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Quiz 6

STUDENT NAME

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Q1 Quiz 7: SQL Queries

10 Points

Consider the following relational schema and answer the following questions by formulating appropriate SQL queries:

Emp (eid: integer PRIMARY KEY, ename: string, age: integer, salary: decimal(8,2));
Works (eid: integer, did: integer, pcttime: integer, PRIMARY KEY (eid, did));
Dept (did: integer PRIMARY KEY, dname: string, budget: decimal(8,2), managerid: integer);

You should spend about 5 minutes attempting each question. Feel free to refer to the lecture notes and talk to your brainstorming buddy (or another classmate)! Your TA will go over the answer(s) for each question with you during your discussion meeting.

Q1.1

2 Points

Find the names, salaries, and department names of employees who work in a department whose manager's salary exceeds the department's budget.

```
SELECT E.ename, E.salary, D.dname
FROM Emp E, Dept D, Works W
WHERE E.eid = W.eid AND
    D.did = W.did AND
    D.did IN (
```

```
        SELECT D2.did
        FROM Dept D2, Emp E2
        WHERE D2.managerid = E2.eid AND
            E2.salary > D2.budget
);
```

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Q1.2

2 Points

Find the ids, names, and ages of employees who work in every department.

```
SELECT E.eid, E.ename, E.age
FROM Emp E
WHERE NOT EXISTS (
    SELECT *
    FROM Dept D
    WHERE NOT EXISTS (
        SELECT *
        FROM Works W
        WHERE W.did = D.did AND
            W.eid = E.eid
    )
);

//OR

SELECT E.eid, E.ename, E.age
FROM Emp E
WHERE (SELECT COUNT(DISTINCT W.did) FROM Works W WHERE W.eid =
E.eid) = (SELECT COUNT(D.did) FROM Dept D);
```

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Q1.3

2 Points

Find the employee age ranges (min and max) and the sum of salaries (attributing salaries involving part-time assignments appropriately) by department, considering only departments with at least 10 employees.

```
SELECT D.did, MIN(E.age), MAX(E.age), SUM(E.salary)
FROM Emp E, Dept D, Works W
WHERE W.eid = E.eid AND
    W.did = D.did
GROUP BY D.did
HAVING COUNT(*) >= 10;
```

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Q1.4

2 Points

Print an alphabetical company roster that lists each employee's id, name, and age along with the percent-times, ids, and names of their departments and the ids and names of their managers. Each of the roster's entries should have those seven fields, and every employee should be listed at least once, including employees without department assignments or managers.

```
SELECT E.eid, E.ename, E.age, W.pcttime, D.did, D.dname, MGR.eid,
MGR.ename
FROM Emp E LEFT OUTER JOIN Works  ON  W.eid = E.eid
        LEFT OUTER JOIN Dept D ON W.did = D.did
        LEFT OUTER JOIN Emp MGR ON D.managerid = MGR.eid
ORDER BY E.ename ASC;
```

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Q1.5

2 Points

It's time to make some budget cuts! Give a 10% pay cut to the employee(s) who are the current highest earners in the company.

```
WITH MaxSalaryEIDs AS (
    SELECT E2.eid
    FROM Emp E2
    WHERE E2.salary IN (
        SELECT MAX(E3.salary)
        FROM Emp E3
    )
)
UPDATE Emp E
SET E.salary = E.salary - E.salary * 0.10
WHERE E.eid IN (SELECT E4.eid FROM MaxSalaryEIDs E4);
```

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