Index

A

Access database
  port to MySQL, 258
ACID, 653
Administrative tools
  command-line utilities, 421
    innochecksum, 423
    msql2mysql, 429
    my_print_defaults, 449
    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, 439
    mysqlimport, 434
    mysqlmanager, 440
    mysqlshow, 444
    mysqlshutdown, 434
    mysqlslap, 448
    mysqlwatch, 449
    option files, 422
    perror, 449
    replace, 446
  command-line tools, 422
  GUI tools
    MySQL Administrator, 48, 449
    MySQL Workbench, 449
    MySQL WorkBench, 48
    phpMyAdmin, 450
  command-line utilities, 421
AJAX, 296
Apache
  configuring PHP for Windows, 273
  installing
    under Linux, 269
    under Windows, 270
  preparing for PHP in Windows, 271
Apache and PHP
  configuring for Linux, 269
Application life cycle, 388
ARCHIVE storage engine, 162
ASP.NET, 357
Audit plugins, 221
Authentication, 32
  auth_socket, 32
  login_path, 33
  mysql_config_editor, 33
  of connection, 460
  of database requests, 462
AUTO_INCREMENT, 97

B

Backup, 416
  and restore, 417
  BACKUP TABLE, 113
  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, 132
Character sets and collations, 37, 285, 665
Charts, 490
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, 49
InnoDB, 167, 397
MySQLInstanceConfig.exe, 42, 43
reliability, 399
security, 458
sql_mode, 690
symbolic links, 412
system variables, 33, 662
the disk and file system, 391
Configuration wizard, 42
Connections and Sessions, 90
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, 50, 255
CPU cache memory, 390
CREATE TABLE
generated columns, 96
CSV storage engine, 163
CTEs, 145

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, 418
disaster planning, 416
manual backups, 417
reliability, 399
speed and size, 397
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, 154
Default values
and CREATE TABLE, 96
Defragmentation, 174
Distributed databases, 413
dotNet, 337
architecture, 340, 351

E

Error codes, 704
Error management
error handlers, 213
GET DIAGNOSTICS, 128
RESIGNAL, 216
SIGNAL, 214
Event Scheduler, 110
Excel plugin, 253

F

FALCON storage engine, 163
FEDERATED storage engine, 164
Floats and rounding, 238
FOREIGN KEY, 99
  same table, 477
FULLTEXT, 98
  FULLTEXT, 54, 185

G

Generated columns, 96
Getting started, 48
Graphs
  edge list, 472
    tree, 474
  models, 469
  nested sets model
    non-tree, 507
    tree, 492
  parts explosion, 518
  tree
    automate drawing, 490

H

HANDLER, 148
Hungarian notation, 587

I

Identifier names, 86
IDEs
  Eclipse, 319
  NetBeans, 319
  Visual Studio, 342
  Visual Studio 2005, 579
Index speed and size, 398
Index/key
  covering, 243
  CREATE INDEX, 107
  fulltext, 98
  PRIMARY KEY, 98
  UNIQUE, 98
INFORMATION_SCHEMA, 126
  structure, 697
InnoDB
  CLUSTER, 172, 414
InnoDB storage engine, 167
  and memcached, 172
  cautions, tips and restrictions, 173
  Configuring, 167
  Copy tablespaces, 172
  Deviations from SQL standard, 173
  file-per-table encryption, 173
  multiversioning, 171
  next-key locking, 170
  optimiser data persistence, 172
  Optimising, 246
  plugin, 49, 169
  row_format, 169
  SQL statements and locks, 170
  tablespace,logs,backups, 168
  tracking tables, 699
  transactions, 170
`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, 98, 107, 241

M

many-many relationships, 79
MARIA storage engine, 165
MariaDB, 26, 31, 165
Install in Linux, 38
Install in Windows, 42
memcached
integration with InnoDB, 172
MEMORY(HEAP) tables, 165
MERGE (MrgISAM) storage engine, 166
Microsoft .NET, 337
and MySQL, 341
architecture, 340
ASP.NET, 357
Web Matrix, 357
compare with Apache/PHP, 339
MySQL
connect via ODBC, 342
direct provider, master-detail window, 354
native provider, 351
ODBC.NET, 344
classes, 347
master-detail window, 348
Migration, 48, 258
Modelling tools, 66
Multiple servers
Linux/UNIX, 40
Windows, 45
my_print_defaults, 449
MyISAM tables, 166
myisamlog, 427
MyODBC, 254
Access
named queries, 266
importing Access db, 258
script, 260
in Windows, 255
installation, 50
MySQL
APIs
C, 371
Java, 314
Microsoft .NET, 337
Perl, 303
PHP, 252
bugs, 46
client program, 35
comments, 86
Comparisons with other RDBMSs, 160
compiling, 392
connections, 395
error codes, 704
grant tables, 454
identifier names, 86
licence, 28
logs, 393
binary, 393
error, 394
query, 394
slow query, 394
major versions, 30
memory use, 395
MySQL installation, 30
operator precedence, 88
Operators, 87
other variations from SQL92, 85
overview, 29
Privileges, 115
pronunciation, 83
Reserved words, 86
server ptions, 396
MySQL APIs
.NET, 252
C, 253
C++, 387
choosing, 253
Java, 252
ODBC, 252
Perl, 252
PHP, 268
MySQL commands
_rowID, 98
ALTER DATABASE, 93
ALTER TABLE, 104
ANALYZE TABLE, 112
BACKUP DATABASE, 112
BACKUP TABLE, 113
BEGIN, 157

