

Chap08. 여러 테이블을 하나의 테이블처럼 사용하는 조인

- ▶ 08-1 조인
- ▶ 08-2 조인 종류
- ▶ 08-3 SQL-99 표준 문법으로 배우는 조인

08-1 조인

- ▶ 조인 : 가로 연결
 - ▶ 집합 연산자 : 세로 연결
- ▶ FROM 절에 여러 테이블 지정

```
SELECT  
    FROM 테이블1, 테이블2, . . . , 테이블N
```

실습 8-1 FROM절에 여러 테이블 선언하기

```
01  SELECT *  
02      FROM EMP, DEPT  
03  ORDER BY EMPNO;
```

08-1 조인

▶ WHERE절을 활용한 조인 조건 사용의 중요성

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7369	SMITH	CLERK	7902	1980/12/17	800		20
7499	ALLEN	SALESMAN	7698	1981/02/20	1600	300	30
7521	WARD	SALESMAN	7698	1981/02/22	1250	500	30
7566	JONES	MANAGER	7839	1981/04/02	2975		20
7654	MARTIN	SALESMAN	7698	1981/09/28	1250	1400	30
7698	BLAKE	MANAGER	7839	1981/05/01	2850		30
7782	CLARK	MANAGER	7839	1981/06/09	2450		10
7788	SCOTT	ANALYST	7566	1987/04/19	3000		20
7839	KING	PRESIDENT		1981/11/17	5000		10
7844	TURNER	SALESMAN	7698	1981/09/08	1500	0	30

DEPTNO	DNAME	LOC
10	ACCOUNTING	NEW YORK
20	RESEARCH	DALLAS
30	SALES	CHICAGO
40	OPERATIONS	BOSTON

실습 8-2 열 이름을 비교하는 조건식으로 조인하기

```
01 SELECT *
02 FROM EMP, DEPT
03 WHERE EMP.DEPTNO = DEPT.DEPTNO
04 ORDER BY EMPNO;
```

:: 결과 화면

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO	DEPTNO_1	DNAME	LOC
7369	SMITH	CLERK	7902	1980-12-17	800		20	20	RESEARCH	DALLAS
7499	ALLEN	SALESMAN	7698	1981/02/20	1600	300	30	30	SALES	CHICAGO
7521	WARD	SALESMAN	7698	1981/02/22	1250	500	30	30	SALES	CHICAGO
7566	JONES	MANAGER	7839	1981/04/02	2975		20	20	RESEARCH	DALLAS

08-1 조인

▶ 테이블의 별칭 설정

```
FROM 테이블 이름1 별칭1, 테이블 이름2 별칭2 . . .
```

실습 8-3 테이블 이름을 별칭으로 표현하기

```
01  SELECT *  
02      FROM EMP E, DEPT D  
03      WHERE E.DEPTNO = D.DEPTNO  
04  ORDER BY EMPNO;
```

08-2 조인 종류

- ▶ **등가 조인** : '=' 사용
- ▶ **비등가 조인** : 등가 조인 외
- ▶ **자체 조인** : 하나의 테이블을 여러 테이블처럼 사용
- ▶ **외부 조인** : 조인 조건의 **NULL** 데이터도 출력

왼쪽 외부 조인(Left Outer Join)	WHERE TABLE1.COL1 = TABLE2.COL1(+)
오른쪽 외부 조인(Right Outer Join)	WHERE TABLE1.COL1(+) = TABLE2.COL1



08-2 조인 종류

▶ 등가 조인 : '=' 사용

실습 8-4 두 테이블에 부서 번호가 똑같은 열 이름으로 포함되어 있을 때

```
01 SELECT EMPNO, ENAME, DEPTNO, DNAME, LOC
02    FROM EMP E, DEPT D
03    WHERE E.DEPTNO = D.DEPTNO;
```

:: 결과 화면

Errors
[Error] Execution (1: 22): ORA-00918: 열의 정의가 매매합니다

실습 8-6 WHERE절에 추가로 조건식 넣어 출력하기

```
01 SELECT E.EMPNO, E.ENAME, E.SAL, D.DEPTNO, D.DNAME, D.LOC
02    FROM EMP E, DEPT D
03    WHERE E.DEPTNO = D.DEPTNO
04          AND SAL >= 3000;
```

