

# Oracle SQL - 12c & 11g [Basic SQL & Advanced SQL]

Chapter	Table of Contents		
RDBMS C	RDBMS Concepts		
	What is database?		
	Codd rules		
	Terminologies of RDBMS		
	Popular RDBMSs in the market		
	Relationships		
	E-R diagram		
	Normalization		
Constrair	ts & Types of Constraints		
	Describe constraints		
	Facts of NULL		
	Types of constraints: NOT NULL, UNIQUE, PK, FK, CHECK, DEFAULT		
Oracle Software & Client Tools			
	Installing Oracle Software		
	Using SQL* PLUS		
	Using SQL DEVELOPER tool		
Writing B	asic SQL Select Statements		
	List the capabilities of SQL SELECT statements		
	Execute a basic SELECT statement		
	Using WHERE clause in SELECT statement		
	Sort the rows retrieved by a query - ORDER BY clause		
	Using DISTINCT & UNIQUE clauses		
SQL Oper	ators		
	Arithmetic Operators [*, / , +, -]		
	Use of DUAL table & using column alias		
	Special Operators [IN, LIKE, BETWEEN, IS]		
	Logical Operators [OR, AND, NOT]		
	Concatenation Operator [    ]		
	Set Operators [ UNION , UNION ALL, INTERSECT, MINUS ]		
	Restrictions & Hierarchy of Set Operators		
Aggregat	ng Data using Group Functions		
	Identify the available group functions [MAX, MIN, AVG, SUM, COUNT]		
	Group data using the GROUP BY clause		
	Grouping by multiple columns		
	Remove the grouped rows by using the HAVING clause		



	Difference between WHERE & HAVING
	ROLLUP & CUBE
	Assignments
SQL	unctions [Scalar Functions]
	Describe various types of functions available in SQL
	Character Functions [UPPER, LOWER, SUBSTR , LOWER, LENGTH, TRIM, RPAD]
	Number Functions [CEIL, FLOOR, ABS, SQRT, POWER, ROUND, TRUNC, LEAST,]
	Date Functions [SYSDATE, SYSTIMESTAMP, NEXT_DAY, LAST_DAY, ADD_MONTHS,]
	Conversion functions [TO_CHAR, TO_DATE, TO_NUMBER]
	Special Functions [TRANSLATE, WM_CONCAT, LIST_AGG, CHR, ASCII, DECODE]
	Use NULL functions [ NVL, NVL2, NULLIF, COALESCE]
	Nested Functions
	Assignments
SQL	Data Types
	Identify the Data Type Family
	CHAR, VARCHAR, VARCHAR2, NCHAR
	NUMBER, INTEGER
	DATE, TIMESTAMP
	BLOB, CLOB
	12c Enhancements
SQL	Statements
	Data Definition Language [CREATE, ALTER, DROP, TRUNCATE, RENAME]
	Data Manipulation Language [ INSERT , UPDATE, DELETE, MERGE, EXPLAIN PLAN]
	Transcation Control Language [ROLLBACK, COMMIT, SAVEPOINT]
	Data Control Language [ GRANT, REVOKE ]
	RecycleBin & Flashback Concepts
	Cascading Examples
	Assignments
Sub-	Queries
	Define a sub-query
	Single column Sub-queries, Getting nth Highest Value
	Paired-column Sub-queries
	ANY, ALL operators
	Assignments
Disp	aying Data from Multiple Tables – JOINS
	Necessity of join
	Explain the Cartesian product/output
	Types of Joins
	Cartesian Join



