

Jump to page

[TOC](#) [1-25](#) [26-29](#) [30-50](#) [51-63](#) [64-82](#) [83-161](#) [162-77](#) [178-222](#) [223-251](#) [252-54](#) [254-268](#) [269-302](#) [303-13](#)
[314-336](#) [337-369](#) [371-387](#) [388-418](#) [421-453](#) [454-466](#) [468-531](#) [532-78](#) [579-652](#) [653-660](#) [662-667](#) [670-677](#)

Index

A

Access database
 port to MySQL, 259
ACID, 653
Administrative tools
 command-line utilities, 421
 innochecksum, 423
 msql2mysql, 429
 my_print_defaults, 448
 myisamchk, 423
 myisamlog, 427
 myisampack, 446
 mysql_config_editor, 426
 mysql_install_db, 445
 mysqlaccess, 430
 mysqladmin, 430
 mysqlbinlog, 432
 mysqlbug, 434
 mysqlcheck, 427
 mysqldump, 435
 mysqldumpslow, 438
 mysqlhotcopy, 438
 mysqlimport, 434
 mysqlmanager, 440
 mysqlshow, 444
 mysqlshutdown, 434
 mysqslap, 448
 mysqlwatch, 448
 option files, 422
 perror, 449
 replace, 445
 command-line tools, 422
 GUI tools
 MySQL Administrator, 48, 449
 MySQL Workbench, 449
 MySQL WorkBench, 48
 phpMyAdmin, 449
 command-line utilities, 421
AJAX, 297
Apache
 configuring PHP for Windows, 274
 installing
 under Linux, 270
 under Windows, 271
 preparing for PHP in Windows, 272
Apache and PHP
 configuring for Linux, 270
Application life cycle, 388
ARCHIVE storage engine, 162
ASP.NET, 357
Audit plugins, 220
Authentication, 32
 auth_socket, 32

 login_path, 33
 mysql_config_editor, 33
 of connection, 460
 of database requests, 462
AUTO_INCREMENT, 96

B

Backup, 417
 and restore, 418
 BACKUP TABLE, 112
 InnoDB databases and tables, 168
 mysqldump, 435, 438
BDB tables, 162
BLACKHOLE storage engine, 163

C

C API
 C compilers, 371
 data types, 372
 MYSQL, 372
 MYSQL_FIELD, 373
 MYSQL_RES, 373
 MYSQL_ROW, 374
 functions, 374
 sample program, 374
CALL, 211
CAP theorem, 22
CHANGE REPLICATION FILTER, 131
Character sets and collations, 37, 286
Charts, 491
Codd, EF
 relational theory, 7
Coercibility, 37
Columns
 maximum no. of, 95
Configuration, 33
 dedicated servers, 390
 multiple servers
 Linux, 40
 Windows, 45
 MySQL
 for Linux, 391
 for Windows, 391
 MySQL server, 33, 392
 InnoDB, 48
 InnoDB, 167, 397
 MySQLInstanceConfig.exe, 42, 43
 reliability, 400
 security, 458
 sql_mode, 663
 symbolic links, 412
 system variables, 33, 662

- the disk and file system, 391
- Configuration wizard, 42
- Connections and Sessions, 89
- Connector/C++, 387
- Connector/J, 318
- Connector/NET 1, 351
- Connector/NET 5
 - cached query, 614
 - connection, 585
 - DataAdapter,DataSet, 596
 - database list, 595
 - default row values, 630
 - information_schema, 612
 - just-in-time lookup, 622
 - LIMIT query, 614
 - login, 590
 - paging, 600
 - table list, 598
 - updates, 604
- Connector/ODBC, 49, 256
- CPU cache memory, 391
- CREATE TABLE
 - CHECK CONSTRAINT, 97
 - generated columns, 95
- CSV storage engine, 163
- CTEs, 144

