**데이터베이스 시스템 과제물 제출**

**1826074 오현진**

**지도교수 : 오염덕교수님**

**제출일자 : 22.11.28**



**[문제 1] Unique Index 생성하기**

SQL> create table emp2

2 as

3 select empno, ename, mgr, sal, deptno

4 from emp;

Table created.

SQL> select \* from emp2

2 where ename='SMITH';

EMPNO ENAME MGR SAL DEPTNO

---------- ---------- ---------- ---------- ----------

7369 SMITH 7902 800 20

SQL> create unique index idx\_emp2\_ename

2 on emp2(ename);

Index created.

SQL> select \* from emp2

2 where ename='SMITH';

EMPNO ENAME MGR SAL DEPTNO

---------- ---------- ---------- ---------- ----------

7369 SMITH 7902 800 20

**인덱스를 생성하기 전보다 이후가 조금 더 빠른 거 같다고 생각했습니다.**

**[문제2] Unique Index에 중복 데이터 삽입하기**

SQL> create table dept2(

2 dcode number,

3 dname varchar2(20),

4 zip number,

5 area varchar2(20));

Table created.

SQL> create unique index idx\_dept2\_dname

2 on dept2(dname);

Index created.

SQL> insert into dept2

2 values(9100,'temp01',1006,'Seoul Branch');

1 row created.

SQL> insert into dept2

2 values(9101,'temp01',1006,'Busan Branch');

insert into dept2

\*

ERROR at line 1:

ORA-00001: unique constraint (USER17.IDX\_DEPT2\_DNAME) violated

**unique 인덱스가 설정된 칼럼에는 중복 값을 삽입할 수 없었습니다.**

**[문제3] SQL 테스트하기**

**1. Non-Unique Index 생성하기**

SQL> select \* from emp2

2 where deptno=20;

EMPNO ENAME MGR SAL DEPTNO

---------- ---------- ---------- ---------- ----------

7566 JONES 7839 2975 20

7788 SCOTT 7566 3000 20

7902 FORD 7566 3000 20

7369 SMITH 7902 800 20

7876 ADAMS 7788 1100 20

SQL> create index idx\_emp2\_deptno

2 on emp2(deptno);

Index created.

SQL> select \* from emp2

2 where deptno=20;

EMPNO ENAME MGR SAL DEPTNO

---------- ---------- ---------- ---------- ----------

7566 JONES 7839 2975 20

7788 SCOTT 7566 3000 20

7902 FORD 7566 3000 20

7369 SMITH 7902 800 20

7876 ADAMS 7788 1100 20

**인덱스를 생성한 후가 조금 더 속도가 빨랐습니다.**

**2.FBI 생성하기**

SQL> create index idx\_emp2\_sal\_fbi

2 on emp2(sal+1000);

Index created.

SQL> select \* from emp2

2 where sal+1000 > 2000;

EMPNO ENAME MGR SAL DEPTNO

---------- ---------- ---------- ---------- ----------

7876 ADAMS 7788 1100 20

7521 WARD 7698 1250 30

7654 MARTIN 7698 1250 30

7934 MILLER 7782 1300 10

7844 TURNER 7698 1500 30

7499 ALLEN 7698 1600 30

7782 CLARK 7839 2450 10

7698 BLAKE 7839 2850 30

7566 JONES 7839 2975 20

7788 SCOTT 7566 3000 20

7902 FORD 7566 3000 20

EMPNO ENAME MGR SAL DEPTNO

---------- ---------- ---------- ---------- ----------

7839 KING 5000 10

12 rows selected.

**FBI 생성이 잘 이루어진 모습입니다.**

**3. 결합 인덱스 생성하기**

SQL> create index idx\_emp2\_comp

2 on emp2(ename, deptno);

Index created.

SQL> select ename, sal from emp2

2 where ename='SMITH'

3 and deptno=10;

**여러 칼럼을 결합하여 인덱스를 생성했습니다.**

**4. Bitmap Index 생성하기**

SQL> create bitmap index idx\_emp2\_deptno\_bit

2 on emp2(deptno);

create bitmap index idx\_emp2\_deptno\_bit

\*

ERROR at line 1:

ORA-00439: feature not enabled: Bit-mapped indexes

**Bitmap Index는 유료버전에서만 사용 가능한 기능이라고 하여 실습을 하지 못했습니다.**

**5. Index 조회하기**

SQL> set line 200

SQL> col table\_name for a10

SQL> col column\_name for a10

SQL> col index\_name for a20

SQL>

SQL> select table\_name, column\_name, index\_name

2 from user\_ind\_columns

3 where table\_name = 'EMP2';

TABLE\_NAME COLUMN\_NAM INDEX\_NAME

---------- ---------- --------------------

EMP2 SYS\_NC0000 IDX\_EMP2\_SAL\_FBI

6$

EMP2 ENAME IDX\_EMP2\_ENAME

EMP2 SYS\_NC0000 IDX\_EMP2\_SAL1

7$

EMP2 ENAME IDX\_EMP2\_COMP

EMP2 DEPTNO IDX\_EMP2\_COMP

SQL> select table\_name, index\_name

2 from user\_indexes

3 where table\_name = 'DEPT2';

TABLE\_NAME INDEX\_NAME

---------- --------------------

DEPT2 IDX\_DEPT2\_DNAME

**테이블 별로 생성된 인덱스들을 조회하였습니다.**

**6. Index 조회하기**

SQL> alter index idx\_emp2\_ename monitoring usage;

Index altered.

SQL> select index\_name, used

2 from v$object\_usage

3 where index\_name='IDX\_EMP2\_ENAME';

INDEX\_NAME USE

-------------------- ---

IDX\_EMP2\_ENAME NO

**모니터링을 사용한 뒤에 사용중인 인덱스를 확인했습니다.**

**[문제4] 뷰에 인덱스 생성하기**

SQL> create or replace view v\_emp1

2 as

3 select empno, ename, hiredate

4 from emp;

View created.

SQL> select \* from v\_emp1;

EMPNO ENAME HIREDATE

---------- ---------- ---------

7839 KING 17-NOV-96

7698 BLAKE 05-JAN-91

7782 CLARK 06-SEP-99

7566 JONES 04-FEB-01

7788 SCOTT 17-JUN-03

7902 FORD 12-MAR-81

7369 SMITH 01-DEC-07

7499 ALLEN 20-FEB-81

7521 WARD 22-FEB-81

7654 MARTIN 28-SEP-81

7844 TURNER 09-AUG-81

EMPNO ENAME HIREDATE

---------- ---------- ---------

7876 ADAMS 23-MAY-87

7900 JAMES 12-MAR-81

7934 MILLER 23-JAN-03

14 rows selected.

SQL> create index idx\_v\_emp\_ename

2 on v\_emp1(ename);

on v\_emp1(ename)

\*

ERROR at line 2:

ORA-01702: a view is not appropriate here

**뷰에는 인덱스가 생성되지 않았습니다.**