

CSE 311L Week 4 SQL Commands Summary

Displaying Data from Multiple Tables

Cartesian Product:

```
SELECT last_name, department_name dept_name  
FROM emps, depts;
```

Equijoin:

```
SELECT e.employee_id, e.last_name, e.department_id,  
       d.department_id, d.location_id  
FROM emps e, depts d  
WHERE e.department_id = d.department_id;
```

Self-Join (Joining a table to itself):

```
SELECT worker.last_name || ' works for ' || manager.last_name  
FROM emps worker, emps manager  
WHERE worker.manager_id = manager.employee_id;
```

Join using ON clause:

```
SELECT e.employee_id, e.last_name, e.department_id,  
       d.department_id, d.location_id  
FROM emps e  
JOIN depts d ON (e.department_id = d.department_id);
```

Three-Way Join:

```
SELECT employee_id, city, department_name  
FROM emps e  
JOIN depts d ON d.department_id = e.department_id  
JOIN locs l ON d.location_id = l.location_id;
```

Outer Joins

LEFT OUTER JOIN:

```
SELECT e.last_name, e.department_id, d.department_name  
FROM emps e  
LEFT OUTER JOIN depts d ON (e.department_id = d.department_id);
```

RIGHT OUTER JOIN:

```
SELECT e.last_name, e.department_id, d.department_name  
FROM emps e  
RIGHT OUTER JOIN depts d ON (e.department_id = d.department_id);
```

FULL OUTER JOIN:

```
SELECT e.last_name, e.department_id, d.department_name  
FROM emps e  
FULL OUTER JOIN depts d ON (e.department_id = d.department_id);
```

Join with Additional Condition:

```
SELECT e.employee_id, e.last_name, e.department_id,  
       d.department_id, d.location_id  
FROM emps e  
JOIN depts d ON (e.department_id = d.department_id)
```

AND e.manager_id = 149;

Group Functions

AVG, MAX, MIN, SUM:

SELECT AVG(salary), MAX(salary), MIN(salary), SUM(salary)

FROM emps

WHERE job_id LIKE '%REP%';

COUNT:

SELECT COUNT(DISTINCT department_id)

FROM emps;

GROUP BY Clause

Single Column:

SELECT department_id, AVG(salary)

FROM emps

GROUP BY department_id;

Multiple Columns:

SELECT department_id dept_id, job_id, SUM(salary)

FROM emps

GROUP BY department_id, job_id;

HAVING Clause:

SELECT job_id, SUM(salary) PAYROLL

```
FROM emps  
  
WHERE job_id NOT LIKE '%REP%'  
  
GROUP BY job_id  
  
HAVING SUM(salary) > 13000  
  
ORDER BY SUM(salary);
```

Nested Group Functions:

```
SELECT MAX(AVG(salary))  
  
FROM emps  
  
GROUP BY department_id;
```