CASE STUDY:

HERITAGE BITES RESTAURANT

by

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1. Introduction to Heritage Bites Restaurant and its Database Design

1.1 Purpose of the Database Design

Heritage Bites Restaurant wants to manage its operations better; therefore, it needs an effective database system design to enable easy implementation of basic functions such as customer management, reservations, order taking, and inventory. With only 8 tables, the challenge remains in how to enhance efficiency without losing the quality of customer satisfaction.

1.2 Overview of Heritage Bites Restaurant

Heritage Bites is a homely restaurant that uses only locally sourced raw materials, adding a personal touch to its service. Restaurants with a limited number of tables will have to run every operational aspect of reserving to maintaining an inventory, just right. This will enable the restaurant to function efficiently sans any compromise on quality with the help of a well-structured database.

2. Mission & Objective

2.1 Mission Statement

To be the leading Southeast ethnic restaurant, ensuring the delivery of a delightful dining experience.

2.2 Business Objectives

1. **Efficient Table Management**
    Minimize wait times and maximize seating utilization to ensure a smooth dining experience.
2. **Order Tracking**
    Ensuring timely preparation and delivery of food.
3. **Inventory Management**
    Maintain stock for menu items and reduce waste, ensuring that ingredients are always fresh and available.
4. **Customer Data**
    Personalize services to enhance the dining experience based on customer preferences and order history.

3. Database Design

The restaurant's database will consist of several key entities, each serving a specific purpose:
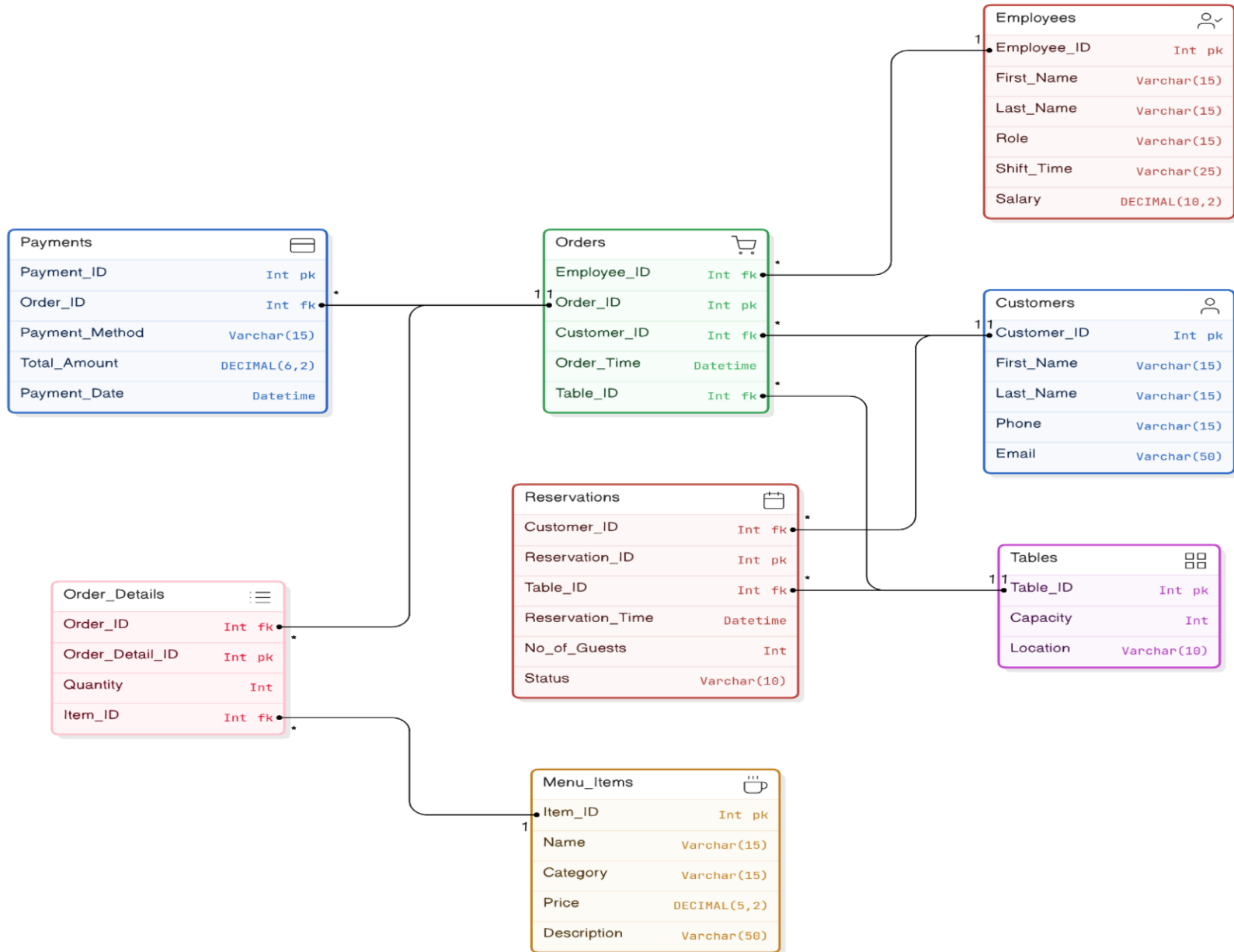
1. **Customers**
2. **Employees**
3. **Reservations**
4. **Tables Table**
5. **Menu_Items**
6. **Orders**
7. **Order_Details**
8. **Payments**

4. Table Relationship

Here's a brief explanation of the relationships between the tables in the restaurant database:

1. **Customers → Reservations** (One-to-Many)
   A customer can make multiple reservations, but each reservation belongs to one customer.
2. **Tables → Reservations** (One-to-Many)
   A table can be reserved many times, but each reservation is for one specific table.
3. **Employees → Orders** (One-to-Many)
   An employee can handle multiple orders, but each order is managed by one employee.
4. **Customers → Orders** (One-to-Many)
   A customer can place multiple orders, but each order is tied to a single customer.
5. **Tables → Orders** (One-to-Many)
   A table can have multiple orders over time, but each order is associated with one table.
6. **Orders → Order_Details** (One-to-Many)
   An order can contain multiple items (order details), but each detail belongs to one order.
7. **Menu_Items → Order_Details** (One-to-Many)
   A menu item can appear in multiple order details, but each order detail is for one menu item.
8. **Orders → Payments** (One-to-One)
   Each order has exactly one payment, and each payment is linked to one order.

