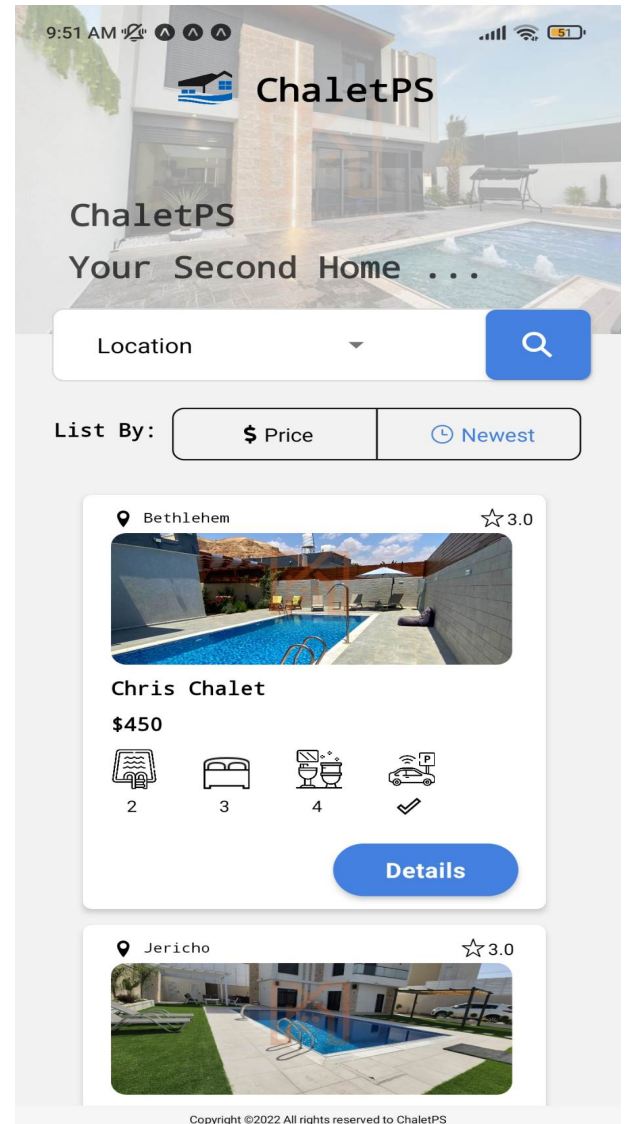
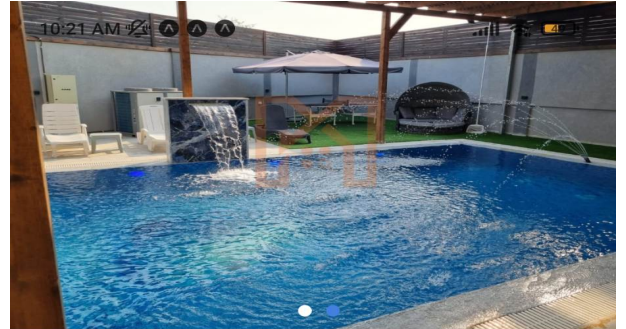


Figure 5.33: List by the newest

5.3.7 Chalet Details Page

On this page, all the details necessary for the user to know everything related to the chalet appear. At the beginning, more pictures of the chalet appear in the form of slides, the location of the chalet, the description of the chalet and its price.



