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;
```

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

```
SQL> select name, block_size from v$controlfile;
```

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

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

6. 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;
```

7. 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;
```

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

```
SQL> select username, user_id, account_status from dba_users
where account_status='OPEN';
```

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

```
SQL> select ts#, name, INCLUDED_IN_DATABASE_BACKUP from v$tablespace;
```

10. List all database profile ;

```
SQL> select distinct profile from dba_profiles;
```

11. List all role in database.

```
SQL> select * from dba_role_privs;
```

12. List all SGA and its components size,

```
SQL> show sga

SQL> select * from v$sga;
```

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

```
SQL> Show parameter memory_target;
```

14. 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;
```

15. 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';
```

16. 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
/
```

17. 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”;

18. 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’;

19. 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)

20. 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’);

21. 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”;

22. 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;

23. 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;
```

24. Login as student01 and list all data in TBL_STUDENTS (should be 5 rows)

```
SQL> CONN student01/Hellostudent01;
SQL> select * from TBL_STUDENTS;
```

25. 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;
```

26. 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;
```

27. 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;
```

28. 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;
```

29. Login by user student01

```
SQL> connect student01/Hellostudent01
```

30. 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;
```

31. 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;
```

32. 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;
```

33. 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;
```

34. 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));
```

35. 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';
```

36. Login as student01 and drop table tbl_test
    SQL> conn student01/Hellostudent01;
    SQL> drop table tbl_test;

37. 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';

38. Transaction Control Language, Savepoint to mark in the transaction for roll back rather than whole transaction undo.

39. Alter System (kill active user session) from your database.

    a. View user session id, serial number;
       SQL>SELECT sid, serial#,username from v$session where username='STUDENT01';
    b. Kill active user session;
       SQL>ALTER SYSTEM KILL SESSION '140,28'; 140 is user session id, and 28 is serial number.

40. 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';

41. 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;

42. Create PFILE from SPFILE;

    SQL> CREATE PFILE from SPFILE;

43. 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.

44. 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;

45. 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;

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

SQL>create spfile from pfile;
SQL>shutdown immediate;
SQL>startup

47. 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;

48. Assign myadmin_role to user student01;

SQL> grant myadmin_role to student01;

49. List all available role assigning to student01.
SQL> Select * from user_role_privs;

50. 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.

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