

The Restaurant Database

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International Foods Restaurant (IFR) has been a successful fast-food business this past year. You have been approached by the restaurant for the design and implementation of a relational database system to provide information on the foods it offers, departments that run the restaurant, customers, menus, orders, and staff employed. Managers and staff will mainly use the system.

Lately they have noticed that the restaurant has some regular customers, so they began asking them for information including name and address to mail for specials. This business scenario is a small database which we will call International Foods Database and will be using throughout the course. Customers can order any item from the menu. When a customer places an order, the database records the item(s) for that order.

For your convenience, here is a summary of how the Restaurant Database works:

- A restaurant has many departments.
- Their menu features food items that can be ordered by a customer.
- A customer places an order at the counter and indicates what food item(s) they would like on that order.
- Each customer may place one or more orders.
- Besides the order details, the customer information also needs to be maintained by the restaurant.
- Each order must be placed by a customer.
- Each order must include one or more items.
- Each item may be part of one or more orders.
- Staff work for the restaurant to serve customers.

Assume the following requirements were collected for International Foods Database:

1. **DEPARTMENTS:** The restaurant is organized into departments. Each department is identified by a unique identification number (department ID), name, and manager ID.
2. **ORDERS:** The ORDERS table contains information about the orders of all customers. A customer can place several orders. For each order, we store the order number (unique), customer ID, staff ID, and date of order.
3. **ORDER_LINES:** The ORDERD_LINES table contains the details of each order. A customer may order many different items (and several units of each item) in the same order. No item is ordered twice in the same order. Instead, the quantity of each item ordered is listed along with the selling price of each item.
4. **FOOD_ITEMS:** The restaurant keeps record of each food item number, description, price, regular code, and promotion code in the FOOD_ITEMS table.
5. **SHIFTS:** The restaurant keeps record of each shift code and description in the SHIFTS table.
6. **SHIFT_ASSIGNMENTS:** The restaurant keeps record of each shift assignment code, ID, and date in the SHIFT_ASSIGNMENTS table.

7. **REGULAR_MENUS:** The REGULAR_MENUS table contains information about the menu. The restaurant keeps record of code, type, and hours served.
8. **PROMOTIONAL_MENUS:** The restaurant keeps record of code, name, start date, end date, and give away in the PROMOTIONAL_MENUS table.
9. **CATEGORIES:** The CATEGORIES table contains a list of food categories.
10. **CUSTOMERS:** The CUSTOMERS table is a list of all customers. For each customer, we store a customer ID (unique), customer name (last name, first name), customer phone number, and customer address.
11. **JOBS:** For jobs, the database keeps the job ID, job title, minimum salary, and maximum salary.
12. **STAFF:** The staff table lists all staff members, including information for staff ID, first name, last name, salary, birth date, email, overtime rate training, staff type, manager ID, department ID, and hire date. staff ID is a primary key that uniquely identifies the staff member.

Logical Design (Schema)

The full set of normalized tables for the Restaurant Database is as follows:

Tables for the Restaurant Database

Table Name	DEPARTMENTS		
Key Type	Column Name	Data Type	Size
pk	department_id	DECIMAL	4,0
	department_name	VARCHAR	30
	manager_id	DECIMAL	6,0

Table Name	JOBS		
Key Type	Column Name	Data Type	Size
pk	job_id	VARCHAR	10
	job_title	VARCHAR	35
	min_salary	DECIMAL	6,0
	max_salary	DECIMAL	6,0

Table Name	CATEGORIES		
Key Type	Column Name	Data Type	Size
pk	category_id	VARCHAR	5
	category_name	VARCHAR	50

Table Name	CUSTOMERS		
Key Type	Column Name	Data Type	Size
pk	customer_id	DECIMAL	5,0
	first_name	VARCHAR	25
	last_name	VARCHAR	35

	address	VARCHAR	50
	city	VARCHAR	30
	state	VARCHAR	20
	zip	DECIMAL	10,0
	phone_number	VARCHAR	25

Table Name	PROMOTIONAL_MENU		
Key Type	Column Name	Data Type	Size
pk	code	VARCHAR	3
	name	VARCHAR	30
	start_date	DATE	
	end_date	DATE	
	give_away	VARCHAR	80

Table Name	REGULAR_MENU		
Key Type	Column Name	Data Type	Size
pk	code	VARCHAR	3
	type	VARCHAR	30
	hours_served	VARCHAR	30

Table Name	STAFF		
Key Type	Column Name	Data Type	Size
pk	staff_id	DECIMAL	5,0
	first_name	VARCHAR	25
	last_name	VARCHAR	35
	email	VARCHAR	35
	birthdate	DATE	
	salary	DECIMAL	8,2
	overtime_rate	DECIMAL	5,2
	training	VARCHAR	50
fk	job_id	VARCHAR	10
fk	manager_id	DECIMAL	5,0
fk	dept_id	DECIMAL	4,0
	hire_date	DATE	

Table Name	FOOD_ITEMS		
Key Type	Column Name	Data Type	Size
pk	item_number	DECIMAL	5,0
fk	category_id	VARCHAR	5
	description	VARCHAR	100
	price	DECIMAL	8,2
fk	regular_code	VARCHAR	3
fk	promo_code	VARCHAR	3

Table Name	ORDERS		
Key Type	Column Name	Data Type	Size
pk	order_number	DECIMAL	5,0
	order_date	DATE	
fk	cust_id	DECIMAL	5,0
fk	staff_id	DECIMAL	5,0

Table Name	ORDER_LINES		
Key Type	Column Name	Data Type	Size
pk,fk	order_number	DECIMAL	5,0
Pk,fk	item_number	DECIMAL	5,0
	quantity	DECIMAL	3,0

Table Name	SHIFTS		
Key Type	Column Name	Data Type	Size
pk	code	DECIMAL	5,0
	description	VARCHAR	100

Table Name	SHIFT_AASSIGNMENTS		
Key Type	Column Name	Data Type	Size
pk	code	DECIMAL	5,0
	id	DECIMAL	5,0
	shift_assign_date	DATE	

The E-R diagram