Blue Chalet

📍 Ramallah

\$ 430

Description

Three bedrooms (two master rooms + a room for 3 yachts)
 = Three bathrooms with an external bathroom = A larger pool size 6*12 with a waterfall and an indoor pool in the pool
 = An outdoor kitchen, a fully equipped indoor kitchen and a barbecue area = Parking for two cars = Air conditioning in each Room = TLA bluetooth sound system throughout the villa. = The villa accommodates 15 people

Start Time

10:00

End Time

21:00

[Get Location](#)

● Not Available

January 2023

| Sun | Mon | Tue | Wed | Thu | Fri | Sat |
|-----|-----|-----|-----|-----|-----|-----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Figure 5.34: View chalet

Blue Chalet

📍 Ramallah

\$ 430

Description

Three bedrooms (two master rooms + a room for 3 yachts)
 = Three bathrooms with an external bathroom = A larger pool size 6*12 with a waterfall and an indoor pool in the pool
 = An outdoor kitchen, a fully equipped indoor kitchen and a barbecue area = Parking for two cars = Air conditioning in each Room = TLA bluetooth sound system throughout the villa. = The villa accommodates 15 people

Start Time

10:00

End Time

21:00

[Get Location](#)

● Not Available

January 2023

| Sun | Mon | Tue | Wed | Thu | Fri | Sat |
|-----|-----|-----|-----|-----|-----|-----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Figure 5.35: View chalet

Location on the Map

When you click on give the location, the exact location of the chalet will be shown to you on the map so that it is easy for you to reach it and know its exact location.



Figure 5.36: Location on the map

Comments & Rate

At the bottom of the page we see the place to see the comments left by users, you can also write a comment and rate the chalet.

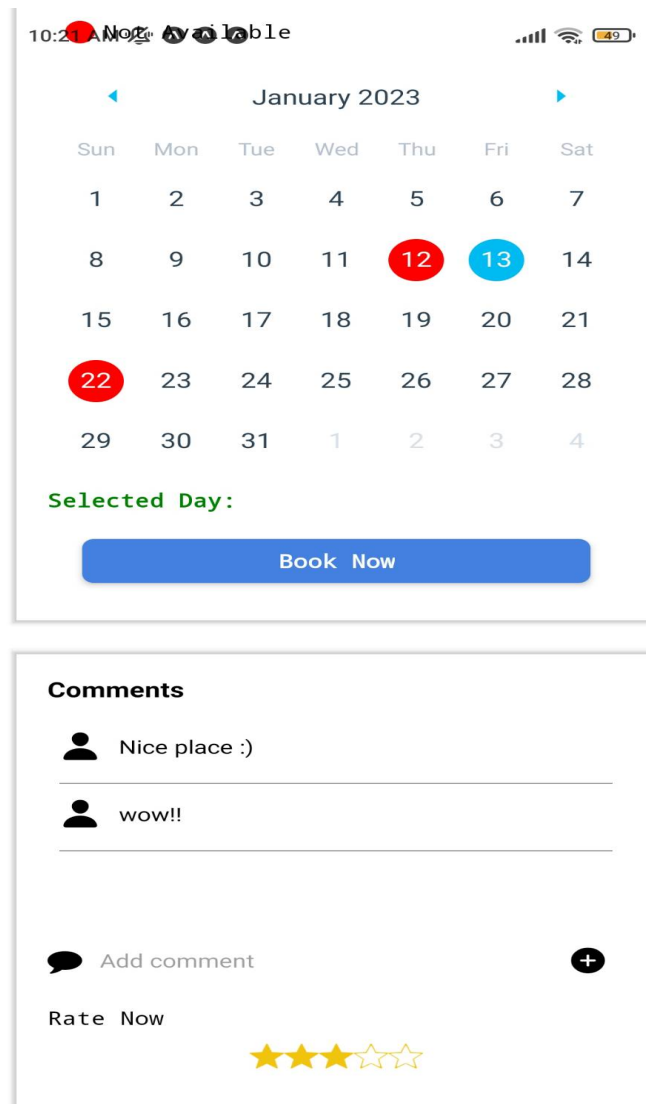


Figure 5.37: Comments & Rate

Calendar & Booking process

Here we will explain the steps of booking the chalet and how the process takes place. In the beginning, we see a calendar that shows the available and reserved days, where we see the reserved days in red and the user cannot book them. The rest of the days that are not in red can be reserved.

