K L HYDERABAD

FRESHMAN ENGINEERING DEPARTMENT

A Project Based Lab Report

On

HOTEL RESERVATION WEB APPLICATION

SUBMITTED BY:

I.D NUMBER	NAME
2110030054	Vaishnavi
2110030164	Sagar
2110030214	Sri Harsha
2110030351	Manasa

UNDER THE ESTEEMED GUIDANCE OF

Anuradha Nandula

KONERU LAKSHMAIAH EDUCATION FOUNDATION

(Deemed to be University)
Moinabad Road, Aziz Nagar, Hyderabad - 500075

DEPARTMENT OF BASIC ENGINEERING SCIENCES

CERTIFICATE

This is to certify that the project based laboratory report entitled "STUDENT PORTFOLIO USING CRUD OPERATIONS" submitted to the **Department of Basic Engineering Sciences, KL University** in partial fulfillment of the requirements for the completion of a project in "MERN (MongoDB Express React Node.js – 21TS2202AH)" course in II B Tech II Semester, is a bonafide record of the work carried out by him/her under my supervision during the academic year 2020-21.

PROJECT SUPERVISOR

Anuradha Nandula

HEAD OF THE DEPARTMENT

Dr. Arpitha Guptha

ACKNOWLEDGEMENTS

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1.INTRODUCTION

A student portfolio project using CRUD operations is a web application that enables students to create and maintain their academic portfolios. CRUD is data-oriented and the standardized use of HTTP methods.

The application allows users to create, read, update and delete records in a database through the user interface. The project can be developed using a web development framework and can be divided into modules such as user authentication, portfolio creation, academic records management, project management, and certification management.

The project can be extended to include additional features like a search functionality and integration with social media platforms. This provides students with an opportunity to showcase their achievements and develop their web development skills.

1.1PROJECT TITLE

- HOTEL RESERVATION

1.1. DEFINITION

A hotel booking system is software that allows a hotel to make reservations independently through its website. This means there doesn’t need to be middlemen clipping the ticket, making it a game-changer for hoteliers and travellers alike.

A hotel booking system is a software application that helps hotels manage their reservations, guest data, and room availability. Many hotel booking systems offer online booking capabilities, which allow guests to book rooms directly through the system. Hotel booking systems can also help hotels track their occupancy rates and revenue, as well as manage their housekeeping and other operations.Types

1.2. ADVANTAGES

Online Hotel Booking System Is Time-Saving.

It is clear that it takes a lot of time to handle phone calls of potential clients looking to book a hotel room.

Online Hotel Booking Systems Ease The Reservation Process.

If you are up-to-date with travel and hospitality trends, you already know the customers don't find you through a business phone book. Neither do they look for information about your services and products if you give them a directory.

Online Hotel Booking System Increases Revenue

Generally, unless you have multiple phone lines, only a single caller can make a reservation at a time. This process needs more staff and can result in a loss of revenue and lead to a sub-par customer experience.

Online Hotel Booking System Increases Marketing Synergy And Sales

Our website is more about the information on your property and less about the contact information for the property location. It includes the reviews left by the guests who stayed at your hotels and the amenities you provide the guests.

Online Hotel Booking System And Upselling

In this time of internet first, you will find extreme competition between properties. How would you make your services stand out by reducing prices? Although it is accurate that the winner of the pricing race attracts the maximum number of guests.

1.3. CHALLENGES

The online booking Industry constantly exploring new opportunities to evolve. With the evolution of online booking engines, it becomes crucial to standardize the online booking process. Here are some challenges faced :

1. Single Platform Multiple Booking Types

If you are willing to sell multiple types of products or services on your store then, you definitely require an option to select the booking type as per your business requirement.

2. Slot Management: Close Bookings

What if you are planning a vacation & want to prevent bookings on specific days? If this is the case, you definitely require a system that lets you close certain dates to avoid bookings on those dates.

3. Booking Cancellation Option for Customers

It’s always been challenging to manage online booking cancellations.

If you provide the booking cancellation option to customers, you will frequently receive tons of booking cancellation requests from the customers that are too complex to manage.

4. Price Per Booking: Time Slot Management

It’s quite complex to manually set up a different price for each booking slot. In order to have a flexible price for each booking, your online booking system should be capable enough to show a different slot price of the same booking product on different dates.

5. Manage Bookings via Calendar

Once your online booking business glows at a higher pace, it’s become quite complex to manage tons of bookings.

