

## Oracle SQL 12c with PHP

Section	Subject	Page
<b>One</b>	<b>Introduction to Oracle</b>	2
	- What is SQL used for ?	3
	- Why use Oracle with PHP ?	4
	- Definition of a Database	5
	- Using Oracle with PHP	6
<b>Two</b>	<b>Oracle Database Objects</b>	7
	- Introduction	8
	- Tables	9
	- Views	10
	- Materialized Views	11
	- Indexes	12
	- Sequences	13
	- Packages, Functions and Procedures	14
	- Schemas	15
<b>Three</b>	<b>Connecting to Oracle via PHP</b>	16
	- Introduction	17
	- Using oci_connect	18
<b>Four</b>	<b>Querying from Oracle</b>	19
	- Introduction	20
	- oci_parse and oci_execute	22
	- oci_fetch_row	25
	- oci_num_rows and oci_num_fields	26
	- Detecting Oracle errors	30
	- oci_error	34
	- Detecting a Parse error	36
	- Detecting an Execution error	38
	- Oracle Metadata	40
	- User_tables	43
	- What columns are in a table	45
	- Using OCI_DESCRIBE_ONLY	46
	- User_tab_columns	51
- <i>Exercise One</i>	57	
<b>Five</b>	<b>Simple Oracle Queries</b>	61
	- Introduction	62
	- Selecting more than one column	64
	- Counting Records in an Oracle Table	65
	- Displaying Literals in a Select statement	67
	- Using Associative Arrays with oci_fetch	71
	- Column Aliases	74
	- Column Manipulation with SQL Functions	77
	- Concatenating Columns in SQL	83
	- Performing Calculations in SQL	84
	- Ordering Data in SQL	85
	- Ordering more than one Column	87
	- Ordering with nulls first / nulls last	88
	- Manipulating Dates in SQL	89
	- Displaying Dates in SQL	90
- Using user_tab_columns with functions	91	
- <i>Exercise Two</i>	93	

Section	Subject	Page
<b>Six</b>	<b>Limiting Data Selected with a Where Clause</b>	101
	– Limiting Data in SQL	102
	– Structure of an SQL Where Clause	103
	– Different types of SQL Where Clauses	104
	– Handling Nulls in Where Clauses	112
	– Case Restrictions in SQL Where Clauses	113
	– Using Functions in Where Clauses	114
	– Using PHP Variables in Where clauses	117
	– Using PHP oci_bind_by_name in Where clauses	118
	– Rownum in SQL Tables	120
	– Using Rowid in SQL Tables	122
	– Fetch first rows of a Table in Oracle 12c (Top-N)	124
	– Using Percent with Fetch in Oracle 12c	125
	– Using Offset with Fetch in Oracle 12c	126
	– Using With Ties with Fetch in Oracle 12c	127
– <i>Exercise Three</i>	128	
<b>Seven</b>	<b>Oracle Datatypes</b>	134
	– Introduction	135
	– Varchar2	136
	– ORA-00910: specified length too long for its datatype	138
	– Varchar2 and Char	139
	– Number	140
	– Date	141
	– Float	142
	– Long	143
	– Large Objects	144
– Bfile	148	
<b>Eight</b>	<b>Aggregating Values</b>	149
	– Introduction	150
	– Using Group By	151
	– Using Having with Group By	154
	– Using With Rollup to Total Grouping	156
<b>Nine</b>	<b>Tree Walking Tables in SQL</b>	157
	– Introduction	158
	– Syntax for Tree Walking in SQL	160
	– Example of Tree Walking in SQL	162
	– Advanced Ordering of Siblings in Tree Walks	163
	– Sys_Connect_By_Path	165
	– <i>Exercise Four</i>	167
<b>Ten</b>	<b>Joining Tables in an SQL Statement</b>	171
	– Using Table Aliases in SQL	172
	– Linking Tables in an SQL Statement	174
	– Problems with Joining Tables in SQL	179
	– Methods of Joining Tables in SQL	181
	– Using Ansi SQL/86 to join Tables	182
	– Ansi SQL/86 and Outer Joins	183
	– Ansi SQL/99 Standards (Natural Joins)	186
	– Ansi SQL/99 Standards (Cross Joins)	187
	– Ansi SQL/99 Standards (Joins/Using)	188
	– Ansi SQL/99 Standards (On)	189

