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Parcours : **Systèmes d'information, Optimisation et Décision (SIOD)**

Conception et réalisation d'une application web pour la gestion des réservations dans un hôtel

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Conception and development of a web application for hotel reservation management.

Par :

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Graduated on July 2023, in front of the jury composed of:

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Thanks

First and foremost, praises and thanks to Allah.

I would like to express my sincere gratitude to my supervisor: ***Dr. BEN AMEUR Sabrina*** *for her guidance, patience and support that have been precious.*

I would also like to thank deeply all my teachers,

And all my friends

Sami TOUIL

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List of Abbreviations

DB : Data Base.

CSS: Cascading Style Sheets.

HTML: Hyper Text Markup Language.

IDE: Integrated Development Environment.

PHP: Hypertext Preprocessor.

SQL: Structured Query Language.

UP: Unified Process.

UML: Unified Modeling Language.

WWW: World Wide Web.

XML: Extensible Markup Language

GENERAL INTRODUCTION

The world of computer science is evolving rapidly, even though its initial purpose was to offer satisfactory services in terms of task execution speed and obtaining more accurate statistics.

Since its emergence, computer science has become accessible and, above all, indispensable for all technology-hungry businesses to ensure the proper management of services and, by extension, their survival in their field of activity. The main objectives of computerization are primarily time savings and permanent data backup.

Today, the need for Information and Communication Technologies continues to increase. This field holds a prominent position within our current society, whether it's in the professional domain or in private life. Their importance is growing day by day. One of the most widespread technological uses worldwide, which is also gaining popularity in our country, is online booking, found on most websites and mobile applications.

The Algerian market for accommodation reservations remains difficult to determine, despite the presence of certain platforms. Reservations are primarily made through recommendations from travelers who have already stayed in similar places. To keep up with technological advancements, it is important to create web platforms that foster progress.

The objective of our final thesis is to design and develop a web application for managing hotel reservations.

Therefore, our thesis is organized into three main chapters that describe the different steps to be established for the implementation of our project, as outlined below:

- The first chapter, "State of the art," presents some basic concepts related to our project, including the study of the existing situation and the specification of the requirements for the application to be developed.

- The second chapter is dedicated to the "Analysis and Design" part of the project, which includes the description of various UML diagrams and the database.

- The third chapter, "Implementation," focuses on the realization of the project by presenting the various tools used and providing some interfaces to illustrate the functioning of our application.

Finally, we conclude this work with a general conclusion where we present the synthesis of our work and some perspectives for the future.

Chapter 1:

STATE OF THE ART

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STATE OF THE ART

1.1. Introduction

The Algerian market for accommodation reservations is complex and poorly structured, with word-of-mouth remaining the most commonly used method by travelers, and almost no type of online reservation available. From this, we can deduce that online reservations are only made through multinational websites, while accommodation bookings are conducted in a purely traditional manner. In order to respond to technological advancements and the progress of platforms, it is crucial to create a web platform for online accommodation reservations.

1.2. Definition of e-commerce

E-commerce, or electronic commerce, is defined as a grouping of commercial transactions conducted remotely via the internet networks using various types of digital devices such as computers, tablets, smartphones, and connected objects. This virtual commerce has experienced exponential growth from the 2000s until today, where online shopping has become an indispensable part of daily life. M-commerce is one component of e-commerce that has the particularity of being used on mobile devices. E-commerce encompasses only a part of the challenges of commerce on the Internet because the presence of companies on the internet also influences purchases made in physical stores or through other channels (content marketing, pay-per-click, email marketing) [1].

1.3. Definition of e-reputation

Generally e-reputation is considered as the image conveyed and/or experienced by a company or brand on the Internet and other digital platforms. It also applies to a product or service. E-reputation is the result in terms of image of the content produced and disseminated by the company, but also, and above all, the content produced by internet

users on blogs, social networks, video-sharing platforms, forums, and other community spaces [1].

1.4. Types of Applications and Choice :

The three major families that dominate the application market are:

1.4.1. Mobile applications

A mobile application is a downloadable program designed to work on a mobile device such as a personal assistant, a cell phone, a smartphone, a tablet, or even on certain computers running Windows Phone or Chrome OS. One of the advantages of a mobile application is that once installed, it remains permanently on your smartphone.

Accessing your application then becomes simple and fast. In addition, having a mobile application is an opportunity to leverage new tools such as geolocation. Its main drawback is that, most of the time, it is difficult to develop because it must comply with certain rules defined by different companies (Apple for iOS applications, Google for Android applications, Windows for Windows Phone applications, etc.). Another disadvantage is the high cost associated with its development [2].

1.4.2. Web applications

A web application is an application that utilizes web technologies and is accessed through a web browser (Firefox, Google Chrome, IE, etc.). Its main advantage is its affordability. Furthermore, a web application can be accessed from any type of device (PC, mobile phone, tablet, etc.) and from anywhere. Additionally, no compatibility with an operating system is required. Another advantage is that web applications have better security management. Everything is centralized on a server, and access is controlled through identification. The evolution and innovation are continuous because updates are automatic and seamless, which significantly reduces the risk of obsolescence.

The main disadvantage is that this type of application is only accessible when there is an internet connection [2].

1.4.3. Desktop applications

A desktop application is an application that runs entirely on a single PC and therefore does not require web access to function. One of its advantages is that it is faster and more stable since it does not depend on the performance of another application.
However, its disadvantage is its lack of portability as it needs to be installed on each machine to be accessible. Additionally, desktop applications face compatibility issues with different operating systems [2].

1.4.4. Choice of application type

Our choice has been made in favor of web applications for several reasons, which are as follows:

- They are less costly.
- They provide faster access.
- They work on all operating systems.
- They are accessible from anywhere.
- They have content security measures.

1.5. Web application

A web application refers to an application software that is hosted on a server and accessed through a web browser. Unlike traditional software, the user of a web application does not need to install it on their computer. They simply need to connect to the application using their preferred web browser [3].

1.6. Types of Web applications

1.6.1 Static web applications

This type of web application displays limited information and generally does not change much. They are often created using CSS and HTML and can support animated content such as GIFs and videos. Modifying the static content included in static web applications can be tricky, and making significant changes typically falls under the responsibility of the webmaster or the development company that programmed the web application's conception [3].

1.6.2. Dynamic web applications

Dynamic web applications are much more technically complex. They utilize databases to load information, and these contents are updated whenever the user accesses the web application. A Content Management System (CMS) is typically associated with a dynamic web application, allowing administrators or users to easily update or edit the content. Multiple different web languages can be used with dynamic web applications. However, PHP and ASP are the most common, as they are easier to understand for structuring the content [3].

1.6.3. E-commerce applications

The development process of an e-commerce application is indeed more complex compared to the previously mentioned ones. It involves additional functionalities like handling electronic payments through credit cards, PayPal, or other payment methods. The developer also needs to create an administration panel for the administrator. From there, products can be uploaded, updated, or deleted, and orders and payments can be managed.

1.6.4. Web portal application

The web portal application refers to an application in which different sections or categories are accessible through a homepage that allows access to different sections, categories, or sections: forums, chats, email, and search engines [4].

1.6.5. Web application with a content management system

A web application with a content management system (CMS) is a powerful tool for managing and updating website content. It allows users, such as administrators or content creators, to easily add, modify, and organize content without requiring advanced technical knowledge. The CMS provides a user-friendly interface and a set of tools that simplify the content management process.

With a web application featuring a CMS, users can perform tasks such as creating new web pages, editing existing content, uploading media files, managing user permissions, and organizing content into categories or sections.

An interface can be accessed and updated, and a content management system (CMS) is required. CMS systems are very popular for personal blogs, company blogs, media

sources, and more. There are several content management systems available, and the most common ones are: WordPress, Joomla, and Drupal, etc. [4].

1.7. Internet services

1.7.1. Web : World Wide Web (WWW)

It is a computer service that allows for the dissemination of texts, images, sounds, etc. through web pages. All documents accessible on the Web have their own unique address called a URL (Uniform Resource Locator) [5].

1.7.2. FTP (File Transfert Protocol)

It is one of the oldest protocols of the Internet, designed for triggering downloads and uploads. It allows for the transfer of files from a device (PC, smartphone, etc.) to a server, and vice versa. With FTP, files can also be downloaded from the server to a device [6].

1.7.3. TELNET (Connection to a remote computer)

TELNET is a protocol that allows users to remotely access and manage computers or networking devices over a network. It provides a command-line interface for interactive communication with the remote system. TELNET allows users to log in to a remote system and execute commands as if they were physically present at the computer's location.

When a TELNET connection is established between a client and a server, the client can send commands and receive responses from the server. This enables tasks such as remote administration, troubleshooting, and remote execution of commands on the server [6].

1.7.4. SMTP, POP et IMAP

SMTP (Simple Mail Transfer Protocol),

POP (Post Office Protocol) et

IMAP (Internet Mail Access Protocol)

These protocols are used for email messaging [6].

1.8. Definition of booking platforms

An online booking platform is a website that allows consumers and travel agencies to book flights, hotels, vacation packages, insurance, and other services online. Internet Booking Engines (IBEs) are now used by almost all airlines to reduce additional expenses and enable instant booking and payment.

1.9. Functionalities of some existing platforms

1.9.1. “Airbnb” platform

"Airbnb" is a leading online booking platform created in 2007 by two Americans, and the site contains over 1.5 million listings. The various functionalities found on the platform include:

- Searching for accommodations
- Booking accommodations
- Registration/Log-in
- Hosting
- Adding a new listing
- Removing a listing
- Requesting a recommendation
- Making a payment
- Rating
- Saving an apartment
- Adding a comment
- Searching within comments [7].

1.9.2. “Booking.com” platform

"Booking.com" is considered the number one hotel booking site in the world. The site features a simple design that prioritizes efficiency. It's also a way to go straight to the essentials by offering the best available reservations in a city or region. Furthermore, the search options are highly advanced and allow for maximizing the obtained results. Regarding reviews from previous bookings, they are plentiful and often very positive [8].

1.9.3. "Hotels.com" platform

"Hotels.com" is the closest alternative to Booking.com among the best hotel booking websites and applications. The selection of hotels listed on the site is very extensive, and the prices are practically the same as those mentioned on Booking.com. The only notable differences are in the hotel reviews and availability, which give more credibility to the platform.

Regarding the Hotels.com application, available on Google Play, the App Store, and the Windows Phone Store, it follows the same principle as the Booking.com application. In total, over 510,000 hotels across 200 countries worldwide are listed. The Hotels.com app also offers additional services such as last-minute deals, which can reach up to 20,000 options. To help travelers save money, the app even provides discount coupons and much more. However, the interface of Hotels.com appears to be more intuitive than that of Booking.com [9].

1.10. General structure of a Hotel

A hotel is a commercial accommodation establishment that offers rooms or furnished apartments for rent to clients. In addition, the hotel offers other services such as dining and other outings. Generally, the structure of a hotel includes:

- General Manager
- Sales Manager
- Finance Manager
- Department Managers
- Rooms Manager
- Human Resources Manager

- Cleaning Supervisor
- Restaurant Manager
- Maintenance Manager
- Security Manager [10].

1.11. Problematic

In Algeria, the hotel gains recognition through newspapers, brochures, and word of mouth. As a result, this establishment wants to improve its visibility to set itself on the right track. Reservations at this hotel are currently made by phone or fax, which is becoming increasingly annoying considering the large number of Algerian and foreign customers. In order to be closer to its clientele, are advertising panels and regular communications sufficient? For better presence and more efficient management, the idea is to computerize room reservations through the internet, meaning the creation of a website is essential to allow customers to make remote reservations.

1.12. Problematic Solution

We will design and create a website that fulfills the following functionalities:

- Remote room reservations.
- Display and modify available rooms.
- Consultation of prices.
- Promote the hotel at the national level.

In order to provide a more accurate system that meets the needs of customers, the development of a website must be preceded by an analysis and design methodology.