Î	Inner Join/Equi-Join - Joining 2,3,4 tables scenarios with complex examples		
	Natural Join		
	Outer Joins [Left Outer, Right Outer Join, Full Outer Join]		
	Non-Equi Joins		
	Self Joins		
	Assignments		
Correl	Correlated Sub-queries		
	Explain the principle of Correlated sub-queries		
	Difference between sub-queries & co-related sub-queries		
	Writing co-related sub-queries to get nth highest & lowest value		
	Co-related UPDATE or DELETE with data migration example		
	EXISTS and NOT EXISTS in correlated sub-queries		
	Assignments		
Pseud	lo-columns		
	What is a Pseudo-column in Oracle		
	ROWID - Properties, structure of a ROWID, real time application of ROWID		
	ROWNUM - Properties, restrictions, real time use		
	Differences between ROWID & ROWNUM		
	Limiting the rows using ROWNUM		
	Assignments		
Inline	Views		
	Define a in-line View		
	Getting top-n & bottom-n data using an Inline View		
	Oracle 12c feature "FETCH FIRST ROWS" as a substitute to an Inline View		
	Assignments		
Norm	alization		
	Define Normalization, Advantages.		
	Different Normal Forms [1NF, 2NF, 3NF, BCNF, 4NF,5NF]		
	Real time example to achieve upto 3 NF		
	De-Normalization		
	Difference between OLTP & a data-warehouse		
Oracle	e Schema		
	Define oracle schema & its contents, default Scehma		
	Creating an user in Oracle, setting a password, locking & unlocking an user		
	Drop user with CASCADE option		
Privili	ges & Roles		
	Types of privileges, System Privilege & Object Privilege		
	Real time example to provide Object privilege		
	DCL commands - GRANT & REVOKE		



Roles - Definition, Creating a role
<u> </u>
Advantages of the roles  Default Roles
pase Objects & Data Dictionary
Types of Database Objects
Introduction to Data Dictionary
USER_AAA, ALL_AAA, DBA_AAA, V\$AAA Views & their importance
Examples
Define a view
Creating a view, advantages of creating a view
Types of Views, Simple v/s Composite, Updateable v/s Non-Updateable, Read-Only, Force Views
Constraints on Views - WITH CHECK OPTION on Views
USER_VIEWS to check the view information
nyms .
Define a synonym
Creating a synonym, advantages of creating a synonym
Types of Synonyms - Private & public synonyms
Difference between View & Synonym
es
Define an index
Creating an index, advantages of creating an index
Architecture of an Index
Types of Indexes [ Simple, Composite, Unique, Non-Unique, B*Tree, Bitmap, Function Based,]
Using EXPLAIN PLAN to check the usage of Indexes
Invisible Indexes (11g)
Scenarios when Index is not used
Disadvanatges of Indexes
Re-building of an Index
nks
Need of a Database Link
Creating a Database Link
Types of Database Link [Private & Public Database Links]
Accessing remote data using a DB link
Restrictions of DB Links
ences
Define a Sequence
Creating a sequence
Using NEXTVAL & CURRVAL Pseudo-columns in Sequence



i	
	Using Sequence to generate Surrogate Key Values
	Restrictions of NEXTVAL & CURRVAL
	Sequence Properties with complete syntax
	Altering a sequence
	Restrictions of a sequence
	12c Features of a sequence
Cluster	
	Define Cluster
	Advantages of clusters, creating a simple cluster
Analyti	cal Functions
	Define an Analytical Function, differentiate between group & analytical function
	Using OVER() clause in an Analytical function & its options
	Types of Analytical Functions : MAX, MIN, SUM, COUNT, AVG
	Types of Analytical Functions: ROW_NUMBER, RANK, DENSE_RANK
	Types of Analytical Functions : LEAD, LAG
	Getting nth highest, nth lowest & nth record from the table
	Assignments
CASE st	atement
	Define a CASE statement
	Forms of CASE statement
	Differences between CASE & DECODE
	Examples & Assignments
MERGE	Statement
	Define MERGE statement
	Writing MATCHING & Non-Matching conditions
	Enahancement of MERGE in Oracle 10g
	Disadvanatge of MERGE
INSERT	ALL [Multi-Table Inserts]
	Writing INSERT ALL statement
	Examples
Regula	Expressions
	Advantages of Regular Expression
	Introduction to syntax
	Examples for REGEXP_LIKE & REGEXP_REPLACE
	11g Feature - REGEXP_COUNT
PIVOT	& UNPIVOT
	Using PIVOT & UNPIVOT in Oracle 11g
	Differences between PIVOT & UNPIVOT
	Assignments



WITH clause to write Queries			
	Writing queries using WITH clause		
	Differences between Inline View & WITH clause		
Hiera	Hierarchial Queries		
	Writing hierarchial queries in Oracle		
	Using LEVEL pseudo-column		
	Generating numbers from 1 to 100 using LEVEL		
Spooling			
	Writing the data from a SQL* PLUS to a file		
	Spool APPEND feature		
Scripting			
	Executing the SQL statements from a file		
	Using "@" command		
Oracle	Oracle Features 12c, 11g		
	Summary of Oracle 12c & 11g Features		
	Examples		