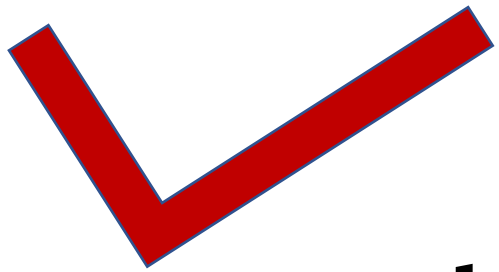


이럴때는



nested loop join 으로 유도하라 ! 두번째

■ 학습 내용

1. 3개 이상의 테이블 조인시 조인 순서 정하기
2. 3개 이상의 테이블 조인시 검색 조건이 있을때 조인 순서 정하기
3. 3개 이상의 테이블 조인시 검색 조건이 여러개 있을때 조인 순서 정하기

■ 학습 목표

여러개의 테이블을 조인할 때 nested loop 조인으로 유도할 수 있고 조인 순서를 조정할 수 있습니다.

1. 3개 이상의 테이블 조인시 조인순서는?

```
select /*+ leading(s e d ) use_nl(e) use_nl(d) */ e.ename, d.loc, s.grade
from emp e, dept d, salgrade s
where e.deptno = d.deptno and e.sal between s.losal and s.hisal;
```

salgrade 테이블

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

emp 테이블

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7839	KING	PRESIDENT		1981-11-17	5000		10
7698	BLAKE	MANAGER	7839	1981-05-01	2850		30
7782	CLARK	MANAGER	7839	1981-05-09	2450		10
7566	JONES	MANAGER	7839	1981-04-01	2975		20
7654	MARTIN	SALESMAN	7698	1981-09-10	1250	1400	30
7499	ALLEN	SALESMAN	7698	1981-02-11	1600	300	30
7844	TURNER	SALESMAN	7698	1981-08-21	1500	0	30
7900	JAMES	CLERK	7698	1981-12-11	950		30
7521	WARD	SALESMAN	7698	1981-02-23	1250	500	30
7902	FORD	ANALYST	7566	1981-12-11	3000		20
7369	SMITH	CLERK	7902	1980-12-09	800		20
7788	SCOTT	ANALYST	7566	1982-12-22	3000		20
7876	ADAMS	CLERK	7788	1983-01-15	1100		20
7934	MILLER	CLERK	7782	1982-01-11	1300		10

dept 테이블

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

buffer 139개

2. 반대로 조인하면 성능이 좋아질까?

```
select /*+ leading(d e s ) use_nl(e) use_nl(s) */ e.ename, d.loc, s.grade
from emp e, dept d, salgrade s
where e.deptno = d.deptno and e.sal between s.losal and s.hisal;
```

salgrade 테이블

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

emp 테이블

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7839	KING	PRESIDENT		1981-11-17	5000		10
7698	BLAKE	MANAGER	7839	1981-05-01	2850		30
7782	CLARK	MANAGER	7839	1981-05-09	2450		10
7566	JONES	MANAGER	7839	1981-04-01	2975		20
7654	MARTIN	SALESMAN	7698	1981-09-10	1250	1400	30
7499	ALLEN	SALESMAN	7698	1981-02-11	1600	300	30
7844	TURNER	SALESMAN	7698	1981-08-21	1500	0	30
7900	JAMES	CLERK	7698	1981-12-11	950		30
7521	WARD	SALESMAN	7698	1981-02-23	1250	500	30
7902	FORD	ANALYST	7566	1981-12-11	3000		20
7369	SMITH	CLERK	7902	1980-12-09	800		20
7788	SCOTT	ANALYST	7566	1982-12-22	3000		20
7876	ADAMS	CLERK	7788	1983-01-15	1100		20
7934	MILLER	CLERK	7782	1982-01-11	1300		10

dept 테이블

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

buffer 119개

3. 검색 조건이 있었을때의 조인순서는?

```
select /*+ leading(e d s) use_nl(d) use_nl(s) */ e.ename, d.loc, s.grade
from emp e, dept d, salgrade s
where e.deptno = d.deptno and e.sal between s.losal and s.hisal
and e.ename='SCOTT';
```

emp 테이블

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7839	KING	PRESIDENT		1981-11-17	5000		10
7698	BLAKE	MANAGER	7839	1981-05-01	2850		30
7782	CLARK	MANAGER	7839	1981-05-09	2450		10
7566	JONES	MANAGER	7839	1981-04-01	2975		20
7654	MARTIN	SALESMAN	7698	1981-09-10	1250	1400	30
7499	ALLEN	SALESMAN	7698	1981-02-11	1600	300	30
7844	TURNER	SALESMAN	7698	1981-08-21	1500	0	30
7900	JAMES	CLERK	7698	1981-12-11	950		30
7521	WARD	SALESMAN	7698	1981-02-23	1250	500	30
7902	FORD	ANALYST	7566	1981-12-11	3000		20
7369	SMITH	CLERK	7902	1980-12-09	800		20
7788	SCOTT	ANALYST	7566	1982-12-22	3000		20
7876	ADAMS	CLERK	7788	1983-01-15	1100		20
7934	MILLER	CLERK	7782	1982-01-11	1300		10

