

[DBA PROJECT] TD N°6

Group :

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PART I:

1. Visualize all privileges that are relative to tables (Use the `system_privilege_map` view):

```
SELECT *  
FROM DBA_SYS_PRIVS  
WHERE PRIVILEGE LIKE '%TABLE%';
```

GRANTEE	PRIVILEGE	ADM
IMP_FULL_DATABASE	COMMENT ANY TABLE	NO
DATAPUMP_IMP_FULL_DATABASE	DELETE ANY TABLE	NO
RECOVERY_CATALOG_OWNER	CREATE TABLE	NO
PR01	CREATE TABLE	YES
SYS	COMMENT ANY TABLE	NO
SYS	CREATE ANY TABLE	NO
DBA	BACKUP ANY TABLE	YES
DBA	CREATE TABLE	YES
IMP_FULL_DATABASE	DROP TABLESPACE	NO
IMP_FULL_DATABASE	UPDATE ANY TABLE	NO
MDSYS	UPDATE ANY TABLE	NO
GRANTEE	PRIVILEGE	ADM
SYS	DELETE ANY TABLE	NO
SYS	CREATE TABLE	NO
SYS	DROP TABLESPACE	NO
SYS	ALTER TABLESPACE	NO
DBA	ALTER ANY TABLE	YES
SYSTEM	SELECT ANY TABLE	NO
EXP_FULL_DATABASE	CREATE TABLE	NO
IMP_FULL_DATABASE	CREATE ANY TABLE	NO
APEX_040000	DROP TABLESPACE	NO
APEX_040000	CREATE TABLESPACE	NO
TD4	CREATE TABLE	NO
GRANTEE	PRIVILEGE	ADM
TD41	UNLIMITED TABLESPACE	NO
SYS	BACKUP ANY TABLE	NO
SYS	MANAGE TABLESPACE	NO
RESOURCE	CREATE TABLE	NO
DBA	MANAGE TABLESPACE	YES
IMP_FULL_DATABASE	DELETE ANY TABLE	NO
IMP_FULL_DATABASE	ALTER ANY TABLE	NO
DBSNMP	CREATE TABLE	NO
MDSYS	FLASHBACK ANY TABLE	NO
86 rows selected.		

2. View the list of privileges of the RESOURCE role (Use the `DBA_SYS_PRIVS` view):

```
SELECT privilege FROM DBA_SYS_PRIVS WHERE grantee = 'RESOURCE';
```

```
PRIVILEGE
-----
CREATE TRIGGER
CREATE SEQUENCE
CREATE TYPE
CREATE PROCEDURE
CREATE CLUSTER
CREATE OPERATOR
CREATE INDEXTYPE
CREATE TABLE

8 rows selected.
```

3. View the common privileges between DBA and RESOURCE roles:

```
SELECT privilege FROM DBA_SYS_PRIVS WHERE grantee = 'DBA'
INTERSECT
SELECT privilege FROM DBA_SYS_PRIVS WHERE grantee = 'RESOURCE';
```

```
PRIVILEGE
-----
CREATE CLUSTER
CREATE INDEXTYPE
CREATE OPERATOR
CREATE PROCEDURE
CREATE SEQUENCE
CREATE TABLE
CREATE TRIGGER
CREATE TYPE

8 rows selected.
```

4. How many objects does the HR account have access to? Give the owner of the object, the name of the object, and the nature of the privilege. (use `DBA_tab_PRIVS`):

```
sqlCopy code
SELECT owner, table_name, privilege FROM DBA_tab_PRIVS WHERE
```

```
E grantee = 'HR';
```

OWNER	TABLE_NAME
PRIVILEGE	
SYS	DBMS_STATS
EXECUTE	
SYS	STUDENT
SELECT	

5. Verify that the DBA role has the GRANT ANY OBJECT PRIVILEGE and check if it has the ability to pass it:

```
SELECT * FROM DBA_SYS_PRIVS WHERE grantee = 'DBA' AND privilege = 'GRANT ANY OBJECT PRIVILEGE';
```

GRANTEE	PRIVILEGE	ADM
DBA	GRANT ANY OBJECT PRIVILEGE	YES

The **ADMIN_OPTION** column in the **DBA_SYS_PRIVS** view is set to 'YES', then the DBA role can grant this privilege to other users.