1.3. Development Methodology

To develop our web application, we have chosen the Unified Process (UP) based on the Unified Modeling Language (UML) as our development methodology. This solution is suitable for all types of projects because it is guided by use cases, focuses on architecture, and follows an iterative and incremental approach. The Unified Modeling Language (UML) was developed in response to the Object Management Group's (OMG) call for proposals to define a standard notation for modeling object-oriented applications. UML was introduced in November 1997, resulting from the merger of three different

methods: Object-Oriented Software Engineering (OOSE) by Ivar Jacobson, BOOCH by Grady Booch, and Object Modeling Technique (OMT) by James Rumbaugh. Since its release, UML has become the standard language for object-oriented modeling. However, UML is not a methodology itself but rather a graphical language used to model and communicate various aspects of an information system. As it does not have its own lifecycle, UML should be associated with a development process [11].

1.14. Unified Process

The Unified Process is a software development process associated with UML. It is primarily guided by use cases, as the software solution and the system to be built are defined with the users, allowing for efficient capturing of requirements. UP is an architecture-centric process driven by risk reduction. By being iterative and incremental, it enables:

- Obtaining user feedback from the early iterations.
- Assessing risks.
- Conducting continuous testing.

The characteristics of the Unified Process allow it to adapt to a broad class of software systems from different application domains, various sizes of companies, and different types [11].

1.15. Conclusion

This chapter served to introduce the framework of our project. We presented the hosting organization of our web application, its missions, needs, objectives, as well as the chosen development methodology. In the next chapter, we will define the design and analysis part by presenting the functional framework and the dynamic framework of this system.

Chapter 2:

ANALYSIS AND CONCEPTION

Chapter 2:

Analysis and Conception

2.1. Introduction

In the project lifecycle, the design phase plays a crucial and decisive role in producing a high-quality application. In this dedicated chapter on design, we will define the role of each stakeholder who interacts with the system. We will also model their roles in the form of use case diagrams, and then define the use cases, sequence diagrams, and class diagrams, before finally moving on to the development of the database.

2.2. Requirements Analysis

2.2.1 Functional Requirements

The system will include different functionalities necessary for better management. It must perform the following processes:

- Allow the consultation of available rooms.
- Enable room management tasks:
    1. Display available rooms.
    2. Release rooms (tracking rooms based on their types and categories).
- Enable reservation management tasks: reservations will be stored in a database that can be updated as needed.

2.2.2. Non-functional requirements

Once the functional requirements are well defined, the non-functional requirements must be taken into account throughout the system development process, namely:

- The system must offer subnetwork operation.
- Ergonomics and user-friendliness: the system must provide different users with an interface.
- The code must be clear to allow for future developments or improvements.
- Ensure data consistency with each insertion.

- Authentication: The system must allow the user to enter their email and password to make a reservation. This operation ensures the security of the system, respects data confidentiality, and limits the number of users.

2.3. Identification of actors

An actor represents a role played by an external entity that interacts directly with the system being studied. In our case, we have three actors:

1. Visitor: This is an unregistered person in the database (who accesses the system for the first time) and can only perform a registration.
2. Client: This is a registered person in the database who requests information about room availability and can make a reservation.
3. Administrator: This is the person responsible for managing various system updates.

2.4. Identification of use cases:

A use case represents a set of actions sequences performed by the system, resulting in an observable outcome of interest to a particular actor. A use case models a service provided by the system. It expresses the interactions between actors and the system, bringing a "notable" added value to the concerned actor. The main objective is for the set of use cases to comprehensively describe the functional requirements of the system. In this section, we present the use case diagram (Figure 2.1) followed by the description of each use case.

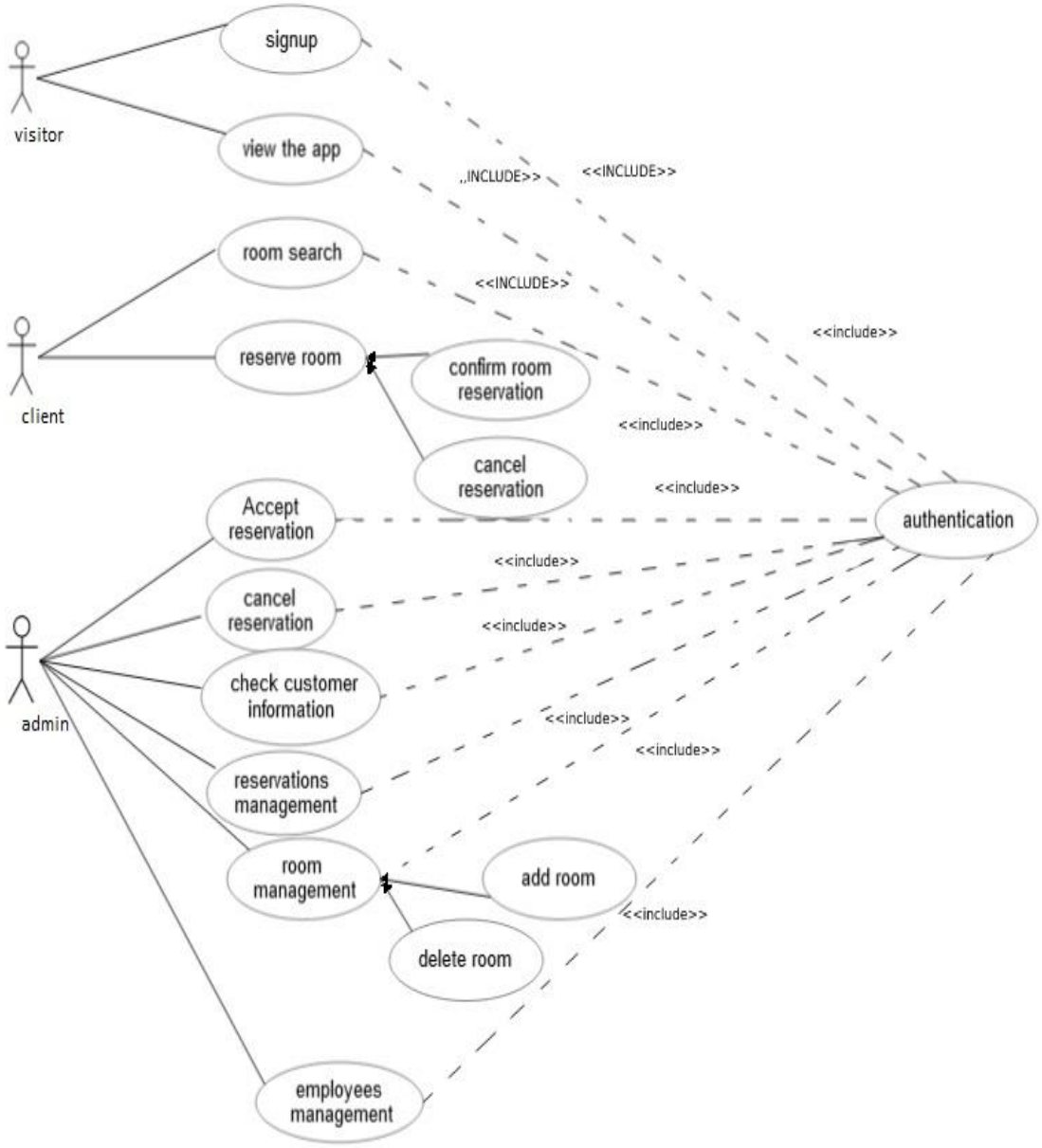


Figure 2.1: The use case diagram

2.4.1 Textual description of use cases

In this section, we present a detailed description of each use case. The goal is to define the possible scenarios.

- **Visitor's Side:**

  – Registration at the hotel:

  The visitor can submit a registration request on the application. To do so, it will be necessary to fill in the required information.

- **Client's Side:**

  – Booking at a hotel:

The client needs to authenticate first in order to book a stay at the hotel by going through administrative forms.

- **Administrator's Side:**

  – Reservation management:

  The administrator needs to authenticate first in order to access reservation requests. They can then release unoccupied rooms, confirm reservations, and display them.

2.5. Sequence Diagrams

The objective of the sequence diagram is to represent the interactions between objects by indicating the chronological order of exchanges. This representation can be done through use case, considering the different associated scenarios. The sequence diagram consists of:

– Lifeline: Represents the set of operations performed by an object.

– Synchronous message (arrow with a solid arrowhead): The sender waits for a response to its message before continuing its actions.

– Asynchronous message (arrow with a hollow arrowhead): The sender does not wait for a response to its message and continues executing its operations.

Thus, we have developed a sequence diagram for each use case, modeling all the interactions [12].

2.5.1. Sequence Diagram for the "Registration" use case

The following sequence diagram represents the "Registration" use case:

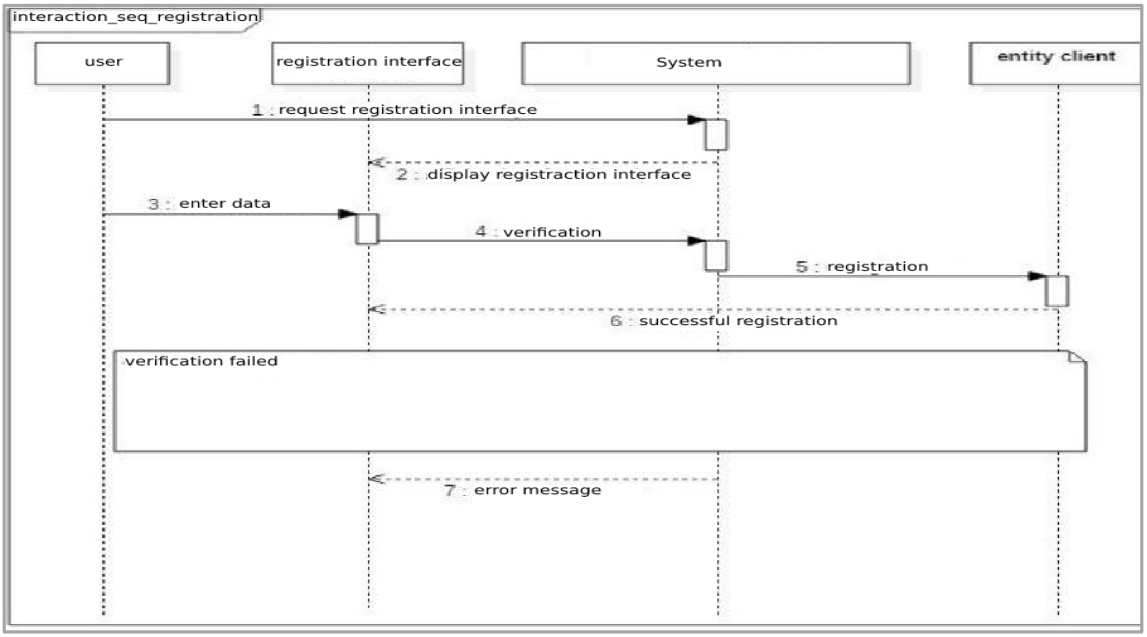


Figure 2.2: Sequence diagram for the “registration” use case

Description:

Each user of the system, if they want to enjoy the privileges dedicated to customers, must first initiate the successful registration phase, and for that, they need to go through the following sequences as a whole:

1. The user requests the registration form.
2. The system displays the registration form.
3. The user fills out the form.
4. The system verifies the entered data.
5. The user is successfully registered.
6. If the verification fails, return to step 3.

2.5.2. Sequence diagram for the "authenticate" use case

The following sequence diagram represents the use case of "authenticate" and access the hotel room booking interface.

