

SQL Practice Questions

1. For the following relation schema:

employee(employee-name, street, city)
works(employee-name, company-name, salary)
company(company-name, city)
manages(employee-name, manager-name)

Give an expression in SQL for each of the following queries:

- a) Find the names, street address, and cities of residence for all employees who work for 'First Bank Corporation' and earn more than \$10,000.
- b) Find the names of all employees in the database who live in the same cities as the companies for which they work.
- c) Find the names of all employees in the database who live in the same cities and on the same streets as do their managers.
- d) Find the names of all employees in the database who do not work for 'First Bank Corporation'. Assume that all people work for exactly one company.
- e) Find the names of all employees in the database who earn more than every employee of 'Small Bank Corporation'. Assume that all people work for at most one company.
- f) Assume that the companies may be located in several cities. Find all companies located in every city in which 'Small Bank Corporation' is located.
- g) Find the names of all employees who earn more than the average salary of all employees of their company. Assume that all people work for at most one company.
- h) Find the name of the company that has the smallest payroll.

2. Let $R=(A, B, C)$, $S=(C, D, E)$ and let q and r be relations on schema R and s be a relation on schema S . Convert the following queries to SQL:

- a) $\{ \langle a \rangle \mid \exists b (\langle a, b \rangle \in r \wedge b = 10) \}$
- b) $q - r$
- c) $\{ t \mid \exists p \in r \exists q \in s (t[A] = p[A] \wedge t[E] = q[E] \wedge p[C] = q[D]) \}$

d) $\Pi_{A, C}(\mathbf{r}) \otimes \Pi_{C, D}(\mathbf{s})$

e) $\mathbf{r} \times \mathbf{s}$