

Multiple Restaurant Table Booking System

Dr S Prakash, Shanjai R, Muhil R, Naveen V

Information Technology, Sri Shakthi Institute of Engineering and Technology

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Abstract - In recent years, there has been a surge in the demand for dining out, resulting in extended waiting times and dissatisfied customers. To address this issue, a system has been developed for booking tables at various restaurants, simplifying the process for guests to search for available tables and make advance reservations. This solution aims to streamline the booking process, reduce wait times, and enhance customer satisfaction, benefiting both restaurants and customers. This work presents the design and implementation of a reservation request processing system, which includes a user-friendly interface, a reliable database, and efficient algorithms. Additionally, the technical challenges encountered during the software development are discussed along with the strategies employed to overcome them. Finally, the potential impact of this system on the restaurant industry is evaluated.

Key Words: restaurant booking, full stack

1. INTRODUCTION

With the upward push of food delivery services and the growing call for dining out, it has turned out to be an increasing number of difficulties to get a table at famous eating places, mainly at some stage in the top hours. Lengthy wait periods and irate customers are the results of this. To solve this problem, we created a device for several eating places so that visitors could quickly search for open tables and reserve them earlier. Our solution streamlines the booking procedure, cuts wait for instances and boosts purchaser pride, which advantages eating places and shoppers alike. In this essay, we will give a preferred evaluation of the device's additives, layout, and implementation, as well as any potential outcomes it'd have at the eating place business.

2. LITERATURE SURVEY

The software of generation inside the hospitality industry has changed the manner restaurants manage reservations and bookings. Several eating place booking systems have emerged in recent years, presenting purchasers with short and clean ways to reserve tables and businesses with green gear to manipulate their operations.

OpenTable, Resy, and TableUp are 3 of the most famous restaurant reservation structures. Resy can provide customized restaurant thoughts and records, while OpenTable is famous for its widespread community of restaurant companions. Clients may additionally touch eating places directly using TableUp's real-time availability feature and in-app messaging carrier.

Despite the benefits of these technologies, the world still has opportunities for innovation. Some prospective routes for exploration encompass touch with other technologies including voice assistants and chatbots, personalization of pointers and guidelines, and interacting with social media structures and influencers to boost participation.

Ordinary, eating place reservation structures have progressed both the consumer revel in and restaurant operational efficiency. The capacity for similar trends and discoveries on this concern is first-rate as generation develops.

3. SYSTEM DESIGN

The method for reserving tables at many restaurants is an internet-based totally application that hyperlinks customers with open tables at distinctive eating places. The machine is made from a number of parts, consisting of a server-facet program, a database, and a consumer interface.

The person interface is supposed to be easy and intuitive to apply. Customers may study a listing of open tables at every eating place and look for restaurants based totally on the availability, geographical area, or delicacies. Following that, they'll select a desk, imply the number of guests, and reserve the desk for a selected day and time. Moreover, customers may additionally edit their profiles, examine their reserving history, and put up critiques of restaurants.

The database consists of all of the essential details about the eating places, tables, and reservations. It comprises several tables, such as dining room, customer, reserving, and assessment tables. The restaurant desk includes information about every established order, which includes its name, address, menu, and available tables. Each purchaser's name, electronic mail address, and password are blanketed in the customer desk. The reservation desk includes info for every reservation, together with the customer id, eating place identity, desk id, and reservation date and time. The evaluation table consists of information about every review, including the restaurant identity, customer identity, and evaluation content material.

Incoming reserving requests are treated by the server-aspect program, which additionally updates the database as vital. While a client makes a reservation for a desk, the server-aspect program determines whether the table is available and, in that case, confirms the reservation. The program offers exchange days and times or unique eating places if the desk isn't to be had. Additionally, the program

refreshes the provision of tables in actual time and sends confirmation emails to clients and restaurant management.

The machine's usual aim is to provide clients with an easy and green way to make reservations at the same time as concurrently presenting businesses with an effective tool to manage their reservations. The device can be expanded without difficulty and scaled when extra restaurants and offerings are brought.

