Index

• Symbols •
+ (addition) operator, 108
‘ (apostrophe), 93
= (assignment statement), 107
/ (division) operator, 108
^ (exponentiation) operator, 108
\ (integer division) operator, 108
* (multiplication) operator, 108
& (string concatenation) operator, 108
- (subtraction) operator, 108

• A •
Abs function, 129
absolute mode, recording macros, 82–83
Accelerator property, 249, 258
Activate event, 158, 159
activation events, 166–167
active objects, 17
Add Watch dialog box, 200
AddinInstall event, 158
add-ins
creating, 14, 336–337, 341
descriptive information, 340
distributing, 342
modifying, 342–343
opening, 341–342
overview, 333–334
reasons for, 334
VBA code, protecting, 341
workbook setup, 337–339
workbook testing, 339–340
working with, 335–336
Add-Ins dialog box, 335
AddinUninstall event, 158
arguments
Cells property, 115
functions, 319–320
GetOpenFilename method, 232
MsgBox function, 224
Array function, 129
arrays
declaring, 109–110
dynamic, 111
introduction, 18
multidimensional, 110
Asc function, 129
assignment statements, 106–109
Atn function, 129
automatic calculation, macro speed,
217–218
AutoSize property, UserForm controls, 258

• B •
BackColor property, UserForm controls, 258
BackStyle property, UserForm controls, 258
BeforeClose event, 158, 165
BeforeDoubleClick event, 159, 169
BeforePrint event, 158
BeforeRightClick event, 159, 169
BeforeSave event, 158, 165–166
BeginGroup property, 307
blogs, 353
Boolean data type, 97
Boolean settings, 212
breakpoints, setting (debugging), 196–199
bugs. See also debugging
beyond your control bugs, 192
breakpoints, 196–199
extreme-case bugs, 191
identifying, 192–193
incorrect context bugs, 191
logic flaws, 191
Option Explicit statement, 201
applications, macro driven, 14
applications, macro driven, 14
arguments
Cells property, 115
functions, 319–320
GetOpenFilename method, 232
MsgBox function, 224
Array function, 129
arrays
declaring, 109–110
dynamic, 111
introduction, 18
multidimensional, 110
Asc function, 129
assignment statements, 106–109
Atn function, 129
automatic calculation, macro speed,
217–218
AutoSize property, UserForm controls, 258

