Design Normalized Database (Part B -> Design Database)

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2025-06-30

Restaurant Database Design - Part B

1. Functional Dependencies

- VisitID → {Restaurant, ServerEmpID, ServerName, VisitDate, VisitTime, MealType, PartySize, Genders, WaitTime, CustomerName, CustomerPhone, CustomerEmail, LoyaltyMember, FoodBill, TipAmount, DiscountApplied, PaymentMethod, orderedAlcohol, AlcoholBill}
- ServerEmpID → {ServerName, StartDateHired, EndDateHired, HourlyRate, ServerBirthDate, ServerTIN}
- CustomerEmail → {CustomerName, CustomerPhone, LoyaltyMember}
- CustomerPhone → {CustomerName, CustomerEmail, LoyaltyMember}
- ServerTIN → {ServerEmpID}

2. Relations Decomposed

1. Restaurants

- **Attributes**: RestaurantID (PK), RestaurantName

2. Servers

- **Attributes**: ServerEmpID (PK), ServerName, StartDateHired, EndDateHired, HourlyRate, ServerBirthDate, ServerTIN
- **Constraints**: ServerTIN should be unique

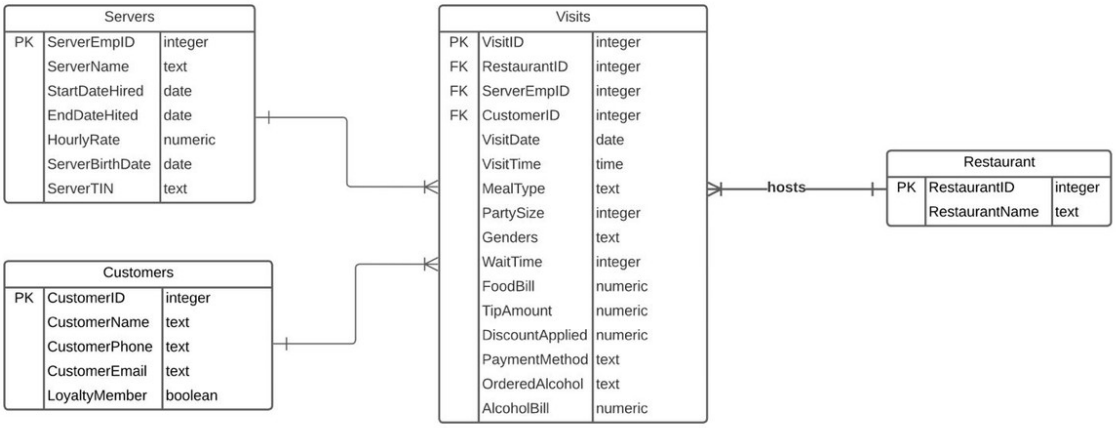
3. Customers

- **Attributes**: CustomerID (PK), CustomerName, CustomerPhone, CustomerEmail, LoyaltyMember
- **Constraints**: CustomerEmail and CustomerPhone should be unique

4. Visits

- **Attributes**: VisitID (PK), RestaurantID (FK), ServerEmpID (FK), CustomerID (FK), VisitDate, VisitTime, MealType, PartySize, Genders, WaitTime, FoodBill, TipAmount, DiscountApplied, PaymentMethod, orderedAlcohol, AlcoholBill
- **Foreign Keys**: References Restaurants, Servers, and Customers tables

3. Entity Relationship Diagram (ERD)



Servers		
PK	ServerEmpID	integer
	ServerName	text
	StartDateHired	date
	EndDateHited	date
	HourlyRate	numeric
	ServerBirthDate	date
	ServerTIN	text

Customers		
PK	CustomerID	integer
	CustomerName	text
	CustomerPhone	text
	CustomerEmail	text
	LoyaltyMember	boolean

Visits		
PK	VisitID	integer
FK	RestaurantID	integer
FK	ServerEmpID	integer
FK	CustomerID	integer
	VisitDate	date
	VisitTime	time
	MealType	text
	PartySize	integer
	Genders	text
	WaitTime	integer
	FoodBill	numeric
	TipAmount	numeric
	DiscountApplied	numeric
	PaymentMethod	text
	OrderedAlcohol	text
	AlcoholBill	numeric

Restaurant		
PK	RestaurantID	integer
	RestaurantName	text

Relationships:

- **Restaurants to Visits**: One-to-Many (One restaurant can have many visits)
- **Servers to Visits**: One-to-Many (One server can serve many visits)
- **Customers to Visits**: One-to-Many (One customer can make many visits)