:: 결과 화면

EMPNO	ENAME	SAL	DEPTNO	DNAME	LOC
7839	KING	5000	10	ACCOUNTING	NEW YORK
7902	FORD	3000	20	RESEARCH	DALLAS
7788	SCOTT	3000	20	RESEARCH	DALLAS

실습 8-5 열 이름에 각각의 테이블 이름도 함께 명시할 때

```
01 SELECT E.EMPNO, E.ENAME, D.DEPTNO, D.DNAME, D.LOC
02    FROM EMP E, DEPT D
03    WHERE E.DEPTNO = D.DEPTNO
04    ORDER BY D.DEPTNO, E.EMPNO;
```

:: 결과 화면

EMPNO	ENAME	DEPTNO	DNAME	LOC
7782	CLARK	10	ACCOUNTING	NEW YORK
7839	KING	10	ACCOUNTING	NEW YORK
7934	MILLER	10	ACCOUNTING	NEW YORK
7369	SMITH	20	RESEARCH	DALLAS
7566	JONES	20	RESEARCH	DALLAS
7788	SCOTT	20	RESEARCH	DALLAS
7876	ADAMS	20	RESEARCH	DALLAS
7902	FORD	20	RESEARCH	DALLAS
7499	ALLEN	30	SALES	CHICAGO
7521	WARD	30	SALES	CHICAGO
7654	MARTIN	30	SALES	CHICAGO
7698	BLAKE	30	SALES	CHICAGO
7844	TURNER	30	SALES	CHICAGO
7900	JAMES	30	SALES	CHICAGO

08-2 조인 종류

▶ 비등가 조인 : 등가 조인 외

```
SELECT * FROM EMP;
```

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7369	SMITH	CLERK	7902	1980/12/17	800		20
7499	ALLEN	SALESMAN	7698	1981/02/20	1600	300	30
7521	WARD	SALESMAN	7698	1981/02/22	1250	500	30

실습 8-7 급여 범위를 지정하는 조건식으로 조인하기

```
01 SELECT *
02   FROM EMP E, SALGRADE S
03  WHERE E.SAL BETWEEN S.LOSAL AND S.HISAL;
```

:: 결과 화면

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO	GRADE	LOSAL	HISAL
7369	SMITH	CLERK	7902	1980/12/17	800		20	1	700	1200
7900	JAMES	CLERK	7698	1981/12/03	950		30	1	700	1200
7876	ADAMS	CLERK	7788	1987/05/23	1100		20	1	700	1200
7521	WARD	SALESMAN	7698	1981/02/22	1250	500	30	2	1201	1400
7654	MARTIN	SALESMAN	7698	1981/09/28	1250	1400	30	2	1201	1400

```
SELECT * FROM SALGRADE;
```

GRADE	LOSAL	HISAL
1	700	1200
2	1201	1400
3	1401	2000
4	2001	3000
5	3001	9999

08-2 조인 종류

▶ 자체 조인 : 하나의 테이블을 여러 테이블처럼 사용

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7369	SMITH	CLERK	7902	1980/12/17	800		20
7499	ALLEN	SALESMAN	7698	1981/02/20	1600	300	30
7521	WARD	SALESMAN	7698	1981/02/22	1250	500	30
7566	JONES	MANAGER	7839	1981/04/02	2975		20
7654	MARTIN	SALESMAN	7698	1981/09/28	1250	1400	30
7698	BLAKE	MANAGER	7839	1981/05/01	2850		30
7782	CLARK	MANAGER	7839	1981/06/09	2450		10
7788	SCOTT	ANALYST	7566	1987/04/19	3000		20
7839	KING	PRESIDENT		1981/11/17	5000		10
7844	TURNER	SALESMAN	7698	1981/09/08	1500	0	30
7876	ADAMS	CLERK	7788	1987/05/23	1100		20
7900	JAMES	CLERK	7698	1981/12/03	950		30
7902	FORD	ANALYST	7566	1981/12/03	3000		20
7934	MILLER	CLERK	7782	1982/01/23	1300		10

실습 8-8 같은 테이블을 두 번 사용하여 자체 조인하기

```
01 SELECT E1.EMPNO, E1.ENAME, E1.MGR,  
02        E2.EMPNO AS MGR_EMPNO,  
03        E2.ENAME AS MGR_ENAME  
04 FROM EMP E1, EMP E2  
05 WHERE E1.MGR = E2.EMPNO;
```