CACHE INDEX, 113
CHANGE MASTER TO, 129
CHECK TABLE, 113
CHECKSUM TABLE, 114
COMMIT, 157
CREATE | ALTER | DROP EVENT, 110
CREATE | ALTER | DROP SERVER, 94
CREATE | ALTER | DROP SPATIAL REFENCE SYSTEM, 94
CREATE | ALTER LOGFILE GROUP, 107
CREATE | ALTER TABLESPACE, 106
CREATE | DROP ROLE, 122
CREATE | DROP TRIGGER, 109
CREATE | RENAME USER, 120
CREATE DATABASE, 93
CREATE INDEX, 107
CREATE TABLE, 94
table options, 100
CREATE TABLE ... FROM ..., 104
CREATE TABLESPACE, 106
CREATE|DROP FUNCTION, 108
CREATE|DROP VIEW, 108
database administration, 112
DDL, 92
DELETE, 151
DESCRIBE, 114
DML, 133
DO, 156
DROP DATABASE, 93
DROP INDEX, 107
DROP TABLE, 106
DROP USER, 122
dropping constraints, 105
EXPLAIN, 146
FLUSH, 114
GET DIAGNOSTICS, 128
GRANT, 115, 117
IMPORT TABLE, 156
INSERT, 148
unexpected results, 150
INSERT ... SELECT, 150
INSERT ... SET, 150
INSERT ... VALUES, 149
INSTALL PLUGIN, 221
KILL, 122
LOAD DATA FROM MASTER, 132
LOAD DATA INFILE, 152
FIELDS, 154
LINES, 154
options, 153
LOAD INDEX, 113
LOAD TABLE FROM MASTER, 132
LOAD XML, 155
LOCK INSTANCE FOR BACKUP, 123
LOCK|UNLOCK TABLES, 159
OPTIMIZE TABLE, 123
PREPARE, 156
PURGE BACKUP LOGS, 113
PURGE BINARY|MASTER LOGS, 131
RENAME DATABASE, 93
RENAME TABLE, 106
REPAIR TABLE, 123
REPLACE, 152
replication, 129
RESET, 123
RESET MASTER, 131
RESET PERSIST, 663
RESET SLAVE, 131
RESTART, 123
RESTORE, 113
RESTORE TABLE, 124
REVOKE, 115, 120
ROLLBACK, 157
SELECT, 133
aggregate functions, 143
FROM, 136
RIGHT JOIN, 139
SET, 91
SET PASSWORD, 92
SHOW, 124
replication, 133
START SLAVE, 131
STOP SLAVE, 132
TRUNCATE, 152
UPDATE, 150
USE, 91
MySQL data types
and indexes, 62
and referential integrity, 63
bit values, 149
BLOB and Text, 54
char and binary, 52
column type modifiers, 52
date, 59
datetime, 59
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, 50, 421
MySQL Sandbox, 40
MySQL Shell, 50
MySQL system variables
  scalar, 662
  structured, 692
MySQL version, 30
MySQL Workbench, 66, 449
MySQL WorkBench, 48, 66
MySQLInstanceConfig.exe, 42, 43
mysqlslap, 448
MyZQL commands
  SET ROLE, 122