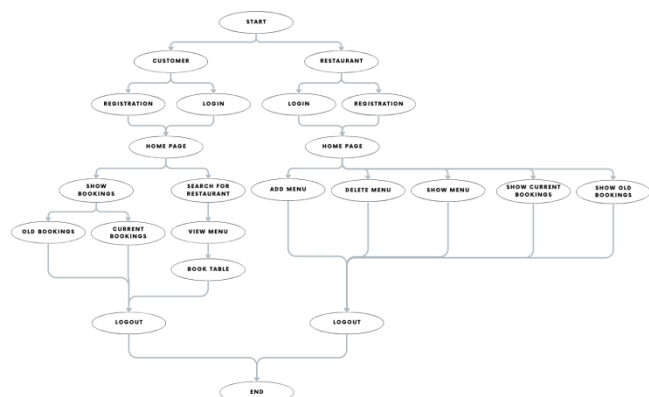


Fig 3.1 Use Case Diagram

4. USER INTERFACE

The consumer interface of our diverse eating place desk reserving machine is designed to be trustworthy and smooth to apply. A domestic web page, a search web page, a restaurant page, a booking web page, a client profile web page, and a review web page are all blanketed.

Customers may also enter a region, delicacies, or restaurant name into the home web page's search bar, which presents a welcome greeting. The quest web page presents a list of restaurants that fit the search standards, together with information on its area, cuisine, and rating. Clients may refine their seek effects based on distance, charge, rating, or availability.

The internet site of each eating place has targeted information about it, such as its name, area, delicacies, and to-be-had tables. Clients may additionally observe restaurant photographs, study different human reviews, and provide their evaluations. They may additionally view the menu, hours of operation, and phone facts approximately the commercial enterprise.

On the booking page, clients may reserve a table, indicate the variety of visitors, and pick out a day and time. Unique requests or nutritional regulations may be accommodated. The complete price of the reservation, which includes any discounts or incentives, is displayed on the website.

The patron profile page shows the client's name, email deal with, and reservation history. Customers may view and change their profile statistics, inclusive of their password or price records. They'll also see upcoming reservations, cancel or exchange current reservations, and provide evaluations for locations they've visited.

Customers may additionally get feedback on eating places they have visited on the evaluation web page. They'll charge the status quo one to 5 stars and write an in-depth overview. Other customers can see the evaluations because they're posted on the eating place's web page.

Usually, the person interface is meant to be simple, intuitive, and aesthetically appealing. Clients can without problems look for eating places, reserve tables, and control their bookings, even as institutions may additionally promote their offerings and interact with customers at the website online.

5. TECHNICAL IMPLEMENTATION

The technical implementation of our more than one restaurant table reservation system comprised an expansion of strategies together with database layout, front-end development, back-end improvement, and checking out.

5.1. DATABASE DESIGN

With the usage of MySQL as our database control system, we created a relational database with a couple of tables, including a restaurant desk, a consumer table, a booking table, and an evaluation desk. We used number one and overseas keys to attach the tables, and we designed the database schema to be scalable and adaptive.

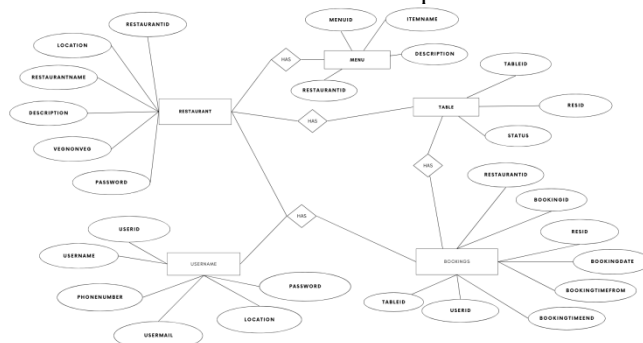


Fig 5.1 ER Diagram

5.2. FRONT-END DEVELOPMENT

With the usage of MySQL as our database control system, we created a relational database with a couple of tables, including a restaurant desk, a consumer table, a booking table, and an evaluation desk. We used number one and overseas keys to attach the tables, and we designed the database schema to be scalable and adaptive.

5.3. BACK-END DEVELOPMENT

We used PHP as our server-side programming language, and developed a RESTful API to handle incoming requests and responses. We used the Slim framework to create the API routes, and implemented CRUD operations for each table in the database. We also implemented authentication and authorization using JSON Web Tokens (JWT) to ensure the security of the system.

Ordinarily, the technical implementation of our gadget was a difficult process that comprised database layout, the front-cease programming, lower back-end development, and checking out. We used a ramification of equipment and

technologies to create a scalable, reliable, and comfortable machine that advantages customers as well as restaurants.

