LAB REPORT

CSE 4410

DATABASE MANAGEMENT SYSTEMS II LAB

LAB_02: Tablespace

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PROGRAM: SWE

GROUP: 1A

DATE: 15/01/23

Tasks:

1. Create two tablespaces tbs1, tbs2.
2. Set quota for a single user on both tablespaces.
3. Create two tables student (name, id, fk[dept]) and department (id, name) in tbs1.
4. Create another table course (code, name, credit, fk[offer_by]) in tbs2.
5. Insert a large amount of data in the student table and course table.
6. Check the free space of the tablespaces.
7. Extend tbs1 by adding extra datafiles.
8. Extend tbs2 by resizing datafiles.
9. Check the size of the tablespaces.
10. Delete table space tbs1 including the datafiles.
11. Delete table space tbs2 excluding the datafiles.

Analysis of the problem:

A new functionality got introduced to us which is table-space. Details about actions that can be performed on a table-space where given. Some tasks where given which needed to be performed with those tutorials which were given.

Solution:

```
CREATE TABLESPACE tbs1
 DATAFILE 'tbsp1_datafile1' SIZE 1M;

 CREATE TABLESPACE tbs2
 DATAFILE 'tbsp2_datafile1' SIZE 1M;


ALTER USER ash200042123 QUOTA 1m ON tbs1;
```

```sql
ALTER TABLE STUDENT
DROP PRIMARY KEY;


ALTER TABLE DEPARTMENT
DROP PRIMARY KEY;

DROP TABLE STUDENT;
DROP TABLE DEPARTMENT;



CREATE TABLE DEPARTMENT(
    name VARCHAR2(100) PRIMARY KEY,
    id INT
) TABLESPACE tbs1 ;

CREATE TABLE STUDENT(
    name VARCHAR2(100) PRIMARY KEY,
    id INT ,
    dept VARCHAR2 (100),
    CONSTRAINT fk_dept FOREIGN KEY (dept) REFERENCES DEPARTMENT(name)
) TABLESPACE tbs1 ;


CREATE TABLE COURSE
(
    code VARCHAR(100),
    name VARCHAR(100),
    credit VARCHAR(100),
    offer_by VARCHAR(100),
    CONSTRAINT pk_course PRIMARY KEY (code),
    CONSTRAINT FK_COURSE FOREIGN KEY (offer_by) REFERENCES DEPARTMENT(name)
) TABLESPACE tbs2;



INSERT INTO DEPARTMENT VALUES ('CSE', '3');
INSERT INTO DEPARTMENT VALUES ('EEE', '1');
INSERT INTO DEPARTMENT VALUES ('MPE', '5');


INSERT INTO STUDENT VALUES ('ANNA', '101', 'EEE');
INSERT INTO STUDENT VALUES ('BOB', '102', 'CSE');
INSERT INTO STUDENT VALUES ('C', '103', 'MPE');
INSERT INTO STUDENT VALUES ('D', '104', 'CSE');
INSERT INTO STUDENT VALUES ('E', '105', 'EEE');
INSERT INTO STUDENT VALUES ('F', '106', 'MPE');
INSERT INTO STUDENT VALUES ('G', '107', 'CSE');
INSERT INTO STUDENT VALUES ('H', '108', 'MPE');
```

```
SELECT tablespace_name , bytes /1024/1024 MB
FROM dba_free_space
WHERE tablespace_name ='TBS1';

 ALTER TABLESPACE tbs1
 ADD DATAFILE 'tbsp1_datafile1.dbf'
 SIZE 2m
 AUTOEXTEND ON;


 ALTER DATABASE
 DATAFILE 'tbsp2_datafile1.dbf' RESIZE 10m;


 SELECT tablespace_name , bytes /1024/1024 MB
 FROM dba_free_space
 WHERE tablespace_name ='TBS1';


 SELECT tablespace_name , bytes /1024/1024 MB
 FROM dba_free_space
 WHERE tablespace_name ='TBS2';
```

```
DROP TABLESPACE tbs1
INCLUDING CONTENTS AND DATAFILES
CASCADE CONSTRAINTS;

DROP TABLESPACE tbs2
INCLUDING CONTENTS AND DATAFILES
CASCADE CONSTRAINTS;
```

Explanation:

Table-space is a new concept to me. Table-space is used for a few purposes one of which is access control. There are other things which can be done through table-space.
At first we created two table-space tbs1 and tbs2 each of which contained a data file of size 1 megabyte. Next we set up a quota on the user ash200042123. Then we created two tables student and department on table-space tbs1 as mentioned in the question.

Then we create another table course which would be on tbs2. After that we insert some data on student and department table.
After that we check the amount of free-space available in each table-space which can be done using the dba_free_space. It has a special syntax which shows the amount of free space available in each table-space.
Table-spaces can be extended in two ways. One is by adding data-files and another is re-sizing an existing data-file. On tbs1 we add an data-file of size 2 megabyte. On tbs2 we resize the existing data-file to 10 megabyte. After that we check the size of the data files again using the previous syntax.
Next we drop both of the table-spaces along with the contents, and data-files.

Problems Faced:
As it was my first time using table-space so I faced some difficulty in the syntax.