Oracle

Select Group By, Join

Select

SELECT 컬럼 ...

FROM 테이블

WHERE 조건

GROUP BY 그룹핑 컬럼

HAVING 그룹별 필터링 조건

ORDER BY 정렬컬럼;

Cartesian Product (Cross Join)

```
SQL> SELECT ename
  2  FROM emp;

ENAME
----------
SMITH
ALLEN
WARD
JONES
```

✖

```
SQL> SELECT dname
  2  FROM dept;

DNAME
----------
ACCOUNTING
RESEARCH
SALES
```

➡

```
SQL> SELECT e.ename, d.dname
  2  FROM emp e, dept d;

ENAME      DNAME
---------- ----------
SMITH      ACCOUNTING
ALLEN      ACCOUNTING
WARD       ACCOUNTING
JONES      ACCOUNTING
SMITH      RESEARCH
ALLEN      RESEARCH
WARD       RESEARCH
JONES      RESEARCH
SMITH      SALES
ALLEN      SALES
WARD       SALES
JONES      SALES
```

Cartesian Product (Cross Join) 2

➢ Oracle JOIN:
  ○ SELECT 테이블1.컬럼1, 테이블2.컬럼2
     FROM 테이블1, 테이블2;
    ■ SELECT e.ename, d.dname
       FROM emp e, dept d;

➔ ANSI JOIN:
  ◆ SELECT 테이블1.컬럼1, 테이블2.컬럼2
     FROM 테이블1 CROSS JOIN 테이블2;
    ● SELECT e.ename, d.dname
       FROM emp e CROSS JOIN dept d;

Equi Join

```
SQL> SELECT ename,
deptno FROM emp;

ENAME     DEPTNO
-------- ------
SMITH        20
ALLEN        30
WARD         30
JONES        20
MARTIN       30
BLAKE        30
CLARK        10
SCOTT        20
KING         10
TURNER       30
ADAMS        20
JAMES        30
FORD         20
MILLER       10
```

✖

```
SQL> SELECT deptno,
dname FROM dept;

DEPTNO DNAME
------ ----------
    10 ACCOUNTING
    20 RESEARCH
    30 SALES
    40 OPERATIONS
```

➡

```
SQL> SELECT e.ename, e.deptno, d.dname
FROM emp e, dept d WHERE e.deptno =
d.deptno;

ENAME     DEPTNO DNAME
-------- ------ ----------
SMITH        20 RESEARCH
ALLEN        30 SALES
WARD         30 SALES
JONES        20 RESEARCH
MARTIN       30 SALES
BLAKE        30 SALES
CLARK        10 ACCOUNTING
SCOTT        20 RESEARCH
KING         10 ACCOUNTING
TURNER       30 SALES
ADAMS        20 RESEARCH
JAMES        30 SALES
FORD         20 RESEARCH
MILLER       10 ACCOUNTING
```

Equi Join (2)

➢ Oracle JOIN:
  ○ SELECT 테이블1.컬럼1, 테이블2.컬럼2
    FROM 테이블1, 테이블2
    WHERE 조건;
    ■ SELECT e.ename, d.dname
      FROM emp e, dept d
      WHERE e.deptno = d.deptno;

➢ ANSI JOIN:
  ○ SELECT 테이블1.컬럼1, 테이블2.컬럼2
    FROM 테이블1 JOIN 테이블2
    ON 조건;
    ■ SELECT e.ename, d.dname
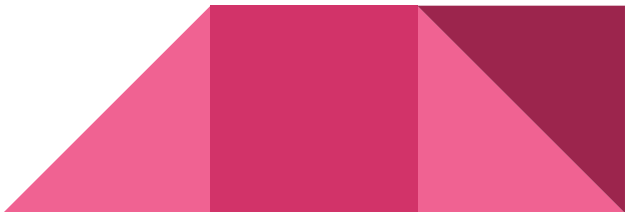   FROM emp e JOIN dept d
      ON e.deptno = d.deptno;

Equi Join (3)

➢ Oracle JOIN:
```
SQL> SELECT s.name 학생이름, d.dname 학과, p.name 지도교수
  2   FROM student s, department d, professor p
  3   WHERE s.deptno1 = d.deptno
  4   AND
  5   s.profno = p.profno;
```

➢ ANSI JOIN:
```
SQL> SELECT s.name 학생이름, d.dname 학과, p.name 지도교수
  2   FROM student s JOIN department d
  3   ON s.deptno1 = d.deptno
  4   JOIN professor p
  5   ON s.profno = p.profno;
```

Non-Equi Join

➢ Oracle JOIN:

```
SQL> SELECT e.sal, s.grade
  2   FROM emp e, salgrade s
  3   WHERE e.sal between s.losal and s.hisal;
```

➢ ANSI JOIN:

```
SQL> SELECT e.sal, s.grade
  2   FROM emp e JOIN salgrade s
  3   ON e.sal between s.losal and s.hisal;
```

Non-Equi Join (2)

➢ Oracle JOIN:

```
SQL> SELECT s.name, e.total, h.grade
  2  FROM student s, exam_01 e, hakjum h
  3  WHERE s.studno = e.studno
  4  AND
  5  e.total BETWEEN h.min_point AND h.max_point;
```

➢ ANSI JOIN:

```
SQL> SELECT s.name, e.total, h.grade
  2  FROM student s JOIN exam_01 e
  3  ON s.studno = e.studno
  4  JOIN hakjum h
  5  ON e.total BETWEEN h.min_point AND h.max_point;
```

Outer Join

➢ Oracle Join:

```
SQL> SELECT e.ename, d.dname
  2   FROM emp e, dept d
  3   WHERE e.deptno = d.deptno(+);
```

➢ ANSI Join:

```
SQL> SELECT e.ename, d.dname
  2   FROM emp e LEFT JOIN dept d
  3   ON e.deptno = d.deptno;
```

Outer Join (2)

➢ Oracle Join:

```
SQL> SELECT e.ename, d.dname
  2  FROM emp e, dept d
  3  WHERE e.deptno(+) = d.deptno;
```

➢ ANSI Join:

```
SQL> SELECT e.ename, d.dname
  2  FROM emp e RIGHT JOIN dept d
  3  ON e.deptno = d.deptno;
```
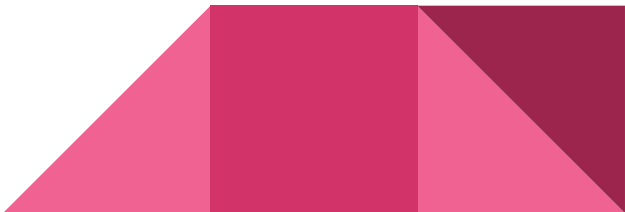
Outer Join (3)

➢ Oracle Join:

```
SQL> SELECT e.ename, d.dname
  2     FROM emp e, dept d
  3     WHERE e.deptno = d.deptno(+)
  4  UNION
  5  SELECT e.ename, d.dname
  6     FROM emp e, dept d
  7     WHERE e.deptno(+) = d.deptno;
```

➢ ANSI Join:

```
SQL> SELECT e.ename, d.dname
  2     FROM emp e FULL OUTER JOIN dept d
  3     ON e.deptno = d.deptno;
```

Self Join

➢ Oracle Join:

```
SQL> SELECT e1.ename 이름, e2.ename 매니저
  2  FROM emp e1, emp e2
  3  WHERE e1.mgr = e2.empno;
```

➢ ANSI Join:

```
SQL> SELECT e1.ename 이름, e2.ename 매니저
  2  FROM emp e1 JOIN emp e2
  3  ON e1.mgr = e2.empno;
```