

이럴 때는



SQL을 재작성해서 튜닝하세요. 세번째!

▣ 학습 내용

1. 악성 SQL을 분석하여 왜 튜닝이 필요한지 이해합니다.
2. 튜닝후 SQL이 왜 더 성능이 우수한지 학습합니다.
3. ChatGPT를 나에게 더 최적화 해서 SQL튜닝하는 tip을 배웁니다.

▣ 학습 목표

데이터 분석함수로 SQL을 재작성하여 튜닝할 수 있게 됩니다.

사원번호, 이름, 월급, 월급의 누적치를 출력하세요

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

출력결과

EMPNO	ENAME	SAL	누적치
7369	SMITH	800	800
7499	ALLEN	1600	2400
7521	WARD	1250	3650
7566	JONES	2975	6625
7654	MARTIN	1250	7875
7698	BLAKE	2850	10725
7782	CLARK	2450	13175
7788	SCOTT	3000	16175
7839	KING	5000	21175
7844	TURNER	1500	22675
7876	ADAMS	1100	23775
7900	JAMES	950	24725
7902	FORD	3000	27725
7934	MILLER	1300	29025

튜닝전 :

```
select empno, ename, sal,  
       (select sum(sal) from emp e where e.empno <= b.empno) sumsal  
from emp b  
order by empno;
```

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EMPNO	ENAME	SAL	SUMSAL
7369	SMITH	800	
7499	ALLEN	1600	
7521	WARD	1250	
7566	JONES	2975	
7654	MARTIN	1250	
7698	BLAKE	2850	
7782	CLARK	2450	
7788	SCOTT	3000	
7839	KING	5000	
7844	TURNER	1500	
7876	ADAMS	1100	
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7782	CLARK	2450	
7788	SCOTT	3000	
7839	KING	5000	
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7698	BLAKE	2850	
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7902	FORD	3000	27725
7934	MILLER	1300	29025

**select 절의 서브쿼리를 14번
실행했습니다 !**

튜닝후 :

```
select empno, ename, sal,  
       sum(sal) over ( order by empno asc ) sumsal  
from emp;
```

출력결과

EMPNO	ENAME	SAL	SUMSAL
7369	SMITH	800	800
7499	ALLEN	1600	2400
7521	WARD	1250	3650
7566	JONES	2975	6625
7654	MARTIN	1250	7875
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```
select empno, ename, sal,  
       (select sum(sal) from emp e where e.empno <= b.empno) sumsal  
from emp b order by empno;
```

Id	Operation	Name	Starts	E-Rows	A-Rows	A-Time	Buffers	OMem	lMem	Used-Mem
0	SELECT STATEMENT		1		14	00:00:00.01	90			
1	SORT AGGREGATE		14	1	14	00:00:00.01	84			
* 2	TABLE ACCESS FULL	EMP	14	1	105	00:00:00.01	84			
3	SORT ORDER BY		1	14	14	00:00:00.01	90	2048	2048	2048 (0)
4	TABLE ACCESS FULL	EMP	1	14	14	00:00:00.01	6			

튜닝후 :

```
select empno, ename, sal,  
       sum(sal) over ( order by empno asc ) sumsal  
from emp;
```

Id	Operation	Name	Starts	E-Rows	A-Rows	A-Time	Buffers	OMem	lMem	Used-Mem
0	SELECT STATEMENT		1		14	00:00:00.01	6			
1	WINDOW SORT		1	14	14	00:00:00.01	6	2048	2048	2048 (0)
2	TABLE ACCESS FULL	EMP	1	14	14	00:00:00.01	6			