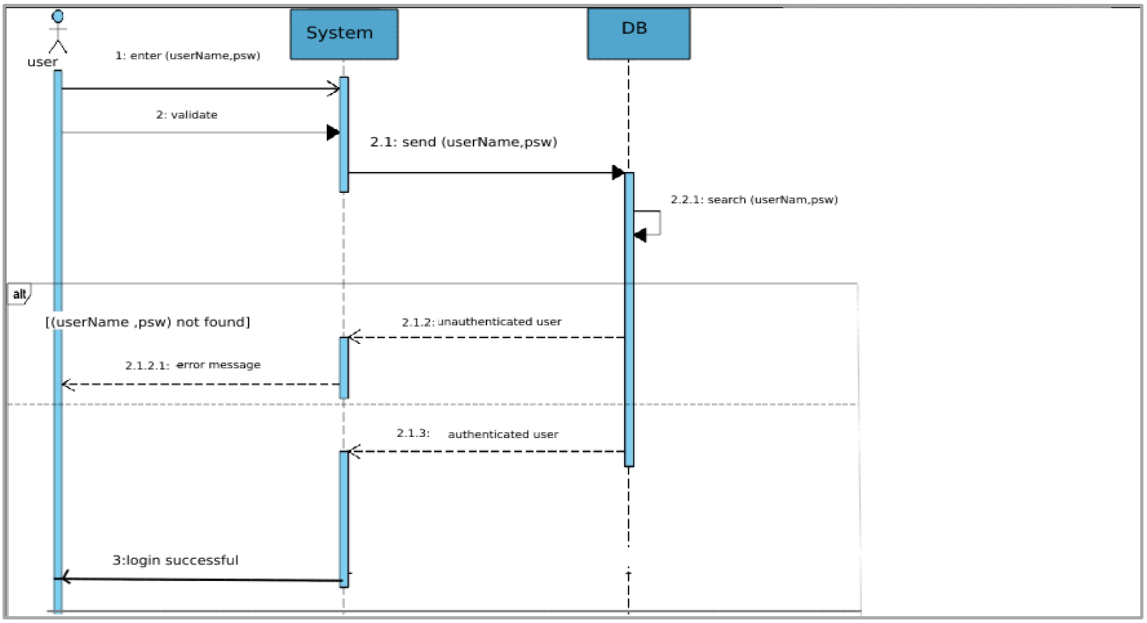


Figure 2.3 : Sequence diagram for the "authenticate" use case

Description:

The sequences to perform for the authentication phase are as follows:

1. The user requests the authentication interface.
2. The system displays the authentication interface.
3. The user enters their email and password.
4. A verification process is initiated in the database.
5. If the authentication is successful, the system displays the client's home page.
6. Otherwise, the system displays the home page for a visitor.

2.5.3. Sequence diagram for the "reserve" use case

The following sequence diagram shows the "reserve" use case, which is the process used to make a reservation.

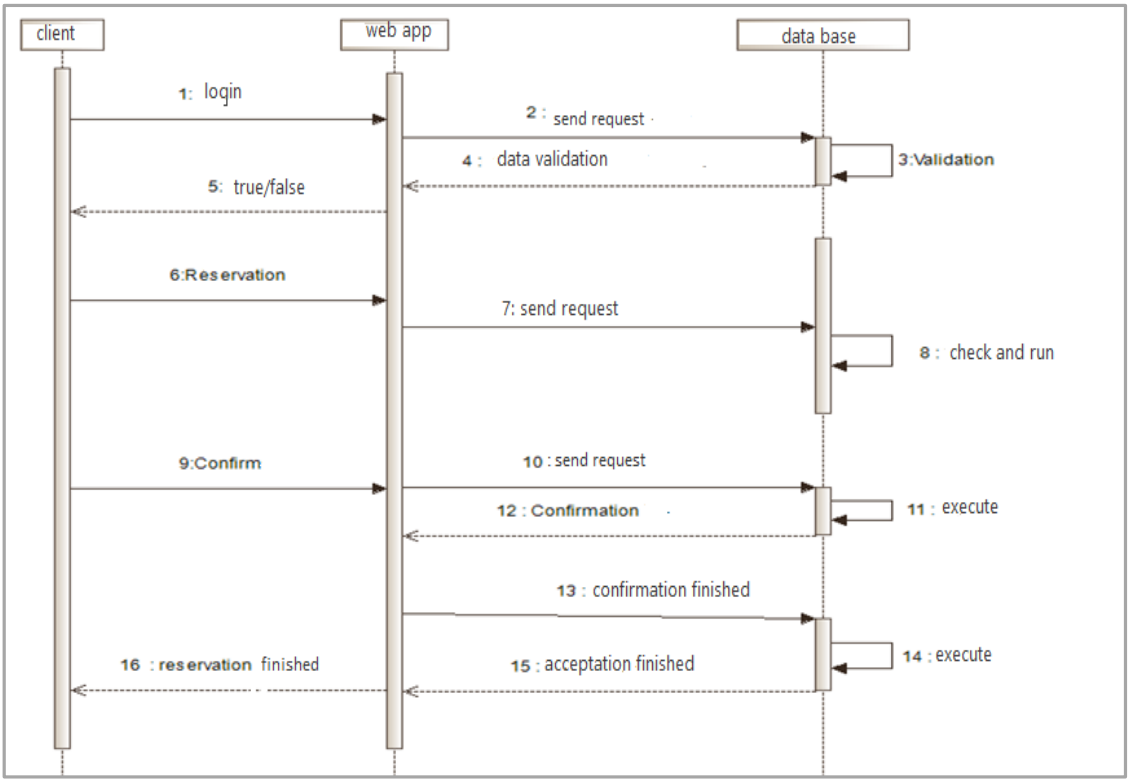


Figure 2.4 : Sequence diagram for the "reserve" use case

Description

- The client requests the registration interface.
- The system displays the registration form.
- The client enters the data.
- The database verifies and saves the entered data.
- The system displays the authentication interface.
- The system updates the database.
- The database checks the availability of rooms.
- If rooms are available, the reservation is successfully made.
- Otherwise, no rooms are available.

2.5.4. Sequence diagram for the "manage reservation" use case

The following sequence diagram represents the "manage reservation" use case and the process followed by the administrator to release a reservation and display available rooms.

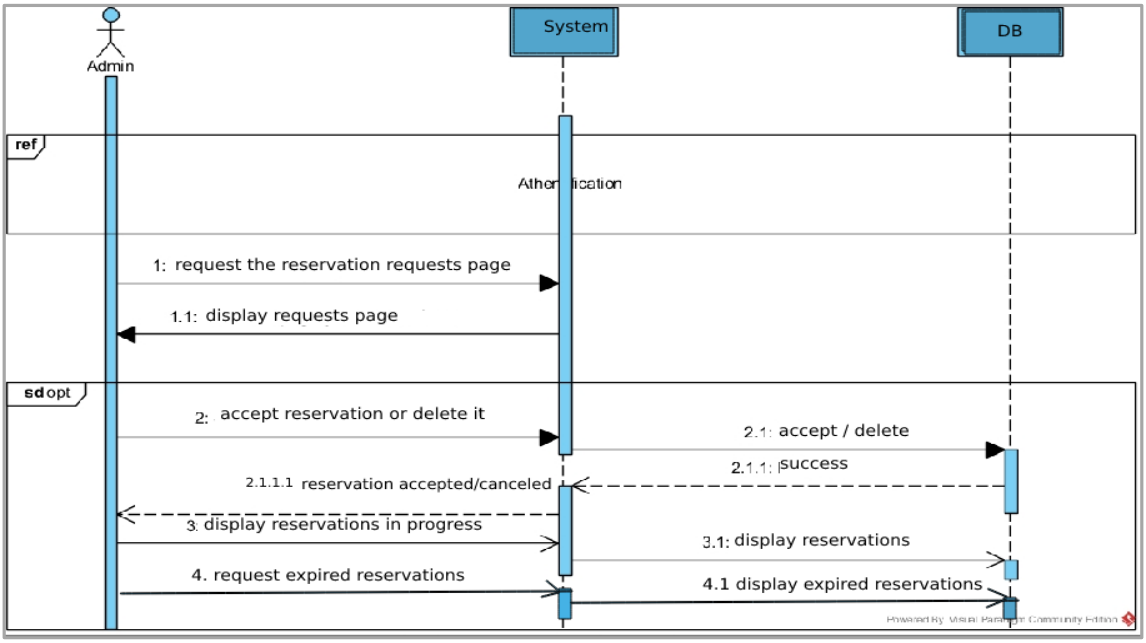


Figure 2.5: Sequence diagram for the "manage reservation" use case.

Description

1. The admin must first authenticate.
2. The admin requests the system to display the reservation management page.
3. The system displays the reservation management page.
4. The admin selects the reservation to release.
5. The system requests the database to release the reservation.
6. The admin selects the available rooms.
7. The system displays the rooms.

2.6. Class Diagram

The class diagram of our software solution is presented in Figure 2.6. Each class directly reflects a real-world entity with the information it contains (attributes) and the relationships between them. We have also introduced some methods in classes to perform the necessary operations.

– **Class** : represents an abstract description (using a rectangle) of a group of objects that share the same characteristics, such as user classes, jury classes, themes, etc.

– **Attribute:** is a type of information contained within a class. Each attribute is characterized by its name, visibility, type, initial value, and properties.

– **Operation:** an operation is a function that can be applied to objects of a class. An operation describes the behavior of an object, and a method is the implementation of an operation [13].

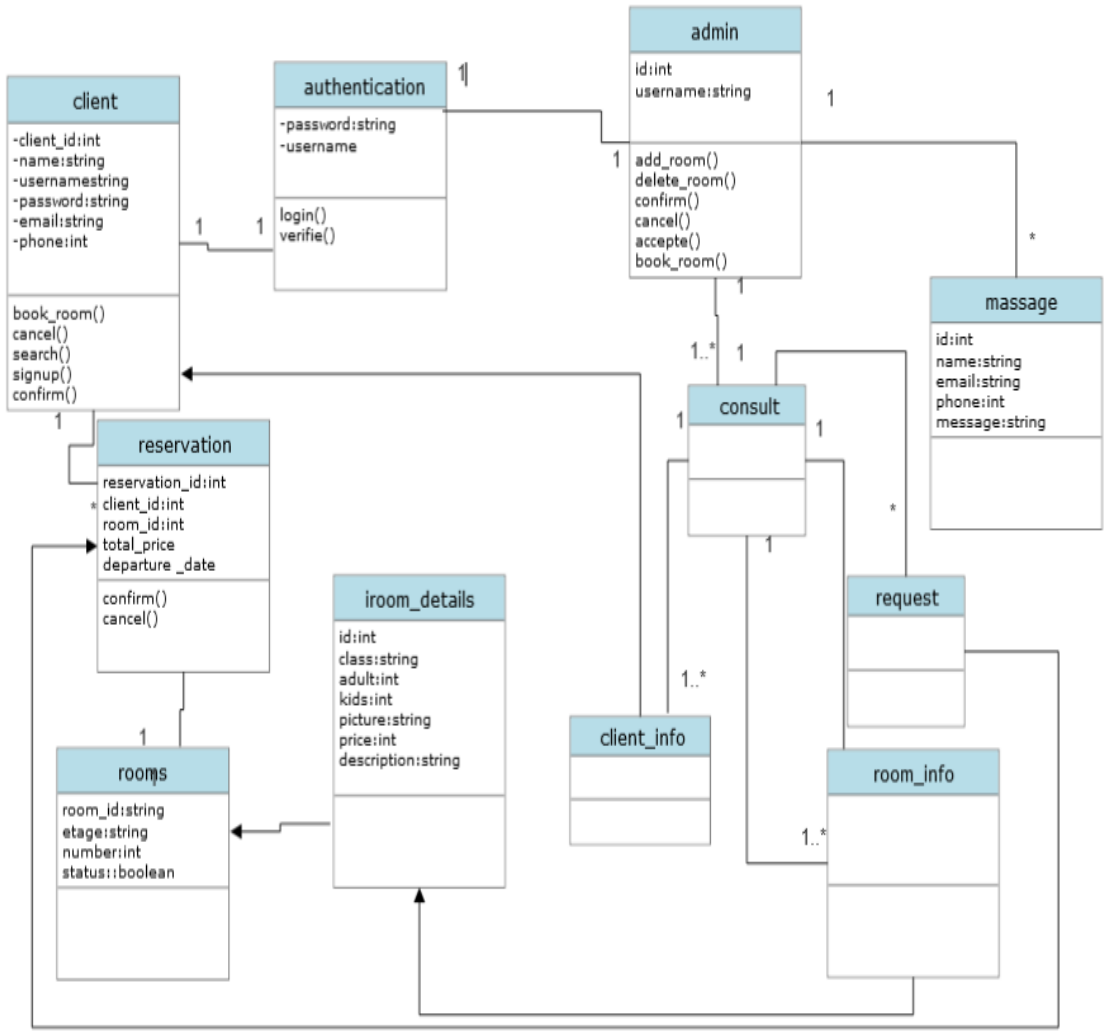


Figure 2.6 : Class Diagram

2.7. Relational Model

The relational model consists of representing each type of object or entity from the real world with a table.