Section	Subject	Page
	- Ansi SQL/99 Standards (Multiple On)	190
	- Ansi SQL/99 Standards (Left Outer Joins)	191
	- Ansi SQL/99 Standards (Right Outer Joins)	192
	- Ansi SQL/99 Standards (Full Outer Joins)	193
	- Merging Tables in SQL	194
	- Using Union to Merge Tables	195
	- Using Union All to Merge Tables	196
	- Using Intersect to Merge Tables	197
	- Using Minus to Merge Tables	198
	- Knowledge Check	199
	- Using the Merge Syntax	204
	- <i>Exercise Five</i>	206
<b>Eleven</b>	<b>Advanced Queries</b>	<b>210</b>
	- Introduction	211
	- Pivot	212
	- Changing the Pivot Headings of X Axis	218
	- Unpivot	224
	- Unpivot and Null values	228
	- First/Last_Value functions	229
	- Lead and Lag Functions	234
	- Window Specification	237
	- Breakdown of Window Specification	238
	- Window Specification – The Arguments	240
	- Window Specification – The Order By	243
	- Window Specification – The Windowing	245
	- Window Specification – Rows between	246
	- Window Specification – current row	247
	- Window Specification – unbounded preceding	250
	- Window Specification – bounded preceding	251
	- Window Specification – between	253
	- Window Specification – current row	247
	- Difference between Range and Rows	255
	- Ranking functions	256
	- Using Ntile Function in SQL	265
	- Using Listagg function	267
	- Using Case in Select statements	271
	- Using Searched Case Function	276
	- Using Searched Case Function with Sub-queries	278
	- Using Sample in SQL	279
	- Using Width_Bucket	281
	- <i>Exercise Six</i>	284
<b>Twelve</b>	<b>Creating Database Objects</b>	<b>288</b>
	- Creating Tables	289
	- Mandatory Columns in SQL Tables	291
	- Creation Syntax for Tables	292
	- Virtual Columns	294
	- Creating Virtual Columns with new Table	295
	- Specifying Virtual Column Datatype and Size	296
	- Adding Virtual Columns to Existing Table	297
	- Using Virtual Columns	298

Section	Subject	Page
	- Using Virtual Columns with Functions	300
	- Limitations of Virtual Columns (ORA-54012)	301
	- Limitations of Virtual Columns (ORA-54013)	303
	- Viewing Virtual Columns in user_tab_columns	304
	- Invisible Columns in Oracle 12c	305
	- Commenting on Tables in SQL	308
	- Commenting on Columns in SQL	309
	- Creating Indexes in SQL	310
	- Index Creation	313
	- Disabling Indexes	315
	- Creating Views	316
	- Creating Sequences	318
	- Using Sequences	319
	- Altering Sequences	321
	- Using Default Value in SQL Tables	322
	- Using Default Value in Oracle 12c	323
	- Using Identity in Oracle 12c	324
	- Renaming Objects in an Oracle Database	325
	- Dropping Objects from an Oracle Database	328
	- Granting Access to other Schemas	329
	- Accessing other Schemas	332
	- Creating Synonyms	333
	- <i>Exercise Seven</i>	334
<b>Thirteen</b>	<b>Altering and Populating Oracle Tables</b>	<b>340</b>
	- Some Rules when altering Tables	341
	- Syntax for Altering Tables	342
	- Rules when populating Tables in SQL	343
	- Syntax for populating Tables	344
	- Using Variables to Populate Tables	349
	- General Comments	350
	- Updating Data	351
	- Deleting Data	353
	- Handling Large Objects in SQL Plus	354
	- Handling Bfiles in SQL Plus	356
<b>Fourteen</b>	<b>Committing Records</b>	<b>357</b>
	- The difference between DDL and DML	358
	- Committing and Rollback in PHP	361
	- Loading XML file naming Columns	292
	- Loading XML file using Set	293
<b>Fifteen</b>	<b>Materialized Views</b>	<b>362</b>
	- Introduction	363
	- Syntax for Creating Materialized Views	365
	- Refreshing Materialized Views	367
	- Building Materialized Views	373
	- Miscellaneous	375

Section	Subject	Page
Sixteen	Miscellaneous	376
	- Introduction	377
	- Changing Passwords with <code>oci_password_change</code>	378
	- Oracle Database Version ( <code>oci_server_version</code> )	379
	- Setting timeout with <code>oci_set_call_timeout</code>	380
	- <i>Exercise Eight</i>	381