• B •
BackColor property, UserForm controls, 258
BackStyle property, UserForm controls, 258
BeforeClose event, 158, 165
BeforeDoubleClick event, 159, 169
BeforePrint event, 158
BeforeRightClick event, 159, 169
BeforeSave event, 158, 165–166
BeginGroup property, 307
blogs, 353
Boolean data type, 97
Boolean settings, 212
breakpoints, setting (debugging), 196–199
bugs. See also debugging
beyond your control bugs, 192
breakpoints, 196–199
extreme-case bugs, 191
identifying, 192–193
incorrect context bugs, 191
logic flaws, 191
Option Explicit statement, 201
bugs. See also debugging (continued)
  reduction tips, 201–202
  syntax errors, 192
  wrong data type, 192
  wrong version, 192
built-in data types, 97
built-in dialog boxes, 236–238
built-in functions
  Abs, 129
  Array, 129
  Asc, 129
  Atn, 129
  Choose, 129
  Chr, 129
  Cos, 129
  CurDir, 129
  Date, 129
  DateAdd, 129
  DateDiff, 129
  DatePart, 129
  DateSerial, 129
  DateValue, 129
  Day, 129
  Dir, 129
  Erl, 130
  Err, 130
  Error, 130
  Exp, 130
file size, 127–128
  FileLen, 130
  Fix, 130
  Format, 130
  GetSetting, 130
  Hex, 130
  Hour, 130
  InputBox, 130
  InStr, 130
  Int, 130
integer portion of value, 127
introduction, 126
IPmt, 130
IsArray, 130
IsDate, 130
IsEmpty, 130
IsError, 130
IsMissing, 130
IsNull, 130
IsNumeric, 130
IsObject, 130
LBound, 130
LCase, 130
Left, 131
Len, 131
Log, 131
LTrim, 131
Mid, 131
Minute, 131
Month, 131
MsgBox, 131
Now, 131
object type, 128
Replace, 131
RGB, 131
Right, 131
Rnd, 131
RTTrim, 131
Second, 131
Sgn, 131
Shell, 131
Sin, 131
Space, 131
Split, 131
Sqr, 131
Str, 131
StrComp, 131
String, 131
system date display, 126
Tan, 132
Time, 132
Timer, 132
TimeSerial, 132
TimeValue, 132
Trim, 132
TypeName, 132
UBound, 132
UCase, 132
Val, 132
VarType, 132
weekday, 132
Year, 132
BuiltIn property, 307
built-in toolbars, 309
buttons, custom, 14
Calculate event, 159
calculation, automatic, macro speed, 217–218
Cancel command button
creating in UserForms, 247
  event-handler procedure, adding, 250–251
Caption property, 258, 307
cell references, 58
Cell shortcut menus, adding new item, 309–311
cell value, prompting for, 209–210
Cells property, 115
Change event, 159, 170
ChangeCase UserForm
  CommandButtons, adding, 247–248
  creating, 246–247
  OptionButtons, adding, 248–249
  shortcut key, creating, 252–253
  testing, 253–254
ChartObject collection, looping through, 214
charts
  activating, 213
  as collections, 56
  embedded, 213
  formatting, applying, 215–216
  macro recorder, 213
  properties, modifying, 215
  type, modifying, 214
CheckBox control
  properties, 259–260
  UserForms, 243
Choose function, 129
Chr function, 129
Clear method, 123
code
  copying, 42, 47
  entering in module, 42, 43–45
  macro recorder, 42, 45–47
  speed, 348–349
  viewing, preventing, 348
Code module window (UserForms), viewing, 244–245
Code window, VBE, 37, 40–41
collections
  ChartObject, 214
  charts as, 56
  introduction, 16
  looping through, 155–156
  sheets as, 56
  workbooks as, 56
  worksheets as, 56
Column property, 118
columns
  referencing, 116
  selecting, 207
  selecting to end, 206–207
ComboBox control, 243, 261
CommandBars
  controls, properties, 307–309
  controls, referencing, 306–307
  introduction, 299–301
  menu bar, 304
  shortcut menu, 304
  shortcut menu, listing all, 304–305
  toolbar, 304
CommandButton control
  properties, 262
  UserForms, 243
  UserForms, adding to, 247–248
commands, custom, 13
comments
  apostrophe, 93
  converting statements to, 94
  debugging, 201
  tips, 95
constants
  built-in, value, 105
  declaring, 103
  introduction, 103
  scope, 103
controls
  aligning, 271
  CheckBox, 243, 259–260
  ComboBox, 243, 260–261
  CommandButton, 243, 261–262
  CommandButton, adding to UserForms, 247–248
Frame, 243, 262
hot keys, 273
Image, 243, 262–263
controls (continued)
keyboard navigation of, enabling, 272–273
Label, 243, 263–264
ListBox, 243, 264–265
moving, 270–271
MultiPage, 243, 265–266
OptionButton, 243
OptionButton, adding to UserForms, 248–249
properties, 257–258
properties, help for, 259
RefEdit, 243, 267
resizing, 270–271
ScrollBar, 243, 267–268
spacing, 271
SpinButton, 243, 268
tab order, 272–273
TabStrip, 243, 269
TextBox, 243, 269–270
ToggleButton, 243, 270
UserForms, accessing programmatically, 245–246
UserForms, adding to, 242–243, 255–256
UserForms, changing properties, 243–244
UserForms, naming, 246
Copy method, 123, 205
copying
code, 47
ranges, 204–205
ranges, variable-sized, 205–206
Cos function, 129
Count property, 118
CurDir function, 129
currency data type, 97
CurrentRegion property, 206
custom buttons, 14
custom functions
introduction, 126
overview, 137–138