:: 결과 화면

EMPNO	ENAME	MGR	MGR_EMPNO	MGR_ENAME
7902	FORD	7566	7566	JONES
7788	SCOTT	7566	7566	JONES
7844	TURNER	7698	7698	BLAKE
7499	ALLEN	7698	7698	BLAKE
7521	WARD	7698	7698	BLAKE

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7369	SMITH	CLERK	7902	1980/12/17	800		20
7499	ALLEN	SALESMAN	7698	1981/02/20	1600	300	30
7521	WARD	SALESMAN	7698	1981/02/22	1250	500	30
7566	JONES	MANAGER	7839	1981/04/02	2975		20
7654	MARTIN	SALESMAN	7698	1981/09/28	1250	1400	30
7698	BLAKE	MANAGER	7839	1981/05/01	2850		30
7782	CLARK	MANAGER	7839	1981/06/09	2450		10
7788	SCOTT	ANALYST	7566	1987/04/19	3000		20
7839	KING	PRESIDENT		1981/11/17	5000		10
7844	TURNER	SALESMAN	7698	1981/09/08	1500	0	30
7876	ADAMS	CLERK	7788	1987/05/23	1100		20
7900	JAMES	CLERK	7698	1981/12/03	950		30
7902	FORD	ANALYST	7566	1981/12/03	3000		20
7934	MILLER	CLERK	7782	1982/01/23	1300		10

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7369	SMITH	CLERK	7902	1980/12/17	800		20
7499	ALLEN	SALESMAN	7698	1981/02/20	1600	300	30
7521	WARD	SALESMAN	7698	1981/02/22	1250	500	30
7566	JONES	MANAGER	7839	1981/04/02	2975		20
7654	MARTIN	SALESMAN	7698	1981/09/28	1250	1400	30
7698	BLAKE	MANAGER	7839	1981/05/01	2850		30
7782	CLARK	MANAGER	7839	1981/06/09	2450		10
7788	SCOTT	ANALYST	7566	1987/04/19	3000		20
7839	KING	PRESIDENT		1981/11/17	5000		10
7844	TURNER	SALESMAN	7698	1981/09/08	1500	0	30
7876	ADAMS	CLERK	7788	1987/05/23	1100		20
7900	JAMES	CLERK	7698	1981/12/03	950		30
7902	FORD	ANALYST	7566	1981/12/03	3000		20
7934	MILLER	CLERK	7782	1982/01/23	1300		10

08-2 조인 종류

▶ 외부 조인 : 테이블의 데이터가 NULL인 데이터를 처리

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7369	SMITH	CLERK	7902	1980/12/17	800		20
7499	ALLEN	SALESMAN	7698	1981/02/20	1600	300	30
7521	WARD	SALESMAN	7698	1981/02/22	1250	500	30
7566	JONES	MANAGER	7839	1981/04/02	2975		20
7654	MARTIN	SALESMAN	7698	1981/09/28	1250	1400	30
7698	BLAKE	MANAGER	7839	1981/05/01	2850		30
7782	CLARK	MANAGER	7839	1981/06/09	2450		10
7788	SCOTT	ANALYST	7566	1987/04/19	3000		20
7839	KING	PRESIDENT		1981/11/17	5000		10
7844	TURNER	SALESMAN	7698	1981/09/08	1500	0	30
7876	ADAMS	CLERK	7788	1987/05/23	1100		20
7900	JAMES	CLERK	7698	1981/12/03	950		30
7902	FORD	ANALYST	7566	1981/12/03	3000		20
7934	MILLER	CLERK	7782	1982/01/23	1300		10

왼쪽 외부 조인

COL1(+)

오른쪽 외부 조인

2.COL1

08-2 조인 종류

▶ 외부 조인 : 조인 조건의 **NULL** 데이터도 출력

왼쪽 외부 조인(Left Outer Join)

WHERE TABLE1.COL1 = TABLE2.COL1(+)

오른쪽 외부 조인(Right Outer Join)

