**Final Example (doing on lab machine)**

1. Startup Oracle Service and Oracle Listener (Using Window Service)
2. Login to Database and Startup Database in Open mode if database is not yet started, alter database open;
3. Check database id & name, mode of database, status of database instance, database block size.

SQL> Select dbid, name from v$database;   
SQL> Select open\_mode from v$database;  
SQL> Select status from v$instance;  
SQL> Show parameter db\_block\_size;

1. List all control files in your database (show name & size).

SQL> select name, block\_size from v$controlfile;

1. Lists all redo log files in your database (show group and member).

SQL> select group#, members,bytes from v$log;

1. List all data files and size in your database (show file id and file name);

SQL> select file\_id, file\_name,bytes from dba\_data\_files;

1. List all system user and normal user in your database (show username, user\_id, account\_status).

SQL> select user\_id,username,account\_status from dba\_users;

1. List all valid users can access to database instance.

SQL> select username, user\_id, account\_status from dba\_users  
where account\_status=’OPEN’;

1. List all tablespace name in your database (show tablespace id, tablespace name).

SQL> select ts#, name, INCLUDED\_IN\_DATABASE\_BACKUP from v$tablespace;

1. List all database profile ;

SQL> select distinct profile from dba\_profiles;

1. List all role in database.

SQL> select \* from dba\_role\_privs;

1. List all SGA and its components size,

SQL> show sga

SQL> select \* from v$sga;

1. Check total usable memory (SGA & PGA) assigned to a database instance.

SQL> Show parameter memory\_target;

1. Create database tablespace name STUDENT with 50MB by adding one datafile name STUDENT01.DBF and autoextend is on;

SQL> Create tablespace STUDENT DATAFILE ‘C:\app\oracle\oradata\orcl\STUDENT01.DBF’ size 50M autoextend on;  
SQL> select file\_name, tablespace\_name, bytes from dba\_data\_files;

1. Create role name studentrole and assign system privilege (create session, create table, create view)

SQL> create role studentrole;  
SQL> grant create session, create table, create view to studentrole;  
SQL> select distinct grantee, privilege from dba\_sys\_privs where grantee='STUDENTROLE';

1. Create a profile UNLIMITED\_PWD\_ EXPIRATION with enabling password complexity.

SQL>@C:/app/oracle/product/11.2.0/dbhome\_1/RDBMS/ADMIN/utlpwdmg.sql;

SQL>CREATE PROFILE “UNLIMITED\_PWD\_ EXPIRATION” LIMIT  
 CPU\_PER\_SESSION UNLIMITED  
 CPU\_PER\_CALL UNLIMITED  
 CONNECT\_TIME UNLIMITED  
 IDLE\_TIME UNLIMITED  
 SESSIONS\_PER\_USER UNLIMITED  
 LOGICAL\_READS\_PER\_SESSION UNLIMITED  
 LOGICAL\_READS\_PER\_CALL UNLIMITED  
 PRIVATE\_SGA UNLIMITED  
 COMPOSITE\_LIMIT UNLIMITED  
 PASSWORD\_LIFE\_TIME UNLIMITED  
 PASSWORD\_GRACE\_TIME DEFAULT  
 PASSWORD\_REUSE\_MAX UNLIMITED  
 PASSWORD\_REUSE\_TIME UNLIMITED  
 PASSWORD\_LOCK\_TIME 1  
 FAILED\_LOGIN\_ATTEMPTS 10  
 PASSWORD\_VERIFY\_FUNCTION VERIFY\_FUNCTION\_11G  
/

1. Create a database user name student01, password Hellostudent01 and assign to profile UNLIMITED\_PWD\_ EXPIRATION, assign quota 10MB on tablespace STUDENT.