6. Streamline Online Booking Process

Don’t let your buyers confused once they visit your website to schedule appointments online. This is ultimately a real-time interaction between you & your buyers who visit your website to book the products or services.

7. Handle Customer Complaints

If you are in an eCommerce business, you have to deal with customer complaints. Your customer may have a bad experience with your service but the main challenge is to handle such situations with grace.

2.MERN Stack

MERN stack is a popular web development technology stack that includes four key components: MongoDB, Express.js, React.js, and Node.js. It is a full-stack framework that provides developers with the tools and flexibility to build scalable and dynamic web applications.

MongoDB is a NoSQL database that stores data in JSON-like documents, Express.js is a server-side web framework for Node.js, React.js is a front-end library for building user interfaces, and Node.js is a server-side JavaScript runtime environment. Together, these technologies allow developers to build fast, efficient, and robust web applications.

In summary, MERN stack is a powerful and versatile web development framework that allows developers to build scalable and dynamic web applications using modern web technologies and a modular architecture.

2.1. JavaScript

JavaScript is a programming language that is commonly used for creating dynamic and interactive web pages. It was first introduced in 1995 and has since become one of the most popular languages on the web. JavaScript can be used for a wide range of tasks, from adding simple interactivity to web pages to creating complex applications.

One of the main features of JavaScript is its ability to manipulate the Document Object Model (DOM) of a web page. This allows developers to add, remove, or modify content on a web page in real time. JavaScript can also be used for form validation, creating animations, and communicating with web servers through APIs.

JavaScript can be embedded directly into HTML pages or included as a separate file. It can also be used on both the client-side (in a web browser) and the server-side (in a web server). Popular JavaScript frameworks and libraries include React, Angular, and jQuery, which can help simplify and speed up the development process.

2.2. NodeJS

Node.js is an open-source, cross-platform, server-side runtime environment that allows developers to run JavaScript code outside of a web browser. It was initially released in 2009 and has since gained popularity for its ability to create high-performance, scalable, and real-time web applications.

Node.js uses an event-driven, non-blocking I/O model that allows for fast and efficient processing of data. This means that Node.js can handle a large number of connections with minimal overhead, making it an ideal choice for applications that require real-time interaction between users.

Node.js is built on top of the V8 JavaScript engine, which is also used by the Google Chrome web browser. It provides a rich set of built-in modules and a large ecosystem of third-party modules and packages, which can be easily installed and used through Node Package Manager (NPM).

Node.js can be used to create a wide range of applications, including web servers, APIs, chat applications, real-time collaborative tools, and command-line tools. It is a versatile platform that allows developers to write both the client-side and server-side code in the same language, making it easier to maintain and scale applications.

2.3. Express.js

Express.js is a popular web application framework for Node.js. It is a lightweight, fast, and minimalist framework that provides a set of features for building web applications and APIs. Express.js is based on the middleware concept, which allows developers to add functionality to their applications by chaining together a series of middleware functions.

Express.js provides a range of features for handling HTTP requests and responses, including routing, templating, and error handling. It also supports a range of middleware functions, such as authentication, logging, and compression, which can be easily integrated into an application.

Express.js is highly flexible and customizable, allowing developers to create applications of any size and complexity. It also provides a rich ecosystem of third-party modules and plugins that can be easily integrated into an application using the Node Package Manager (NPM).

Express.js is widely used in industry and is a popular choice for building web applications and APIs due to its simplicity,

2.4. MongoDB

MongoDB is a popular, open-source NoSQL database management system that is designed for storing and retrieving large volumes of data. It was first released in 2009 and has since become a popular choice for building scalable and flexible web applications.

MongoDB uses a document-oriented data model, which means that data is stored as documents, rather than in tables and rows like traditional relational databases. This makes it easier to store and query complex data structures and allows for more flexibility in data modeling.

MongoDB is highly scalable and can handle large volumes of data with ease. It also provides a range of features for data replication and sharding, which allows for high availability and fault tolerance.

MongoDB has a rich set of APIs and a flexible query language, which makes it easy to integrate with other applications and tools. It also has a large ecosystem of third-party tools and libraries, which can be easily integrated using the MongoDB driver or through popular frameworks like Node.js and Django.

Overall, MongoDB is a powerful and flexible database management system that is well-suited for building large-scale, data-intensive applications.

2.5. ReactJS

React.js is a popular JavaScript library for building user interfaces. It was first introduced by Facebook in 2011 and has since become one of the most widely used libraries for building web applications.