WHERE TABLE1.COL1(+) = TABLE2.COL1

실습 8-9 왼쪽 외부 조인 사용하기

```
01 SELECT E1.EMPNO, E1.ENAME, E1.MGR,  
02        E2.EMPNO AS MGR_EMPNO,  
03        E2.ENAME AS MGR_ENAME  
04 FROM EMP E1, EMP E2  
05 WHERE E1.MGR = E2.EMPNO(+)  
06 ORDER BY E1.EMPNO;
```

:: 결과 화면

EMPNO	ENAME	MGR	MGR_EMPNO	MGR_ENAME
7369	SMITH	7902	7902	FORD
7499	ALLEN	7698	7698	BLAKE
7521	WARD	7698	7698	BLAKE
7566	JONES	7839	7839	KING
7654	MARTIN	7698	7698	BLAKE
7698	BLAKE	7839	7839	KING
7782	CLARK	7839	7839	KING
7788	SCOTT	7566	7566	JONES
7839	KING			
7844	TURNER	7698	7698	BLAKE
7876	ADAMS	7788	7788	SCOTT
7900	JAMES	7698	7698	BLAKE
7902	FORD	7566	7566	JONES
7934	MILLER	7782	7782	CLARK

실습 8-10 오른쪽 외부 조인 사용하기

```
01 SELECT E1.EMPNO, E1.ENAME, E1.MGR,  
02        E2.EMPNO AS MGR_EMPNO,  
03        E2.ENAME AS MGR_ENAME  
04 FROM EMP E1, EMP E2  
05 WHERE E1.MGR(+) = E2.EMPNO  
06 ORDER BY E1.EMPNO;
```

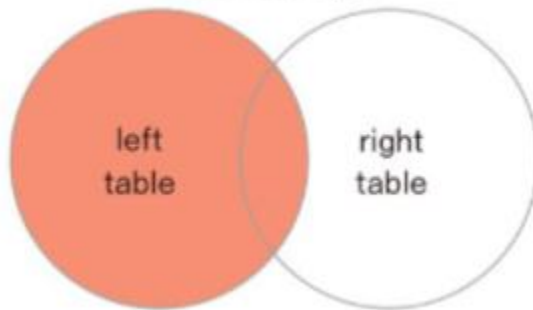
:: 결과 화면

EMPNO	ENAME	MGR	MGR_EMPNO	MGR_ENAME
7369	SMITH	7902	7902	FORD
7499	ALLEN	7698	7698	BLAKE
7521	WARD	7698	7698	BLAKE
7566	JONES	7839	7839	KING
7654	MARTIN	7698	7698	BLAKE
7698	BLAKE	7839	7839	KING
7782	CLARK	7839	7839	KING
7788	SCOTT	7566	7566	JONES
7844	TURNER	7698	7698	BLAKE
7876	ADAMS	7788	7788	SCOTT
7900	JAMES	7698	7698	BLAKE
7902	FORD	7566	7566	JONES
7934	MILLER	7782	7782	CLARK
			7844	TURNER
			7876	ADAMS
			7900	JAMES
			7369	SMITH
			7499	ALLEN
			7521	WARD
			7934	MILLER
			7654	MARTIN

