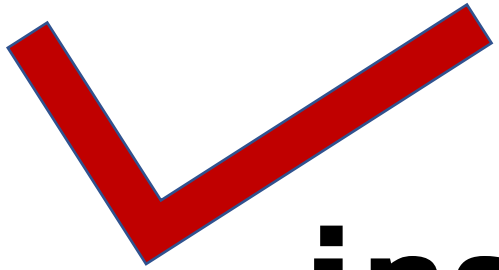


이럴때는



**index full scan 으로 유도하자 !**

# 인덱스 스캔 방법 7가지

	인덱스 액세스 방법	관련 힌트
1	index range scan	index
2	index unique scan	index
3	index full scan	index
4	index skip scan	index_ss
5	index fast full scan	index_ffs
6	index merge scan	and_equal
7	index bitmap merge scan	index_combine



# 1. table full scan 이란?

테이블의 처음 부터 끝까지를 다 스캔하면서 원하는 데이터를 찾는 검색 방법입니다.

emp 테이블

```
select ename, sal  
from emp  
where sal = 3000;
```

ROWID	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
AAATc1AAHAAAAHeAAA	7839	KING	PRESIDENT		1981-11-17	5000		10
AAATc1AAHAAAAHeAAB	7698	BLAKE	MANAGER	7839	1981-05-01	2850		30
AAATc1AAHAAAAHeAAC	7782	CLARK	MANAGER	7839	1981-05-09	2450		10
AAATc1AAHAAAAHeAAD	7566	JONES	MANAGER	7839	1981-04-01	2975		20
AAATc1AAHAAAAHeAAE	7654	MARTIN	SALESMAN	7698	1981-09-10	1250	1400	30
AAATc1AAHAAAAHeAAF	7499	ALLEN	SALESMAN	7698	1981-02-11	1600	300	30
AAATc1AAHAAAAHeAAG	7844	TURNER	SALESMAN	7698	1981-08-21	1500	0	30
AAATc1AAHAAAAHeAAH	7900	JAMES	CLERK	7698	1981-12-11	950		30
AAATc1AAHAAAAHeAAI	7521	WARD	SALESMAN	7698	1981-02-23	1250	500	30
AAATc1AAHAAAAHeAAJ	7902	FORD	ANALYST	7566	1981-12-11	3000		20
AAATc1AAHAAAAHeAAK	7369	SMITH	CLERK	7902	1980-12-09	800		20
AAATc1AAHAAAAHeAAL	7788	SCOTT	ANALYST	7566	1982-12-22	3000		20
AAATc1AAHAAAAHeAAM	7876	ADAMS	CLERK	7788	1983-01-15	1100		20
AAATc1AAHAAAAHeAAN	7934	MILLER	CLERK	7782	1982-01-11	1300		10

## 2. 단일 컬럼 인덱스만 있었을때

인덱스를 통해서 테이블을 액세스 합니다.

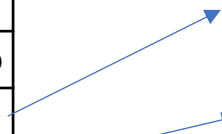
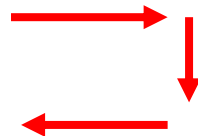
```
select ename,sal
from emp
where sal = 3000;
```

emp\_sal 인덱스

SAL	ROWID
800	AAATdNAAHAAAAFeAAK
950	AAATdNAAHAAAAFeAAH
1100	AAATdNAAHAAAAFeAAM
1250	AAATdNAAHAAAAFeAAE
1250	AAATdNAAHAAAAFeAAI
1300	AAATdNAAHAAAAFeAAN
1500	AAATdNAAHAAAAFeAAG
1600	AAATdNAAHAAAAFeAAF
2450	AAATdNAAHAAAAFeAAC
2850	AAATdNAAHAAAAFeAAB
2975	AAATdNAAHAAAAFeAAD
3000	AAATdNAAHAAAAFeAAJ
3000	AAATdNAAHAAAAFeAAL
5000	AAATdNAAHAAAAFeAAA

emp 테이블

ROWID	EMPNO	ENAME	JOB	...
AAATc1AAHAAAAHeAAA	7839	KING	PRESIDENT	...
AAATc1AAHAAAAHeAAB	7698	BLAKE	MANAGER	...
AAATc1AAHAAAAHeAAC	7782	CLARK	MANAGER	...
AAATc1AAHAAAAHeAAD	7566	JONES	MANAGER	...
AAATc1AAHAAAAHeAAE	7654	MARTIN	SALESMAN	...
AAATc1AAHAAAAHeAAF	7499	ALLEN	SALESMAN	...
AAATc1AAHAAAAHeAAG	7844	TURNER	SALESMAN	...
AAATc1AAHAAAAHeAAH	7900	JAMES	CLERK	...
AAATc1AAHAAAAHeAAI	7521	WARD	SALESMAN	...
AAATc1AAHAAAAHeAAJ	7902	FORD	ANALYST	...
AAATc1AAHAAAAHeAAK	7369	SMITH	CLERK	...
AAATc1AAHAAAAHeAAL	7788	SCOTT	ANALYST	...
AAATc1AAHAAAAHeAAM	7876	ADAMS	CLERK	...
AAATc1AAHAAAAHeAAN	7934	MILLER	CLERK	...



### 3. 결합 컬럼 인덱스를 생성했다면?

검색하기를 원하는 데이터가 인덱스에 다 구성되어 있다면 테이블 액세스를 하지 않습니다.