SQL>CREATE USER student01 identified by Hellostudent01 PROFILE “UNLIMITED\_PWD\_ EXPIRATION” default tablespace “STUDENT” QUOTA 10M on “STUDENT”;

1. Assign role studentrole to user student01;

SQL> grant studentrole to student01;

SQL> select grantee, privilege, admin\_option from dba\_sys\_privs where grantee=’STUDENTROLE’;

SQL> select \* from dba\_role\_privs where grantee=’STUDENT01’;

1. Log in as student01 and create table tbl\_students (id number, first\_name varchar2(15), last\_name varchar2(15), sex char(1), DOB date)

SQL> create table tbl\_students (id number, student\_name varchar2(15), sex char(1), DOB date)

1. Insert 3 rows to TBL\_STUDENTS of schema Student01;  
     
   SQL>Insert into tbl\_students values (001,’Kelvin’,’M’,’12-DEC-89’);  
   SQL>Insert into tbl\_students values (002,’Mac’,’M’,’15-FEB-87’);  
   SQL>Insert into tbl\_students values (003,’Brito’,’M’,’8-MAR-88’);
2. Create a database user name studentadmin, password Hellostudentadmin and assign to profile UNLIMITED\_PWD\_ EXPIRATION, tablespace STUDENT quota 10MB.

SQL>CREATE USER studentadmin identified by Hellopassword123 PROFILE “UNLIMITED\_PWD\_ EXPIRATION” default tablespace “STUDENT” QUOTA 10M on “STUDENT”;

1. Log in as sys user and assign role studentrole to studentadmin, and assign object privilege (SELECT, INSERT, UPDATE, DELETE) on TBL\_STUDENTS of schema student01 to studentadmin user.

SQL>conn sys / as sysdba;  
SQL>grant studentrole to studentadmin;  
SQL>grant select,insert,update,delete on student01.tbl\_students to studentadmin;

SQL> conn studentadmin/Hellopassword123;   
SQL> select grantor, table\_name, privilege from user\_tab\_privs\_recd;

1. Login as studentadmin and insert two rows on TBL\_STUDENTS of Schema student01, please execute commit command to save.  
     
   SQL>conn studentadmin/Hellopassword123  
   SQL> insert into student01.tbl\_students values (004,’Louis’,’F’,’21-Nov-90’);  
   SQL> insert into student01.tbl\_students values (005,’Lyly’,’F’,’8-JAN-85’);  
   SQL> commit;
2. Login as student01 and list all data in TBL\_STUDENTS (should be 5 rows)

SQL> CONN student01/Hellostudent01;  
SQL> select \* from TBL\_STUDENTS;

1. Log in as SYS user and revoke object privilege (INSERT, DELETE) on TBL\_STUDENTS of Schema Student01 from user studentadmin.

SQL> conn sys / as sysdba  
SQL> Revoke insert, delete on student01.tbl\_students from studentadmin;  
SQL> conn studentadmin/Hellopassword123  
SQL> select grantor, table\_name, privilege from user\_tab\_privs\_recd;

1. Check what are system privilege and object privilege assigned to studentadmin.  
     
   SQL> conn studentadmin/Hellopassword123  
   SQL> Select \* from user\_role\_privs;  
   SQL> select grantor, table\_name,privilege from user\_tab\_privs\_recd;
2. Add another role “connect” to studentadmin and verify connect role are applied.

SQL> conn sys / as sysdba  
SQL> grant connect to studentadmin;  
SQL> conn studentadmin/Hellopassword123;  
SQL> SELECT \* FROM SESSION\_ROLES;  
SQL> select \* from user\_role\_privs;

1. PUT PASSWORD ON ROLE “Studentrole”

SQL> conn sys / as sysdba  
SQL> alter role studentrole identified by studentrole123;  
SQL> conn studentadmin/Hellopassword123;  
SQL> select \* from user\_role\_privs;

1. Login by user student01

SQL> connect student01/Hellostudent01

1. Assign another role “connect” to student01 and check which role/s are enable by default.

SQL> conn sys / as sysdba  
SQL> grant connect to student01;  
SQL> connect student01/Hellostudent01  
SQL> select \* from session\_roles;  
SQL> select \* from user\_role\_privs;

1. Login as student01 and enable all roles (connect and studentrole)

SQL> connect student01/Hellostudent01  
SQL> select \* from session\_roles;  
SQL> select \* from user\_role\_privs;  
SQL> set role connect, studentrole identified by studentrole123;  
SQL> select \* from session\_roles;

