Homework 1

**Module: Administer Oracle Database**

Q1. Describe oracle memory structures and background processes

Oracle memory structures it has 2 main component which called:

1. **System Global Area (SGA)**: this is a shared memory region that stores data and control information for one oracle instance. It comprises several components such as:
2. Buffer cashe for data blocks
3. Shared pool for SQL and PL/SQL Statement
4. Redo log buffer for recording changes

1. **Program Global Area (PGA)**:it is private to each oracle it holds data and control information for a single session or process such as sorts and session specific variables.

Background processes: oracle employs various background processes to manage tasks such as recovery, locking, and I/O. there are same important includes:

1. DBWn(Database Writer): writes modified blocks from the database buffer cashe to data files.
2. LGWR (log writer): writes redo log entries to disk, ensuring transaction durability.
3. ARCH(Archiver): copies redo log files to archival storage for backup and recovery.

Q2. Describe oracle logical &physical storage structures

In part of logical storage structures, we have the following:

1. Table: the primary logical storage structure is the table, which represents the stored data. Table can have various columns and rows.
2. View: logical view is virtual table based on the result of a SELECT query. It does not store data itself but provides a way to present data from one or more tables in a customized manner.
3. Index: are logical structures that provide a quick and efficient way to look up data based on values in one or more columns.
4. Cluster: it combines multiple tables based on their related columns.

In a part of Physical storage structure, we have the following:

1. Datafiles: Datafiles are physical files on the disk that store the actual data for an oracle database.
2. Tablespaces: are container for datafiles, providing an abstraction layer between the logical and physical storage
3. Segments: is set of extent that corresponds to specific logical storage structure (eg: table or index)
4. Extents: are contiguous blocks of data within a datafiles when segment requires more space it allocated in the form of extents.