• D •
data types, built-in, 97
data validation, 170–172
date
data type, 97
system date display, 126
variables, 106
Date function, 126, 129
DateAdd function, 129
DateDiff function, 129
DatePart function, 129
DateSerial function, 129
DateValue function, 129
Day function, 129
Deactivate event, 158, 159
deactivation events, 166–167
debugging. See also bugs
breakpoints, setting, 196–199
code examination, 193
comments, 201
custom functions, 325
Debug.Print statement, 195
definition, 192
Function procedures, 201
Immediate window, 198–199
indentations, 201
Locals window, 201
MsgBox function, 194–195
stepping through code, 199
Sub procedures, 201
watch expressions, 199–200
Watch window, 199–200
Debug.Print statement, 195
decision making, programming constructs, 139–140
declaring
arrays, 109–110
constants, 103
variables, 98–103
Delete method, 124
description, macro, 87
design time, changing control
properties, 257
Developer tab, 21–22
dialog boxes. see also UserForms
built-in, 236–238
displaying in UserForms, 240
displaying, macro for, 251–254
Dim keyword, 100
Dir function, 129
division (/) operator, 108
Docking tab, VBE, 52
dot notation, 17–18
double data type, 97
Do-Until Loop, 154–155
Do-While loop, 153–154
dynamic arrays, 111
Editor Format tab, VBE, 51
Editor tab, VBE
Auto Data Tips option, 50
Auto Indent setting, 50
Auto List Members option, 49
Auto Quick Info option, 49
Auto Syntax Check option, 48
Default to Full Module View option, 50
Drag-and-Drop Text Editing option, 50
Procedure Separator option, 50
Require Variable Declaration option, 48
embedded charts, 213
Enabled property, 307
End method, 207
EntireColumn property, 207
EntireRow property, 207
equal sign (=), assignment statement, 107
Eqv logical operator, 108
Erl function, 130
Err function, 130
Error function, 130
error-handling
example, 178–182
On Error statement, 182
Resume statement, 184–186
summary, 186
errors
ignoring, 186–187
intentional, 188–190
specific, identifying, 187–188
types of, 177
event-handler procedures
Code window, 160–161
programming, 160
UserForms, adding to, 250–251, 280–281
writing, 161–163
events
Activate, 158, 159
activation, 166–168
AddinInstall, 158
AddinUninstall, 158
BeforeClose, 158, 165
BeforeDoubleClick, 159, 169
BeforePrint, 158
BeforeRightClick, 159, 169
BeforeSave, 158, 165–166
Calculate, 159
Change, 159, 170
Deactivate, 158, 159
FollowHyperlink, 159
Help system, 63–64
introduction, 157–159
keypress, 174–176
NewSheet, 158
objects, 63
OnTime, 172–174
Open, 158, 163–164
SelectionChange, 159
SheetActivate, 158
SheetBeforeDoubleClick, 158
SheetBeforeRightClick, 158
SheetCalculate, 158
SheetChange, 158
SheetDeactivate, 158
SheetFollowHyperlink, 159
SheetSelectionChange, 159
triggers, 158–159
usefulness of, 159–160
WindowActivate, 159
WindowDeactivate, 159
WindowResize, 159
Excel 2007 Power Programming with VBA (Walkenbach), 354
Excel versions, 18–19
executing
Function procedures, 76–78
Sub procedures, 69–71
Sub procedures directly, 71–72
Sub procedures from another procedure, 76
Sub procedures from button or shape, 74–75
Sub procedures from Macro dialog box, 72
Sub procedures using shortcut key, 72–73
Exp function, 130
exponentiation (^) operator, 108
exporting objects to projects, 40
expressions, assignment statements, 106–109
FaceID property, 307
FileLen function, 127–128, 130
files
  selecting multiple, 234–235
  size, 127–128
Fix function, 127, 130
fixed-length strings, 105
FollowHyperlink event, 159
Font property, 120
Format function, 130
formatting, charts, 215–216
Formula property, 121
For-Next loops
  Exit For statement, 151–152
  looping through ranges, 208
  nested, 152–153
  Step values, 150–151
Frame control
  properties, 262
  UserForms, 243
Function procedures
  calling functions from worksheet
    formula, 77
designing, 201
definition, 67
designing, 76–78
introduction, 16
modules, 42
naming, 69
overview, 68
functions
  Abs, 129
  arguments, 319–320
  Array, 129
  array of month names, 327–328
  Asc, 129
  Atn, 129
  built-in, 126
calling from Sub procedure, 77
  Choose, 129
  Chr, 129
  Cos, 129
creating, 14
  CurDir, 129
custom, 126, 137–138, 317
custom, debugging, 325
  Date, 126, 129
  DateAdd, 129
  DateDiff, 129
  DatePart, 129
  DateSerial, 129
  DateValue, 129
  Day, 129
  Dir, 129
  Erl, 130
  Err, 130
  Error, 130
  Exp, 130
  FileLen, 127–128, 130
  Fix, 127, 130
  Format, 130
  GetSetting, 130
  Hex, 130
  Hour, 130
  indefinite number of functions, 326–327
  InputBox, 128, 130, 209–210
  InStr, 130
  Int, 130
introduction, 125
IPmt, 130
IsArray, 130
IsDate, 130
IsEmpty, 130
IsError, 130
IsMissing, 130
IsNull, 130
IsNumeric, 130
IsObject, 130
LBound, 130
LCase, 130
Left, 131
Len, 126–127, 131
Log, 131
LTrim, 131
Mid, 131
Minute, 131
Month, 131
MsgBox, 128, 131, 211
no argument, 320
Now, 131
optional argument, 324–325
overview, 318
PROPER (Excel), using in UserForms, 251
range argument, 323–324
Replace, 131
RGB, 131
Right, 131
Rnd, 131
RTrim, 131
Second, 131
Sgn, 131
Shell, 128, 131
Sin, 131
single argument, 320–322
sorted list, 328–329
Space, 131
Split, 131
Sqr, 131
Str, 131
StrComp, 131
StrConv, 151
String, 131
Tan, 132
Time, 132
Timer, 132
TimeSerial, 132
TimeValue, 132
Trim, 132
two arguments, 322–323
TypeName, 128, 132
UBound, 132
UCase, 132
UCase, UserForms, 239–240
Val, 132
VarType, 132
Weekday, 132
worksheet, 126, 132–133
writing, 319
Year, 132