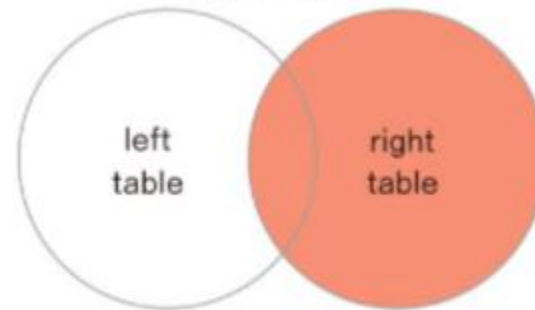
08-2 조인 종류

여러 조인을 벤 다이어그램으로 표현

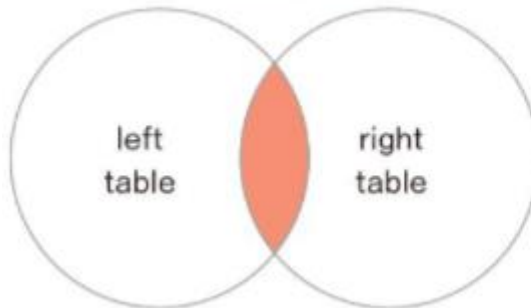
left outer join



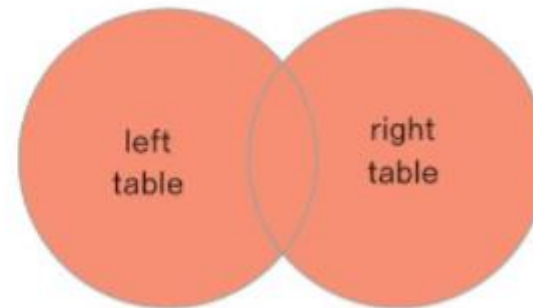
right outer join



inner join



full outer join



08-3 SQL-99 표준 문법으로 배우는 조인

- ▶ NATURAL JOIN : 두 테이블의 같은 열 기준
- ▶ JOIN ~ USING : 조인에 사용할 기준열 명시
- ▶ JOIN ~ ON : 조인 조건 직접 명시



08-3 SQL-99 표준 문법으로 배우는 조인

▶ NATURAL JOIN : 두 테이블의 같은 열 기준

실습 8-11 NATURAL JOIN을 사용하여 조인하기

```
01 SELECT E.EMPNO, E.ENAME, E.JOB, E.MGR, E.HIREDATE, E.SAL, E.COMM,  
02      DEPTNO, D.DNAME, D.LOC  
03 FROM EMP E NATURAL JOIN DEPT D  
04 ORDER BY DEPTNO, E.EMPNO;
```

:: 결과 화면

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO	DNAME	LOC
7782	CLARK	MANAGER	7839	1981-06-09	2450		10	ACCOUNTING	NEW YORK
7839	KING	PRESIDENT		1981-11-17	5000		10	ACCOUNTING	NEW YORK
7934	MILLER	CLERK	7782	1982-01-23	1300		10	ACCOUNTING	NEW YORK
7369	SMITH	CLERK	7902	1980-12-17	800		20	RESEARCH	DALLAS
7566	JONES	MANAGER	7839	1981-04-02	2975		20	RESEARCH	DALLAS
7788	SCOTT	ANALYST	7566	1987-04-19	3000		20	RESEARCH	DALLAS
7876	ADAMS	CLERK	7788	1987-05-23	1100		20	RESEARCH	DALLAS
7902	FORD	ANALYST	7566	1981-12-03	3000		20	RESEARCH	DALLAS
7499	ALLEN	SALESMAN	7698	1981-02-20	1600	300	30	SALES	CHICAGO
7521	WARD	SALESMAN	7698	1981-02-22	1250	500	30	SALES	CHICAGO
7654	MARTIN	SALESMAN	7698	1981-09-28	1250	1400	30	SALES	CHICAGO
7698	BLAKE	MANAGER	7839	1981-05-01	2850		30	SALES	CHICAGO
7844	TURNER	SALESMAN	7698	1981-09-08	1500	0	30	SALES	CHICAGO
7900	JAMES	CLERK	7698	1981-12-03	950		30	SALES	CHICAGO

08-3 SQL-99 표준 문법으로 배우는 조인

▶ JOIN ~ USING : 조인에 사용할 기준열 명시

FROM TABLE1 JOIN TABLE2 USING (조인에 사용한 기준열)

실습 8-12 JOIN ~ USING을 사용하여 조인하기

```
01 SELECT E.EMPNO, E.ENAME, E.JOB, E.MGR, E.HIREDATE, E.SAL, E.COMM,  
02        DEPTNO, D.DNAME, D.LOC  
03 FROM EMP E JOIN DEPT D USING (DEPTNO)  
04 WHERE SAL >= 3000  
05 ORDER BY DEPTNO, E.EMPNO;
```

:: 결과 화면

	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO	DNAME	LOC
▶	7839	KING	PRESIDENT		1981-11-17	5000		10	ACCOUNTING	NEW YORK
	7788	SCOTT	ANALYST	7566	1987-04-19	3000		20	RESEARCH	DALLAS
	7902	FORD	ANALYST	7566	1981-12-03	3000		20	RESEARCH	DALLAS

08-3 SQL-99 표준 문법으로 배우는 조인

▶ JOIN ~ ON : 조인 조건 직접 명시

FROM TABLE1 JOIN TABLE2 ON (조인 조건식)

