

## PHP 7.3 and SQL 8

Section	Subject	Page	
<b>One</b>	<b>PHP Introduction</b>	2	
	– PHP: Hypertext Preprocessor	3	
	– Some of its main uses	4	
<b>Two</b>	<b>PHP Structure</b>	5	
	– Basic Structure of PHP	6	
	– PHP Version etc	15	
	– Use of Echo	17	
	– Concatenating Echo	19	
	– Use of Echo with Escape Characters	21	
	– Use of Echo with Calculations	27	
	– Echo versus Print	30	
	– Use of Echo with HTML 	32	
	– Commenting code in PHP	34	
	<b>Three</b>	<b>Defining PHP Variables</b>	37
		– Introduction	38
– Defining PHP Variables		39	
– Naming PHP Variables		40	
– Declaring PHP Variables		43	
– Flexibility of Datatypes		45	
– Casting Datatypes		46	
– Using gettype() with PHP Variables		50	
– Using var_dump() with PHP Variables		52	
– Using settype() with PHP Variables		53	
– Using unset() with PHP Variables		55	
– Using Heredoc		56	
– Using Nowdoc		58	
– Using Define for Constants in PHP	59		
<b>Four</b>	<b>Manipulating Variables in PHP</b>	61	
	– Introduction	62	
	– Mathematics	63	
	– Incrementing Values	67	
	– Prefix and Postfix	69	
	– Concatenation	72	
	– <i>Exercise One</i>	76	
	<b>Five</b>	<b>Using PHP built in String Functions</b>	81
– Introduction		82	
– Miscellaneous String Functions		84	
– Changing Case of Strings		89	
– Substringing Strings		90	
– Searching Strings		92	
– Trimming Strings		98	
– Nesting Functions	99		
<b>Six</b>	<b>Using PHP built in Number Functions</b>	100	
	– Introduction	101	
	– Number Rounding	102	
	– <i>Exercise Two</i>	106	
<b>Seven</b>	<b>Introduction to PHP Arrays</b>	109	
	– Introduction	110	
	– Numeric Arrays	112	
	– Populating Numeric Arrays	113	
	– Populating Numeric Arrays with range()	116	
	– Populating Numeric Arrays with array_pad()	119	
	– Populating Associative Arrays	121	
	– Using count() or sizeof()	127	
	– Using var_dump()	128	

## PHP 7.3 and SQL 8

Section	Subject	Page
	- Using print_r()	130
	- Manually traversing Arrays	131
	- Converting Arrays	133
	- Using implode() and explode()	134
	- Using unset()	136
	- Multi-Dimensional Arrays	137
	- Using var_dump() on multi-dimension arrays	140
	- Using count() on multi-dimension arrays	143
	- Three dimensional arrays	144
	- Accessing Three Dimensional Arrays	146
	- Alternative declaration of Arrays	147
	- <i>Exercise Three</i>	148
<b>Eight</b>	<b>Using Array Functions</b>	154
	- Introduction	155
	- Using array_sum() / array_product()	156
	- Sorting Arrays	157
	- assort() and arsort()	163
	- ksort() and krsort()	164
	- array_multisort()	165
	- array_reverse()	169
	- array_flip()	170
	- array_fill() and array_fill_keys()	172
	- array_combine()	176
	- array_intersect()	177
	- array_diff()	178
	- array_merge()	179
	- array_unique()	180
	- <i>Exercise Four</i>	181
<b>Nine</b>	<b>Conditional PHP Statements</b>	185
	- Conditional tests	186
	- Comparison Operators	187
	- If statement structure	189
	- Grouping processes in an 'If' statement	191
	- Alternative processing	193
	- Multiple 'If' statements	194
	- Testing different datatypes	198
	- Testing Strings	200
	- Testing Booleans	204
	- Testing for nulls	206
	- Alternative Colon syntax	207
	- Multiple Condition tests (and)	209
	- Multiple Condition tests (or)	210
	- Multiple Condition tests (xor)	211
	- Nested If Conditions	212
	- Ternary Operator	213
	- Using PHP built in Functions for testing	216
	- <i>Exercise Five</i>	218
<b>Ten</b>	<b>Using Switch in Condition Testing</b>	221
	- Introduction	222
	- The Switch Syntax	223
	- Using Break with Switch	225