React.js allows developers to create reusable UI components, which can be easily combined to build complex and dynamic user interfaces. It uses a declarative approach to programming, which means that developers describe how an interface should look and behave, and React.js takes care of the underlying logic.

React.js also provides a virtual DOM, which is a lightweight representation of the actual DOM. This allows React.js to efficiently update and render UI components without having to update the entire page.

React.js can be used with other technologies like Redux and GraphQL to build scalable and maintainable web applications. It also has a large ecosystem of third-party libraries and tools, which makes it easy to integrate with other technologies and frameworks.

Overall, React.js is a powerful and flexible library for building dynamic user interfaces. Its declarative approach, virtual DOM, and component-based architecture make it well-suited for building large-scale, data-driven web applications.

3.5.1.Virtual-DOM

The Virtual DOM (Document Object Model) is a programming concept used in web development. It is a lightweight representation of the actual DOM that is created and managed by libraries like React.js.

When changes are made to the user interface, the virtual DOM is updated first, and then compared with the actual DOM to identify the changes. This allows for efficient updates and rendering of UI components, without having to update the entire page.

3.5.2.Component

In web development, a component is a self-contained piece of code that can be reused across a web application. Components can be thought of as building blocks for creating user interfaces. They are typically designed to perform a specific function or display a specific piece of content, such as a button, form, or image.

Components can be used to create complex user interfaces by combining multiple components together. They can also be easily reused across multiple pages or applications.

3.5.3.Props and State

In React.js, props and state are two important concepts that are used to manage the behavior and appearance of UI components.

Props are short for "properties" and are used to pass data from one component to another. They are read-only and are typically used to configure a component or pass down data from a parent component to a child component.

State, on the other hand, represents the internal state of a component. It is mutable and can be changed by the component itself. State is typically used to manage user input, handle component interactions, and trigger re-renders of the UI.

Changes to props or state can trigger a re-render of a component or its child components, which updates the appearance of the user interface.

Overall, props and state are powerful concepts in React.js that enable developers to build dynamic and interactive user

3.5.4. Props and Cons of ReactJS

Pros of React.js:

- Reusability: React.js components can be easily reused across different parts of an application, which helps to reduce development time and improve consistency.

- Virtual DOM: React.js uses a virtual DOM, which allows for efficient updates and rendering of UI components, resulting in faster and more efficient web applications.

- Declarative programming: React.js uses a declarative approach to programming, which makes it easier to reason about and maintain code.

- Large community and ecosystem: React.js has a large and active community of developers, which has resulted in a vast ecosystem of third-party libraries, tools, and resources.

- Server-side rendering: React.js supports server-side rendering, which can improve performance and SEO for web applications.

Cons of React.js:

- Learning curve: React.js has a steep learning curve, particularly for developers who are new to JavaScript or web development.

- JSX: React.js uses JSX, which can be challenging for developers who are used to working with traditional HTML and CSS.

3.6. MERN Stack in Website Development

The MERN stack is a web development framework that consists of four main technologies: MongoDB, Express.js, React.js, and Node.js. Together, these technologies enable developers to build robust, scalable, and maintainable web applications.

MongoDB is a NoSQL database that is used to store and manage data. It provides flexibility, scalability, and performance for web applications.

Express.js is a web application framework for Node.js that provides a set of tools and features for building web applications, including routing, middleware, and database integration.

React.js is a JavaScript library for building user interfaces. It enables developers to create reusable UI components that can be easily combined to build complex and dynamic user interfaces.

Node.js is a JavaScript runtime environment that allows developers to run JavaScript code outside of a web browser. It is used to build scalable and high-performance server-side applications.

Together, the MERN stack provides a powerful and flexible framework for building modern web applications. It is particularly well-suited for building large-scale, data-driven applications that require real-time updates and responsive user interfaces.

3.6.1. Concept of Stack technology

In computer science, a stack is a data structure that follows the Last-In-First-Out (LIFO) principle, where the last element added to the stack is the first one to be removed.

Stack technology refers to a set of technologies that are built on top of one another, with each layer providing a specific function or service. The term "stack" refers to the concept of a stack data structure, where each layer is added on top of the previous one.

In web development, a stack typically refers to a set of technologies and tools used to build web applications.

