Ukeoppgaver, SQL SELECT

1 Oppgaver

Oppgave 6.1.5 Let a and b be integer-valued attributes that may be NULL in some tuples. For each of the following conditions (as may appear in a WHERE clause), describe exactly the set of (a, b) tuples that satisfy the condition, including the case where a and/or b is NULL.

a) $a < 50$ OR $a >= 50$

b) $a = 0$ OR $b = 10$

c) $a = 20$ AND $b = 10$

!d) $a = b$

!e) $a > b$

   Nedenfor skal vi bruke følgende skjema, fra oppgave 2.4.1 i boken.
Product(maker, model, type)
PC(model, speed, ram, hd, price)
Laptop(model, speed, ram, hd, screen, price)
Printer(model, color, type, price)

Oppgave 6.2.2 Write the following queries, based on the database schema of Exercise 2.4.1, and evaluate your queries using the data of that exercise.

a) Find the manufacturers that sell PCs but not laptops.

c) Find the model number and price of all products (of any type) made by manufacturer C.

f) Find the manufacturers of at least two different computers (PCs or laptops) with speeds of at least 2.0.

Oppgave 6.3.1 Write the following queries, based on the database schema of Exercise 2.4.1. You should use at least one subquery in each of your answers and write each query in two significantly different ways (e.g., using different sets of the operators EXISTS, IN, ALL, and ANY).

a) Find the makers of laptops with a speed of at least 2.0.

b) Find the printers with the highest price.

c) Find the laptops whose speed is slower than that of the fastest PC.

Oppgave 10.2.1 The relation

$$Flights(airline, frm, to, departs, arrives)$$

from Example 10.8 has arrival- and departure-time information that we did not consider. Suppose we are interested not only in whether it is possible to reach one city from another, but whether the journey has reasonable connections. That is, when using more than one flight, each flight must arrive at least an hour before the next flight departs. You may assume that no journey takes place over more than one day, so it is not necessary to worry about arrival close to midnight followed by a departure early in the morning.

Write the recursion in SQL.

Oppgave 10.2.3 Suppose we have a relation

$$SequelOf(movie, sequel)$$

that gives the immediate sequels of a movie, of which there can be more than one. We want to define a recursive relation FollowOn whose pairs (x,y) are movies such that y was either a sequel of x, a sequel of a sequel, or so on.

Write the definition of FollowOn as a SQL recursion.