PART II:

1. Create a ROLE named ROLE_WG with the following privileges:

- Be able to log in
- Be able to create tables
- Be able to create new users
- Be able to create roles
- Be able to create procedures (with the power to pass it on)

```
CREATE ROLE ROLE_WG;  
GRANT CREATE SESSION TO ROLE_WG;  
GRANT CREATE TABLE TO ROLE_WG;  
GRANT CREATE USER TO ROLE_WG;
```

```
GRANT CREATE ROLE TO ROLE_WG;
GRANT CREATE PROCEDURE TO ROLE_WG WITH ADMIN OPTION;
```

```
SELECT * FROM DBA_SYS_PRIVS WHERE GRANTEE = 'ROLE_WG' ;
```

GRANTEE	PRIVILEGE	ADM
ROLE_WG	CREATE PROCEDURE	YES
ROLE_WG	CREATE TABLE	NO
ROLE_WG	CREATE ROLE	NO
ROLE_WG	CREATE SESSION	NO
ROLE_WG	CREATE USER	NO

2. Create a WG user and assign them the role ROLE_WG:

```
CREATE USER WG IDENTIFIED BY password;
GRANT ROLE_WG TO WG;
```

```
SELECT * FROM DBA_ROLE_PRIVS WHERE GRANTED_ROLE = 'ROLE_WG';
```

GRANTEE	GRANTED_ROLE	ADM	DEF
SYSTEM	ROLE_WG	YES	YES
WG	ROLE_WG	NO	YES

3. Connect with WG and create the following tables (Fix the error that appears):

Establishment (num_etab, nom_etab)
Student (num_etud, num_etab, nom_etud)

```
CONNECT WG;
CREATE TABLE Establishment (num_etab NUMBER, nom_etab VARCHAR2(50));
```

Error :

```
CREATE TABLE Establishment (num_etab NUMBER, nom_etab VARCHAR2(50))
*
ERROR at line 1:
ORA-01950: no privileges on tablespace 'TBL01'
```

Fixing the error :

```
SQL> conn system/system
ERROR:
ORA-28002: the password will expire within 7 days

Connected.
SQL> GRANT UNLIMITED TABLESPACE TO WG;

Grant succeeded.

SQL> conn WG/pwd;
Connected.
SQL> CREATE TABLE Establishment (num_etab NUMBER, nom_etab VARCHAR2(50));

Table created.
```

```
CREATE TABLE Student (num_etud NUMBER, num_etab NUMBER, nom_e
```

```
SQL> show user;
USER is "WG"
SQL> CREATE TABLE Student (num_etud NUMBER, num_etab NUMBER, nom_etud VARCHAR2(50));

Table created.
```

4. Create a ROLE_MANIP_TAB_WG role with the following privileges:

```
CREATE ROLE ROLE_MANIP_TAB_WG;
GRANT CREATE SESSION TO ROLE_MANIP_TAB_WG;
GRANT SELECT, INSERT ON WG.Establishment TO ROLE_MANIP_TAB_WG;
GRANT CREATE PROCEDURE TO ROLE_MANIP_TAB_WG WITH ADMIN OPTI
ON;
```

```
SELECT * FROM DBA_SYS_PRIVS WHERE GRANTEE = 'ROLE_MANIP_TA
B_WG' ;
```