Each table has two inputs: the rows correspond to records, and the columns are fields of these records. Each column in the table has an identifier or attribute that corresponds to the column name, representing one of the components of the entity or object being represented.

2.7.1. Rules for converting to the relational model

Below are the rules for converting a class diagram to the relational model:

- **Class with attributes:**

  Each class becomes a relation. The attributes of the class become attributes of the relation. If the class has an identifier, it becomes the primary key of the relation. If not, an arbitrary primary key needs to be added.

- **1-to-1 Association:**

  To represent a 1-to-1 association between two relations, the primary key of one relation must appear as a foreign key in the other relation.

- **1-to-many Association:**

  To represent a 1-to-many association, the process is similar to a 1-to-1 association, except that it is the relation on the "many" side that receives the foreign key, which references the primary key of the relation on the "1" side.

- **Many-to-many Association:**

  To represent a many-to-many association, a new relation needs to be introduced. The attributes of this relation are the primary keys of the associated relations, and the primary key of this new relation is a concatenation of these attributes.

- **Class-Association Many-to-many:**

  This case is similar to a many-to-many association, with the addition of the attributes of the class-association being added to the third relation. This third relation represents the class-association itself [14].

2.7.2. The relational schema

By applying the rules of transforming a class diagram into a relational model mentioned earlier, we have arrived at the following relational schema.

Admin (id_admin, username, password**).**

Client (id_client, name, username, password, email, phone**).**

Room (id_room, status, etage, number, #id_room_details**).**

Room_details (id_room_details, class, adult, kids, picture, price, description)

Reservation (id_reservation, #id_client, #id_room, date_start, date_end, total_price).

Messages (id_message, name, email, phone, message)

2.8. Conclusion

In this chapter, we began with requirements analysis, followed by the presentation of use cases, corresponding sequence diagrams, and the class diagram. Finally, we concluded with the relational data model that provides us with the database schema for the application. In the next chapter, we will present the implementation of our application, including the tools and environments used. Screenshots will be included to demonstrate the functionalities of our application.

Chapter 3:

IMPLEMENTATION

Chapter 3:

Implementation

3.1. Introduction

In computer science, implementation refers to the execution or realization. Therefore, the objective of this chapter is to present the languages and tools used for the implementation of our prototype involving various actors (administrator, receptionist, and client). We will present the different components of the system as well as some interfaces illustrating the various options available.

3.2. Languages used for programming:

3.2.1. HTML5

HTML5, which stands for HyperText Markup Language 5, is a version of the popular HTML format used for designing websites. It is a markup language that is used to write the hypertext necessary for formatting a web page. Launched in October 2014, this HTML5 version introduces new elements and attributes compared to the previous version. For example, it allows defining the main content of a web page, adding an introduction in the header, inserting subtitles for multimedia content such as videos, and more.

3.2.2. CSS

CSS, which stands for Cascading Style Sheets, is a computer language used on the internet to format HTML or XML files. CSS files, also known as style sheets, contain code that manages the design of an HTML page.

3.2.3. PHP

PHP, which stands for Hypertext Preprocessor, refers to a computer language or scripting language mainly used for developing dynamic websites. It is an open-source programming language that can be used by anyone free of charge.

3.2.4. JavaScript

JavaScript refers to a computer development language, specifically an object-oriented scripting language. It is primarily used in web pages and allows for the inclusion of small animations or effects in HTML web pages.

3.2.5. Bootstrap

Bootstrap is a collection of useful tools for designing (graphics, animation, page interactions in the browser, etc.) websites and web applications. It is a package that includes HTML and CSS code, forms, buttons, navigation tools, and other interactive elements, as well as optional JavaScript extensions.

3.3. Tools used for programming:

3.3.1. XAMPP

XAMPP is a software bundle that enables the easy setup of a confidential web server, FTP server, and email server. It is a distribution of free software (X (cross) Apache MySQL Perl PHP) that offers flexibility and is known for its simple and quick installation process. Thus, it is accessible to a large number of people as it does not require specific knowledge and works on the most commonly used operating systems.

It comes with various software libraries that significantly expand the range of services, including OpenSSL, Expat (XML parser), PNG, SQLite, zlib, and more Perl and Tomcat modules. Many of these extensions are unnecessary for beginners, so a lightweight version, known as the lite version, is also available.

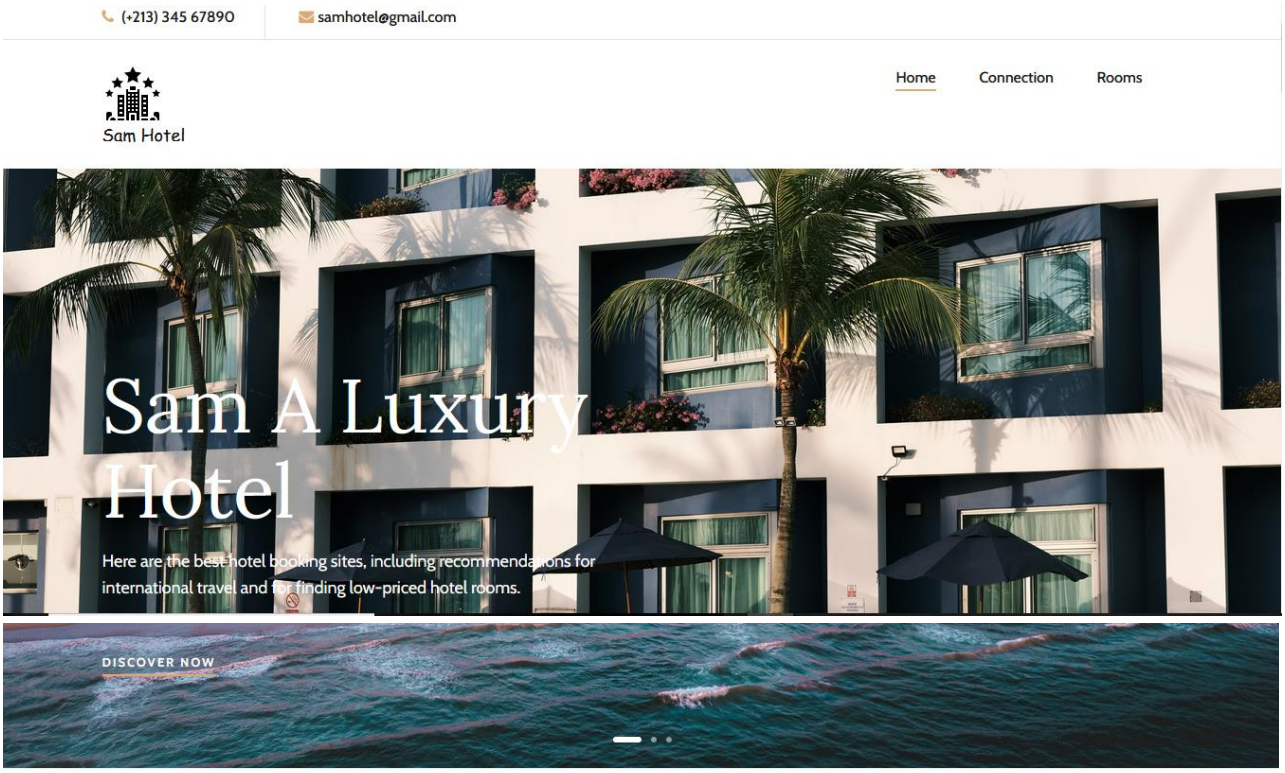
3.3.2. PHPMyAdmin

PHPMyAdmin is a web-based management application for MySQL and MariaDB database systems. It is primarily developed in PHP and distributed under the GNU GPL license.

3.4. Main Pages of the Website:

3.4.1-Homepage:

The homepage of our web application is the main page that any user (administrator, receptionist, client, or visitor) accesses first. It is represented in the following figure:

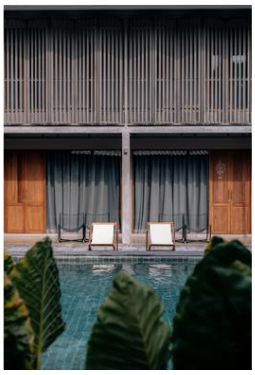


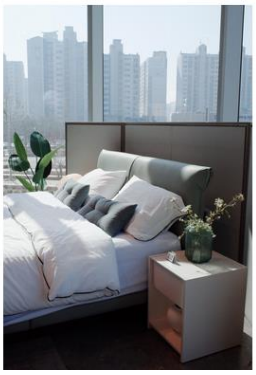
ABOUT US

Sam Hotel Algeria

Sam.com is a leading online accommodation Web Application. We're passionate about travel. Every day, we inspire and reach millions of travelers our Application Web

So when it comes to booking the perfect hotel, we've got you covered.





WHAT WE DO

Discover Our Services

luxy rooms

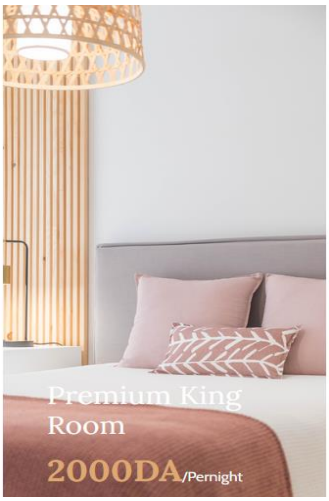
Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna.

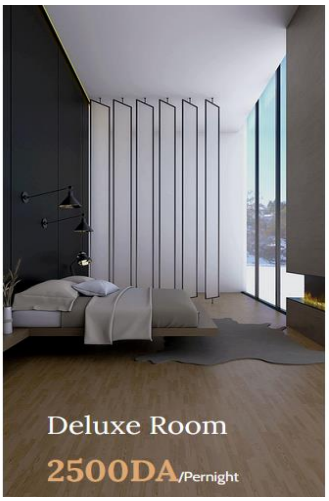
Catering Service

Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna.

Hire Driver

Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna.





TESTIMONIALS

What Customers Say?