## PHP 7.3 and SQL 8

Section	Subject	Page
	- Using Default with Switch	227
	- Using Switch with Colon Syntax	228
	- Advanced Switch Testing	229
	- Mixing If Conditions with Switch	232
	- <i>Exercise Six</i>	234
<b>Eleven</b>	<b>Looping through values in PHP</b>	236
	- Introduction	237
	- Foreach processing of Arrays	238
	- Foreach processing with Colon syntax	242
	- Multidimensional Arrays with Foreach	243
	- While Loops	245
	- While Loops with Colon Syntax	247
	- Using Break to exit Loops	248
	- Do .. While Loops	249
	- Do .. While and While Loops with Arrays	251
	- For Loops	252
	- For Loops with Colon Syntax	254
	- For Loops with empty expressions	255
	- For Loops with more than one variable	257
	- For Loops with Arrays	258
	- Advanced Breaking of Loops	260
	- Using Continue with Loops	267
	- <i>Exercise Seven</i>	270
<b>Twelve</b>	<b>Using Dates within PHP</b>	274
	- Introduction	275
	- Creating String of Dates	276
	- Converting Strings to Dates using strtotime()	277
	- Limitation of using strtotime()	284
	- Using Format Masks with date()	285
	- Comparing Dates	287
	- Adding to Dates	288
	- Using mktime()	289
	- Using getdate()	290
	- Other Date Functions	291
	- <i>Exercise Eight</i>	292
<b>Thirteen</b>	<b>Regular Expressions using PCRE</b>	294
	- Introduction	295
	- Testing for 'Contains' within a String	297
	- Starts or Ends using Line Anchors	298
	- Starts and Ends using Line Anchors (or)	300
	- Using the Dot (Any Character)	301
	- Using {Intervals}	303
	- Using Character Lists []	305
	- Using Character Lists to exclude matches	308
	- Using Escape Sequences	309
	- Using the Question Mark (Optional)	311
	- Using the Plus sign (Mandatory)	313
	- Using the Star sign (Optional)	314
	- Backreferencing	315
	- POSIX	317

## PHP 7.3 and SQL 8

Section	Subject	Page
	- Using preg_replace()	319
	- Using preg_replace() with arrays	321
	- Using preg_filter()	323
	- Using preg_replace_callback()	324
	- Using preg_match()	325
	- Preg_match() with PREG_OFFSET_CAPTURE	326
	- Using preg_match_all()	327
	- Using preg_grep()	329
	- Using preg_last_error()	331
	- Using preg_quote()	332
	- Using preg_split()	333
	- Using preg_split() with arrays	335
	- <i>Exercise Nine</i>	336
<b>Fourteen</b>	<b>PHP Functions</b>	339
	- Introduction	340
	- Rudimentary Functions	341
	- Function Positioning	343
	- Passing Parameters to Functions	344
	- Passing Multiple Parameters to Functions	346
	- Defaulting Parameters in Functions	347
	- Returning Values	348
	- Returning Values in an Array	350
	- The scope of Variables	351
	- Global Variables	353
	- Passing Arguments by Reference	354
	- Dynamic Function Calls	355
	- Calling Functions from other Functions	358
	- Calling PHP Functions in other files	359
	- Structure of the PHP file	360
	- Calling the PHP file	361
	- Calling the PHP file using include()	362
	- Passing Parameters to another PHP file	365
	- <i>Exercise Ten</i>	366
<b>Fifteen</b>	<b>PHP Cookies</b>	369
	- Introduction	370
	- Creating Cookies in PHP with setcookie()	371
	- Setting the expiry date for Cookies	373
	- Setting the path for Cookies	375
	- Setting the domain/security for Cookies	376
	- Reading Cookies with \$_COOKIE	377
	- Using Arrays with Cookies	379
<b>Sixteen</b>	<b>PHP Sessions</b>	380
	- Introduction	381
	- Creating Sessions	382
	- Testing Sessions	383
	- Using Arrays with Sessions	384
	- Deleting Sessions	385
<b>Seventeen</b>	<b>PHP Form Processor</b>	386
	- Introduction	387
	- Anatomy of a HTML form	389

## PHP 7.3 and SQL 8

Section	Subject	Page
	- Reading input using \$_POST/\$_GET	392
	- Reading input using \$_POST	393
	- Reading input using \$_GET	394
	- \$_GET versus \$_POST	395
	- Using \$_REQUEST	396
	- Using \$_SERVER	397
	- Preventing Invalid HTML in Forms	401
	- Emailing in PHP	402
	- Emailing HTML in PHP	404
	- Emailing with attachments in PHP	406
	- <i>Exercise Eleven</i>	407
<b>Eighteen</b>	<b>PHP Errors</b>	410
	- Introduction	411
	- Typical Errors	412
	- Suppressing Errors	414
	- \$php_errormsg	417
	- Using die to end the processing	419
	- Using exit to end the processing	420
	- Using isset() \$php_errormsg	421
	- Alternative way to use \$php_errormsg	422
	- Using error_reporting()	423
	- Using error_reporting() report levels	426
	- Custom error handling	428
	- Raising Errors using trigger_error()	432
	- Using error_log	434
	- Using a centralised error handler	437
<b>Nineteen</b>	<b>Exceptions</b>	439
	- Introduction	440
	- Exception Syntax	441
	- The 'try'	442
	- The 'throw'	443
	- The 'catch'	444
	- Standard Exceptions	445
	- Developer Defined Exceptions	448
	- Processing the Exceptions	449
	- Exception Methods	450
	- set_exception_handler()	452
	- Re-throwing Exceptions	454
	- Finally	455
	- <i>Exercise Twelve</i>	457
<b>Twenty</b>	<b>PHP File I/O</b>	459
	- Introduction	460
	- Using fopen()	461
	- Access Modes	462
	- Using fgets()	464
	- Using fgetc()	467
	- Using file()	468
	- Using file_get_contents()	469
	- Using fopen() with URLs	471
	- Using fputs() / fwrite()	472