1. Log in as sys user and increase tablespace STUDENT (50M) by adding a new datafile name STUDENT02.DBF.

SQL> Alter tablespace STUDENT ADD DATAFILE ‘C:\app\oracle\oradata\orcl\STUDENT02.DBF’ size 50M autoextend on;  
SQL> Select file\_name, tablespace\_name, bytes from dba\_data\_files;

1. Audit the SQL statements like CREATE TABLE, DROP TABLE, and TRUNCATE TABLE of user student01 whenever successful.

SQL> connect sys/Oracle123 as sysdba  
SQL> AUDIT table by student01 Whenever successful;  
SQL> SELECT audit\_option, failure, success, user\_name FROM dba\_stmt\_audit\_opts   
Where user\_name =’STUDENT01’ ORDER BY audit\_option, user\_name;

1. Login as student01 and create table tbl\_test (id number, name varchar2(15));  
   SQL> connect student01/Hellostudent01;  
   SQL> set role connect, studentrole identified by studentrole123;  
   SQL> create table tbl\_test (id number, name varchar2(15));
2. Check when tbl\_test was created by student01.  
   SQL> CONN sys/Oracle123 as sysdba  
   SQL> ALTER SESSION SET NLS\_DATE\_FORMAT=’DD-Mon-YYYY HH24:MI:SS’;  
   SQL> SELECT username, timestamp, action\_name FROM dba\_audit\_trail WHERE username = 'STUDENT01' and action\_name = 'CREATE TABLE';
3. Login as student01 and drop table tbl\_test

SQL> conn student01/Hellostudent01;

SQL> drop table tbl\_test;

1. Login as sys user and audit when tbl\_test of schema student01 was dropped.  
   SQL> CONN sys/Oracle123 as sysdba  
   SQL> ALTER SESSION SET NLS\_DATE\_FORMAT=’DD-Mon-YYYY HH24:MI:SS’;   
   SQL> SELECT username, timestamp, action\_name FROM dba\_audit\_trail WHERE username = 'STUDENT01' and action\_name = ‘DROP TABLE';
2. Transaction Control Language, Savepoint to mark in the transaction for roll back rather than whole transaction undo.
3. Alter System (kill active user session) from your database.  
   1. View user session id, serial number;   
      SQL>SELECT sid, serial#,username from v$session where username=’STUDENT01’;
   2. Kill active user session;  
      SQL>ALTER SYSTEM KILL SESSION '140,28'; 140 is user session id, and 28 is serial number.
4. Check database parameter (open\_cursors) whether it dynamic parameter or static parameter

SQL> select name, value, issys\_modifiable from v$system\_parameter where name=’open\_cursors’;

1. Change the open\_cursors parameter to 1999 and take it effective to database instance immediately (no reboot)

SQL> Alter system set open\_cursors=1999 scope=both;

1. Create PFILE from SPFILE;

SQL> CREATE PFILE from SPFILE;

1. Open Window exploerer and view the content of PFILE, at open\_cursors parameter should be 1999 value then change value 1999 to 2555 and save the file.

1. Shutdown database and startup database in mount mode with PFILE created earlier step, check the database status in mount mode.

SQL>shutdown immediate;

SQL>startup mount pfile=’YOUR PFILE LOCATION’  
SQL>select open\_mode from v$database;

1. Change database from mount mode to open mode and verify is in read/write (open mode).

SQL>alter database open;  
SQL>select open\_mode from v$database;

1. Create SPFILE from PFILE then Shutdown database and startup with created SPFILE.

SQL>create spfile from pfile;

SQL>shutdown immediate;  
SQL>startup

1. Create another role call myadmin\_role and assign pre-define role call dba to myadmin\_role

SQL> Create role myadmin\_role; grant dba to myadmin\_role;

1. Assign myadmin\_role to user student01;

SQL> grant myadmin\_role to student01;

1. List all available role assigning to student01.

SQL> Select \* from user\_role\_privs;

1. Log in as sys user and view all system privileges assigned to user student01. And View object privilege was assigned to user student01.

SQL> SELECT grantee, privilege, admin\_option FROM dba\_sys\_privs where grantee= 'STUDENT01';

SQL> SELECT grantor, table\_name, privilege FROM user\_tab\_privs\_recd; login by the user you want to check.

1. Change database of non-archive log mode to archive log mode.  
   SQL> alter database archivelog;