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, 179
    AVG(), 179
    BIT_AND(), 179
    BIT_OR(), 179
    COUNT(*), 179
    COUNT(expr), 179
    GROUP_CONCAT(), 179
    MAX(), 180
    MIN(), 180
    OVER(), 144
    STDDEV(), 180
    SUM(), 180
    VARIANCE(), 180
    Window functions, 144
  Control flow functions
    CASE WHEN, 178
    IF(), 178
    IFNULL(), 178
    NULLIF(), 178
  Data type functions
    CAST(), 194
    COALESCE(), 194
    CONVERT(), 194
    ISNULL(), 194
    PROCEDURE ANALYSE(), 194
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(), 190
  DATE_SUB(), 190
  DATEDIFF(), 189
  DAYNAME(), 190
  DAYOFMONTH(), 190
  DAYOFWEEK(), 191
  DAYOFYEAR(), 191
  EXTRACT(), 191
  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(), 192
  PERIOD_DIFF(), 192
  QUARTER(), 192
  SEC_TO_TIME(), 192
  SECOND(), 192
  STR_TO_DATE(), 192
  SUBDATE(), 192
  SUBTIME(), 192
  TIME(), 192
  TIME_FORMAT(), 192
  TIME_TO_SEC(), 193
  TIMEDIFF(), 192
  TIMESTAMP(), 192
  TIMESTAMPADD(), 192
  TIMESTAMPDIFF(), 192
  TO_DAYS(), 193
  TO_SECONDS(), 193
  UNIX_TIMESTAMP(), 193
  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(), 195
PASSWORD(), 195
SHA(), 195
GeoJSON functions, 202
JSON functions, 198
Miscellaneous functions
BENCHMARK(), 205
DEFAULT(), 205
INET_ATON(), 205
INET_NTOA(), 205
VERSION(), 206
Numeric functions
ABS(), 180
ACOS(), 180
ASIN(), 180
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(), 181
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, 201
for WKT values, 200
GeometryCollection, 203
LineString, 202
MultiLineString, 202
Point, 202
Session functions
CONNECTION_ID(), 197
DATABASE(), 197
FOUND_ROWS(), 197
GET_LOCK(), 197
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, 198
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(), 184
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(), 187
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(), 196
UpdateXML(), 196
NDB CLUSTER storage engine, 175
Normalisation, 15
1NF, 16
2NF, 16
3NF, 19
4NF, 20
5NF, 21
BCNF, 19
NoSQL, 172
Notifier, 49
NULL, 9, 14, 62
Number of rows
affected by statement, 197
retrieved by query, 179, 197

O

ODBC, 254
architecture, 254
OLAP, 245
OLTP and OLAP, 414
Online DDL, 105
OpenGIS
column types, 60
functions, 200
values
INSERTing, 150
UPDATE, 151
Operating systems, 30
Operators, 87
LIKE, 88
REGEXP|RLIKE, 88
row constructor, 89

P

Partitioning, 176
syntax, 102
Performance_schema
storage engine, 50, 176
Performance_schema storage engine, 176
tracking tables, 700
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, 276
basics, 275
frameworks, 301
installing
under Windows, 272
installing under Linux, 269
laying out projects, 284
MySQL functions, 277

mysqli API functions, 277
PDO, 280
persistent connections, 280
small project, 284
desirable refinements, 291
small test webapp, 279
states and sessions, 280
tags, 276
theUsual, 294
phpMyAdmin, 275
Plugins, 221
Point-in-time architecture, 23, 565
pre-aggregation, 245
PRIMARY KEY, 98
Privilege types, 116
Proxy users, 117

Q

Queries. *See* SELECT
aggregate functions, 143
aggregates and WHERE, 244
atomic, 222
common, 237
components, 133
CROSS JOIN, 138, 226
design, 222
emulation of FULL OUTER JOIN, 141
equi-joins, 141
EXPLAIN, 146
Floats and rounding, 238
formatting, 226
FROM clause, 226
GROUP BY, 143, 237
HAVING, 145
Indexing hints, 137
INNER JOIN, 228, 229
JOIN, 137
JOIN conditions vs WHERE conditions, 231
JOINs, 136
last_query_cost, 239
LIMIT, 145
limits, 134
many-many relationships, 236
molecular
and relational algebra, 224
molecular queries, 223
multiple JOINs, 229
NATURAL JOIN, 141
negative JOINs, 229
optimising, 239
EXPLAIN, 241
index caches, 245
LIMIT, 244
Multi-range read optimisation, 248
optimizer_trace, 243
ORDER BY, 244
range optimisation, 248
ORDER BY, 143
OUTER JOIN, 139, 227
OVER(), 144
pivot tables, 237
postparse rewriter, 248
practical, 226
row value cnstructors, 142
scoping comparisons, 143
simplifying, 234
STRAIGHT_JOIN, 226
subqueries, 133
correlated, 143
in FROM clause, 230
in WHERE clause, 233
optimising, 248
UNION, 147
optimising, 247
WHERE clause, 142, 231
WITH, 145
Query profiler, 249
query_cache, 245