## PHP 7.3 and SQL 8

Section	Subject	Page
	- Using file_put_contents()	474
	- Working with Comma Separated Files (CSV)	477
	- Using fgetcsv()	479
	- Using fputcsv()	481
	- Working with Binary Files	483
	- Checking the Size of Bytes written	486
	- Operating System Functions	487
	- Using exec()	489
<b>Twenty One</b>	<b>Creating HTML with PHP</b>	491
	- Introduction	492
	- Why use PHP	493
	- HTML example	494
	- PHP simulating the HTML example	496
	- Using PHP to create dynamic HTML	500
	- Using htmlspecialchars()	507
<b>Twenty Two</b>	<b>PHP Object Orientated Programming</b>	508
	- Introduction	509
	- Terminology	510
	- Instances	511
	- Extending Classes	513
	- Using '\$this'	515
	- Private and Public Methods	517
	- Creating new Classes	518
	- Referencing via Variables	520
	- <i>Exercise Thirteen</i>	521
<b>MySQL 8</b>		1
<b>One</b>	<b>Introduction to MySQL</b>	2
	- What is SQL used for ?	3
	- Why use MySQL with PHP ?	4
	- Definition of a Database	5
	- Using MySQL with PHP	6
<b>Two</b>	<b>Simple MySQL Queries in PHP</b>	8
	- Introduction	9
	- Show Tables	10
	- Show Columns	14
	- Describe	17
	- Selecting Data from a Table	18
	- Counting records in a Table	21
	- Selecting Data from a Table	23
	- Selecting Columns from a Table	24
	- Selecting Literals from a Table	25
	- Selecting Literals from Dual	26
	- <i>Exercise One</i>	27
	- Column Manipulation with Functions	29
	- Concatenating Columns	33
	- Performing Calculations	34
	- Using Variables	35
	- Using mysqli_fetch_array()	37
	- Using Aliases	38
	- Ordering Data	41

## PHP 7.3 and SQL 8

Section	Subject	Page
	– Ordering more than One Column	43
	– Manipulating Dates using date_add()	44
	– Displaying Dates using date_format()	46
	– <i>Exercise Two</i>	48
<b>Three</b>	<b>MySQL Errors</b>	56
	– Determining Errors in the SQL	57
	– Using mysqli_errno() and mysqli_error()	58
<b>Four</b>	<b>Limiting Data Selected with a Where Clause</b>	59
	– Limiting Data	60
	– Different types of MySql Where Clauses	62
	– Using Table Aliases	73
	– Combining Where Clauses	75
	– Different types of MySql Where Clauses	76
	– Handling Nulls in Where Clauses	77
	– Using Functions in Where Clauses	78
	– Using PHP Variables in Where Clauses	80
	– <i>Exercise Three</i>	81
<b>Five</b>	<b>Aggregating Values in MySQL</b>	85
	– Introduction	86
	– Using Group By	88
	– Using Having with Group By	90
	– Using With Rollup to Total Grouping	91
	– Using Distinct()	92
	– <i>Exercise Four</i>	93
<b>Six</b>	<b>Regular Expressions</b>	96
	– Introduction	97
	– Testing for 'Contains' within a String	98
	– Starts or Ends using Line Anchors	99
	– Starts and Ends using Line Anchors (or)	100
	– Using the Dot (Any Character)	101
	– Using {Intervals }	102
	– Using Character Lists []	104
	– Using Character Lists to exclude matches	107
	– POSIX	108
	– Using the Question Mark (Optional)	110
	– Using the Plus sign (Mandatory)	112
	– Using the Star sign (Optional)	113
	– <i>Exercise Five</i>	114
<b>Seven</b>	<b>Joining Tables in a MySQL Statement</b>	116
	– Introduction	117
	– Linking Tables in a MySQL Statement	118
	– Theta style of SQL	123
	– ANSI style of SQL	124
	– Problems with Data matching	125
	– Problems with Joining Tables in SQL	126
	– Ansi SQL Standards (Natural Joins)	127
	– Ansi SQL Standards (Cross Joins)	128
	– Ansi SQL Standards (Joins/Using)	129
	– Ansi SQL Standards (On)	130
	– Ansi SQL Standards (Multiple On)	131
	– Ansi SQL Standards (Left Outer Joins)	132