The screenshot displays a mobile application interface for booking a chalet. It is divided into three main sections:

- Property Details:** At the top, there is a list of amenities including an outdoor kitchen, a fully equipped indoor kitchen, a barbecue area, parking for two cars, air conditioning in each room, a TLA bluetooth sound system, and the villa's capacity for 15 people. Below this, the booking time is set from 10:00 to 21:00. A blue button labeled "Get Location" is positioned at the bottom of this section.
- Calendar:** The middle section features a calendar for January 2023. A legend indicates that red circles represent "Not Available" days. The calendar shows that January 12th and 22nd are unavailable. January 13th is highlighted in blue, indicating it is the selected day. A blue button labeled "Book Now" is located at the bottom of the calendar section.
- Comments:** The bottom section is titled "Comments" and shows two user reviews: "Nice place :)" and "wow!!".

Figure 5.38: Reservations Calendar

The user chooses the date he wants and then clicks on Reservation. If the user does not choose a date, a warning message will appear informing him to choose a date.

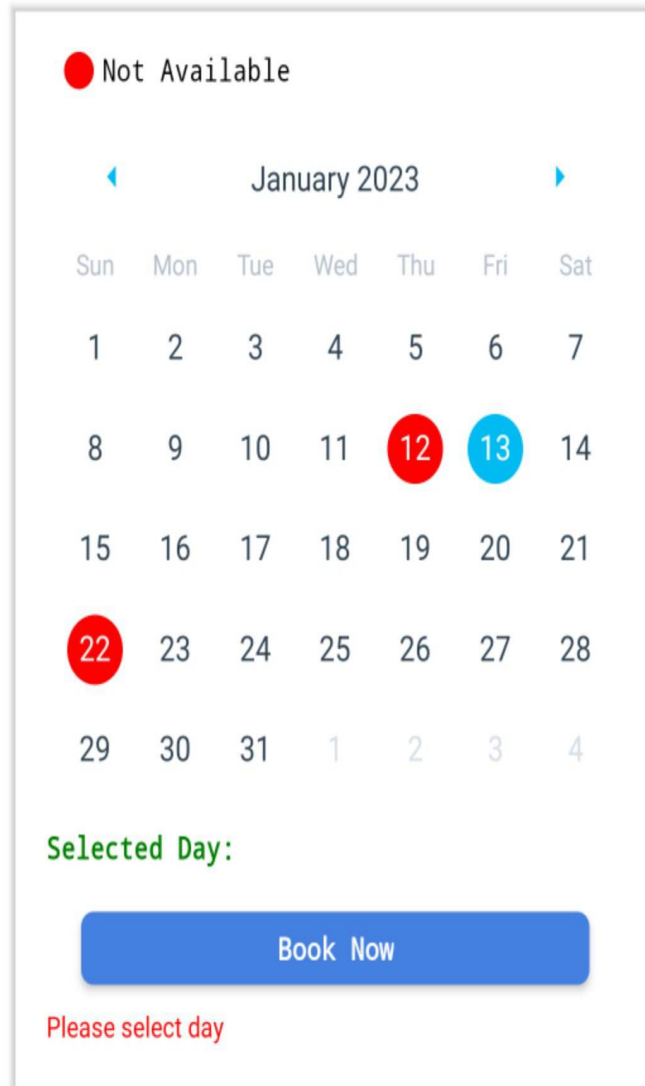


Figure 5.39: Error message to choose a Date

When choosing a date, if the date is not available, a page will appear to the user stating that, and the reservation process will not take place, and if he wants to choose another date.



Figure 5.40: Reserved Date

But if the reservation is available, a new page will appear to the user asking him to enter his name and phone number, and when entering the information, a message will appear to him stating that the request has been successful and to wait for a response.

