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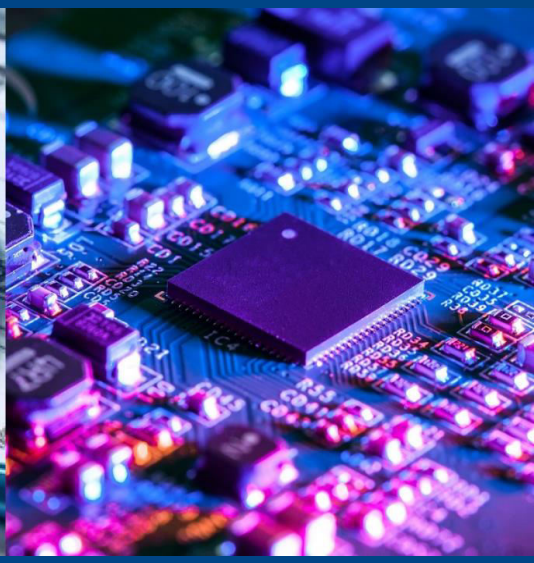

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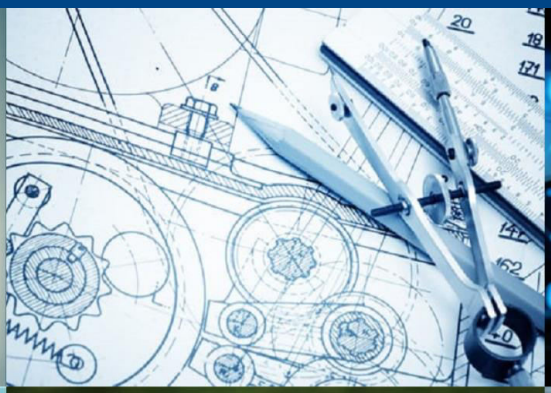

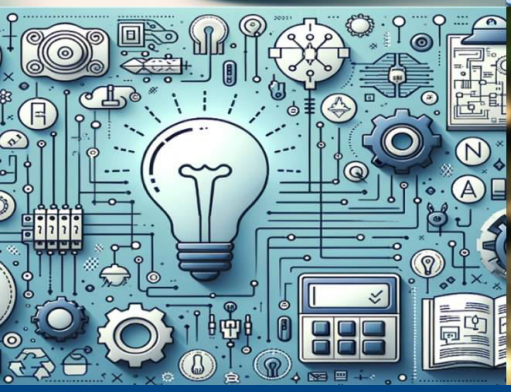

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Multi- Restaurant Table Reservation System

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ABSTRACT: The Multi-Restaurant Table Reservation System is a comprehensive digital platform that streamlines the table booking process for customers while enhancing operational efficiency for restaurant owners. It allows users to browse multiple restaurants, check real-time table availability, make reservations, modify or cancel bookings, and process secure payments through a single interface. The system integrates key features such as restaurant management, table allocation, automated notifications, and analytics, ensuring a seamless and user-friendly experience. Additionally, it helps restaurants optimize table occupancy, minimize overbooking, and improve customer satisfaction through real-time updates and data-driven insights

I. INTRODUCTION

The Multi-Restaurant Table Reservation System is designed to allow customers to easily make reservations at various restaurants through a single platform. It enables users to view available tables, select dining times, and book reservations in real-time. The system helps restaurant managers track and manage their bookings, reducing the chances of overbooking and ensuring better customer service. This system provides a seamless experience for customers and efficient management for restaurant owners, offering a centralized platform that supports multiple restaurants.

In the modern dining landscape. Convenience and efficiency have become paramount for both customers and restaurant operators.

OVERVIEW OF THE PROJECT

A Multi-Restaurant Table Reservation System is an advanced online platform designed to help customers book tables at various restaurants seamlessly. This system allows users to browse through a list of participating restaurants, view available time slots, make reservations, and even modify or cancel bookings, all from a single interface.