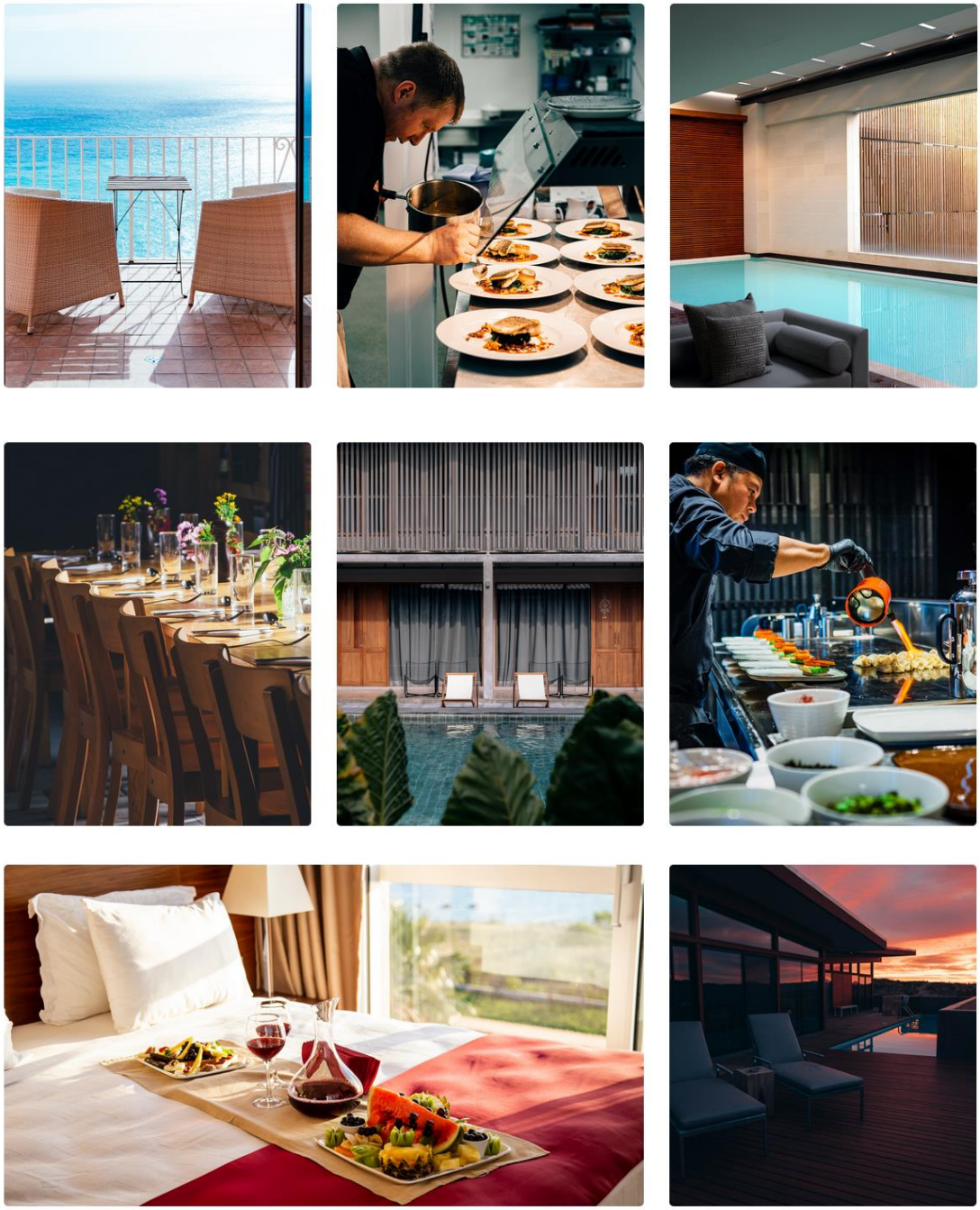
After a construction project took longer than expected, my husband, my daughter and I needed a place to stay for a few nights. As a Algerian resident, we know a lot about our city, neighborhood and the types of housing options available and absolutely love our vacation at SamHotel.

★★★★½ - Mohamed dz

HOTEL NEWS

HOTEL NEWS

Our Blog



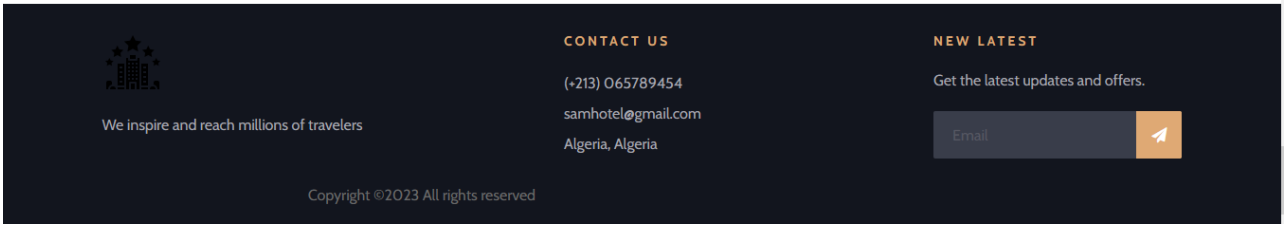
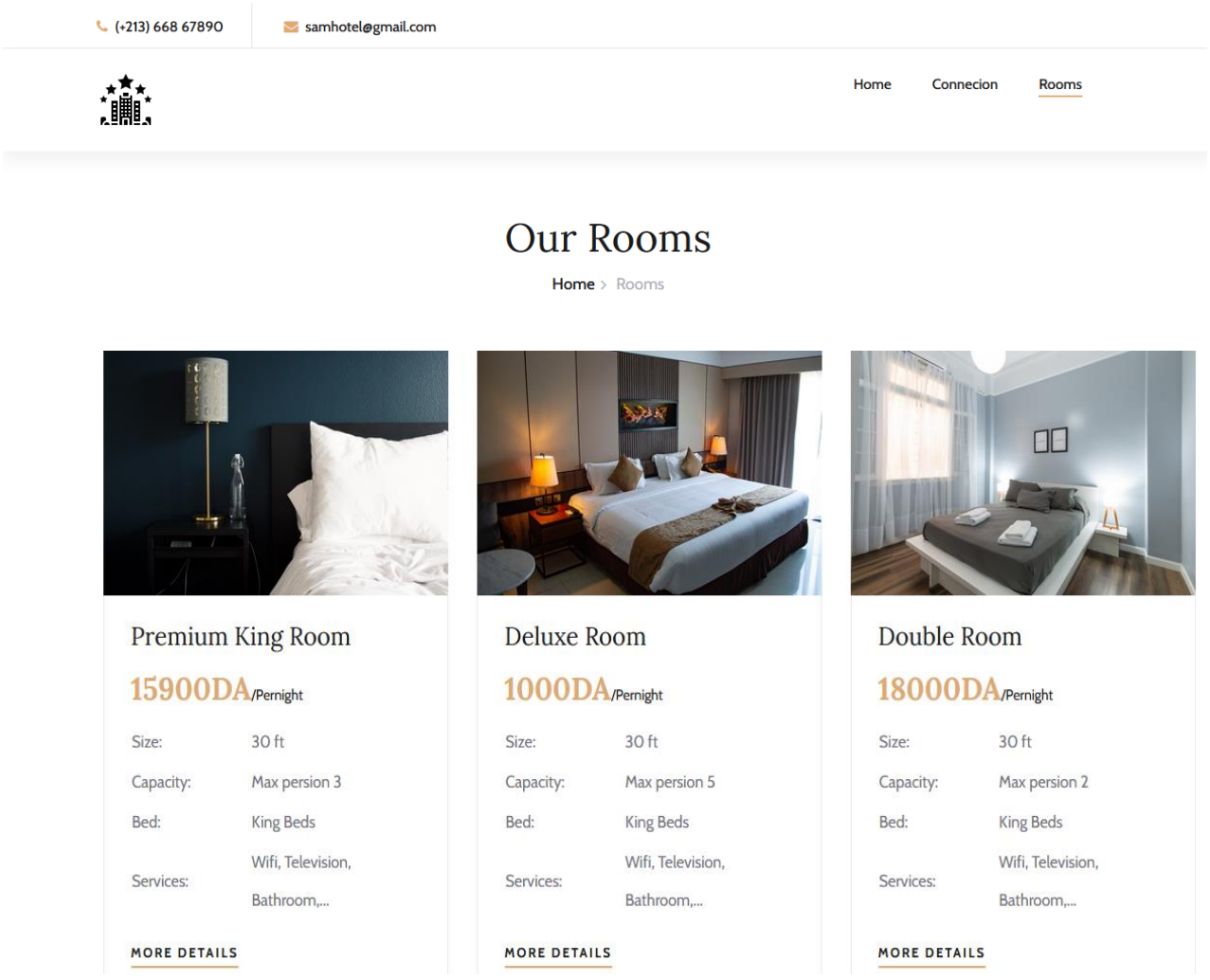


Figure 3.1: Homepage of our application web

We can see also in our home page some of our rooms :



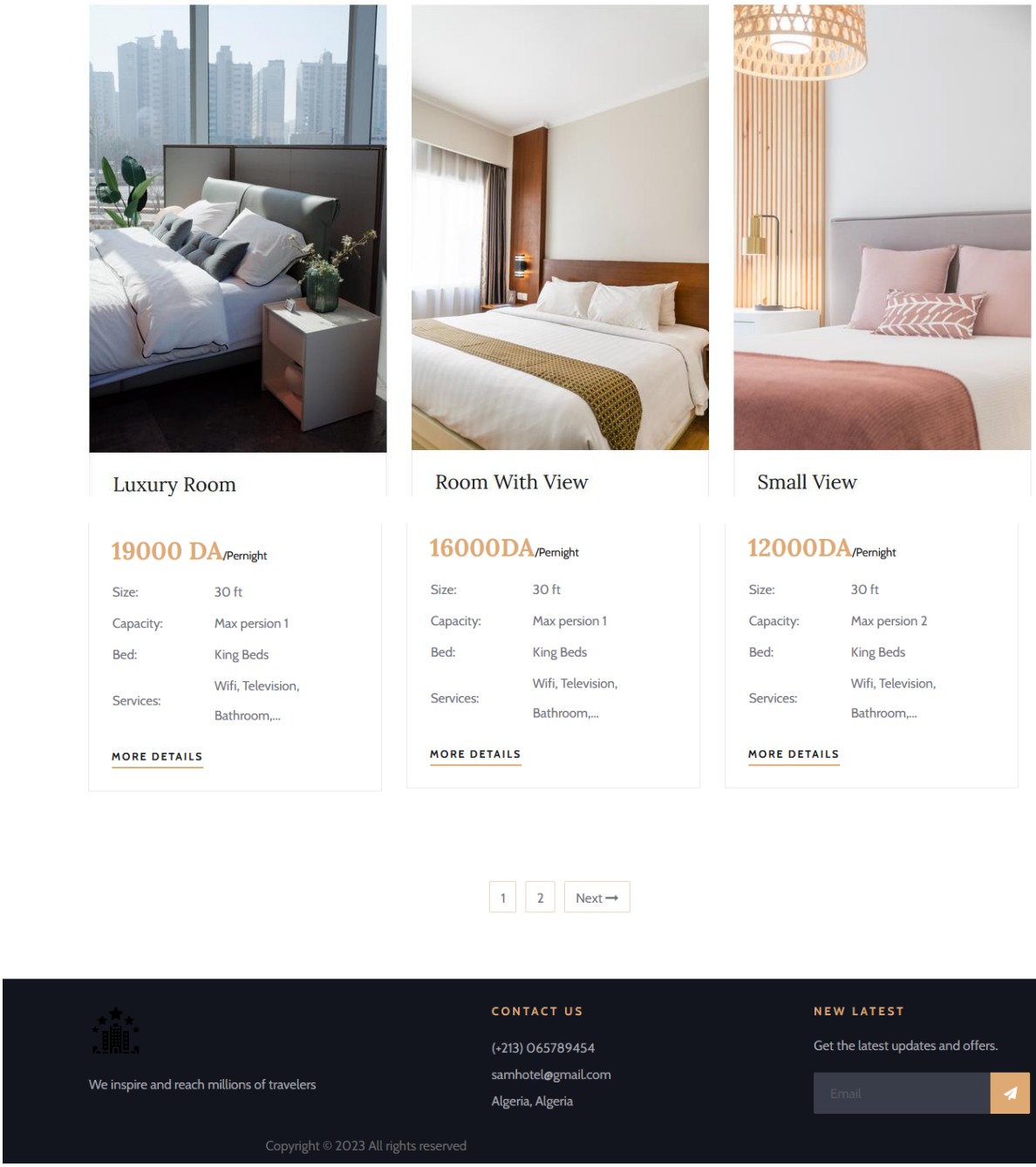


Figure 3.2: Rooms page

3.4.2-Client pages:

-**Registration page:** In order to make a reservation, the user must create an account on our website through this page, which prompts them to enter a set of personal information (name, email, phone...) as shown in the image below:

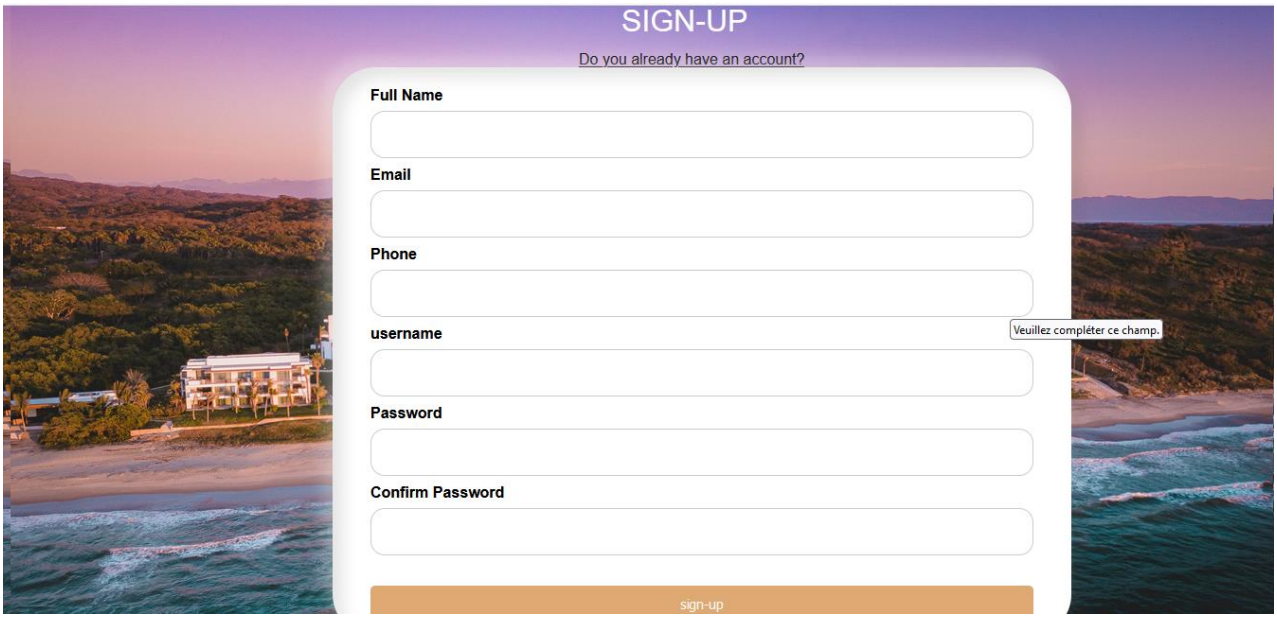


Figure 3.3: Registration page

Login page: This page allows the user to log into their account on our website:

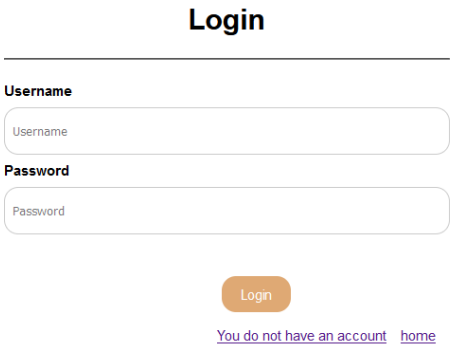
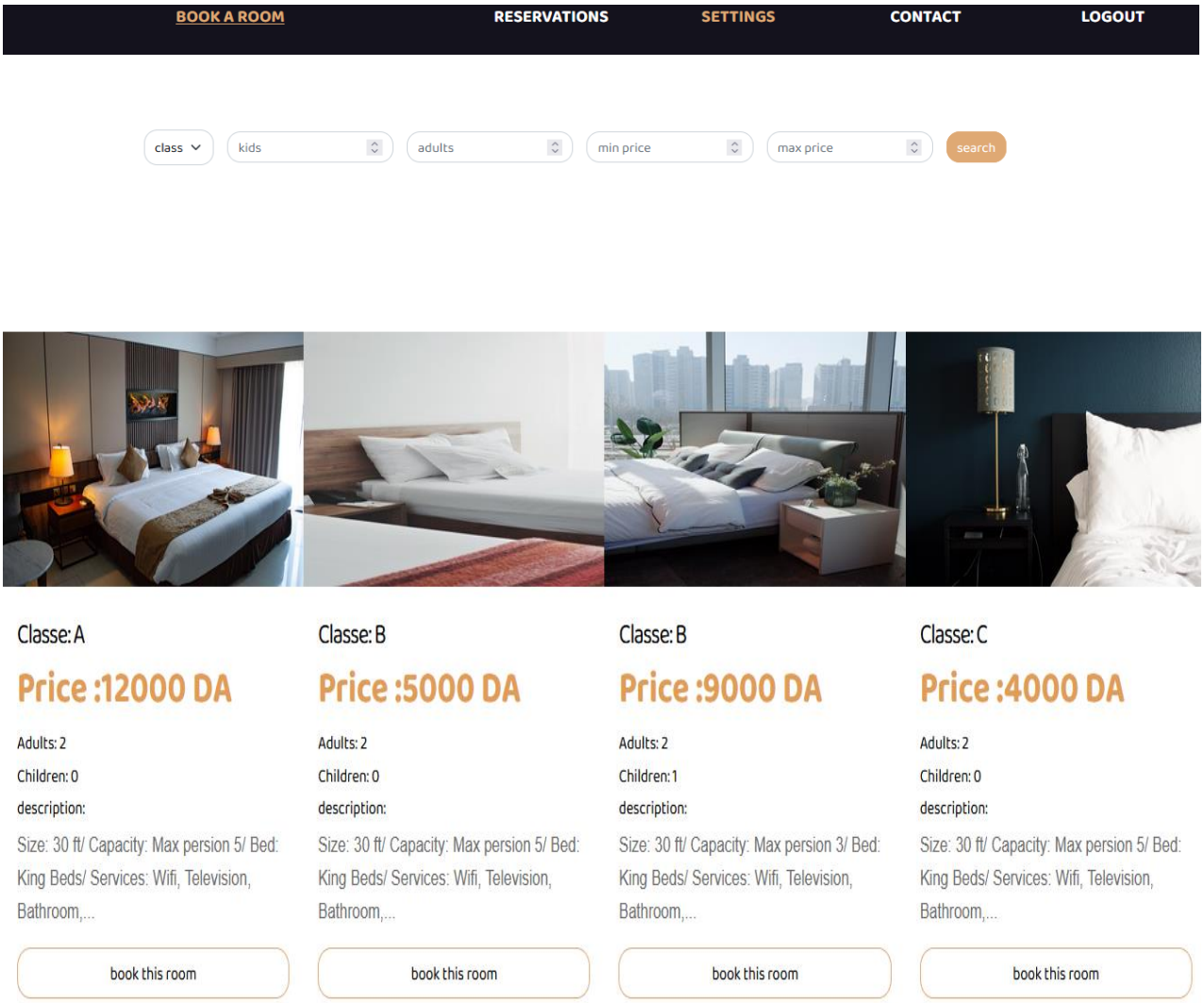
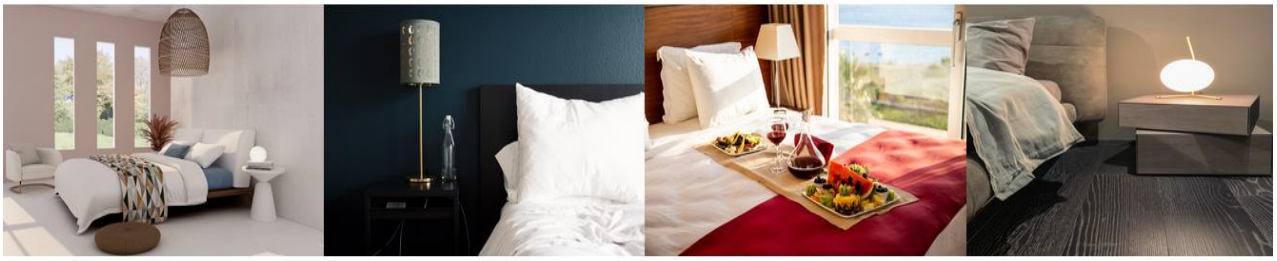


Figure 3.4: Login page

Room booking page:

This page is one of the most important pages that the user needs as it allows them to search for rooms and select the room to book based on the desired features by filling in the specified characteristics shown in the image below. Additionally, they can view all available hotel rooms without searching:


BOOK A ROOM
RESERVATIONS
SETTINGS
CONTACT
LOGOUT
class
kids
adults
min price
max price
search
Classe: A
Price :12000 DA
Adults: 2
Children: 0
description:
Size: 30 ft/ Capacity: Max persion 5/ Bed: King Beds/ Services: Wifi, Television, Bathroom,...
book this room
Classe: B
Price :5000 DA
Adults: 2
Children: 0
description:
Size: 30 ft/ Capacity: Max persion 5/ Bed: King Beds/ Services: Wifi, Television, Bathroom,...
book this room
Classe: B
Price :9000 DA
Adults: 2
Children: 1
description:
Size: 30 ft/ Capacity: Max persion 3/ Bed: King Beds/ Services: Wifi, Television, Bathroom,...
book this room
Classe: C
Price :4000 DA
Adults: 2
Children: 0
description:
Size: 30 ft/ Capacity: Max persion 5/ Bed: King Beds/ Services: Wifi, Television, Bathroom,...
book this room



Classe: B

Price :4500 DA

Adults: 2

Children: 0

description:

Size: 25 ft/ Capacity: Max persion 2/ Bed: King Beds/ Services: Wifi, Television, ,...

book this room

Classe: B

Price :4700 DA

Adults: 2

Children: 0

description:

Size: 30 ft/ Capacity: Max persion 5/ Bed: King Beds/ Services: Wifi, Television, Bathroom,...

book this room

Classe: B

Price :3500 DA

Adults: 2

Children: 0

description:

Size: 30 ft/ Capacity: Max persion 2/ Bed: King Beds/ Services: Wifi, Television, Bathroom,...

book this room

Classe: A

Price :9900 DA

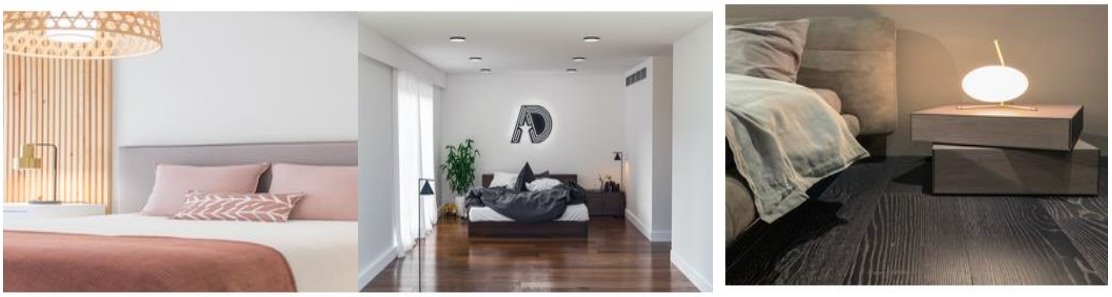
Adults: 2

Children: 0

description:

Size: 30 ft/ Capacity: Max persion 2/ Bed: King Beds/ Services: Wifi,...

book this room



Classe: A

Price :9900 DA

Adults: 2

Children: 0

description:

Size: 30 ft/ Capacity: Max persion 5/ Bed: King Beds/ Services: Wifi, Television, Bathroom,suit...

book this room

Classe: B

Price :10000 DA

Adults: 2

Children: 0

description:

Size: 30 ft/ Capacity: Max persion 3/ Bed: King Beds/ Services: Wifi, Television, Bathroom,...

book this room

Classe: A

Price :9900 DA

Adults: 2

Children: 0

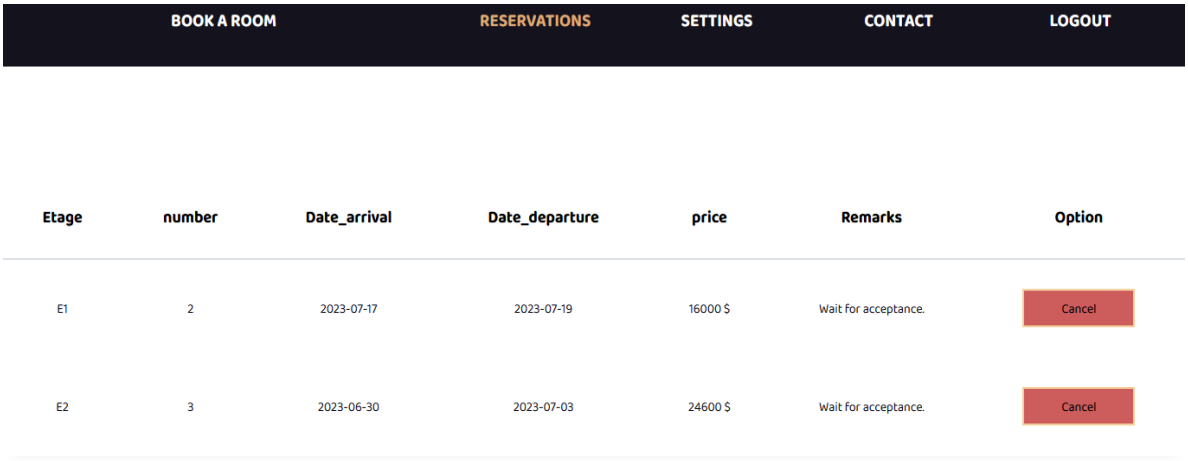
description:

Size: 30 ft/ Capacity: Max persion 2/ Bed: luxy Beds/ Services: Wifi, Television, Bathroom,...