• G •
General tab, VBE, 52
GetAFolder method, 236
GetOpenFilename method
arguments, 232
example, 232–234
introduction, 231
syntax, 232
GetSaveAsFilename method, 235–236
GetSetting function, 130
Google, 353
GoTo statement, 140–141
GUI (Graphical User Interface),
UserForms, 241

• H •
HasFormula property, 119–120
Height property, UserForm controls, 258
Help system
control properties, 259
events, 63–64
methods, 63–64
properties, 63–64
as support, 351
Hex function, 130
hierarchy, objects, 57–58
Hour function, 130

• I •
If-Then structure
Elseif, 144–145
elements, 142
If-Then-Else, 142–144
introduction, 141–142
Image control
properties, 263
UserForms, 243
Immediate window, VBE, 37
Imp logical operator, 108
importing objects to projects, 40
InputBox function, 128, 130, 209–210
Insert Function dialog box
argument descriptions, 331–332
function description, 330–331
InStr function, 130
Int function, 130
integer data type, 97
integer division (\) operator, 108
integers, built-in function, 127
Interior property, 120–121
Internet newsgroups, 352
IPmt function, 130
IsArray function, 130
IsDate function, 130
IsEmpty function, 130
IsError function, 130
IsMissing function, 130
IsNull function, 130
IsNumeric function, 130
IsObject function, 130
keypress events, 174–176
keywords
  Dim, 100
  Public, 101