DESCRIPTION OF MODULES

1. Restaurant Management Module
2. Reservation Management Module
3. Table Management Module
4. Customer Management Module
5. Payment Gateway Module

SYSTEM SPECIFICATION

Functional Requirements

1. User registration and login
2. Restaurant registration and management
3. Table management (add, remove, modify)

Non-Functional Requirements

1. Performance: respond within 2 seconds, handle 100 concurrent users
2. Security: HTTPS encryption, secure password storage, role-based access control
3. Usability: intuitive interface, clear instructions and feedback

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HARDWARE CONFIGURATION

Server Requirements: CPU: Dual-core or higher
RAM: Minimum 2 GB (for small-scale use)
Storage: 10 GB free disk space (for database and website files)
Network: Stable internet connection for hosting the platform and customer access User Device
Requirements: Desktop or mobile device with internet access Recommended
browser: Latest versions of Chrome, Firefox, or Safari

SOFTWARE CONFIGURATION

Web Server: Apache/Nginx
Database: MySQL
PHP Version: PHP 7.x or higher
Browser: Chrome, Firefox, or Safari for front-end access Development
Operating System: Windows/Linux/Mac OS

SOFTWARE FEATURES

User Features

Account Creation & Management: Allow users to create accounts, log in and manage their profile details (e.g., name, preferences, contact info).

Search Restaurants: Search for available restaurants based on location, cuisine, ratings, and more.

Real-Time Table Availability: View real-time availability of tables in multiple restaurants.

Restaurant Features

Restaurant Profile Management: Manage restaurant details, including menu, images, location, and business hours.

Table Management: Set up table configurations (e.g., number of seats, availability) and manage them in real-time.

Booking Management: Approve, modify, or cancel reservations.

II. SYSTEM STUDY

EXISTING SYSTEM

Manual Booking: Most restaurants still rely on manual bookings over the phone or in person, causing errors and double bookings.
Limited Reach: Customers may not have a centralized platform to check availability across multiple restaurants.
Inefficiency: No real-time table updates, leading to overbooking and customer dissatisfaction.
Lack of Integration: Current systems do not allow integration across various restaurants in one place.

PROPOSED SYSTEM

Centralized Platform: A web-based system where users can browse available tables across various restaurants.
Real-Time Availability: The system will show real-time availability and allow customers to book tables.
User Profiles: Customers can create accounts to manage reservations, view history, and get reminders.

SYSTEM DESIGN AND DEVELOPMENT

Input Design

User Inputs:

- Personal Details: Name, email, phone number, and payment details.
- Reservation Request: Date, time, number of people, restaurant selection, and any special requests.

Restaurant Inputs:

- Restaurant Details: Name, location, type of cuisine, business hours, and menu.
- Table Configuration: Table types, seating capacity, and available slots.

Output Design

For Users:

- Confirmation Details: Reservation confirmation with the restaurant name, date, time, and table details.

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- Real-Time Table Availability: Shows available slots across multiple restaurants.

For Restaurants:

- Reservation Summary: A daily/weekly schedule showing confirmed bookings, cancellations, and special requests.
- Booking History: Past reservations with customer details and feedback.

III. DATABASE DESIGN

Users Table:

user_id	(Primary Key)
Name	(varchar(100))
Email	(varchar(255))
phone_number	(varchar(20))
Password	(varchar(255))

Restaurants Table:

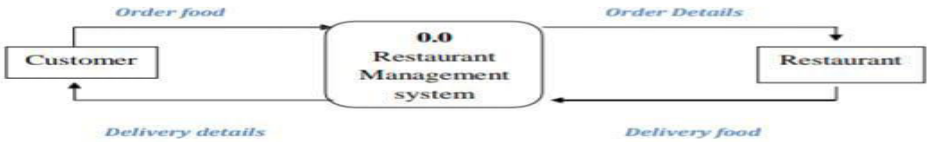
restaurant_id	(Primary Key)
Name	(varchar(255))
Location	(varchar(100))
Menu_items	(varchar(255))
menu_items price	(varchar(10,2))

Tables Table:

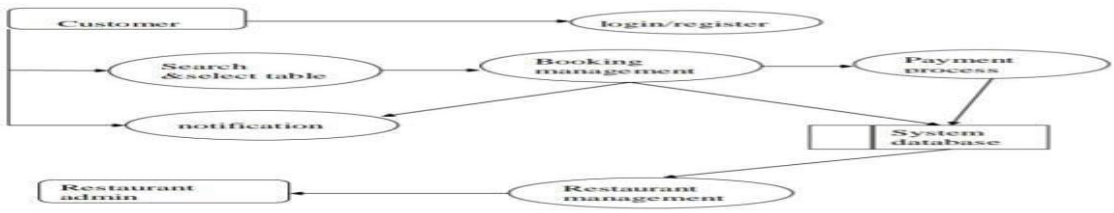
table_id	(Primary Key)
restaurant_id	(Foreign Key)
Table size	(int)
table_type (e.g., regular, VIP)	(varchar(100))

Data Flow Diagram (DFD)

Level 0



Level 1



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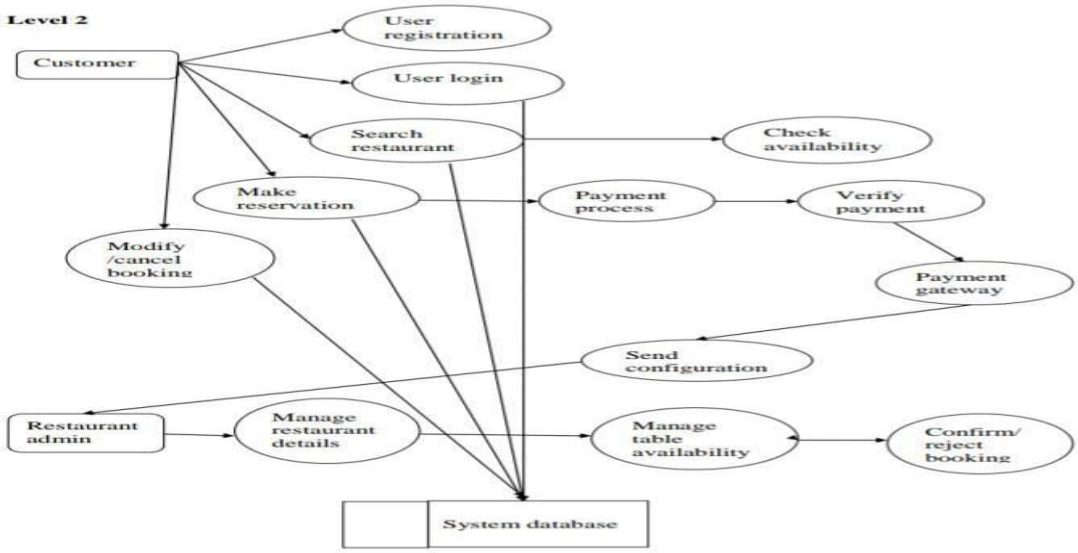

Table Structure (Sample)

Restaurants Table

Column Name	Data Type	Description
restaurant_id	INT (Primary Key)	Unique identifier for the restaurant
Name	VARCHAR(255)	Name of the restaurant
Address	VARCHAR(255)	Restaurant address
phone_number	VARCHAR(20)	Restaurant phone number
Email	VARCHAR(100)	Restaurant email address
opening_hours	VARCHAR(255)	Working hours of the restaurant

Tables Table

Column Name	Data Type	Description
table_id	INT (Primary Key)	Unique identifier for the table
restaurant_id	INT (Foreign Key)	Reference to the restaurant
table_number	INT	Table number in the restaurant
seats_count	INT	Number of seats in the table
is_available	BOOLEAN	Availability status of the table

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IV. SYSTEM TESTING AND IMPLEMENTATION

SYSTEM TESTING:

Unit Testing: Individual components (e.g., booking, payment, user authentication) were tested for correctness.

Integration Testing: Ensured that multiple modules (like restaurant management, customer reservation, and payment) work together smoothly.

System Testing: The entire system was tested to verify it meets all the project specifications and user needs.

SYSTEM IMPLEMENTATION

System Setup: Installing the necessary hardware and software on the server or cloud platform, including databases and backend services.

Database Configuration: Setting up the database to store restaurant details, reservation data, user profiles, and payment transactions.

Deployment of User Interface: Making the website or mobile app available to users, ensuring it's accessible and responsive.