실습 8-13 JOIN ~ ON으로 등가 조인하기

```
01 SELECT E.EMPNO, E.ENAME, E.JOB, E.MGR, E.HIREDATE, E.SAL, E.COMM,  
02        E.DEPTNO,  
03        D.DNAME, D.LOC  
04 FROM EMP E JOIN DEPT D ON (E.DEPTNO = D.DEPTNO)  
05 WHERE SAL <= 3000  
06 ORDER BY E.DEPTNO, EMPNO;
```

:: 결과 화면

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO	DNAME	LOC
7782	CLARK	MANAGER	7839	1981-06-09	2450		10	ACCOUNTING	NEW YORK
7934	MILLER	CLERK	7782	1982-01-23	1300		10	ACCOUNTING	NEW YORK
7369	SMITH	CLERK	7902	1980-12-17	800		20	RESEARCH	DALLAS
7566	JONES	MANAGER	7839	1981-04-02	2975		20	RESEARCH	DALLAS
7788	SCOTT	ANALYST	7566	1987-04-19	3000		20	RESEARCH	DALLAS
7876	ADAMS	CLERK	7788	1987-05-23	1100		20	RESEARCH	DALLAS
7902	FORD	ANALYST	7566	1981-12-03	3000		20	RESEARCH	DALLAS
7499	ALLEN	SALESMAN	7698	1981-02-20	1600	300	30	SALES	CHICAGO
7521	WARD	SALESMAN	7698	1981-02-22	1250	500	30	SALES	CHICAGO
7654	MARTIN	SALESMAN	7698	1981-09-28	1250	1400	30	SALES	CHICAGO
7698	BLAKE	MANAGER	7839	1981-05-01	2850		30	SALES	CHICAGO
7844	TURNER	SALESMAN	7698	1981-09-08	1500	0	30	SALES	CHICAGO
7900	JAMES	CLERK	7698	1981-12-03	950		30	SALES	CHICAGO

08-3 SQL-99 표준 문법으로 배우는 조인

▶ OUTER JOIN : 외부 조인

왼쪽 외부 조인 (Left Outer Join)	기존	WHERE TABLE1.COL1 = TABLE2.COL1(+)
	SQL-99	FROM TABLE1 LEFT OUTER JOIN TABLE2 ON (조인 조건식)
오른쪽 외부 조인 (Right Outer Join)	기존	WHERE TABLE1.COL1(+) = TABLE2.COL1
	SQL-99	FROM TABLE1 RIGHT OUTER JOIN TABLE2 ON (조인 조건식)
전체 외부 조인 (Full Outer Join)	기존	기본 문법은 없음 (UNION 집합 연산자를 활용)
	SQL-99	FROM TABLE1 FULL OUTER JOIN TABLE2 ON (조인 조건식)

08-3 SQL-99 표준 문법으로 배우는 조인

▶ OUTER JOIN : 외부 조인

실습 8-14 왼쪽 외부 조인을 SQL-99로 작성하기

```
01 SELECT E1.EMPNO, E1.ENAME, E1.MGR,  
02        E2.EMPNO AS MGR_EMPNO,  
03        E2.ENAME AS MGR_ENAME  
04 FROM EMP E1 LEFT OUTER JOIN EMP E2 ON (E1.MGR = E2.EMPNO)  
05 ORDER BY E1.EMPNO;
```

:: 결과 화면

EMPNO	ENAME	MGR	MGR_EMPNO	MGR_ENAME
7369	SMITH	7902	7902	FORD
7499	ALLEN	7698	7698	BLAKE
7521	WARD	7698	7698	BLAKE
7566	JONES	7839	7839	KING
7654	MARTIN	7698	7698	BLAKE
7698	BLAKE	7839	7839	KING
7782	CLARK	7839	7839	KING
7788	SCOTT	7566	7566	JONES
7839	KING			
7844	TURNER	7698	7698	BLAKE
7876	ADAMS	7788	7788	SCOTT
7900	JAMES	7698	7698	BLAKE
7902	FORD	7566	7566	JONES
7934	MILLER	7782	7782	CLARK

