

Fundamentals of Relational Database Systems

Homework 1

Your Database

Create our beloved CAP2 database (that you downloaded, installed, and have been fiddling with since week one) in Postgres on your own database system.

[1 point]

Database Models

Consider how CAP2 might look if it were a hierarchical database. Draw a diagram.
Consider how CAP2 might look if it were a network database. Draw a diagram.

[8 points]

Practice Subqueries

Some of these are moderately hard. Give them some thought. I want you to use subqueries for these. (Even if you know how, please do not use joins. That's for the next section. Save it.)

[15 points]

Using our CAP2 database . . .

1. Get the cities of agents booking an order for customer c002.
2. Get the pids of products ordered through any agent who makes at least one order for a customer in Kyoto. (Note: this request is not the same as asking for pids of products ordered by a customer in Kyoto.)
3. Find the cids and names of customers who did not place an order through agent a03.
4. Get the cids and names of customers who ordered both product p01 and p07.
5. Get the pids of products ordered by any customers who place any order through agent a03.

Practice Joins

These are easier with joins than they were with subqueries, above.

[8 points]

Using our CAP2 database . . .

6. Redo number 1, this time with joins: Get the cities of agents booking an order for customer c002.
7. Redo number 2, this time with joins: Get the pids of products ordered through any agent who makes at least one order for a customer in Kyoto. (Note: this request is not the same as asking for pids of products ordered by a customer in Kyoto.)

More Queries

Using our CAP2 database, write the following queries:

[18 points]

8. Show the customer name, pid ordered, and the dollars ordered for all customer orders
9. Modify the (8) query to sort the output on the dollars field, with the largest amounts first and the smallest last.
10. Show all customer names and their total ordered
11. Show all customer names along with the name and quantity of the product that the customer ordered.
12. Show all customers, the names of the products they ordered, and the names of the agent who sold it to them.
13. Modify the (12) query to show only the names of the customers who bought products from agents based in New York, with no duplicate names.