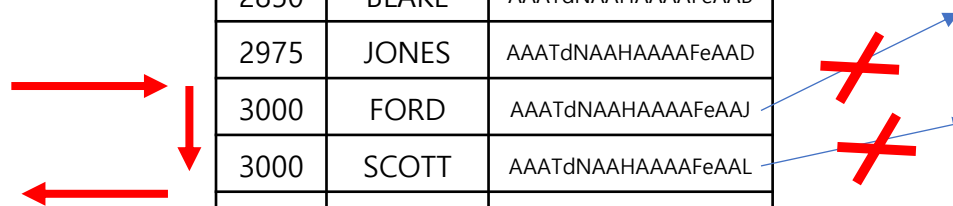
```
select ename,sal
from emp
where sal = 3000;
```

emp\_sal\_ename 인덱스

SAL	ENAME	ROWID
800	SMITH	AAATdNAAHAAAAFeAAK
950	JAMES	AAATdNAAHAAAAFeAAH
1100	ADAMS	AAATdNAAHAAAAFeAAM
1250	MARTIN	AAATdNAAHAAAAFeAAE
1250	WARD	AAATdNAAHAAAAFeAAI
1300	MILLER	AAATdNAAHAAAAFeAAN
1500	TURNER	AAATdNAAHAAAAFeAAG
1600	ALLEN	AAATdNAAHAAAAFeAAF
2450	CLARK	AAATdNAAHAAAAFeAAC
2850	BLAKE	AAATdNAAHAAAAFeAAB
2975	JONES	AAATdNAAHAAAAFeAAD
3000	FORD	AAATdNAAHAAAAFeAAJ
3000	SCOTT	AAATdNAAHAAAAFeAAL
5000	KING	AAATdNAAHAAAAFeAAA

emp 테이블

ROWID	EMPNO	ENAME	JOB	...
AAATc1AAHAAAAHeAAA	7839	KING	PRESIDENT	...
AAATc1AAHAAAAHeAAB	7698	BLAKE	MANAGER	...
AAATc1AAHAAAAHeAAC	7782	CLARK	MANAGER	...
AAATc1AAHAAAAHeAAD	7566	JONES	MANAGER	...
AAATc1AAHAAAAHeAAE	7654	MARTIN	SALESMAN	...
AAATc1AAHAAAAHeAAF	7499	ALLEN	SALESMAN	...
AAATc1AAHAAAAHeAAG	7844	TURNER	SALESMAN	...
AAATc1AAHAAAAHeAAH	7900	JAMES	CLERK	...
AAATc1AAHAAAAHeAAI	7521	WARD	SALESMAN	...
AAATc1AAHAAAAHeAAJ	7902	FORD	ANALYST	...
AAATc1AAHAAAAHeAAK	7369	SMITH	CLERK	...
AAATc1AAHAAAAHeAAL	7788	SCOTT	ANALYST	...
AAATc1AAHAAAAHeAAM	7876	ADAMS	CLERK	...
AAATc1AAHAAAAHeAAN	7934	MILLER	CLERK	...



# 4. index full scan 이란?

데이터를 검색할 때 인덱스 전체를 스캔 하면서 원하는 데이터를 검색하는 스캔 방법입니다.

**select ename,sal  
from emp  
where ename='JONES';**

emp\_sal\_ename 인덱스

SAL	ENAME	ROWID
800	SMITH	AAATdNAAHAAAAFeAAK
950	JAMES	AAATdNAAHAAAAFeAAH
1100	ADAMS	AAATdNAAHAAAAFeAAM
1250	MARTIN	AAATdNAAHAAAAFeAAE
1250	WARD	AAATdNAAHAAAAFeAAI
1300	MILLER	AAATdNAAHAAAAFeAAN
1500	TURNER	AAATdNAAHAAAAFeAAG
1600	ALLEN	AAATdNAAHAAAAFeAAF
2450	CLARK	AAATdNAAHAAAAFeAAC
2850	BLAKE	AAATdNAAHAAAAFeAAB
2975	JONES	AAATdNAAHAAAAFeAAD
3000	FORD	AAATdNAAHAAAAFeAAJ
3000	SCOTT	AAATdNAAHAAAAFeAAL
5000	KING	AAATdNAAHAAAAFeAAA

emp 테이블

ROWID	EMPNO	ENAME	JOB	...
AAATc1AAHAAAAHeAAA	7839	KING	PRESIDENT	...
AAATc1AAHAAAAHeAAB	7698	BLAKE	MANAGER	...
AAATc1AAHAAAAHeAAC	7782	CLARK	MANAGER	...
AAATc1AAHAAAAHeAAD	7566	JONES	MANAGER	...
AAATc1AAHAAAAHeAAE	7654	MARTIN	SALESMAN	...
AAATc1AAHAAAAHeAAF	7499	ALLEN	SALESMAN	...
AAATc1AAHAAAAHeAAG	7844	TURNER	SALESMAN	...
AAATc1AAHAAAAHeAAH	7900	JAMES	CLERK	...
AAATc1AAHAAAAHeAAI	7521	WARD	SALESMAN	...
AAATc1AAHAAAAHeAAJ	7902	FORD	ANALYST	...
AAATc1AAHAAAAHeAAK	7369	SMITH	CLERK	...
AAATc1AAHAAAAHeAAL	7788	SCOTT	ANALYST	...
AAATc1AAHAAAAHeAAM	7876	ADAMS	CLERK	...
AAATc1AAHAAAAHeAAN	7934	MILLER	CLERK	...