

Database Administration Study Guide (Oracle, SQL Server, MySQL, PostgreSQL)

Database Administration

- Oracle: Tablespace, Redo/Undo, ASM, Flashback
- SQL Server: Recovery Models, Transaction Log, Resource Governor
- MySQL: Binary Log, Replication, InnoDB buffer pool
- PostgreSQL: WAL, Autovacuum, pg_stat views, pg_hba.conf

Performance & Optimization

- Indexing strategies: clustered vs nonclustered, covering indexes
- Query tuning: EXPLAIN/EXPLAIN PLAN, slow query logs
- SQL Server: Wait Stats (CXPACKET, PAGEIOLATCH)
- MySQL: Performance Schema, optimizer hints
- PostgreSQL: Autovacuum, ANALYZE, planner settings

Backup – Recovery – HA/DR

- Oracle: RMAN, Data Pump, Flashback Database, PITR
- SQL Server: Full, Diff, Log, Tail-log backups, AlwaysOn
- MySQL: mysqldump, mysqlpump, Percona XtraBackup
- PostgreSQL: Base backup, WAL archiving, streaming replication

Security & User Management

- Authentication: Oracle (OS, password), SQL Server (Windows/SQL), MySQL (native/SSL), Postgres (SCRAM-SHA-256)
- Auditing: Oracle Unified Audit, SQL Server Audit, MySQL general log, pg_audit
- Encryption: TDE (Oracle/SQL Server), SSL (MySQL/Postgres)
- Access control: GRANT/REVOKE, roles, privileges

Real-world Troubleshooting

- Oracle: ORA-01555 (undo too small), ORA-4031 (shared pool), ORA-16014 (archive dest full)
- SQL Server: Common waits (CXPACKET, PAGEIOLATCH, LCK_M_*), deadlocks
- MySQL: Replication lag, OOM, slow queries
- PostgreSQL: XID wraparound, replication conflicts, autovacuum issues