D

- Data Types, 51
 - Date and time, 59
 - JSON, 51, 56
 - Numeric, 56
 - OpenGIS, 60
 - String, 52
- Database
 - change tracking, 15
 - derived values, 14
 - normalisation, 15
 - nulls, 14
 - practical design rules, 13
 - relations, 7
 - relationships, 79
 - server, 15
 - what is it, 1
- Database Administration, 388
 - crash recovery
 - using slave logic, 419
 - disaster planning, 417
 - manual backups, 418
 - reliability, 400
 - speed and size, 398
 - symbolic links, 412
- DataGridView
 - caching for, 581
 - CellBeginEdit, 606
 - custom cell editor, 606
 - delete row, 633
 - event handlers, 618
 - find value in, 607
 - insert new row, 631
 - insert row copy, 632

- DateTime
 - formats, 60
- DBFs
 - importing from, 153
- Default values
 - and CREATE TABLE, 96
- Defragmentation, 174
- Distributed databases, 413
- dotNet, 337
 - architecture, 340, 351

E

- Error codes, 677
- Error management
 - error handlers, 213
 - GET DIAGNOSTICS, 128
 - RESIGNAL, 215
 - SIGNAL, 214
- Event Scheduler, 109
- Excel plugin, 254
- EXPLAIN
 - EXPLAIN ANALYZE, 147

F

- FALCON storage engine, 163
- FEDERATED storage engine, 164
- Floats and rounding, 238
- FOREIGN KEY, 98
 - same table, 477
- FULLTEXT, 98
 - FULLTEXT, 54, 185

G

- Generated columns, 95
- Getting started, 48
- Graphs
 - edge list, 472
 - tree, 474
 - models, 469
 - nested sets model
 - non-tree, 508
 - tree, 492
 - parts explosion, 519
 - tree
 - automate drawing, 491

H

- HANDLER, 147
- Hungarian notation, 587

I

- Identifier names, 86
- IDEs
 - Eclipse, 319
 - NetBeans, 319
 - Visual Studio, 342
 - Visual Studio 2005, 579
- Index speed and size, 399

- Index/key
 - covering, 243
 - CREATE INDEX, 106
 - fulltext, 98
 - PRIMARY KEY, 97
 - UNIQUE, 97
- INFORMATION_SCHEMA, 126
 - structure, 670
- InnoDB
 - CLUSTER, 172, 414
- InnoDB storage engine, 167
 - and memcached, 171
 - cautions, tips and restrictions, 173
 - Configuring, 167
 - Copy tablespaces, 172
 - Deviations from SQL standard, 173
 - file-per-table encryption, 172
 - multiversioning, 171
 - next-key locking, 170
 - optimiser data persistence, 171
 - Optimising, 246
 - plugin, 48, 169
 - row_format, 169
 - SQL statements and locks, 170
 - tablespace,logs,backups, 168
 - tracking tables, 672
 - transactions, 169
- InnoDB_buffer_pool_size, 246
- Installation
 - Configuring, 33
 - Linux
 - binary, 37
 - source, 40
 - Linux,second server, 40
 - MYSQL_HOME, 42
 - option files, 33
 - setup and testing, 46
 - Update privilege tables, 47
 - Windows
 - binary, 42
 - source, 46
 - Windows,second server, 45
- Installer, 30
- ISAM tables, 166

J

- Java
 - application models, 314
 - architectures, 315
 - compiling and running, 322
 - Connector/J, 318
 - download and install, 316
 - IDEs, 319
 - JDBC
 - Class.forName, 321
 - getConnection, 322
 - java.sql.driver, 320
 - models, 319
 - PreparedStatement, 326
 - queries, Statement, ResultSet, 322
 - transactional atomicity, 326

- MySQL
 - connect from a JSP, 327
 - connection pooling, 330
 - javax.sql.DataSource, 333
 - server-side access, 327
 - pieces of the puzzle, 316
 - Scrollable data-driven controls, 334
 - taglibs, 332
 - Tomcat, 317