SCOPE FOR FUTURE ENHANCEMENT

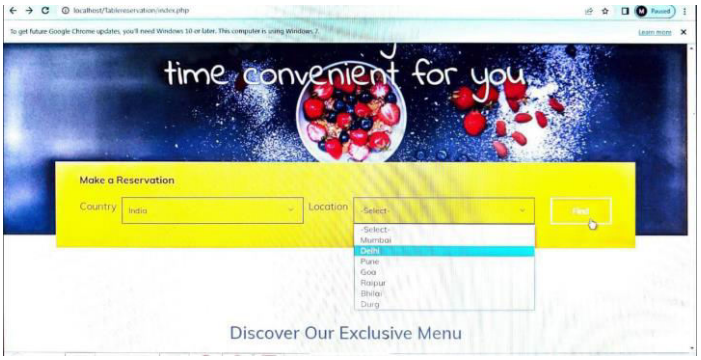
While the current system is fully functional, there are several opportunities for future enhancement:

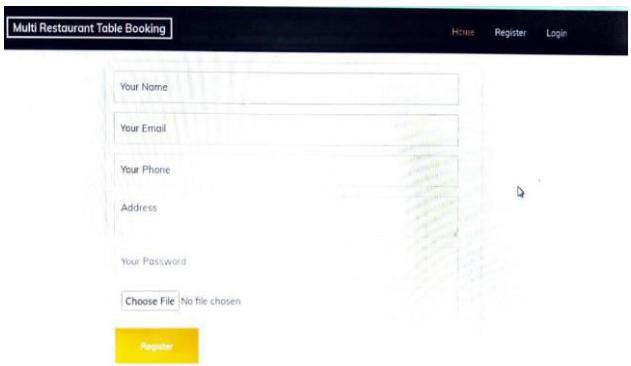
Mobile Application: Developing mobile apps for both iOS and Android to extend the system's reach and improve accessibility.

AI-Powered Recommendations: Implementing AI to provide restaurant suggestions based on user preferences and past bookings.

Loyalty Program Integration: Introducing a reward system where users can accumulate points and receive discounts or special offers.

A.SCREEN SHOTS





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B.SAMPLE CODING

data.php (Restaurant Data)

```
<?php
// Sample restaurant data (name, total tables, reserved tables)
$restaurants = [
    "Italian Bistro" => ["total_tables" => 10, "reserved_tables" => 0],
    "Sushi Palace" => ["total_tables" => 8, "reserved_tables" => 0],
    "The Grill House" => ["total_tables" => 12, "reserved_tables" => 0],
];

// Function to check availability for a restaurant
function get_available_tables($restaurant_name) {
    global $restaurants;
    return $restaurants[$restaurant_name]["total_tables"] - $restaurants[$restaurant_name]["reserved_tables"];
}

// Function to reserve tables
function reserve_tables($restaurant_name, $num_tables) {
    global $restaurants;
    if (get_available_tables($restaurant_name) >= $num_tables) {
        $restaurants[$restaurant_name]["reserved_tables"] += $num_tables;
        return true;
    } else {        return false }      }
// Function to cancel reservations
function cancel_reservation($restaurant_name, $num_tables) {
    global $restaurants;
    if ($restaurants[$restaurant_name]["reserved_tables"] >= $num_tables) {
        $restaurants[$restaurant_name]["reserved_tables"] -= $num_tables;
} else {
        return false;
    }
```

V. CONCLUSION

The Multi-Restaurant Table Reservation System is a comprehensive solution that enables customers to book tables at multiple restaurants online. The system provides a user-friendly interface, real-time availability, and secure payment processing. It also offers features such as restaurant management, table management, and reporting. By implementing this system, restaurants can improve their operational efficiency, reduce no-shows, and enhance customer satisfaction. Overall, the system aims to provide a seamless and convenient The Multi-Restaurant Table Reservation System was successfully developed and implemented, providing an easy and efficient platform for customers to dining experience for customers while helping restaurants streamline their operations. make reservations across multiple restaurants.

REFERANCES

1. Books:

- Sommerville, I. (2011). Software Engineering (9th ed.). Addison-Wesley.
- Pressman, R. S. (2014). Software Engineering: A Practitioner's Approach (8th ed.). McGraw-Hill.

2. Articles and Journals:

- Singh, P., & Kaur, R. (2019). Challenges in Table Reservation Systems in Restaurants: A Review. International Journal of Computer Applications, 178(2), 28-34.

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