3.6.2. Concept of MERN Stack

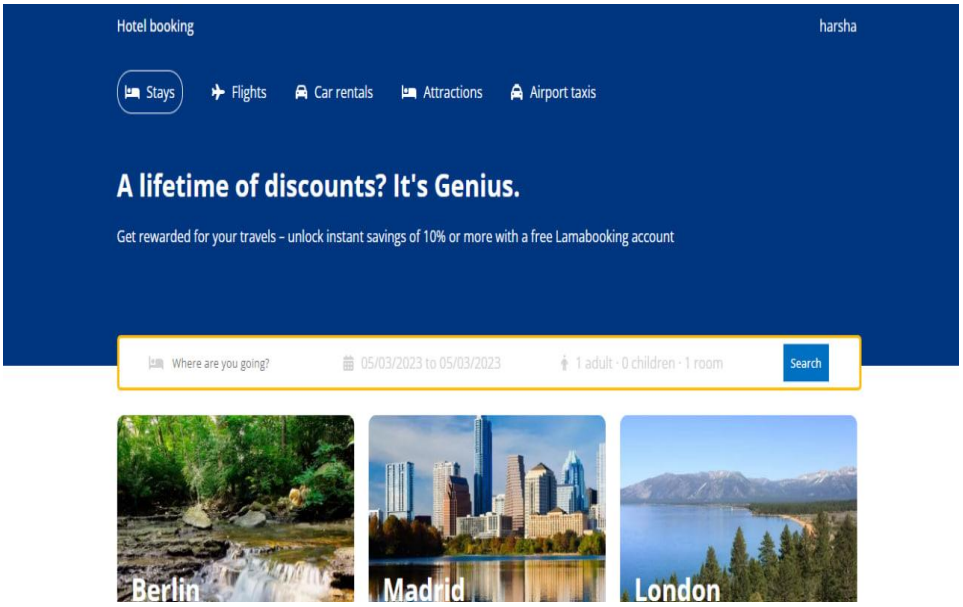
The MERN stack is a web development stack that consists of four technologies: MongoDB, Express.js, React.js, and Node.js. Together, these technologies enable developers to build scalable and maintainable web applications. MongoDB is a NoSQL database that is used to store and manage data, while Express.js is a web application framework for Node.js that provides a set of tools and features for building web applications. React.js is a JavaScript library for building user interfaces, and Node.js is a JavaScript runtime environment that allows developers to run JavaScript code outside of a web browser. By combining these technologies, the MERN stack provides a powerful and flexible framework for building modern web applications.

3.6.3. Highlights in MERN Stack

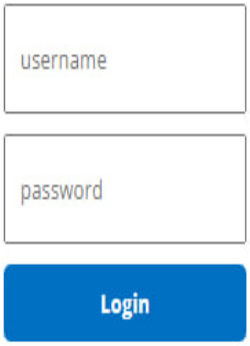
The MERN stack is a popular web development stack that includes MongoDB, Express.js, React.js, and Node.js. Here are some highlights of the MERN stack:

- Scalability: MERN stack allows developers to build scalable and maintainable web applications that can handle large amounts of traffic.
- Flexibility: With MongoDB, developers can easily change the database schema and add new fields without disrupting the existing application. This makes it easy to adapt to changing requirements.
- Real-time updates: With Node.js and React.js, developers can build real-time applications that update in real-time without having to reload the page.
- Reusability: React.js components are reusable and can be easily combined to create complex UIs, making development faster and more efficient