Label control, UserForms, 243
labels, 111–112
LBound function, 130
LCase function, 130
Left function, 131
Left property, UserForm controls, 258
Len function, 126–127, 131
line-continuation character, 349
ListBox control
  properties, 264–264
  UserForms, 243, 282–298
Locals window, debugging, 201
Log function, 131
logical operators
  And, 108
  Eqv, 108
  Imp, 108
  Not, 108
  Or, 108
  XoR, 108
long data type, 97
loops
  ChartObject collection, 214
  collections, 155–156
  Do-Until, 154–155
  Do-While, 153–154
  For-Next, 150–153, 208
  introduction, 18, 149
  ranges, 208–209
LTrim function, 131
recording, 23–24, 347
recording, code, 45–47
recording, tape recording comparison, 80
saving workbooks containing, 29
security, 29–30
shortcut key, 87
speeding up, 216–220
storing, 87
testing, 24
UserForms, changing character case, 239–240
UserForms, displaying, 251–254
UserForms, making available, 279
Macros dialog box, 25
maximizing Code window, 40–41
menu bar, VBE, 36
menus. See shortcut menus
message boxes
  customizing, 226–229
  displaying, 225
  multiline messages, 349
  responses, 225–226
messages, alert messages, macro speed, 218
methods
  Clear, 123
  Copy, 123, 205
  Delete, 124
  End, 207
  GetAFolder, 236
  GetOpenFilename, 231–235
  GetSaveAsFilename, 235–236
Help system, 63–64
objects, 18, 62
Paste, 123
ProcessCells, 208
Select, 122–123
Show, displaying UserForms, 245
SpecialCells method, 209
Microsoft Product Support, 351
Mid function, 131
Mod (modulo arithmetic) operator, 108
module-only variables, 101
modules
  adding to projects, 39
  code, entering, 43–45
  declarations, 42
  editing, 16
macro-driven applications, 14
macros
  description, 87
  modifying, 28–29
  naming, 87
  programs, 12
Function procedures, 16, 42
functions, 318
removing from projects, 39
Sub procedures, 16, 42
viewing, 16
modulo arithmetic (Mod) operator, 108
Month function, 131
mortgage payment calculation, 133–134
moving ranges, 207–208
MsgBox function
arguments, 224
debugging, 194–195
definition, 128, 131
multidimensional arrays, 110
MultiPage control
properties, 265
UserForms, 243
multiplication (*) operator, 108

• N •

#NAME, 347
Name property, UserForm controls, 258
naming
macros, 87
variables, 96
nested
For-Next loops, 152–153
Select Case structure, 147–148
newsgroups, 352
NewSheet event, 158
Not logical operator, 108
Now function, 131
NumberFormat property, 121–122

• O •

Object Browser, 64–65
object data type, 97
object model, 16
object-oriented programming (OOP), 53
objects
active objects, 17
collections, 16
as containers, 16
definition, 53
events, 63
Excel as, 54
exporting from projects, 40
hierarchy, 16, 54, 57–58
hierarchy, dot notation, 17
importing to projects, 40
manipulation, 16
methods, 18, 62
properties, 17, 59–61
referencing, 56–59
type, 128
Worksheet Function Object, 136–137
Offset property, 116
OK command button
creating in UserForms, 247
event-handler procedure, adding, 250–251
On Error Resume Next statement, 201
On Error statement, 182–184
OnAction property, 307
OnKey event, 175
OnTime event, 172–174
OOP (object-oriented programming), 53
Open event, 158, 163–164
operators, 108
Option Explicit statement, 201
OptionButton control
Accelerator property, 249
properties, 266
UserForms, 243
UserForms, adding to, 248–249
Value property, 248
Or logical operator, 108

• P •

parentheses, Sub procedures, 68
Paste method, 123
Picture property, UserForm controls, 258
procedure-only variables, 99–100
procedures
definition, 42
event-handler, adding to UserForms, 250–251
Function, 16
Sub, 16
ProcessCells method, 208
programs, macros, 12
Project Explorer window, VBE, 37
Project window, opening, 25
projects
contracting, 38
expanding, 38
projects (continued)
  modules, adding, 39
  modules, removing, 39
  nodes, 38
  objects, exporting/importing, 40
  Project Explorer window, VBE, 37
PROPER function (Excel), using in
  UserForms, 251
properties
  Address, 119
  BeginGroup, 307
  BuiltIn, 307
  Cancel command button, 247
  Caption, 307
  Cells, 115
  charts, modifying, 215
  CheckBox control, 259–260
  Column, 118
  ComboBox control, 261
  CommandBar controls, 307–309
  CommandButton control, 262
  controls, 257–258
  Count, 118
  CurrentRegion, 206
  Enabled, 307
  EntireColumn, 207
  EntireRow, 207
  FaceID, 307
  Font, 120
  Formula, 121
  Frame control, 262
  HasFormula, 119–120
  Help system, 63–64
  Image control, 263
  Interior, 120–121
  ListBox control, 264–264
  MultiPage control, 265
  NumberFormat, 121–122
  objects, 17, 59–61
  Offset, 116
  OK command button, 247
  OnAction, 307
  OptionButton control, 266
  OptionButton control, Accelerator
    property, 249
  OptionButton control, Value property, 248
  Row, 118
  ScrollBar control, 267–268
SpinButton control, 268
  Text, 118
  TextBox control, 269
  ToggleButton control, 270
  ToolTipText, 307
  UserForm controls, changing, 243–244
  Value, 117
  Visible, 307
Properties Window, UserForms, 243–244
Public keyword, 101
public variables, 101–102
purging variables, 102–103