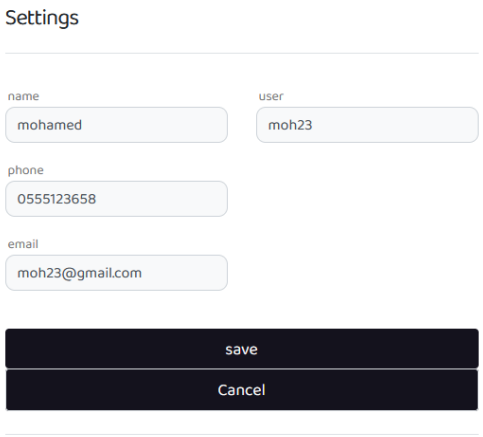
book this room

Figure 3.5: Room booking page

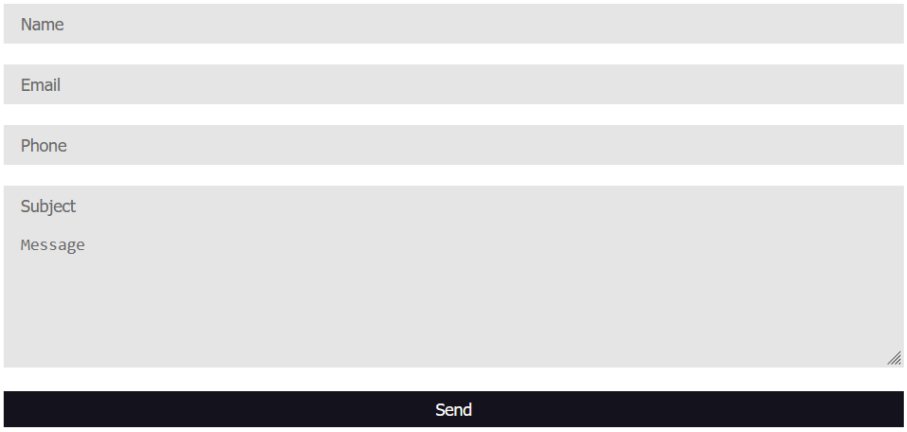
My bookings page: This page allows the user to view the list of bookings and confirm or cancel reservations:



Settings page: It is a page that allows the user to modify their information:



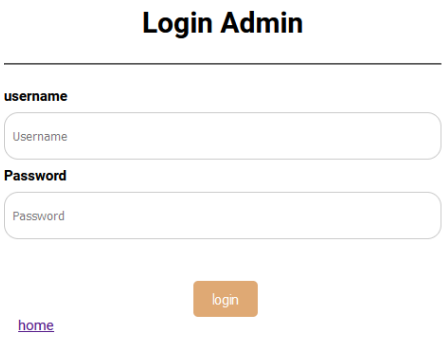
Contact page: Allows the user to get in touch with the website:



3.4.3- Administrator pages:

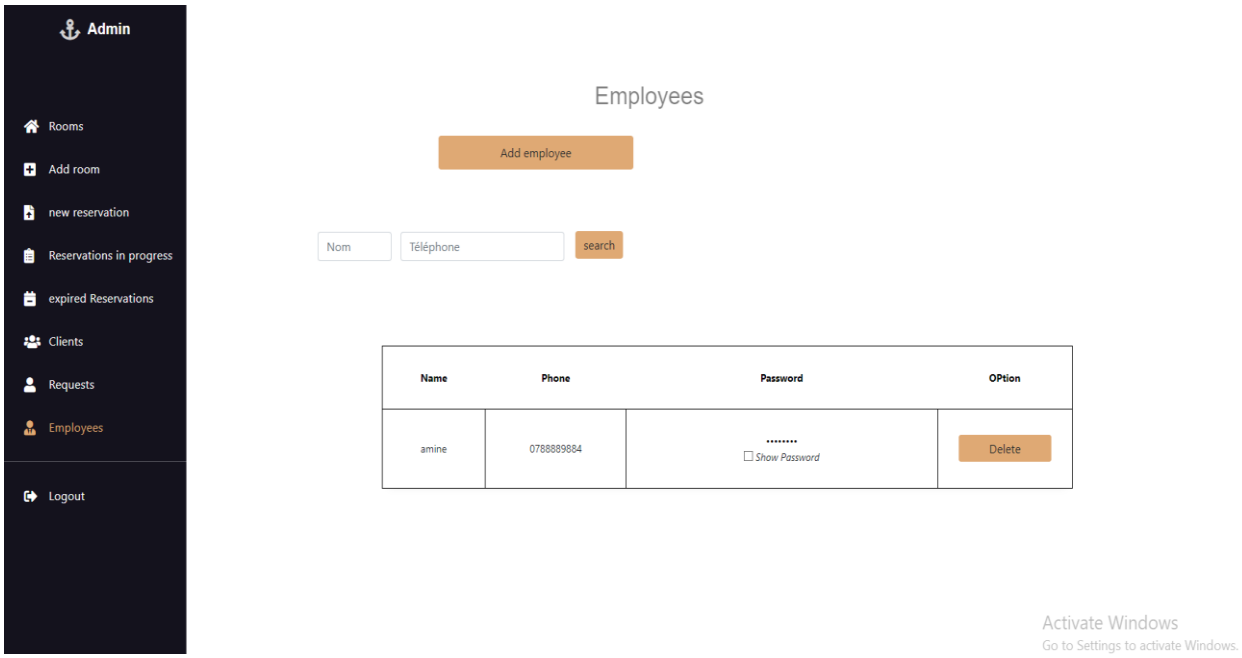
To access the administrator section, you need to copy the link into your browser: localhost/site/admin

- Login page: You must enter your username as "admin" and the password as "admin":

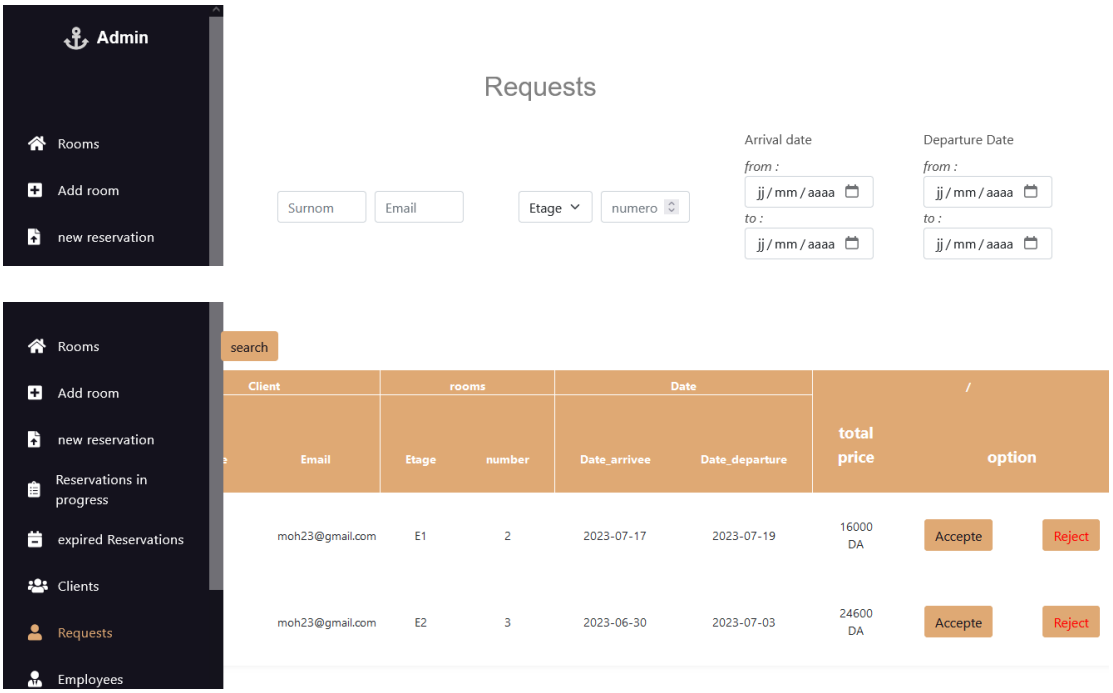


The administrator's service pages:

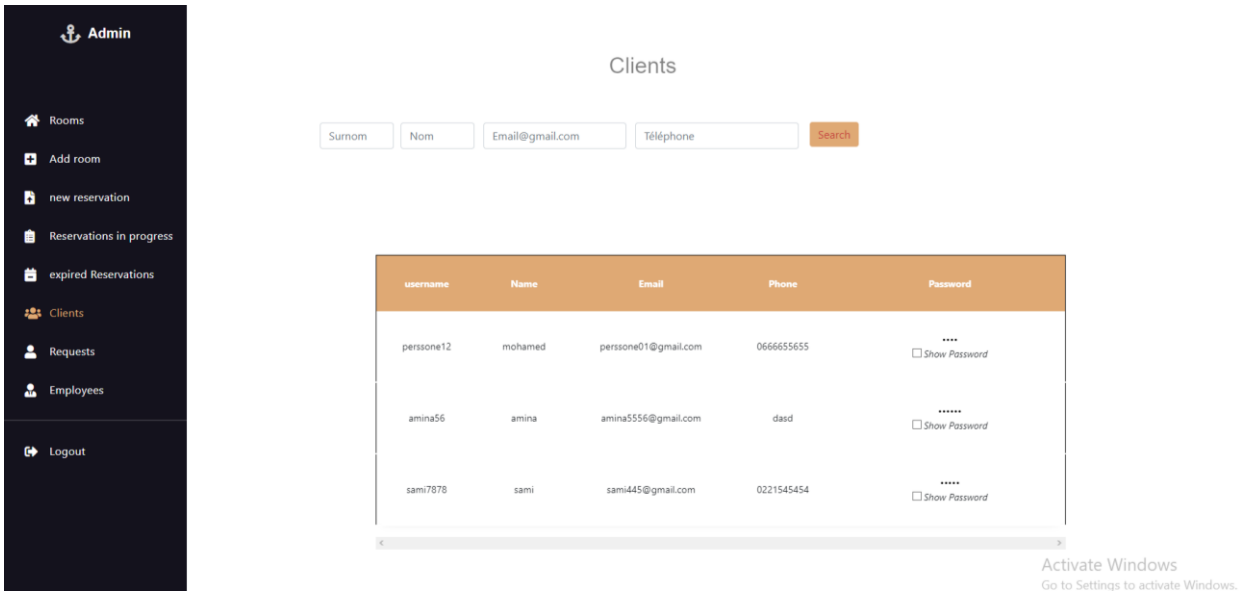
-Employee page: Add, delete, search, or view the list of employees :