## PHP 7.3 and SQL 8

Section	Subject	Page
	– Ansi SQL Standards (Right Outer Joins)	133
	– Merging Tables	134
	– Using Union to Merge Tables	135
	– Using Union All to Merge Tables	136
	– Using Intersect to Merge Tables	137
	– Using Minus to Merge Tables	138
	– Knowledge Check	139
	– Knowledge Check - Union	140
	– Union Syntax	141
	– Knowledge Check – Union All	142
	– Union All Syntax	143
	– Knowledge Check - Intersect	144
	– Intersect Syntax	145
	– Knowledge Check - Minus	146
	– Minus Syntax	147
	– Using the Merge Syntax	148
	– <i>Exercise Six</i>	149
<b>Eight</b>	<b>Advanced MySQL Query Techniques</b>	154
	– Using Limit	155
	– Using If()	157
	– Using Ifnull()	158
	– Using Nullif	159
	– Using Case Function	160
	– Using Sub-queries	164
	– Using Set to create variables	167
	– Populating a Variable from a Query	168
	– <i>Exercise Seven</i>	170
<b>Nine</b>	<b>MySQL Datatypes</b>	173
	– Introduction	174
	– Numeric Datatypes (Integer)	175
	– Numeric Datatypes (Decimal)	176
	– String Text Datatypes	177
	– String Blob Datatypes	178
	– String List Datatypes	179
	– Date Datatypes	180
<b>Ten</b>	<b>Creating Database Objects</b>	181
	– Creating Tables	182
	– Mandatory Columns	183
	– Creation Syntax for Tables	184
	– Column Creation	187
	– AUTO_INCREMENT	189
	– Last_insert_id	190
	– Drop Table Syntax	191
	– Temporary Tables	192
	– Creating Indexes	194
	– Primary Key Creation	197
	– Unique Key Creation	200
	– Foreign Key Creation	203
	– On Delete / On Update	205
	– Cascade	208



## PHP 7.3 and SQL 8

Section	Subject	Page
	– Set Null	209
	– NO ACTION	210
	– RESTRICT	211
	– SET DEFAULT	212
	– Creating Views	213
	– Renaming Views	216
	– Dropping Views	217
	– <i>Exercise Eight</i>	218
<b>Eleven</b>	<b>Altering Elements</b>	220
	– Altering Tables	221
<b>Twelve</b>	<b>Inserting and Altering Data</b>	224
	– Rules	225
	– Syntax for Populating Tables	226
	– Inserting using the Set syntax	232
	– Multiple Inserts	233
	– On Duplicate Key Update	234
	– Using Replace for Inserting Records	235
	– General Comments	238
	– Updating Records Rules	239
	– Updating Data	240
	– Deleting Data	243
	– Truncate	244
	– Inserting Large Objects	245
	– Views	247
<b>Thirteen</b>	<b>Prepared Statements</b>	251
	– Introduction	252
	– Preparing the Statement	253
	– Removing Prepared Statements	254
	– Using Parameters	255
	– Using mysqli_prepare()	257
	– Using mysqli_stmt_bind_param()	258
<b>Fourteen</b>	<b>Committing Records</b>	259
	– DDL and DML	260
	– mysqli_commit() and mysqli_rollback()	262
	– What happens if disconnected ?	264
	– <i>Exercise Nine</i>	265
<b>Fifteen</b>	<b>Importing and Exporting</b>	271
	– Outfile	272
	– Problems with Outfile	276
	– Using Dumpfile	278
	– Selecting into Variables	279
	– Importing Data using Infile	280
	– Ignoring Lines using Infile	282
	– Using the Set command with Infile	283
	– Using the Lines option with Infile	286
	– Loading comma separated files	287
	– Loading XML file	289
	– Loading XML file using Ignore	291
	– Loading XML file naming Columns	292
	– Loading XML file using Set	293

## PHP 7.3 and SQL 8

Section	Subject	Page
Sixteen	<b>Using XML with PHP</b>	294
	- Introduction	295
	- Reading XML files with PHP with DOM	296
	- Reading XML with getElementByTagName()	304
	- Looping with getElementByTagName()	306
	- Writing XML files with PHP	315
	- Writing XML files with PHP Arrays	320
	- Writing XML files with PHP from MySQL	326
	- <i>Exercise Ten</i>	331

