

PHP 7.1 and SQL 5.7

Section	Subject	Page	
One	PHP Introduction	2	
	- PHP: Hypertext Preprocessor	3	
	- Some of its main uses	4	
Two	PHP Structure	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	
	Three	Defining PHP Variables	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	
Four	Manipulating Variables in PHP	61	
	- Introduction	62	
	- Mathematics	63	
	- Incrementing Values	67	
	- Prefix and Postfix	69	
	- Concatenation	72	
	- <i>Exercise One</i>	76	
	Five	Using PHP built in String Functions	81
- Introduction		82	
- Miscellaneous String Functions		84	
- Changing Case of Strings		89	
- Substringing Strings		90	
- Searching Strings		92	
- Trimming Strings		98	
- Nesting Functions	99		
Six	Using PHP built in Number Functions	100	
	- Introduction	101	
	- Number Rounding	102	
	- <i>Exercise Two</i>	106	
Seven	Introduction to PHP Arrays	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	
	- Using print_r()	130	

Section	Subject	Page
	- 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
Eight	Using Array Functions	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
Nine	Conditional PHP Statements	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
Ten	Using Switch in Condition Testing	221
	- Introduction	222
	- The Switch Syntax	223
	- Using Break with Switch	225
	- Using Default with Switch	227
	- Using Switch with Colon Syntax	228
	- Advanced Switch Testing	229

PHP 7.1 and SQL 5.7

Section	Subject	Page
	– Mixing If Conditions with Switch	232
	– <i>Exercise Six</i>	234
Eleven	Looping through values in PHP	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
Twelve	Using Dates within PHP	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
Thirteen	Regular Expressions using PCRE	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
	– Using preg_replace()	319
	– Using preg_replace() with arrays	321
	– Using preg_filter()	323
	– Using preg_replace_callback()	324
	– Using preg_match()	325

Section	Subject	Page
	– 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
Fourteen	PHP Functions	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
Fifteen	PHP Cookies	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
Sixteen	PHP Sessions	380
	– Introduction	381
	– Creating Sessions	382
	– Testing Sessions	383
	– Using Arrays with Sessions	384
	– Deleting Sessions	385
Seventeen	PHP Form Processor	386
	– Introduction	387
	– Anatomy of a HTML form	389
	– 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

Section	Subject	Page
	- Emailing in PHP	402
	- Emailing HTML in PHP	404
	- Emailing with attachments in PHP	406
	- <i>Exercise Eleven</i>	407
Eighteen	PHP Errors	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
Nineteen	Exceptions	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
Twenty	PHP File I/O	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
	- 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

PHP 7.1 and SQL 5.7

Section	Subject	Page	
Twenty One	Creating HTML with PHP	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	
Twenty Two	PHP Object Orientated Programming	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	
	MySQL 5.7 One	Introduction to MySQL	1
		– What is SQL used for ?	2
		– Why use MySQL with PHP ?	3
– Definition of a Database		4	
– Using MySQL with PHP		5	
Two		Simple MySQL Queries in PHP	6
		– Introduction	8
		– Show Tables	9
		– Show Columns	10
		– Describe	14
	– Selecting Data from a Table	17	
	– Counting records in a Table	18	
	– Selecting Data from a Table	21	
	– Selecting Columns from a Table	23	
	– Selecting Literals from a Table	24	
	– Selecting Literals from Dual	25	
	– <i>Exercise One</i>	26	
	– Column Manipulation with Functions	27	
	– Concatenating Columns	29	
	– Performing Calculations	33	
	– Using Variables	34	
	– Using mysqli_fetch_array()	35	
	– Using Aliases	37	
	– Ordering Data	38	
	– Ordering more than One Column	41	
– Manipulating Dates using date_add()	43		
– Displaying Dates using date_format()	44		
– <i>Exercise Two</i>	46		
Three	MySQL Errors	48	
	– Determining Errors in the SQL	56	
	– Using mysqli_errno() and mysqli_error()	57	
Four	Limiting Data Selected with a Where Clause	58	
	– Limiting Data	59	
	– Different types of MySql Where Clauses	60	

PHP 7.1 and SQL 5.7

Section	Subject	Page
	– 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
Five	Aggregating Values in MySQL	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
Six	Regular Expressions	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
Seven	Joining Tables in a MySQL Statement	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
	– 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

Section	Subject	Page
	- Knowledge Check - Intersect	144
	- Intersect Syntax	145
	- Knowledge Check - Minus	146
	- Minus Syntax	147
	- Using the Merge Syntax	148
	- <i>Exercise Six</i>	149
Eight	Advanced MySQL Query Techniques	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
Nine	MySQL Datatypes	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
Ten	Creating Database Objects	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
	- 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
Eleven	Altering Elements	220
	- Altering Tables	221

PHP 7.1 and SQL 5.7

Section	Subject	Page
Twelve	Inserting and Altering Data	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
Thirteen	Prepared Statements	251
	– Introduction	252
	– Preparing the Statement	253
	– Removing Prepared Statements	254
	– Using Parameters	255
	– Using mysqli_prepare()	257
	– Using mysqli_stmt_bind_param()	258
Fourteen	Committing Records	259
	– DDL and DML	260
	– mysqli_commit() and mysqli_rollback()	262
	– What happens if disconnected ?	264
	– <i>Exercise Nine</i>	265
Fifteen	Importing and Exporting	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	
Sixteen	Using XML with PHP	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