6. TESTING

We fastidiously evaluated our more than one eating place desk reserving system to make certain its sturdiness and value. We used an aggregate of computerized and guide testing methodologies, together with unit checking out, integration checking out, and user attractiveness testing.

6.1. UNIT TESTING

We used PHPUnit in our backend to create unit tests for each API direction. These checks had been written to make sure that every API route changed into operational and that the machine processed incoming requests and replies efficiently. We extensively utilized JavaScript trying out frameworks like Jest and Enzyme to create unit tests for our front-end additives.

6.2. INTEGRATION TESTING

We did integration trying out to make sure that our machine's many components were operating efficiently collectively. We used gear like Postman to validate that the API endpoints had been connecting to the database and the front-end as anticipated.

6.3. USER ACCEPTANCE TESTING (UAT)

We ran UAT with a group of beta testers to get comments and discover any flaws or issues. We gave the beta testers chores like looking for a restaurant, making a reservation, and writing an overview. We gathered comments from beta testers through questionnaires and interviews, which we then used to improve the device.

7. DEPLOYMENT

We located the machine into production when we had been happy with the consequences of our testing. We pick a cloud-primarily based hosting answer, consisting of Amazon web services (AWS) or Microsoft Azure, to host our machine. We designed the website hosting environment to be scalable and secure, and we used tools like Docker and Kubernetes to handle the deployment technique.

Normal, trying out and deploying a couple of eating place table reserving systems turned into important in making sure the system's dependability, functionality, and safety. Then used a mixture of automatic and human trying out strategies to hit upon and clear up mistakes and troubles, after which deployed the system to a manufacturing environment with the use of cloud-based hosting providers and containerization technologies.