K

- Key caches, 246
- key_buffer_size, 246
- Keys, 97, 106, 241

M

- many-many relationships, 79
- MARIA storage engine, 165
- MariaDB, 31, 165
 - Install in Linux, 38
 - Install in Windows, 42
- memcached
 - integration with InnoDB, 171
- MEMORY(HEAP) tables, 165
- MERGE (MrgISAM) storage engine, 166
- Microsoft .NET, 337
 - and MySQL, 341
 - architecture, 340
 - ASP.NET, 357
 - Web Matrix, 358
 - compare with Apache/PHP, 340
 - MySQL
 - connect via ODBC, 342
 - direct provider, master-detail window, 354
 - native provider, 351
 - ODBC.NET, 344
 - classes, 348
 - master-detail window, 349
- Migration, 48, 259
- Modelling tools, 66
- Multiple servers
 - Linux/UNIX, 40
 - Windows, 45
- my_print_defaults, 448
- MyISAM tables, 166
- myisamlog, 427
- MyODBC, 255
 - Access
 - named queries, 267
 - importing Access db, 259
 - script, 261
 - in Windows, 256
 - installation, 49
 - MySQL
 - APIs
 - C, 371
 - Java, 314
 - Microsoft .NET, 337
 - Perl, 303
 - PHP, 253
 - bugs, 46

- client program, 35
- comments, 86
- Comparisons with other RDBMSs, 158
- compiling, 393
- connections, 396
- error codes, 677
- grant tables, 454
- identifier names, 86
- licence, 28
- logs, 393
 - binary, 393
 - error, 394
 - query, 394
 - slow query, 395
- major versions, 30
- memory use, 395
- MySQL installation, 30
- operator precedence, 88
- Operators, 86
- other variations from SQL92, 85
- overview, 29
- Privileges, 114
- pronunciation, 83
- Reserved words, 86
- server ptions, 396
- MySQL APIs
 - .NET, 253
 - C, 254
 - C++, 387
 - choosing, 254
 - Java, 253
 - ODBC, 253
 - Perl, 253
 - PHP, 269
- MySQL commands
 - _rowID, 97
 - ALTER DATABASE, 92
 - ALTER INSTANCE, 122
 - ALTER TABLE, 103
 - ANALYZE TABLE, 111
 - BACKUP DATABASE, 111
 - BACKUP TABLE, 112
 - BEGIN, 156
 - CACHE INDEX, 112
 - CHANGE MASTER TO, 129
 - CHECK TABLE, 112
 - CHECKSUM TABLE, 113
 - CLONE, 112
 - COMMIT, 156
 - CREATE | ALTER | DROP EVENT, 109
 - CREATE | ALTER | DROP SERVER, 93
 - CREATE | ALTER | DROP SPATIAL REFENCE SYSTEM, 93
 - CREATE | ALTER LOGFILE GROUP, 106
 - CREATE | ALTER TABLESPACE, 105
 - CREATE | DROP ROLE, 121
 - CREATE | DROP TRIGGER, 108
 - CREATE | RENAME USER, 120
 - CREATE DATABASE, 92
 - CREATE INDEX, 106
 - CREATE TABLE, 94
 - table options, 99
 - CREATE TABLE ... FROM ..., 103
 - CREATE TABLESPACE, 105
 - CREATE|DROP FUNCTION, 107
 - CREATE|DROP VIEW, 107
 - database administration, 111
 - DDL, 92
 - DELETE, 150
 - DESCRIBE, 113
 - DML, 132
 - DO, 155
 - DROP DATABASE, 93
 - DROP INDEX, 106
 - DROP TABLE, 105
 - DROP USER, 121
 - dropping constraints, 104
 - EXPLAIN, 145
 - FLUSH, 113
 - GET DIAGNOSTICS, 128
 - GRANT, 114, 116
 - IMPORT TABLE, 155
 - INSERT, 148
 - unexpected results, 149
 - INSERT ... SELECT, 149
 - INSERT ... SET, 149
 - INSERT ... VALUES, 148
 - INSTALL PLUGIN, 220
 - KILL, 122
 - LOAD DATA FROM MASTER, 132
 - LOAD DATA INFILE, 152
 - FIELDS, 153
 - LINES, 153
 - options, 152
 - LOAD INDEX, 112
 - LOAD TABLE FROM MASTER, 132
 - LOAD XML, 154
 - LOCK INSTANCE FOR BACKUP, 122
 - LOCK|UNLOCK TABLES, 158
 - OPTIMIZE TABLE, 122
 - PREPARE, 155
 - PURGE BACKUP LOGS, 111
 - PURGE BINARY|MASTER LOGS, 130
 - RENAME DATABASE, 93
 - RENAME TABLE, 105
 - REPAIR TABLE, 123
 - REPLACE, 151
 - replication, 128
 - RESET, 123
 - RESET MASTER, 130
 - RESET PERSIST, 663
 - RESET SLAVE, 130
 - RESTART, 123
 - RESTORE, 111
 - RESTORE TABLE, 123
 - REVOKE, 114, 119
 - ROLLBACK, 156
 - SELECT, 132
 - aggregate functions, 142
 - FROM, 136
 - RIGHT JOIN, 139
 - SET, 91
 - SET NAMES, 91
 - SET PASSWORD, 92