R

RAID, 411
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, 400
and server version, 402
and stored routines, 209
BLACKHOLE storage engine, 163
circular, 410
global transaction IDs, 411
holding back the master, 407
multiple channels, 410
multi-threaded, 410

restarting the slave, 407
row-based, 410
semisynchronous, 409
setup steps, 403
Slave_IO messages, 405
taking a snapshot, 402
Reports, 82
optimising, 250
Requirements modelling, 64
testing the model, 81
tracker database model, 80
Roles, 115
Row constructor, 89

S

SAVEPOINT, 158
Security
access roles, 464
authenticating connections, 460
authenticating database requests, 462
configuring, 458
DROP USER, 122
GRANT TABLES, 456
GRANT, REVOKE, 115, 454
KILL, 122
privilege types, 115
proxy users, 117
REVOKE, 120
SHOW GRANTS,SHOW PRIVILEGES, 124
user accounts, 458
SELECT, 133. *See* Queries
aggregate functions, 143
components, 133
correlated subqueries, 143
CROSS JOIN, 138
emulation of FULL OUTER JOIN, 141
equi-joins, 141
EXPLAIN, 146
expression, 135
FOR UPDATE, 145
GROUP BY, 143
HAVING, 145
Indexing hints, 137
INNER JOIN, 138
INTO, 136
JOINs, 136
daisy-chained, 141
LEFT JOIN, 139
LIMIT, 145
limits, 134
NATURAL JOIN, 141
ORDER BY, 143
OUTER JOIN, 139
qualifiers, 135
HIGH_PRIORITY, 135
SQL_CACHE, 135
SQL_CALC_FOUND_ROWS, 135
STRAIGHT_JOIN, 135
row value constructors, 142
scoping comparisons, 143
Semi-joins
EXISTS(), 143
IN(), 143
subqueries, 133
UNION, 147
WHERE, 142
SERIAL, 97
Server upgrades, 39, 47
and grants tables, 46
under Windows, 43
Sessions, 91
SET NAMES, 92
Sets
operations, 6
relations, 7
theory, 5
SHOW, 124
ENGINES, 162
INDEX, 128
SHOW CREATE USER, 121
STATUS, 700
TABLE STATUS, 126
Shutdown, 432
Silent column specification changes, 53, 97
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, 293
SQL_CALC_FOUND_ROWS, 135
SQLSTATE, 214
Storage engines
and installation packages, 32
ARCHIVE, 162

BDB, 162
BLACKHOLE, 163
CSV, 163
default, 166
FALCON, 163
FEDERATED, 164
InnoDB, 49, 167
ISAM, 166
MARIA, 165
MEMORY (HEAP), 165
MERGE, 166
MyISAM, 166
NDB CLUSTER, 175
performance comparisons, 176
performance_schema
tracking tables, 700
Performance_schema, 176
TokuDB, 176
Stored procedures and functions
and replication, 209
and shared hosting, 209
enable calling, 291, 376
naming conventions, 207
overview, 206
privileges, 209
security, 209
Syntax
ALTER PROCEDURE|FUNCTION, 210
BEGIN...END, 212
CALL, 211
CASE...WHEN...END CASE, 218
Control constructs, 217
CREATE FUNCTION, 208
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, 220
REPEAT...UNTIL...END REPEAT, 219
RESIGNAL, 216
SELECT INTO, 213
SHOW CREATE PROCEDURE|FUNCTION, 210
SHOW PROCEDURE|FUNCTION STATUS, 210
SIGNAL, 214
Variables, 212
WHILE...DO...END WHILE, 220
what is not allowed, 209
Structured Query Language. *See* SQL
Subqueries, 133, 225
Surrogate key, 58
Surrogate keys, 13
Symlinks, 412
System variables
scalar, 662
structured, 692

T

Tables
relationships, 79
size limits, 101
Temporary tables, 95
TheUsual
for MySQL and PHP, 268, 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, 91
Time
Basic Concepts, 532
bitemporal tables, 565
modifying, 567
queries, 574

direct TTV, 564
modifying state tables, 551
MySQL Limitations, 533
partitioning, 551
queries, 543
referential integrity, 540
Row duplication, 536
sequenced temporal modifications, 554
Test schemas, 534
tracking logs, 559
transaction time validity, 559, 562
time validity, 538
Time zones, 47
Timestamp
and CREATE TABLE, 97
TimeStamp, 59, 60
Tomcat, 317
Transactions
isolation level, 158
syntax, 157
XA, 158
Triggers, 109

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** **178-220** **221-49** **251-53** **254-67** **268-302** **303-13** **314-36** **337-69** **371-87** **388-418** **421-53** **454-66** **468-531** **532-78** **579-652** **653-60** **662-95** **697-705**