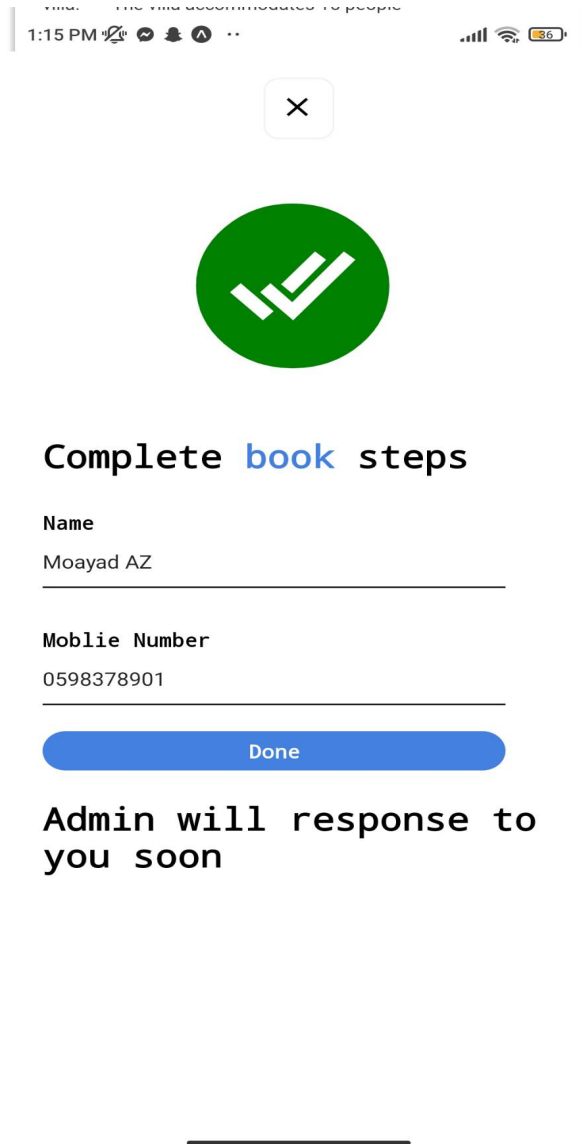


Figure 5.41: Fill information

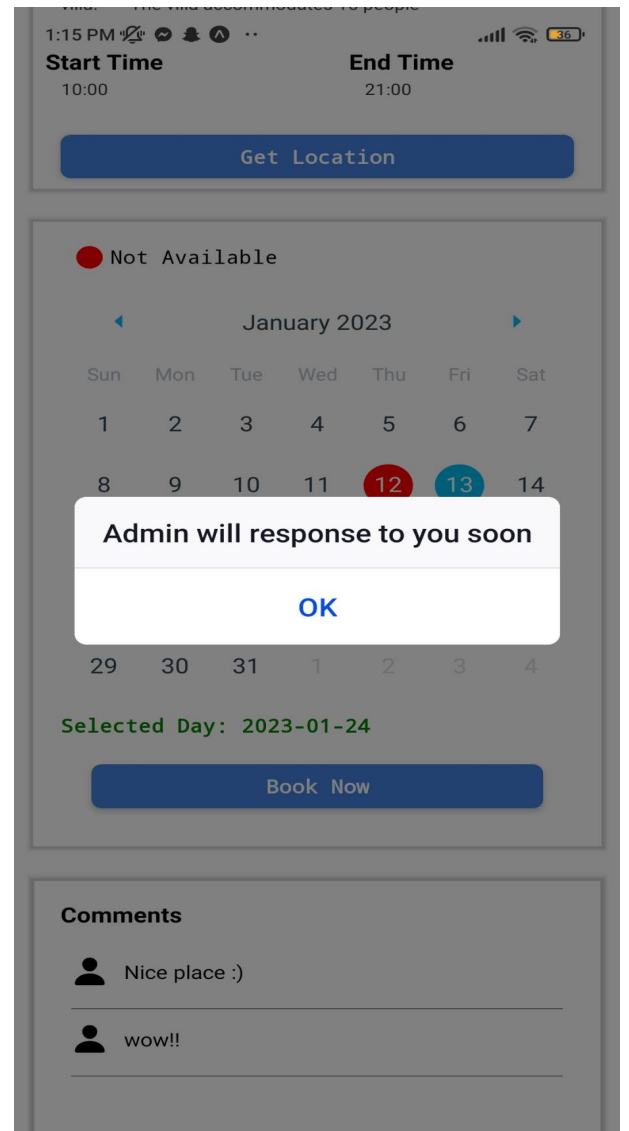


Figure 5.42: Process done

When the request is answered by the admin, a notification will be sent to the phone and a message will be sent to the user's email address informing him if the reservation has been approved or rejected.

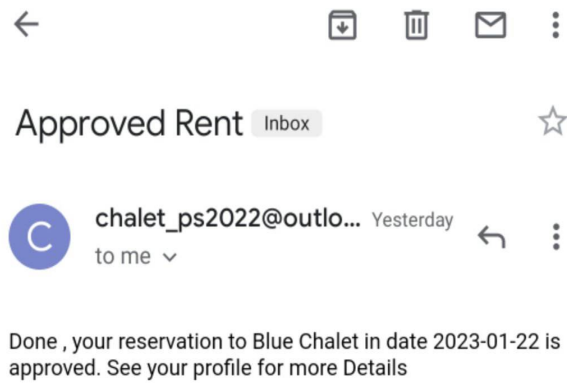