- SET_VAR, 91
- SHOW, 123
 - replication, 132
- START SLAVE, 130
- STOP SLAVE, 131
- TRUNCATE, 151
- UPDATE, 149
- USE, 90
- MySQL data types
 - and indexes, 62
 - and referential integrity, 63
 - bit values, 148
 - BLOB and Text, 54
 - char and binary, 52
 - column type modifiers, 52
 - date, 59
 - datetime, 59
 - document (JSON), 51
 - ENUM and Set, 54
 - money, 57
 - NULL, 62
 - numeric, 56
 - timestamp, 59, 60
 - using AUTO_INCREMENT, 58
- MySQL for Visual Studio, 353
- MySQL Installer, 30
- MySQL Proxy, 49, 421
- MySQL Sandbox, 40
- MySQL Shell, 50
- MySQL system variables
 - scalar, 662
- MySQL version, 30
- MySQL Workbench, 66, 449
- MySQL WorkBench, 48, 66
- MySQLInstanceConfig.exe, 42, 43
- mysqld, 448
- MyZQL commands
 - SET ROLE, 121

N

- Native procedures and functions
 - GTID functions
 - GTID_SUBSET(), 205
 - GTID_SUBTRACT(), 205
 - WAIT_FOR_EXECUTED_GTID_SET(), 205
 - WAIT_UNTIL_SQL_THREAD_AFTER_GTIDS(), 205
- Native procedures and functions, 178
 - Aggregate functions, 178
 - AVG(), 179
 - BIT_AND(), 179
 - BIT_OR(), 179
 - COUNT(*), 179
 - COUNT(expr), 179
 - GROUP_CONCAT(), 179
 - MAX(), 180
 - MIN(), 180
 - OVER(), 143
 - STDDEV(), 180
 - SUM(), 180

- VARIANCE(), 180
- Window functions, 143
- Control flow functions
 - CASE WHEN, 178
 - IF(), 178
 - IFNULL(), 178
 - NULLIF(), 178
- Data type functions
 - CAST(), 193
 - COALESCE(), 193
 - CONVERT(), 193
 - ISNULL(), 193
 - PROCEDURE ANALYSE(), 193
- Datetime functions
 - ADDDATE(), 188, 189
 - CONVERT_TZ(), 189
 - CURDATE(), 189
 - CURRENT_TIME(), 189
 - CURRENT_TIMESTAMP(), 189
 - CURTIME(), 189
 - DATE(), 189
 - DATE_ADD(), 189
 - DATE_FORMAT(), 189
 - DATE_SUB(), 190
 - DATEDIFF(), 189
 - DAYNAME(), 190
 - DAYOFMONTH(), 190
 - DAYOFWEEK(), 190
 - DAYOFYEAR(), 190
 - EXTRACT(), 190
 - FROM_DAYS(), 191
 - FROM_UNIXTIME(), 191
 - GET_FORMAT(), 191
 - HOUR(), 191
 - LAST_DAY(), 191
 - MAKEDATE(), 191
 - MAKETIME(), 191
 - MICROSECOND(), 191
 - MINUTE(), 191
 - MONTH(), 191
 - MONTHNAME(), 191
 - PERIOD_ADD(), 191
 - PERIOD_DIFF(), 191
 - QUARTER(), 191
 - SEC_TO_TIME(), 192
 - SECOND(), 191
 - STR_TO_DATE(), 192
 - SUBDATE(), 192
 - SUBTIME(), 192
 - TIME(), 192
 - TIME_FORMAT(), 192
 - TIME_TO_SEC(), 192
 - TIMEDIFF(), 192
 - TIMESTAMP(), 192
 - TIMESTAMPADD(), 192
 - TIMESTAMPDIFF(), 192
 - TO_DAYS(), 192
 - TO_SECONDS(), 192
 - UNIX_TIMESTAMP(), 192
 - UTC_DATE(), 193
 - UTC_TIME(), 193
 - UTC_TIMESTAMP(), 193