08-3 SQL-99 표준 문법으로 배우는 조인

▶ OUTER JOIN : 외부 조인

실습 8-14 왼쪽 외부 조인을 SQL-99로 작성하기

```
01 SELECT E1.EMPNO, E1.ENAME, E1.MGR,  
02        E2.EMPNO AS MGR_EMPNO,  
03        E2.ENAME AS MGR_ENAME  
04 FROM EMP E1 LEFT OUTER JOIN EMP E2 ON (E1.MGR = E2.EMPNO)  
05 ORDER BY E1.EMPNO;
```

:: 결과 화면

EMPNO	ENAME	MGR	MGR_EMPNO	MGR_ENAME
7369	SMITH	7902	7902	FORD
7499	ALLEN	7698	7698	BLAKE
7521	WARD	7698	7698	BLAKE
7566	JONES	7839	7839	KING
7654	MARTIN	7698	7698	BLAKE
7698	BLAKE	7839	7839	KING
7782	CLARK	7839	7839	KING
7788	SCOTT	7566	7566	JONES
7839	KING			
7844	TURNER	7698	7698	BLAKE
7876	ADAMS	7788	7788	SCOTT
7900	JAMES	7698	7698	BLAKE
7902	FORD	7566	7566	JONES
7934	MILLER	7782	7782	CLARK

08-3 SQL-99 표준 문법으로 배우는 조인

▶ OUTER JOIN : 외부 조인

실습 8-15 오른쪽 외부 조인을 SQL-99로 작성하기

```
01 SELECT E1.EMPNO, E1.ENAME, E1.MGR,  
02        E2.EMPNO AS MGR_EMPNO,  
03        E2.ENAME AS MGR_ENAME  
04 FROM EMP E1 RIGHT OUTER JOIN EMP E2 ON (E1.MGR = E2.EMPNO)  
05 ORDER BY E1.EMPNO, MGR_EMPNO;
```

:: 결과 화면

EMPNO	ENAME	MGR	MGR_EMPNO	MGR_ENAME
7369	SMITH	7902	7902	FORD
7499	ALLEN	7698	7698	BLAKE
7521	WARD	7698	7698	BLAKE
7566	JONES	7839	7839	KING
7654	MARTIN	7698	7698	BLAKE
7698	BLAKE	7839	7839	KING
7782	CLARK	7839	7839	KING
7788	SCOTT	7566	7566	JONES
7844	TURNER	7698	7698	BLAKE
7876	ADAMS	7788	7788	SCOTT
7900	JAMES	7698	7698	BLAKE
7902	FORD	7566	7566	JONES
7934	MILLER	7782	7782	CLARK
			7369	SMITH
			7499	ALLEN
			7521	WARD
			7654	MARTIN
			7844	TURNER
			7876	ADAMS
			7900	JAMES
			7934	MILLER

08-3 SQL-99 표준 문법으로 배우는 조인

▶ OUTER JOIN : 외부 조인

실습 8-16 전체 외부 조인을 SQL-99로 작성하기

```
01 SELECT E1.EMPNO, E1.ENAME, E1.MGR,  
02        E2.EMPNO AS MGR_EMPNO,  
03        E2.ENAME AS MGR_ENAME  
04 FROM EMP E1 FULL OUTER JOIN EMP E2 ON (E1.MGR = E2.EMPNO)  
05 ORDER BY E1.EMPNO;
```

```
FROM TABLE1 JOIN TABLE2 ON (조건식)  
JOIN TABLE3 ON (조건식)
```

:: 결과 화면

EMPNO	ENAME	MGR	MGR_EMPNO	MGR_ENAME
7369	SMITH	7902	7902	FORD
7499	ALLEN	7698	7698	BLAKE
7521	WARD	7698	7698	BLAKE
7566	JONES	7839	7839	KING
7654	MARTIN	7698	7698	BLAKE
7698	BLAKE	7839	7839	KING
7782	CLARK	7839	7839	KING
7788	SCOTT	7566	7566	JONES
7839	KING			
7844	TURNER	7698	7698	BLAKE
7876	ADAMS	7788	7788	SCOTT
7900	JAMES	7698	7698	BLAKE
7902	FORD	7566	7566	JONES
7934	MILLER	7782	7782	CLARK
			7934	MILLER
			7900	JAMES
			7876	ADAMS
			7844	TURNER
			7654	MARTIN
			7521	WARD
			7369	SMITH
			7499	ALLEN