Lab 2 --- Understanding Oracle's architecture and key parameter files

Purpose: This lab reinforces your classroom discussions concerning Oracle architecture

Requirements: Complete the required tasks and submit the required responses in the **same** word document renamed as ***lab2_fname_lname*** (e.g., ***Lab2_Doug_King***) via Brightspace by the end of the lab and demonstrate your work to the lab professor.

A complete and on-time submission will earn **2 marks**.

Resources: https://docs.oracle.com/cd/B28359_01/server.111/b28318/startup.htm#CNCPT1293

https://docs.oracle.com/database/121/CNCPT/startup.htm#CNCPT601

https://docs.oracle.com/cd/B28359_01/server.111/b31189/ch12042.htm

https://docs.oracle.com/cd/B28359_01/server.111/b28286/statements_6008.htm#SQLRF01308

Lab Submission tasks:

1. **Demo / Problem Solving: During Week 2's lab, you will be required to confirm your Oracle 12c installation is working properly.**

2. **Concepts: Refer to the above noted resources. Copy your answers to your submission document.**
   a. Without using virtual tables or similar mechanisms, a database instance can be associated with __single(one)_ database(s).
   b. To start a database instance, configuration parameters must be read. This information is contained in binary format in __SPFile__ and in text format in ___PFile__.
   c. During STARTUP, the instance knows where the data files are located by reading the __control__ file.
   d. The main difference between a TRANSACTIONAL SHUTDOWN and an IMMEDIATE SHUTDOWN is, in a TRANSACTIONAL SHUTDOWN ___waits for the open transaction to complete_____.

3. **Review the Startup/Shutdown Process (Write the queries and their results):**
   a. Logon as **SYS as SYSDBA**.
   b. Enter **SHOW PARAMETERS**

i. From the SHOW PARAMETERS results, determine where the SPFILE file is located. Record this location in your lab file below.

```
spfile                               string      C:\ORACLE19CINSTALL\WINDOWS.X64_193000_DB_HOME\DATABASE\SPFILEORCL8276.ORA
```

c. **Create a PFILE:** Enter: ***CREATE PFILE from SPFILE;***

d. Locate and resulting **PFILE** and in your lab document, specify:

i. the name of the pfile

```
INITORCL8276.ORA        2022-09-14 11:51 AM        ORA File        2 KB
```

ii. Open the file and determine the **oracle_base** name

```
orcl8276.__oracle_base='C:\oracle19cinstall'#ORACLE_BASE set from environment
```

iii. the location of the **control_files**

```
*.control_files='C:\oracle19cinstall\oradata\ORCL8276\control01.ctl','C:\oracle19cinstall\oradata\ORCL8276\control02.ctl'
```

e. Enter: **SHUTDOWN**

f. Enter: **STARTUP**

g. Indicate, in your lab document, the sequence of objects being started.

```
SQL> startup
ORACLE instance started.

Total System Global Area 5083495440 bytes
Fixed Size                  9038864 bytes
Variable Size             922746880 bytes
Database Buffers         4143972352 bytes
Redo Buffers                7737344 bytes
Database mounted.
Database opened.
SQL>
```

4. **DATA DICTIONARY:** From the SQL prompt, enter **DESC DICT-** this command describes the structure (the columns) of the internal data dictionary.

Hint: Throughout the course, when you forget the names of special tables you can return to the dictionary and determine the name.

In your lab document answer the following questions **(Write the queries and their results)**:

a. List the number of rows that are in this table (you may not want to select the rows as there are a lot). __Query : select count(*) from dict;
__Result : 4666_____

```
SQL> select count(*) from dict;

  COUNT(*)
----------
      4666
```

b. List the name of the view or table that describes Tablespaces:
__Query : select table_name from dict where table_name like'%TABLESPACE%';_

```
SQL> select table_name from dict where table_name like '%TABLESPACE%';

TABLE_NAME
--------------------------------------------------------------------------------
USER_FILE_GROUP_TABLESPACES
USER_TABLESPACES
ALL_FILE_GROUP_TABLESPACES
DBA_FILE_GROUP_TABLESPACES
DBA_HEATMAP_TOP_TABLESPACES
DBA_HIST_TABLESPACE
DBA_HIST_TABLESPACE_STAT
DBA_TABLESPACES
DBA_TABLESPACE_GROUPS
DBA_TABLESPACE_THRESHOLDS
DBA_TABLESPACE_USAGE_METRICS

TABLE_NAME
--------------------------------------------------------------------------------
CDB_FILE_GROUP_TABLESPACES
CDB_HEATMAP_TOP_TABLESPACES
CDB_HIST_TABLESPACE
CDB_HIST_TABLESPACE_STAT
CDB_TABLESPACES
CDB_TABLESPACE_GROUPS
CDB_TABLESPACE_THRESHOLDS
CDB_TABLESPACE_USAGE_METRICS
GV$ENCRYPTED_TABLESPACES
GV$TABLESPACE
V$ENCRYPTED_TABLESPACES

TABLE_NAME
--------------------------------------------------------------------------------
V$TABLESPACE

23 rows selected.
```

c. List the name of the view or table that describes Datafiles:
_Query : select table_name from dict where table_name like '%DATAFILE%';_

```
SQL> select table_name from dict where table_name like '%DATAFILE%';

TABLE_NAME
--------------------------------------------------------------------------------
DBA_HIST_DATAFILE
CDB_HIST_DATAFILE
GV$BACKUP_DATAFILE
GV$DATAFILE
GV$DATAFILE_COPY
GV$DATAFILE_HEADER
GV$PROXY_DATAFILE
GV$SHADOW_DATAFILE
V$BACKUP_DATAFILE
V$BACKUP_DATAFILE_DETAILS
V$BACKUP_DATAFILE_SUMMARY

TABLE_NAME
--------------------------------------------------------------------------------
V$DATAFILE
V$DATAFILE_COPY
V$DATAFILE_HEADER
V$PROXY_DATAFILE
V$SHADOW_DATAFILE

16 rows selected.
```

d. Write a query that joins the **V_$DATAFILE** and **V_$TABLESPACE** tables, then use the query results to answer the following questions:

   i. What is the location and name of the datafile associated with the SYSTEM tablespace.

   Query : select V_$DATAFILE.NAME from V_$DATAFILE, V_$TABLESPACE where V_$DATAFILE.TS# = V_$TABLESPACE.TS# and V_$TABLESPACE.NAME = 'SYSTEM';

```
SQL> select V_$DATAFILE.NAME from V_$DATAFILE, V_$TABLESPACE where V_$DATAFILE.TS# = V_$TABLESPACE.TS#   and V_$TABLESPACE.NAME='SYSTEM';

NAME
--------------------------------------------------------------------------------
C:\ORACLE19CINSTALL\ORADATA\ORCL8276\SYSTEM01.DBF
```

   ii. What is the location and name of the datafile associated with the USERS tablespace.

   Query : select V_$DATAFILE.NAME from V_$DATAFILE, V_$TABLESPACE where V_$DATAFILE.TS# = V_$TABLESPACE.TS# and V_$TABLESPACE.NAME='USERS';

```
SQL> select V_$DATAFILE.NAME from V_$DATAFILE, V_$TABLESPACE where V_$DATAFILE.TS# = V_$TABLESPACE.TS# and V_$TABLESPACE.NAME='USERS';

NAME
--------------------------------------------------------------------------------
C:\ORACLE19CINSTALL\ORADATA\ORCL8276\USERS01.DBF
```

You're done. Submit your lab.