Experiment No. 04

Implementation of Tablespace in Oracle

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1. Creating and Managing Tablespaces

2. Create user and assign Tablespace Quotas

```
SQL> grant create session, create table to hr_user1;

Grant succeeded.

SQL> show user;
USER is "SYSTEM"
SQL> desc dba_ts_quotas;
 Name                                    Null?    Type
 --------------------------------------- -------- ----------------------------
 TABLESPACE_NAME                         NOT NULL VARCHAR2(30)
 USERNAME                                NOT NULL VARCHAR2(128)
 BYTES                                            NUMBER
 MAX_BYTES                                        NUMBER
 BLOCKS                                           NUMBER
 MAX_BLOCKS                                       NUMBER
 DROPPED                                          VARCHAR2(3)

SQL> select tablespace_name, username, max_bytes/1024/1024 as max_bytes from dba_ts_quotas where username='HR_USER1';

TABLESPACE_NAME              USERNAME  MAX_BYTES
--------------------------- -------- ----------

EMP_DATA1                    HR_USER1        20

SQL> select tablespace_name, username, max_bytes/1024/1024 as max_bytes,bytes/1024/1024 as used_data from dba_ts_quotas where username='HR_USER1';

TABLESPACE_NAME
----------------------------
USERNAME
--------------------------------------------------------------------------------
 MAX_BYTES  USED_DATA
---------- ----------
EMP_DATA1
HR_USER1
        20          0
```

3. Create table in tablespace

```
SQL> conn hr_user1/hr_user1
Connected.
SQL> create table employee3(emp_id int,emp_name varchar(10),emp_address varchar(10));

Table created.

SQL> insert into employee3 values(1,'Arnav','Kolhapur');

1 row created.

SQL> select * from employee3;

    EMP_ID EMP_NAME   EMP_ADDRES
---------- ---------- ----------
         1 Arnav      Kolhapur

SQL> conn sys/computer as sysdba;
Connected.
SQL> select tablespace_name, username, max_bytes/1024/1024 as max_bytes,bytes/1024/1024 as used_data from dba_ts_quotas where username='HR_USER1';

TABLESPACE_NAME
----------------------------
USERNAME
--------------------------------------------------------------------------------
 MAX_BYTES  USED_DATA
---------- ----------
EMP_DATA1
HR_USER1
        20      .0625


SQL> conn hr_user1/hr_user1
Connected.
```

4. Insert values in table

```
SQL> conn hr_user1/hr_user1
Connected.
SQL> insert into employee2 select * from employee3;
insert into employee2 select * from employee3
            *
ERROR at line 1:
ORA-00942: table or view does not exist


SQL> insert into employee3 select * from employee3;

1 row created.

SQL> insert into employee3 select * from employee3;

2 rows created.

SQL> insert into employee3 select * from employee3;

4 rows created.

SQL> insert into employee3 select * from employee3;

8 rows created.

SQL> insert into employee3 select * from employee3;

16 rows created.

SQL> insert into employee3 select * from employee3;

32 rows created.

SQL> insert into employee3 select * from employee3;

64 rows created.

SQL> insert into employee3 select * from employee3;

128 rows created.
```

5. Check Max_Bytes and Used_Data

```
SQL> select tablespace_name, username, max_bytes/1024/1024 as max_bytes,bytes/1024/1024 as used_data from dba_ts_quotas where username='HR_USER1';

TABLESPACE_NAME
------------------------------
USERNAME
--------------------------------------------------------------------------------
 MAX_BYTES  USED_DATA
---------- ----------
EMP_DATA1
HR_USER1
       20      .0625


SQL> conn hr_user1/hr_user1
Connected.
SQL> insert into employee3 select * from employee3;

512 rows created.

SQL> insert into employee3 select * from employee3;

1024 rows created.

SQL> insert into employee3 select * from employee3;

2048 rows created.

SQL> insert into employee3 select * from employee3;

4096 rows created.

SQL> insert into employee3 select * from employee3;

8192 rows created.

SQL> insert into employee3 select * from employee3;

16384 rows created.

SQL> insert into employee3 select * from employee3;
```

6. Verify the quota is full and values are inserting or not

```
65536 rows created.

SQL> insert into employee3 select * from employee3;

131072 rows created.

SQL> insert into employee3 select * from employee3;

262144 rows created.

SQL> insert into employee3 select * from employee3;
insert into employee3 select * from employee3
*
ERROR at line 1:
ORA-01653: unable to extend table HR_USER1.EMPLOYEE3 by 128 in tablespace
EMP_DATA1


SQL> conn sys/sys as sysdba
Connected.
SQL> select tablespace_name, username, max_bytes/1024/1024 as max_bytes,bytes/1024/1024 as used_data from dba_ts_quotas where username='HR_USER1';

TABLESPACE_NAME
------------------------------
USERNAME
--------------------------------------------------------------------------------
 MAX_BYTES   USED_DATA
---------- ----------
EMP_DATA1
HR_USER1
        20         19


SQL> conn hr_user1/hr_user1
Connected.
SQL> insert into employee3 select * from employee3;
insert into employee3 select * from employee3
*
ERROR at line 1:
ORA-01653: unable to extend table HR_USER1.EMPLOYEE3 by 128 in tablespace
EMP_DATA1
```

7. Updates to Tablespace

```
SQL> conn sys/sys as sysdba
Connected.
SQL> alter tablespace emp_data1 online;

Tablespace altered.

SQL> conn hr_user1/hr_user1
Connected.
SQL> select * from employee3 fetch first 3 rows only;

    EMP_ID EMP_NAME    EMP_ADDRES
---------- ---------- ----------
         1 Arnav       Kolhapur
         1 Arnav       Kolhapur
         1 Arnav       Kolhapur

SQL> insert into employee3 values(1,'abc','Kolhapur');

1 row created.

SQL> conn sys/sys as sysdba
Connected.
SQL> alter tablespace emp_data1 read only
  2
SQL> conn hr_user1/hr_user1
Connected.
SQL> select * from employee3 fetch first 3 rows only;

    EMP_ID EMP_NAME    EMP_ADDRES
---------- ---------- ----------
         1 Arnav       Kolhapur
         1 Arnav       Kolhapur
         1 Arnav       Kolhapur
```