Polytechnic Institute of NYU
Computer Science and Engineering
CS 6083, Spring 2012

More Schemas and Queries just for Practice

Schema 2: Consider a bakery that allows people to order cakes for weddings and other events. To keep track of orders and of the ingredients needed to make the ordered cakes, the bakery maintains a database with the following schema:

CUSTOMER (name, phone, ccn)
CAKE (cname, price, slices)
ORDER (oid, name, cname, pickupdate, orderdate)
INGREDIENT (iname, price, amountleft)
USEDIN (cname, iname, amount)

The bakery offers many types of cakes, each with a name (e.g., ``apple pie'' or “chocolate cake”), a price, and the number of slices (servings) in each cake. Customers order cakes from the bakery one or more days in advance, and then pick them up on the pickup date. Customers have names, credit card numbers, and phone numbers. To keep them fresh, the cakes are always made in the night before the pickup date. Each cake contains a number of ingredients (e.g., “flour”, “sugar”, “eggs”) that are needed to make it. The database keeps track of the names and amounts of ingredients in each type of cake, and also stores how many pounds of each ingredient the bakery currently has in stock and how much it costs per pound, so that if necessary the bakery can buy additional ingredients to make the cakes for the next day. Write SQL commands for the queries below.

(1) List all cakes that contain apple but no egg.
(2) List the names of all customers who ordered a cherry pie during 2010.
(3) List all cakes containing more than 3 ingredients where one ingredient is cheese.
(4) List any cake that can be made from the ingredients that the bakery currently has.
(5) List any pairs of ingredients in the database that are never used in the same cake. (E.g., maybe peanuts are used in one cake, and lemons in another, but no cake contains both lemons and peanuts.)
(6) List all cakes whose ingredients cost less then $10.
(7) List the most popular cake, that is, the one that has received the most orders.
(8) List any customers who have ordered every type of cake offered by this bakery.
(9) For each type of cake, list the profit that is made by the bakery, defined as the price minus cost of ingredients. (Ignore costs such as labor, rent, etc.)
(10) List any cakes that have exactly 6 slices and include lemon.
(11) List the ingredient(s) that are used by the most types of cakes.
(12) List any cakes that include chocolate and cost more than 20 dollars.
(13) Create a view called “CakeSales” that shows the total sales for each type of cake.
(14) Create a view to list all the cake ordered but not yet picked up by the customers.
(15) Create a trigger to give a free cake when a customer orders a cake for more than $40. Add an order for a cheesecake that can be picked up with the ordered cake.