

Homework Assignment 3
(due Tuesday, October 28, 2003)

- Read Chapter 4
- Exercises 3.14, 3.16 parts (a), (b) and (d) only, 4.2 parts (a) through (g) (included), 4.4, 4.5, 4.6.
- Consider the *beer drinkers* database consisting of relations over the following relational schema:
FREQUENTS(drinker, bar), LIKES(drinker, beer), SERVES(bar, beer, price)
Write SQL expressions for the following queries:
 - “List all bars who serve at least one beer that Joe Mug likes.”
 - “List all drinkers who like CORONA and frequent at least one bar that serves CORONE for more than \$4.00”.
 - “List all drinkers who frequent every bar that serves AMSTEL”.
- As in the first homework assignment, assume that an airline maintains a FLIGHTS database that includes a table called DIRECT with two attributes FROM and TO containing information about direct flights between two cities. Give an SQL expression for the relation AT-MOST-TWO consisting of all pairs (c, d) of cities such that one can travel from city c to city d with at most two intermediate stops.
- Suppose that you work with a version of SQL that directly supports both the *difference* operation $R - S$ and the *intersection* operation $R \cap S$. Suddenly, both these features are disabled in your system. Explain how you can use the remaining constructs of SQL to write expressions that express $R - S$ and $R \cap S$.

Midterm Reminder: The midterm examination will take place on Thursday, October 30 in class.