

이럴때



**outer join 은 이렇게 튜닝하라**

## ▣ 학습 내용

1. outer join 이 실행될 때 조인되는 순서를 이해합니다.
2. outer join 이 실행될때 해쉬 테이블을 구성하는 방법을 학습합니다.

## ▣ 학습 목표

outer join 조인문장을 튜닝할 수 있습니다.

# 1. 아우터 조인의 조인순서는?

```
select e.ename, d.loc  
from emp e, dept d  
where e.deptno (+) = d.deptno ;
```

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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
2921	JACK				4500		70

```
select e.ename, d.loc  
from emp e, dept d  
where e.deptno = d.deptno (+) ;
```

②



dept 테이블

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

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# 1. 아우터 조인의 조인순서는?

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```
select e.ename, d.loc  
from emp e, dept d  
where e.deptno = d.deptno (+) ;
```

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②



## 2. 아우터 조인의 해쉬 조인시에 해쉬 테이블은?

```
select /*+ gather_plan_statistics leading(d e) use_hash(e) */ e.ename, d.loc
from emp e, dept d
where e.deptno (+) = d.deptno ;
```

PROB 테이블

emp 테이블

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7934	MILLER	CLERK	7782	1982-01-11	1300		10

해쉬 함수

오라클 메모리 영역 PGA

해쉬 테이블

해쉬값	DEPTNO	DNAME	LOC
kdl21fnae..	10	ACCOUNTING	NEW YORK
fekfh32en..	20	RESEARCH	DALLAS
dkfle21jfn..	30	SALES	CHICAGO
EEKfn09dn...	40	OPERATIONS	BOSTON

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### 3. 아우터 조인순서와 관계없이 해쉬 테이블을 정할 수 있는가?

```
select /*+ gather_plan_statistics leading(d e) use_hash(e) */ e.ename, d.loc
from emp e, dept d
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```

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```
select /*+ gather_plan_statistics leading(d e) use_hash(e) */ e.ename, d.loc
from emp e, dept d
where e.deptno = d.deptno (+) ;
```

Id	Operation	Name	Starts	E-Rows	A-Rows	A-Time	Buffers	OMem	lMem	Used-Mem
0	SELECT STATEMENT		1		14	00:00:00.01	12			
* 1	HASH JOIN OUTER		1	14	14	00:00:00.01	12	1856K	1856K	906K (0)
2	TABLE ACCESS FULL	EMP	1	14	14	00:00:00.01	6			
3	TABLE ACCESS FULL	DEPT	1	4	4	00:00:00.01	6			

```
select /*+ gather_plan_statistics leading(d e) use_hash(e)
        swap_join_inputs(d) */ e.ename, d.loc
from emp e, dept d
where e.deptno = d.deptno (+) ;
```

Id	Operation	Name	Starts	E-Rows	A-Rows	A-Time	Buffers	OMem	lMem	Used-Mem
0	SELECT STATEMENT		1		14	00:00:00.01	12			
* 1	HASH JOIN RIGHT OUTER		1	14	14	00:00:00.01	12	1797K	1797K	975K (0)
2	TABLE ACCESS FULL	DEPT	1	4	4	00:00:00.01	6			
3	TABLE ACCESS FULL	EMP	1	14	14	00:00:00.01	6			