- WEEK(), 193
- WEEKDAY(), 193
- YEAR(), 193
- YEARWEEK(), 193
- En/decoding functions
 - AES_DECRYPT(), 194
 - AES_ENCRYPT(), 194
 - DECODE(), 194
 - DES_ENCRYPT(), 194
 - ENCODE(), 194
 - ENCRYPT(), 194
 - MD5(), 194
 - PASSWORD(), 194
 - SHA(), 194
- GeoJSON functions, 202
- JSON functions, 197
- Miscellaneous functions
 - BENCHMARK(), 205
 - DEFAULT(), 205
 - INET_ATON(), 205
 - INET_NTOA(), 205
 - VERSION(), 206
- Numeric functions
 - ABS(), 181
 - ACOS(), 181
 - ASIN(), 181
 - ATAN(), 181
 - ATAN2(), 181
 - BIT_COUNT(), 182
 - CEIL|CEILING(), 181
 - COS(), 181
 - COT(), 181
 - CRC32(), 181
 - DEGREES(), 181
 - EXP(), 181
 - FLOOR(), 181
 - GREATEST(), 181
 - INTERVAL(), 181
 - LEAST(), 181
 - LN(), 181
 - LOG(), 181
 - LOG10(), 182
 - LOG2(), 182
 - MOD(), 182
 - PI(), 182
 - POW|POWER(), 182
 - RADIANS(), 182
 - RAND(), 182
 - ROUND(), 182
 - SIGN(), 182
 - SIN(), 182
 - SQRT(), 182
 - TAN(), 182
 - TRUNCATE(), 182
- OpenGIS functions, 200
 - for comparing geometry values, 201
 - for spatial relations, 203
 - for WKB values, 200
 - for WKT values, 200
 - GeometryCollection, 202
 - LineString, 202
 - MultiLineString, 202
 - Point, 201
- Session functions
 - CONNECTION_ID(), 196
 - DATABASE(), 196
 - FOUND_ROWS(), 196
 - GET_LOCK(), 196
 - IS_FREE_LOCK(), 197
 - IS_USED_LOCK(), 197
 - LAST_INSERT_ID(), 197
 - MASTER_POS_WAIT(), 197
 - RELEASE_LOCK(), 197
 - ROW_COUNT(), 197
 - SESSION_USER(), 197
 - SLEEP, 197
 - SYSTEM_USER(), 197
 - USER(), 197
- String functions
 - ASCII(), 183
 - BIN(), 183
 - BIT_LENGTH(), 183
 - CHAR(), 183
 - CHAR_LENGTH|(), 183
 - CHARACTER_LENGTH|(), 183
 - COERCIBILITY(), 183
 - COLLATION(), 183
 - COMPRESS(), 183
 - CONCAT(), 183
 - CONCAT_WS(), 183
 - CONV(), 183
 - ELT(), 184
 - EXPORT_SET(), 184
 - FIELD(), 184
 - FIND_IN_SET(), 184
 - FORMAT(), 184
 - HEX(), 184
 - INSERT(), 184
 - INSTR(), 184
 - LCASE|LOWER(), 184
 - LEFT(), 184
 - LENGTH(), 184
 - LENGTH|(), 183
 - LIKE...ESCAPE, 184
 - LOAD_FILE(), 185
 - LOCATE(), 185
 - LPAD(), 185
 - LTRIM(), 185
 - MAKE_SET(), 185
 - MATCH(), 185
 - MID(), 186
 - OCT(), 186
 - OCTET_LENGTH(), 184
 - OCTET_LENGTH|(), 183
 - ORD(), 186
 - POSITION(), 186
 - QUOTE(), 186
 - RANDOM_BYTES(), 186
 - REGEXP_INSTR(), 186
 - REGEXP_LIKE(), 186
 - REGEXP_REPLACE(), 186
 - REGEXP_SUBSTR(), 187
 - REPEAT(), 187
 - REPLACE(), 187