Figure 5.43: Approved email

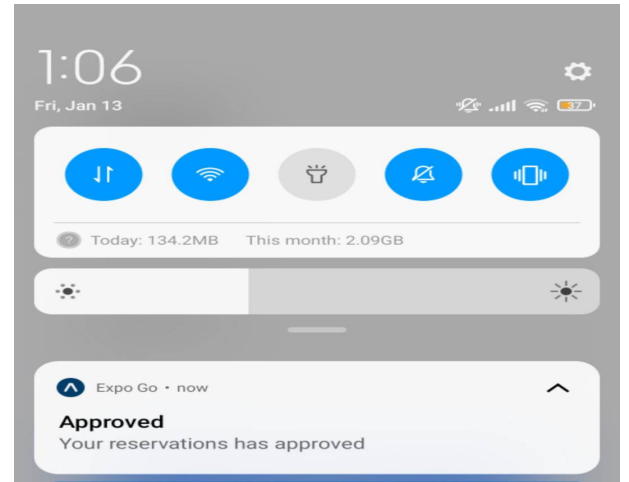


Figure 5.44: Approved notification

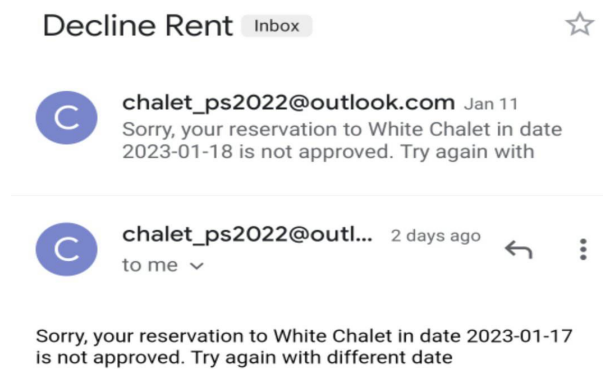


Figure 5.45: Declined email

5.3.8 Chat Box

ChaletPS contains a system for sending messages in the form of a group that includes all users to exchange opinions among themselves and if someone wants to inquire about something from other users.