8. OUTPUT

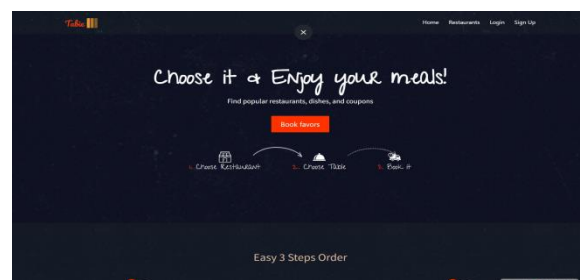


Fig 8.1 Home Page

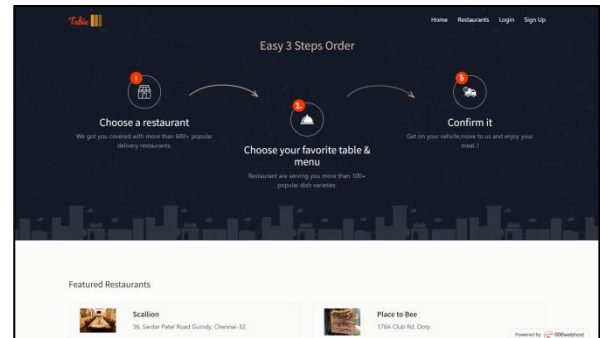


Fig 8.2 List Of Restaurant

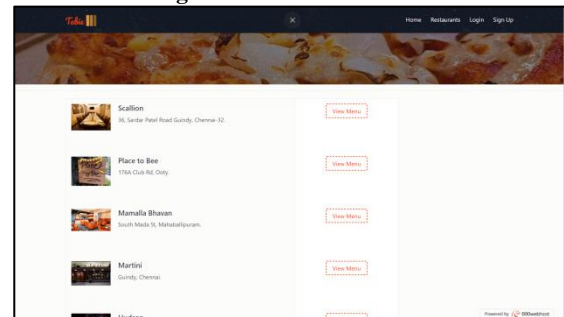


Fig 8.3 Restaurant Page

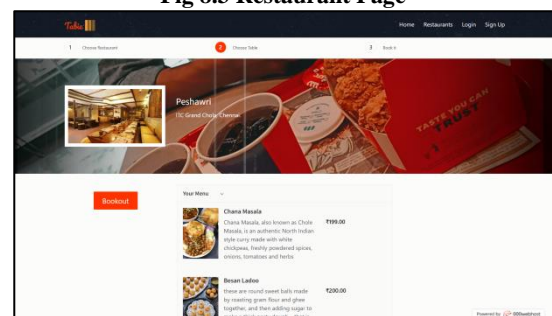


Fig 8.4 Menu Page

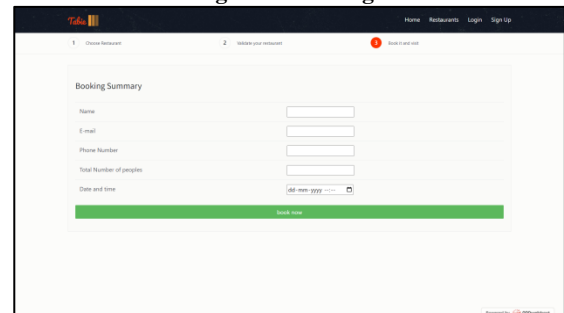


Fig 8.5 Book Table

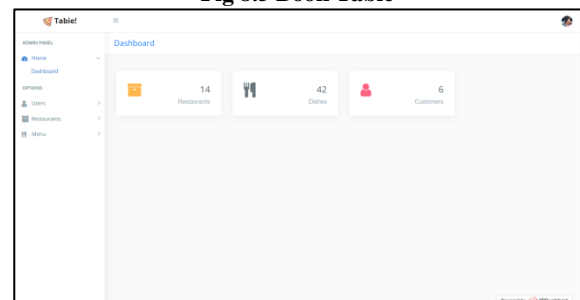
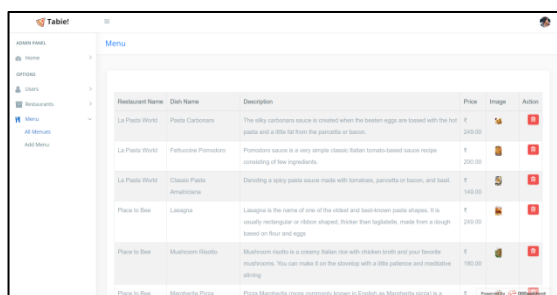
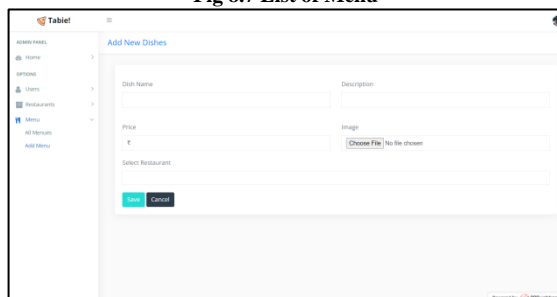


Fig 8.6 Admin Dashboard



Restaurant Name	Dish Name	Description	Price	Image	Action
La Pasta World	Pasta Carbonara	The silky carbonara sauce is created when the beaten eggs are tossed with the hot pasta and a little fat from the pancetta or bacon.	245.00		
La Pasta World	Pasta Pomodoro	Pomodoro sauce is a very simple classic Italian tomato-based sauce recipe consisting of few ingredients.	250.00		
La Pasta World	Classic Pasta Amalfitana	Drizzling a spicy pasta sauce made with tomatoes, pancetta or bacon, and basil.	140.00		
Pasta to Go	Lasagna	Lasagna is the name of one of the oldest and best-known pasta shapes. It is usually rectangular or square shaped, thicker than spaghetti, made from a dough based on flour and eggs.	240.00		
Pasta to Go	Mushroom Risotto	Mushroom risotto is a creamy Italian rice with chicken broth and your favorite mushrooms. You can make it on the stovetop with a little patience and meditative stirring.	190.00		

Fig 8.7 List of Menu

Fig 8.8 Add Restaurant

9. CONCLUSIONS

The availability of multiple restaurant table booking devices enables customers to easily find and secure seats at their preferred dining establishments. Additionally, these systems assist restaurants in managing reservations and improving customer service. Throughout the design and implementation of the system, several challenges were addressed, including database design, user interface design, security, and scalability. Extensive trials were conducted to ensure the system's reliability and performance, and it was deployed using cloud-based hosting providers and containerization technology.

It is believed that, on average, a multi-restaurant table booking system has the potential to significantly transform how customers make table reservations and how restaurants handle them. The system will be continuously refined and enhanced based on feedback received from customers and restaurant partners. Furthermore, additional features and capabilities will be explored to further enhance user satisfaction.

The project is expected to serve as an inspiration and guide for future developers and entrepreneurs who are interested in creating innovative restaurant solutions. Leveraging the power of technology and data, new opportunities can be created and service quality can be improved for both customers and businesses.

ACKNOWLEDGEMENT

The heading should be treated as a 3rd level heading and should not be assigned a number.

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