- REVERSE(), 187
- RIGHT(), 187
- RPAD, 187
- RTRIM(), 187
- SOUNDEX(), 187
- SPACE(), 187
- STATEMENT_DIGEST(), 187
- STRCMP(), 187
- SUBSTRING(), 187
- SUBSTRING_INDEX(), 187
- TRIM(), 188
- UCASE|UPPER(), 188
- UNCOMPRESS(), 188
- UNCOMPRESSED_LENGTH(), 188
- UNHEX(), 188
- WEIGHT_STRING(), 188
- XML functions, 195
 - ExtractValue(), 195
 - UpdateXML(), 196
- NDB CLUSTER storage engine, 175
- Normalisation, 15
 - 1NF, 16
 - 2NF, 16
 - 3NF, 19
 - 4NF, 20
 - 5NF, 21
 - BCNF, 19
- NoSQL, 171
- Notifier, 48
- NULL, 9, 14, 62
- Number of rows
 - affected by statement, 197
 - retrieved by query, 179, 196

O

- ODBC, 255
 - architecture, 255
- OLAP, 245
- OLTP and OLAP, 415
- Online DDL, 104
- OpenGIS
 - column types, 60
 - functions, 200
 - values
 - INSERTing, 149
 - UPDATE, 150
- Operating systems, 30
- Operators, 86
 - LIKE, 88
 - REGEXP|RLIKE, 88
 - row constructor, 89

P

- Partitioning, 176
 - syntax, 101
- Performance_schema
 - storage engine, 49, 175
- Performance_schema storage engine, 175
 - tracking tables, 673
- Perl, 303
 - and CGI, 304

- DBI, 305
 - connect, 306
 - desirable refinements, 310
 - INSERT,UPDATE,DELETE, 309
 - queries, 305
 - statement metadata, 311
 - statement placeholders, 309
- installation, 303
- web deployment, 304
- Web scripts, 307
- PHP
 - arrays, 277
 - basics, 276
 - frameworks, 302
 - installing
 - under Windows, 273
 - installing under Linux, 270
 - laying out projects, 285
 - MySQL functions, 278
 - mysqli API functions, 278
 - PDO, 281
 - persistent connections, 281
 - small project, 285
 - desirable refinements, 292
 - small test webapp, 280
 - states and sessions, 281
 - tags, 277
 - theUsual*, 295
- phpMyAdmin, 276
- Plugins, 220
- Point-in-time architecture, 23, 565
- pre-aggregation, 245
- PRIMARY KEY, 97
- Privilege types, 115
- Proxy users, 117

Q

- Queries. See SELECT
 - aggregate functions, 142
 - aggregates and WHERE, 244
 - atomic, 223
 - common, 237
 - components, 133
 - CROSS JOIN, 137, 227
 - design, 223
 - emulation of FULL OUTER JOIN, 140
 - equi-joins, 140
 - EXPLAIN, 145
 - Floats and rounding, 238
 - formatting, 226
 - FROM clause, 227
 - GROUP BY, 142, 236
 - optimising, 244
 - HAVING, 144
 - Indexing hints, 136
 - INNER JOIN, 229
 - JOIN, 136
 - JOIN conditions vs WHERE conditions, 231
 - JOINS, 136
 - last_query_cost, 239
 - LIMIT, 144

- limits, 133
- many-many relationships, 236
- molecular
 - and relational algebra, 225
- molecular queries, 224
- multiple JOINS, 229
- NATURAL JOIN, 140
- negative JOINS, 230
- optimising, 239
 - EXPLAIN, 241
 - index caches, 245
 - LIMIT, 244
 - Multi-range read optimisation, 248
 - optimizer hints, 243
 - optimizer_trace, 243
 - ORDER BY, 244
 - range optimisation, 248
- ORDER BY, 142
- OUTER JOIN, 138, 227
- OVER(), 143
- pivot tables, 237
- postparse rewriter, 249
- practical, 226
- row value constructors, 141
- scoping comparisons, 142
- simplifying, 234
- STRAIGHT_JOIN, 227
- subqueries, 132
 - correlated, 142
 - in FROM clause, 230
 - in WHERE clause, 233
- optimising, 249
- UNION, 147
- optimising, 246
- WHERE clause, 141, 231
- WITH, 144
- Query profiler, 249
- query_cache, 245