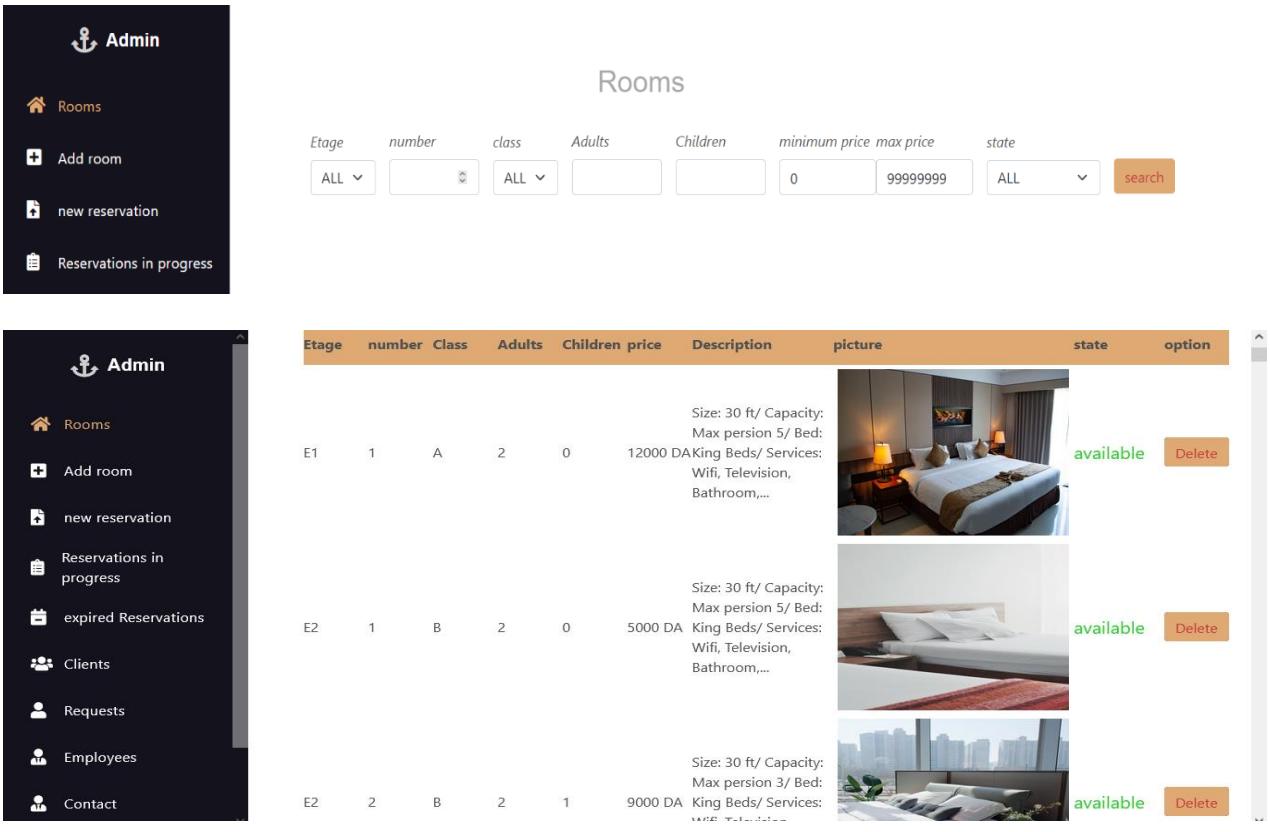
- Request page: Displays the list of requests and the ability to search for and select them :



Client page: Displays the list of clients and the ability to search for them and select them. :

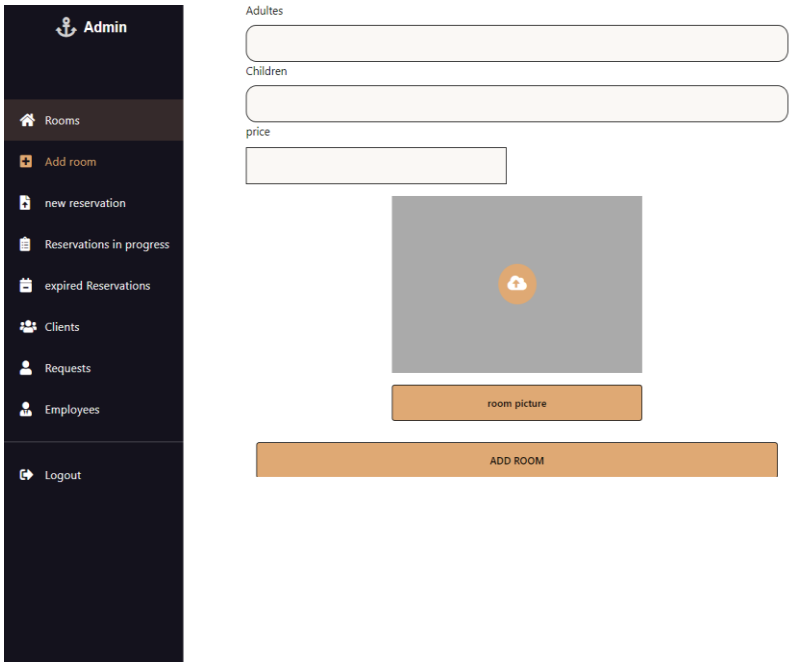


Room Page: Displays the list of rooms on our dynamic website and provides the option to search and select them :



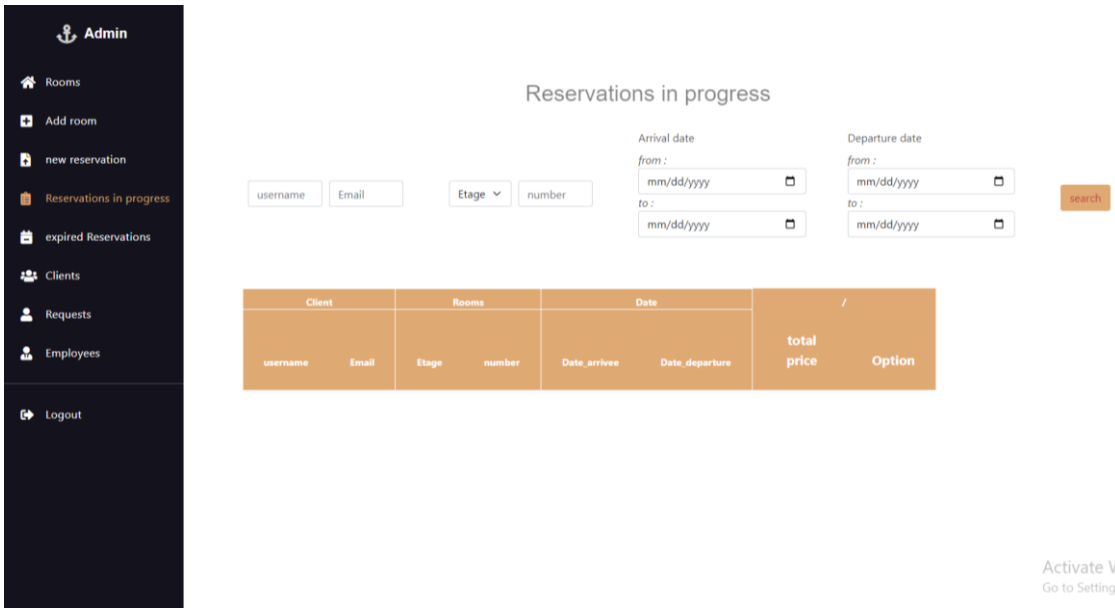
Page for adding a room:

Only the administrator can add a room and specify its specifications :



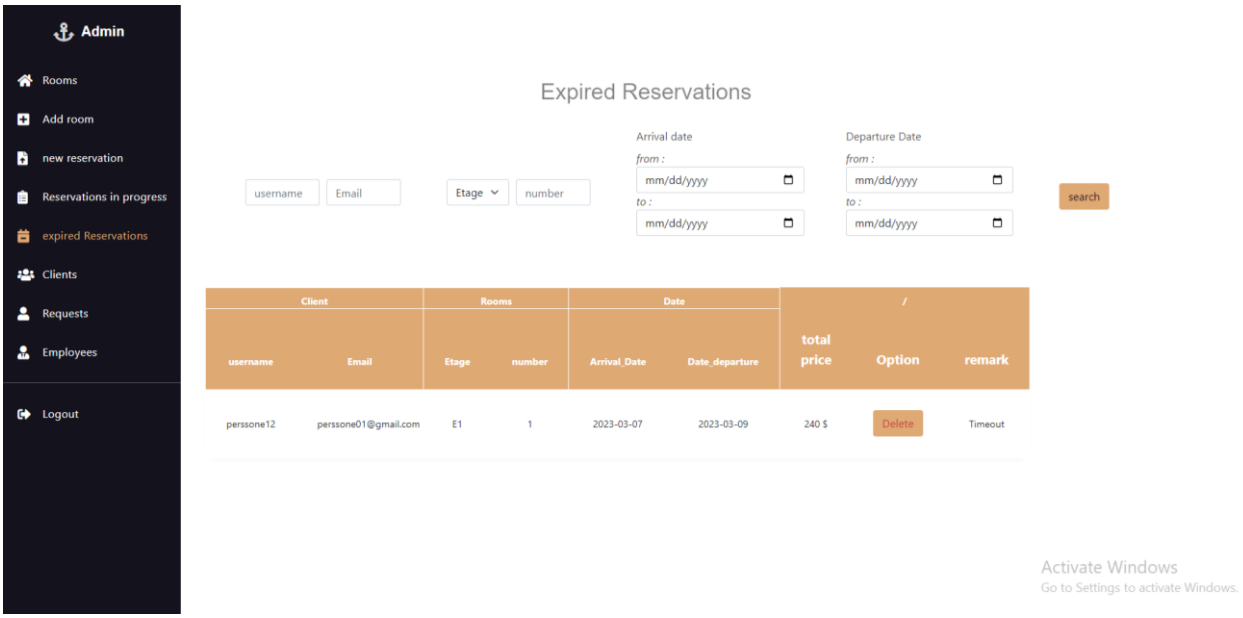
Reservations page in progress:

Displays ongoing reservations and allows searching for them :



Expired reservations page:

Displays expired reservations and allows searching for them :



3.5. Conclusion:

In this section, we have seen the development tools that our website relied on, along with some graphical interfaces and windows of this web application, in order to provide an overview of our work on "hotel reservation management".

GENERAL CONCLUSION

Computer science shows us its usefulness in the everyday life of citizens and businesses. It is with this perspective in mind that our end-of-cycle project fits. We have developed a web application that will allow users to book hotel rooms without the need to travel, enabling them to fully enjoy their trip.

Furthermore, this work has allowed us to gain personal and professional experience. It has been highly beneficial to us as we had the opportunity to deepen our theoretical and practical knowledge in the field of web development and databases. We gained experience in design using the UML language and acquired extensive knowledge of programming languages such as HTML, PHP, and JavaScript. Additionally, we discovered a range of software tools that facilitate software development, such as the MySQL database management system.

Even though the platform is functional, some improvements can be made to enhance its quality. For example, we can mention: creating an interface to handle the statistics aspect, generating invoices for reservations, etc.

We hope that this work will be a beneficial source of inspiration for future students who will address this kind of topic in their computer project management.

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Abstract

This thesis that we presented in order to obtain a master's degree focuses on the design and development of a web application for hotel reservation management. To implement the specified requirements, we turned to modeling, which happens to be a key step in any successful project. We used the graphical formalism proposed by UML, which is a language based on object-oriented principles. Guided by the Unified Process (UP) methodology, we managed to create a sound design that facilitated the development of our application.

Regarding the implementation, we used programming languages such as PHP, HTML, CSS, and JavaScript. These tools, known for their undeniable performance, allowed us to build a web application capable of meeting user requirements.

Keywords: Web application, UML, UP, PHP, HTML, JavaScript, SQL, MySQL, DBMS.

ملخـــص

تتمحور هذه الأطروحة التي قدمناها من أجل الحصول على درجة الماجستير حول تصميم وتنفيذ تطبيق ويب لإدارة حجوزات الفنادق. لتنفيذ المتطلبات المحددة سابقًا، توجهنا نحو النمذجة التي تعد خطوة رئيسية في أي عمل ناجح. استخدمنا الصيغة الرسومية المقترحة بواسطةUML ، وهو لغة تعتمد على المفاهيم الموجهة نحو الكائنات. مستوحاة من عمليةUP ، تمكنا من إنشاء تصميم جيد سهل علينا تنفيذ تطبيقنا.

فيما يتعلق بالتنفيذ، استخدمنا لغات برمجة مثل PHP و HTML و CSS و .JavaScript هذه الأدوات التي تتميز بأدائها اللافت للنظر، سمحت لنا بتنفيذ تطبيق ويب قادر على تلبية متطلبات المستخدمي

الكلمات المفتاحية: تطبيق ويب، DBMS, MySQL, SQL, JavaScript, HTML, PHP, UP, UML