dept 테이블

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

salgrade 테이블

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

buffer 21개

4. 반대로 조인하면 성능이 좋아질까?

```
select /*+ leading(s d e) use_nl(d) use_nl(e) */ e.ename, d.loc, s.grade
from emp e, dept d, salgrade s
where e.deptno = d.deptno and e.sal between s.losal and s.hisal
and e.ename='SCOTT';
```

emp 테이블

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7839	KING	PRESIDENT		1981-11-17	5000		10
7698	BLAKE	MANAGER	7839	1981-05-01	2850		30
7782	CLARK	MANAGER	7839	1981-05-09	2450		10
7566	JONES	MANAGER	7839	1981-04-01	2975		20
7654	MARTIN	SALESMAN	7698	1981-09-10	1250	1400	30
7499	ALLEN	SALESMAN	7698	1981-02-11	1600	300	30
7844	TURNER	SALESMAN	7698	1981-08-21	1500	0	30
7900	JAMES	CLERK	7698	1981-12-11	950		30
7521	WARD	SALESMAN	7698	1981-02-23	1250	500	30
7902	FORD	ANALYST	7566	1981-12-11	3000		20
7369	SMITH	CLERK	7902	1980-12-09	800		20
7788	SCOTT	ANALYST	7566	1982-12-22	3000		20
7876	ADAMS	CLERK	7788	1983-01-15	1100		20
7934	MILLER	CLERK	7782	1982-01-11	1300		10

dept 테이블

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

salgrade 테이블

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

buffer 182개

5. 검색 조건이 여러개 있었을때의 조인순서는?

```
select /*+ leading(s e d ) use_nl(e) use_nl(d) */ e.ename, d.loc, s.grade
from emp e, dept d, salgrade s
where e.deptno = d.deptno and e.sal between s.losal and s.hisal
and s.grade in (3,4) and d.loc='DALLAS';
```

salgrade 테이블

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

emp 테이블

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7839	KING	PRESIDENT		1981-11-17	5000		10
7698	BLAKE	MANAGER	7839	1981-05-01	2850		30
7782	CLARK	MANAGER	7839	1981-05-09	2450		10
7566	JONES	MANAGER	7839	1981-04-01	2975		20
7654	MARTIN	SALESMAN	7698	1981-09-10	1250	1400	30
7499	ALLEN	SALESMAN	7698	1981-02-11	1600	300	30
7844	TURNER	SALESMAN	7698	1981-08-21	1500	0	30
7900	JAMES	CLERK	7698	1981-12-11	950		30
7521	WARD	SALESMAN	7698	1981-02-23	1250	500	30
7902	FORD	ANALYST	7566	1981-12-11	3000		20
7369	SMITH	CLERK	7902	1980-12-09	800		20
7788	SCOTT	ANALYST	7566	1982-12-22	3000		20
7876	ADAMS	CLERK	7788	1983-01-15	1100		20
7934	MILLER	CLERK	7782	1982-01-11	1300		10

dept 테이블

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

buffer 70개

6. 반대로 조인하면 성능이 좋아질까?

```
select /*+ leading(d e s) use_nl(e) use_nl(s) */ e.ename, d.loc, s.grade
from emp e, dept d, salgrade s
where e.deptno = d.deptno and e.sal between s.losal and s.hisal
and s.grade in (3,4) and d.loc='DALLAS';
```

salgrade 테이블

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

emp 테이블

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7839	KING	PRESIDENT		1981-11-17	5000		10
7698	BLAKE	MANAGER	7839	1981-05-01	2850		30
7782	CLARK	MANAGER	7839	1981-05-09	2450		10
7566	JONES	MANAGER	7839	1981-04-01	2975		20
7654	MARTIN	SALESMAN	7698	1981-09-10	1250	1400	30
7499	ALLEN	SALESMAN	7698	1981-02-11	1600	300	30
7844	TURNER	SALESMAN	7698	1981-08-21	1500	0	30
7900	JAMES	CLERK	7698	1981-12-11	950		30
7521	WARD	SALESMAN	7698	1981-02-23	1250	500	30
7902	FORD	ANALYST	7566	1981-12-11	3000		20
7369	SMITH	CLERK	7902	1980-12-09	800		20
7788	SCOTT	ANALYST	7566	1982-12-22	3000		20
7876	ADAMS	CLERK	7788	1983-01-15	1100		20
7934	MILLER	CLERK	7782	1982-01-11	1300		10

dept 테이블

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

buffer 49개