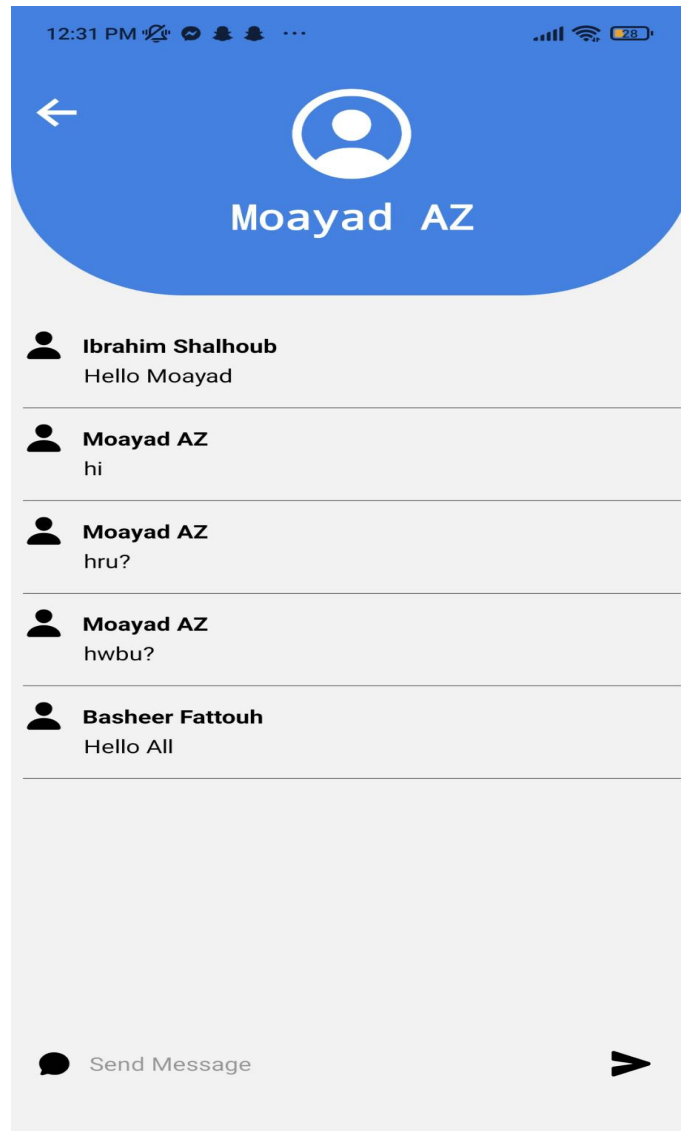


Figure 5.46: Chat group

Chapter 6

Results & Discussion

In this chapter we will talk about the project results and what is the expected from project. It is a platform with a website and a mobile application so that the website is dedicated to admin work and the mobile application is for regular users. The final form of the project was a program that aims to facilitate the process of booking chalets for people, so we have created a mobile application that enables users to:

1. Create an account and log in to the application by entering some of their information.
2. See chalets suggested to them according to the highest rating Control their chalet reservations if they have one.
3. See the available chalets and filter them according to what the user wants
4. Rate the chalet and give feedback.
5. See chalet on the map.

We made also a website has also been created that allows the admin to control the application in general, where he can do the following:

1. View existing chalets, add a chalet, edit an existing chalet, and can also delete a chalet.
2. View pending reservations and give a decision regarding them, whether by approval or rejection.
3. View all reservations that have been made and delete them, whether they have been canceled or have expired.

Chapter 7

Conclusion

7.1 Summary

Chalet PS is a platform that seeks to facilitate the process of booking chalets for people and save time and effort in searching for them and choosing between them, as it reviews many available chalets and provides many features that aim to facilitate selection according to what the user wants, there is a platform from before that is similar to the project But it lacks many features that we sought in our project to implement so that the user can benefit from the application more.

In Chalet PS, we tried to implement everything possible that would make it easier for users, and we hope to develop it in the near future.

7.2 Future Work

There are various areas that Chalet PS might improve, including:

1. Using machine learning on the recommendation to improve the recommendation system so that the selection of the chalet on the user becomes easier.
2. Creating a Chat-Bot system to make it easier for the user to choose a chalet.
3. Development on the web until it is able to be used by the normal user, and the user is also able to add a chalet and modify it

Chapter 8

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