R

- RAID, 412
- Raw disk partitions, 390
- Read efficiency, 246
- Relations
 - Codd, EF, 7
 - Codd's 12 rules, 8
 - defined, 7
 - limitations of model, 22
 - sets, 7
- Relationships, 79
- Replication, 401
 - and server version, 402
 - and stored routines, 210
 - BLACKHOLE storage engine, 163
 - circular, 411
 - global transaction IDs, 411
 - holding back the master, 408
 - multiple channels, 411
 - multi-threaded, 410
 - restarting the slave, 408
 - row-based, 411

- semisynchronous, 410
- Slave_IO messages, 406
- Reports, 82
 - optimising, 250
- Requirements modelling, 64
 - testing the model, 81
 - tracker database model, 80
- Roles, 114
- Row constructor, 89

S

- SAVEPOINT, 156
- secure_file_priv, 152
- Security
 - access roles, 464
 - authenticating connections, 460
 - authenticating database requests, 462
 - configuring, 458
 - DROP USER, 121
 - GRANT TABLES, 456
 - GRANT, REVOKE, 114, 454
 - KILL, 122
 - privilege types, 114
 - proxy users, 117
 - REVOKE, 119
 - SHOW GRANTS, SHOW PRIVILEGES, 124
 - user accounts, 458
- SELECT, 132. *See* Queries
 - aggregate functions, 142
 - components, 133
 - correlated subqueries, 142
 - CROSS JOIN, 137
 - emulation of FULL OUTER JOIN, 140
 - equi-joins, 140
 - EXPLAIN, 145
 - expression, 135
 - FOR UPDATE, 144
 - GROUP BY, 142
 - HAVING, 144
 - Indexing hints, 136
 - INNER JOIN, 138
 - INTO, 135
 - JOINS, 136
 - daisy-chained, 140
 - LEFT JOIN, 139
 - LIMIT, 144
 - limits, 133
 - NATURAL JOIN, 140
 - ORDER BY, 142
 - OUTER JOIN, 138
 - qualifiers, 134
 - HIGH_PRIORITY, 135
 - SQL_CACHE, 134
 - SQL_CALC_FOUND_ROWS, 135
 - STRAIGHT_JOIN, 134
 - row value constructors, 141
 - scoping comparisons, 142
- Semi-joins
 - EXISTS(), 142
 - IN(), 142
- subqueries, 132

- TABLE, 134
- UNION, 147
- WHERE, 141
- SERIAL, 96
- Server upgrades, 39, 46
 - and grants tables, 46
 - under Windows, 43
- Sessions, 90
- Sets
 - operations, 6
 - relations, 7
 - theory, 5
- SHOW, 123
 - ENGINES, 162
 - INDEX, 128
 - SHOW CREATE USER, 120
 - STATUS, 673
 - TABLE STATUS, 125
- Shutdown, 432
- Silent column specification changes, 52, 96
- SQL
 - comparison operators, 87
 - compliance, 85
 - data control language, 84
 - data definition language, 84
 - data manipulation language, 84
 - data types, 51
 - MySQL variant of, 85
 - statements, 84
 - transactions, 85
- SQL injection, 250, 294
- SQL_CALC_FOUND_ROWS, 135
- SQLSTATE, 213
- Storage engines
 - and installation packages, 32
 - ARCHIVE, 162
 - BDB, 162
 - BLACKHOLE, 163
 - CSV, 163
 - default, 166
 - FALCON, 163
 - FEDERATED, 164
 - InnoDB, 48, 167
 - ISAM, 166
 - MARIA, 165
 - MEMORY (HEAP), 165
 - MERGE, 166
 - MyISAM, 166
 - NDB CLUSTER, 175
 - performance comparisons, 176
 - performance_schema
 - tracking tables, 673
 - Performance_schema, 175
 - TokuDB, 176
- Stored procedures and functions
 - and replication, 210
 - and shared hosting, 209
 - enable calling, 292, 376
 - naming conventions, 207
 - overview, 206
 - privileges, 210
 - security, 209