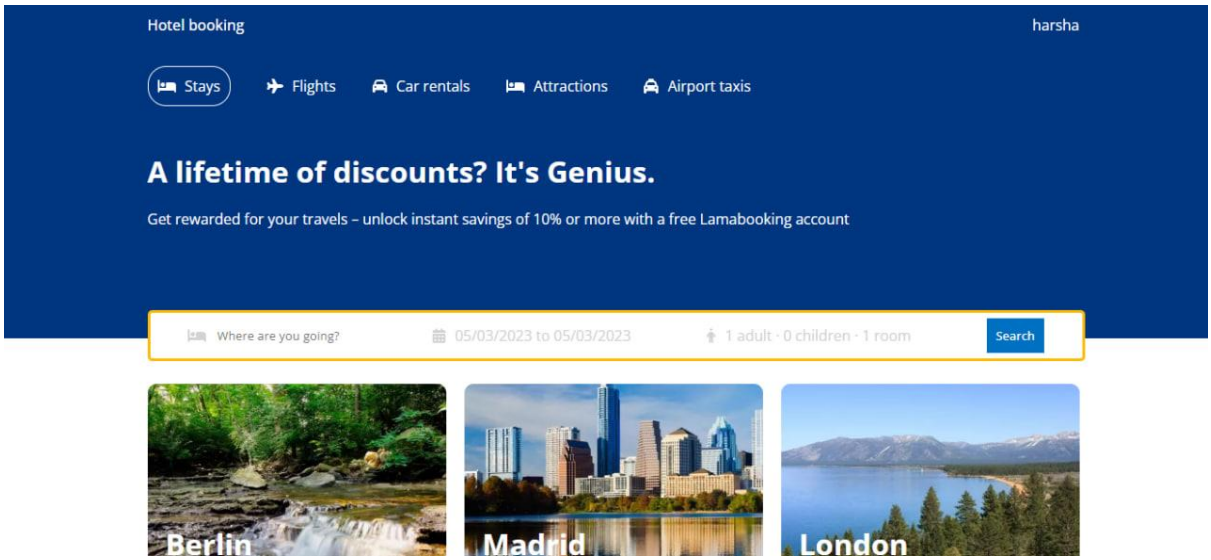
4. HOTEL RESERVATION

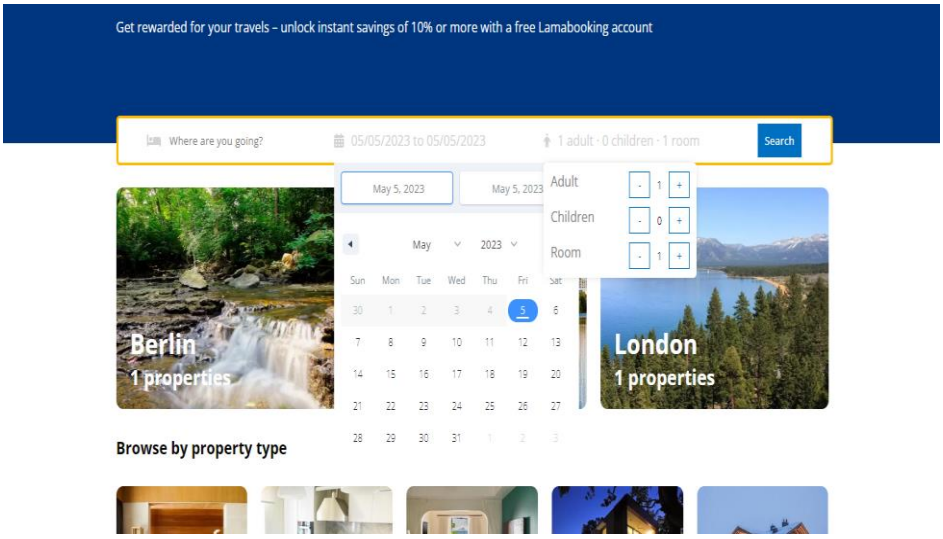


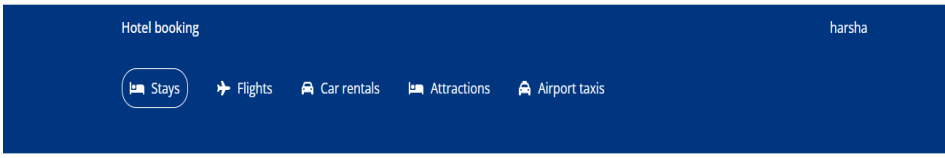
4.1. Login page



4.2. Home page







Hotel Jane 1

somewhere

Excellent location – 500m from center

Excellent location – 500m from center

Book a stay over $150 at this property and get a free airport taxi

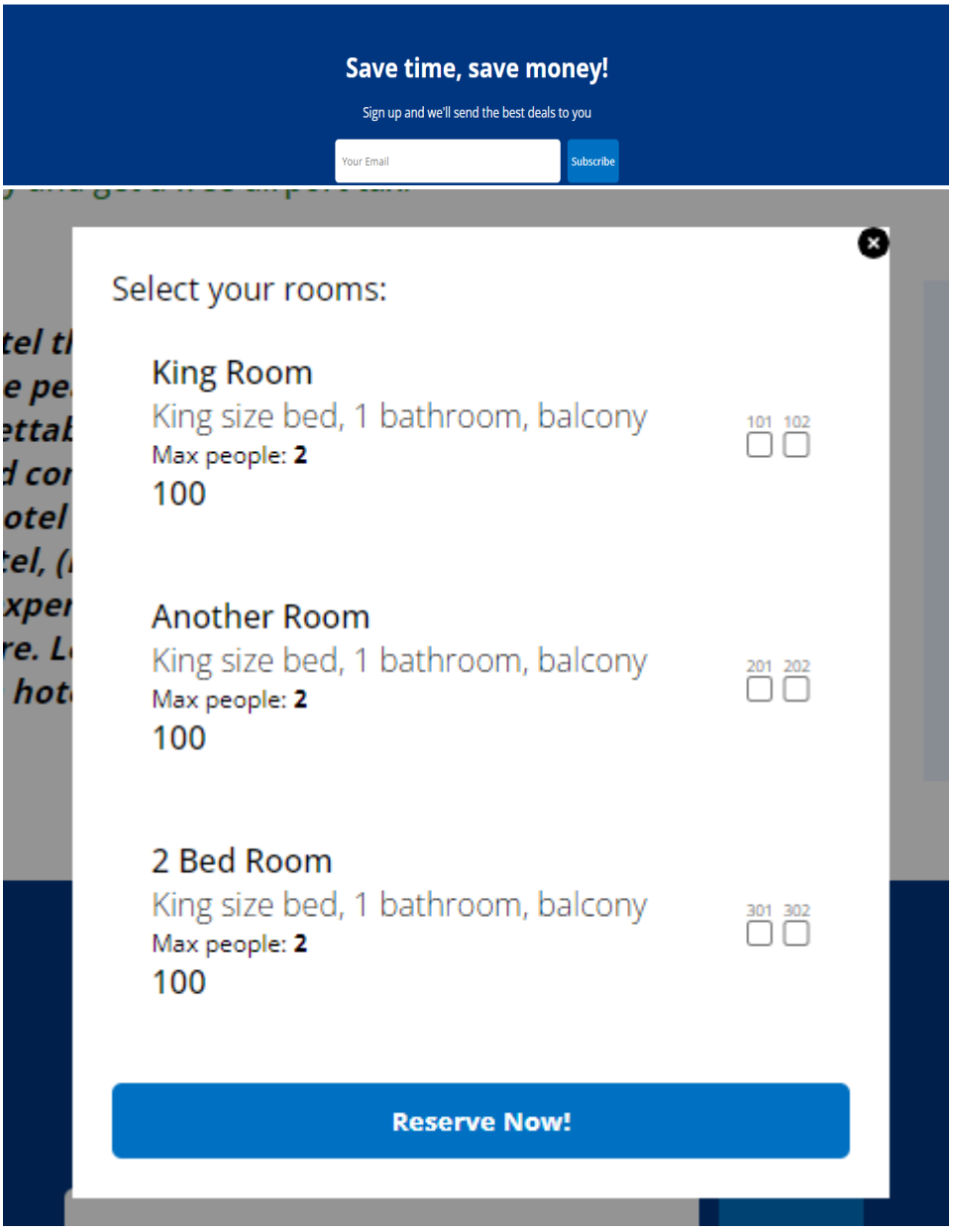
Hotel & Spa is a family-friendly hotel that offers a wide range of accommodation types, from rooms to suites. All this in the peaceful surroundings of our beautiful gardens, will make your time at (CN) an unforgettable holiday. (HN) offers you a privileged experience combining comfort and conviviality. Whether you are a backpacker, a solo traveler or with your family, our hotel with top-of-the-range service will meet all your expectations. More than just a hotel, (HN) offers you a place to live and meet people. The (HN) hotel offers a complete experience with common areas that allow you to meet new people in a unique atmosphere. Lounge area, Ping Pong table, table soccer, darts & Boiler room: we told you, it's not a hotel like the others, it's a sharing hotel.

Perfect for a 4-night stay!

Located in the real heart of Krakow, this property has an excellent location score of 9.8!

$600 (4 nights)

Reserve or Book Now!



5. SUMMARY

A reservation, therefore, is this bilateral contract between a hotel and a guest, according to which the hotel must provide the specified room type to the guest and the guest must agree to pay all relevant charges. This is also known as a contract of booking or a confirmation letter for the reservation.

6. REFERENCES

- The Full-Stack Developer, Author: Chris Northwood.
- Beginning MERN Stack: Build and Deploy a Full Stack MongoDB, Express, React, Node.js App by Greg Lim
- Pro MERN Stack: Full Stack Web App Development with Mongo, Express, React, and Node 2nd ed. Edition by Vasan Subramanian