GRANTEE	PRIVILEGE	ADM
ROLE_MANIP_TAB_WG	CREATE SESSION	NO
ROLE_MANIP_TAB_WG	CREATE PROCEDURE	YES

5. Create a WG_1 user and assign them the role ROLE_MANIP_TAB_WG:

```
CREATE USER WG_1 IDENTIFIED BY pwd2;
GRANT ROLE_MANIP_TAB_WG TO WG_1;
```

```
SELECT * FROM DBA_ROLE_PRIVS WHERE GRANTEE = 'WG_1' ;
```

GRANTEE	GRANTED_ROLE	ADM	DEF
WG_1	ROLE_MANIP_TAB_WG	NO	YES

6. Log in with WG_1 and create a procedure named ADD_ETAB that allows you to add an establishment, Explain and correct errors:

```
CONN WG_1/pwd2;
CREATE OR REPLACE PROCEDURE ADD_ETAB(
    p_num_etab IN NUMBER,
    p_nom_etab IN VARCHAR2
)
IS
BEGIN
    INSERT INTO Establishment (num_etab, nom_etab)
    VALUES (p_num_etab, p_nom_etab);

    COMMIT;

    DBMS_OUTPUT.PUT_LINE('Establishment added successfully. ');
EXCEPTION
    WHEN OTHERS THEN
        DBMS_OUTPUT.PUT_LINE('Error: ' || SQLERRM);
END ADD_ETAB;
/
```

Error :

```
SQL> show user;
USER is "WG_1"
SQL> CREATE OR REPLACE PROCEDURE ADD_ETAB(
 2     p_num_etab IN NUMBER,
 3     p_nom_etab IN VARCHAR2
 4 )
 5 IS
 6 BEGIN
 7     INSERT INTO Establishment (num_etab, nom_etab)
 8     VALUES (p_num_etab, p_nom_etab);
 9
10     COMMIT;
11
12     DBMS_OUTPUT.PUT_LINE('Establishment added successfully.');
```

```
13 EXCEPTION
14     WHEN OTHERS THEN
15         DBMS_OUTPUT.PUT_LINE('Error: ' || SQLERRM);
16 END ADD_ETAB;
17 /

Warning: Procedure created with compilation errors.
```

Exploring the error :

```
SQL> SELECT * FROM USER_ERRORS WHERE NAME = 'ADD_ETAB';
```

NAME	TYPE	SEQUENCE	LINE	POSITION
TEXT				

ATTRIBUTE MESSAGE_NUMBER				

ADD_ETAB	PROCEDURE	1	7	17
PL/SQL: ORA-00942: table or view does not exist				
ERROR				0
ADD_ETAB	PROCEDURE	2	7	5
PL/SQL: SQL Statement ignored				
ERROR				0
NAME	TYPE	SEQUENCE	LINE	POSITION

TEXT				

ATTRIBUTE MESSAGE_NUMBER				

→ The error indicates that the user WG_1 does not have the appropriate privileges to access the table Establishment

7. Log in with SYSTEM/ ??? and take away ROLE_WG's right to create procedures. WG_1 can I still create procedures? :

```
REVOKE CREATE PROCEDURE FROM ROLE_WG;
```

GRANTEE	PRIVILEGE	ADM
ROLE_WG	CREATE TABLE	NO
ROLE_WG	CREATE ROLE	NO
ROLE_WG	CREATE SESSION	NO
ROLE_WG	CREATE USER	NO

WG_1 will not be able to create procedures anymore.

8. Revoke the ROLE_MANIP_TAB_WG role the right to insert and select from the WG User Establishment table. WG_1 can he still handle this table? Why?

```
REVOKE SELECT, INSERT ON WG.Establishment FROM ROLE_MANIP_TAB_WG;
```

WG_1 will not be able to select or insert into the WG User Establishment table anymore because those privileges have been revoked from the role assigned to WG_1.

9. Grant everyone the right to run an update order on column nom_etab of the WG user establishment table:

```
GRANT UPDATE (nom_etab) ON WG.Establishment TO PUBLIC;
```