5. Entity Relationship Diagram (ERD)

6. Conclusion

The proposed structure of the database aids in effective management at restaurants for better customer satisfaction, order processing, and inventory management. In other words, this could be the backbone for managing data to ensure that restaurants can provide a delightful dining experience.

7. Appendix

7.1 Appendix A

a) Customer Table

Description: Stores customer details for contact and loyalty tracking. Used for managing customer interactions and personalized services.

Field	Data Type	Description
Customer_ID	INT	Unique identifier for each customer (Primary Key)
First_Name	VARCHAR(50)	Customer's first name
Last_Name	VARCHAR(50)	Customer's last name
Phone	VARCHAR(15)	Customer's phone number
Email	VARCHAR(100)	Customer's email address
Loyalty_Points	INT	Points earned by the customer for loyalty programs

b) Employees Table

Description: Holds employee data, including role and salary. Helps with shift scheduling, payroll, and staff management

Field	Data Type	Description
Employee_ID	INT	Unique identifier for each employee (Primary Key)
First_Name	VARCHAR(50)	Employee's first name
Last_Name	VARCHAR(50)	Employee's last name
Role	VARCHAR(50)	Employee's job role
Shift_Time	VARCHAR(20)	Employee's working shift
Salary	DECIMAL(8,2)	Employee's salary

c) Reservations Table

Description: Manages reservation information, linking customers to tables. Tracks reservation status (confirmed, pending) for efficient table use.

Field	Data Type	Description
Reservation_ID	INT	Unique identifier for each reservation (Primary Key)
Customer_ID	INT	Foreign key linking to the customer who made the reservation
Table_ID	INT	Foreign key linking to the table being reserved
Reservation_Time	DATETIME	Time of the reservation
No_of_Guests	INT	Number of guests for the reservation

Status	VARCHAR(20)	Reservation status (Confirmed or Pending)

d) Tables Table

Description: Details of table capacities and locations within the restaurant. Helps in managing seating and reservations efficiently.

Field	Data Type	Description
Table ID	INT (PRIMARY KEY)	A unique identifier for each table, ensuring no duplicate entries. This serves as the primary key for the table.
Capacity	INT	The number of guests each table can accommodate helps in assigning appropriate tables during reservations.
Location (e.g., Indoor, outdoor)	VARCHAR (10)	Specifies the table's location, such as "Indoor" or "Outdoor," assisting staff in seating customers based on their preferences or availability.

e) Menu_Items Table

Description: Stores details of food and drinks offered on the menu. Helps in managing what is available for customers to order.

Field	Data Type	Description
Item_ID	INT	Unique identifier for each menu item (Primary Key)
Name	VARCHAR(100)	Name of the menu item
Category	VARCHAR(50)	Category of the menu item (e.g., Main Course, Dessert)
Price	DECIMAL(5,2)	Price of the menu item
Description	TEXT	Description of the menu item

f) Orders Table

Description: Tracks customer orders, including which employee took the order. Used to manage the flow of orders during service hours.

Field	Data Type	Description
Order_ID	INT	Unique identifier for each order (Primary Key)
Customer_ID	INT	Foreign key linking to the customer who placed the order
Employee_ID	INT	Foreign key linking to the employee who took the order
Table_ID	INT	Foreign key linking to the table associated with the order
Order_Time	DATETIME	Time the order was placed

g) Order_Details Table

Description: Contains detailed information about each order's contents. Helps to track the specific items ordered and the quantities.

Field	Data Type	Description
Order_Detail_ID	INT	Unique identifier for each order detail (Primary Key)
Order_ID	INT	Foreign key linking to the corresponding order
Item_ID	INT	Foreign key linking to the menu item ordered
Quantity	INT	Quantity of the item ordered

h) Payments Table

Description: Stores payment transaction details like method and amount. Tracks how orders are paid and manages financial records.

Field	Data Type	Description
Payment_ID	INT	Unique identifier for each payment (Primary Key)
Order_ID	INT	Foreign key linking to the order for which payment is made
Payment_Method	VARCHAR(20)	Method of payment (e.g., Credit Card, Cash)
Total_Amount	DECIMAL(8,2)	Total amount paid for the order
Payment_Date	DATETIME	Date and time of payment

7.2 Appendix B: Queries

- **Testing Database and Query**

- **Join Query**

First_Name	Last_Name	Order_ID	Payment_Method	Total_Amount
John	Smith	1	Credit Card	19.98
Jane	Doe	3	Debit Card	25.98
Alice	Brown	2	Cash	5
Bob	Martin	7	Credit Card	22.5
Charlie	Taylor	4	Credit Card	14.98
David	White	10	Credit Card	24.5
Emily	Green	6	Cash	18.5
Frank	Wilson	5	Debit Card	10
Grace	Lee	8	Cash	9
Hannah	Clark	9	Debit Card	35.5