- Syntax
 - ALTER PROCEDURE|FUNCTION, 210
 - BEGIN...END, 212
 - CALL, 211
 - CASE...WHEN...END CASE, 217
 - Control constructs, 217
 - CREATE FUNCTION, 209
 - CREATE PROCEDURE, 207
 - Cursors, 216
 - DELIMITER, 212
 - DROP PROCEDURE|FUNCTION, 210
 - Error conditions and handlers, 213
 - IF...THEN...END IF, 217
 - ITERATE|LEAVE, 220
 - LOOP...END LOOP, 219
 - REPEAT...UNTIL...END REPEAT, 218
 - RESIGNAL, 215
 - SELECT INTO, 213
 - SHOW CREATE
 - PROCEDURE|FUNCTION, 210
 - SHOW PROCEDURE|FUNCTION
 - STATUS, 210
 - SIGNAL, 214
 - Variables, 212
 - WHILE...DO...END WHILE, 219
 - what is not allowed, 209
- Structured Query Language. *See* SQL
- Subqueries, 132, 226
- Surrogate key, 58
- Surrogate keys, 13
- Symlinks, 412
- System variables
 - scalar, 662

T

- Tables
 - relationships, 79
 - size limits, 100
- Temporary tables, 94
- TheUsual
 - for MySQL and PHP, 269, 450
 - for MySQL and Visual Studio, 579
 - for SQL Server, 639
- TheUsual for MySQL and Visual Studio
 - class layout, 582
 - classes, 583
 - TheUsualConnection, 586
 - DataGridView
 - find in, 607
 - methods
 - btnOK_click, 590
 - ColumnType, 589
 - databases, 595
 - ExecuteNonQuery, 589
 - for queries, 614
 - for query columns, 612
 - for text columns, 613
 - IdName, 588
 - MustQuoteValue, 589
 - QueryResult, 597
 - ScalarQueryResult, 587

- TableColumnCount, 588
- TableRows, 588
- Threads
 - manager, 221
 - pooling, 90
- Time
 - Basic Concepts, 532
 - bitemporal tables, 565
 - modifying, 567
 - queries, 574
 - direct TTV, 564
 - modifying state tables, 552
 - MySQL Limitations, 533
 - partitioning, 551
 - queries, 543
 - referential integrity, 540
 - Row duplication, 536
 - sequenced temporal modifications, 555
 - Test schemas, 534
 - tracking logs, 559
 - transaction time validity, 559, 562
- time validity, 538
- Time zones, 47
- Timestamp
 - and CREATE TABLE, 96
- TimeStamp, 59, 60
- Tomcat, 317
- Transactions
 - isolation level, 157
 - syntax, 156
 - XA, 157
- Triggers, 108

U

- Updates
 - optimising, 249
- User variable, 91

V

- Visual Studio
 - and SQL Server, 639
 - ASP.NET, 357
 - BindingSource
 - AddNew, 632

- buttons, 603
- C#
 - data types, 588, 615
 - get/set syntax, 594
- ComboBox, 595, 598
- Community edition, 352
- context menu, 630
- create a project, 583
- DataGridView
 - add tooltips, 610
 - cache class, 624
 - context menu, 630
 - DataRetriever class, 623
 - just-in-time, 622
 - paging, 600
 - set cursor, 628
 - Tag, 631
- DataGridView.Sorted, 618
- DataRelation, 622
- error message method, 611
- ListView, 634
 - dynamic width, 636
- login form, 590
- MySQL for Visual Studio, 353
- partial class, 582
- registry read, write, 593
- tags, 620
- TextEditor class, 605
- TheUsual
 - events, 638
 - install and run, 650
- toolstrip, 600
- tooltips, 610

W

- WorkBench. See MySQL WorkBench

X

- XAMPP, 30, 269

Z

- ZEROFILL, 96

Jump to page

[TOC](#)
[1-25](#)
[26-29](#)
[30-50](#)
[51-63](#)
[64-82](#)
[83-161](#)
[162-77](#)
[178-222](#)
[223-251](#)
[252-54](#)
[254-268](#)
[269-302](#)
[303-13](#)
[314-336](#)
[337-369](#)
[371-387](#)
[388-418](#)
[421-553](#)
[454-566](#)
[468-531](#)
[532-578](#)
[579-652](#)
[653-660](#)
[662-667](#)
[670-77](#)