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Module: **ORACLE DATABASE**

**HOMEWORK**

**Q1. DISCRIBE ORACLE MEMORY STRUCTURE AND BACKGROUND PROCESSES.**

Oracle uses memory to store various information:

* Program code being executed.
* Information about a connected session, even if it is not currently active
* Information that is shared and communicated among oracle processes

The basic memory structures associated with oracle include:

* SYSTEM GLOBAL AREA(SGA)
* PROGRAM GLOBAL AREA(PGA)

SYSTEM GLOBAL AREA(SGA)

Is the group of shared memory structures that contain data and control information for one oracle database instance.

SGA contain the following data structures:

* Database buffer cache
* Shared pool
* Redo log buffer
* Data dictionary cache
* Other miscellaneous information
* Optional components of the SGA
* **Large pool:** is optional area used to buffer large I/O request for various server processes.
* **Java pool:** is an area of memory that is used for all session specific java code and data within the java virtual machine (JVM).

**PROGRAM GLOBAL AREA**

Is the memory region containing data and control information for a single process (server or background) sometime called “a process global area”.

PGA is nonshared memory area to which a process can write.

BACKGROUND PROCESS

* DATABASE WRITER( DBWR):writes modified blocks from the database buffer cache to the data file
* LOG WRITER( LGWR): write redo log entries to disk
* CHECKPOINT( CKPT):responsible for signaling database writer at checkpoint and updating all the data file and control files of the database to indicate the most recent checkpoint
* SYSTEM MONITOR( SMMON):perform instance recovery when failed instance is restarted
* PROCESS MONITOR( PMON): perform recovery when user failure
* ARCHIVER(ARCn): copy the online files
* RECOVERER(RECO): recovering the transaction that are pending

**Q2. DESCRIBE ORACLE LOGICAL AND PHYSICAL STORAGE STUCTURES**

**LOGICAL STORAGE STRUCTURE**

**Tablespace:** is a storage location where the actual data underlying database object can be kept.

**TYPES OF TABLESPACE**

* **PERMANENT:** you use permanent tablespace to store your user and application data
* **UNDO:** oracle database uses undo data to roll back transactions, to provide read consistency, to help with database recovery and enable features such as oracle flashback query.
* **TEMPORARY:** are used for storing temporary data.

**PHYSICAL STORAGE STRUCTURE**

* **Control files:** contains data about the oracle database itself.
* **Data files:** store the actual data. Each data file is associated with only one database and tablespace.
* **Redo log files:** these file are most useful to minimize loss of important data in event of system restart or shutdown.