• O •

Quick Access toolbar, adding buttons, 303

• R •

Range objects
  columns, 114
  noncontiguous ranges, 114
  overview, 113
  rows, 114
  worksheet names, 114
ranges
  copying, 204–205
  copying variable-sized, 205–206
  looping through, 208–209
  moving, 207–208
  named, 204
Record Macro dialog box, 23–24, 86
recording macros
  absolute mode, 82–83
  description, 87
  efficiency, 88–90
  introduction, 23–24
  naming, 87
  options, 86–87
  overview, 80–81
  relative mode, 83–85
  shortcut keys, 87
  storing macros, 87
  tape recording comparison, 80
RefEdit control, UserForms, 243
referencing CommandBars, 305–306
referencing controls, CommandBars,
  306–307
referencing objects
  cells, 58
  columns, 116
  introduction, 56–57
  macro speed, 219
  rows, 116
relative mode, recording macros, 83–85
Replace function, 131
response from message boxes, 225–226
Resume statement, 184–186
RGB function, 131
Ribbon
  customizing, 301–304
  Developer tab, 21–22
Right function, 131
Rnd function, 131
routines, 42
Row property, 118
rows
  referencing, 116
  selecting, 207
  selecting to end, 206–207
RTrim function, 131
run time, changing control properties, 257
run-time errors, 177

S
saving workbooks containing macros, 29
scope
  constants, 103
  variables, 98–103
screen updating, speed, 216–217
ScrollBar control
  properties, 267–268
  UserForms, 243
Second function, 131
security
  macros, 29–30
  trusted locations, 30
Select Case structure
  example, 146–147
  nested, 147–148
Select method, 122–123
selecting
  columns, 207
  end of row/column, 206–207
files, multiple, 234–235
multiple selections, 211
object type, determining, 210–211
rows, 207
SelectionChange event, 159
settings, changing, 211–213
Sgn function, 131
SheetActivate event, 158
SheetBeforeDoubleClick event, 158
SheetBeforeRightClick event, 158
SheetCalculate event, 158
SheetChange event, 158
SheetDeactivate event, 158
SheetFollowHyperlink event, 159
sheets as collections, 56
SheetSelectionChange event, 159
Shell function, 128, 131
shortcut keys
  ChangeCase UserForm, creating, 252–253
  macros, 87
shortcut menus
  built-in toolbars, resetting, 309
  Cell shortcut menu, new item, 309–311
  CommandBars, 304–305
  disabling, 311–312
  Show method, UserForms, displaying, 245
Sin function, 131
single data type, 97
SkipBlanks procedure, 209
Space function, 131
SpecialCells method, 209
speeding up macros
  alert messages, 218
  automatic calculation, 217–218
  object references, 219
  screen updating, 216–217
  variable types, 219–220
SpinButton control
  properties, 268
  UserForms, 243
Split function, 131
Sqr function, 131
statements
  assignment statements, 106–109
  Debug.Print, 195
  GoTo, 140–141
  On Error, 182–184
statements  
 On Error Next Resume, 201  
 Option Explicit, 201  
 Resume, 184–186  
 static variables, 102  
 storing macros, 87  
 Str function, 131  
 StrComp function, 131  
 StrConv function, character case,  
  changing, 251  
 string concatenation (&) operator, 108  
 string data type, 97  
 String function, 131  
 strings  
  fixed-length, 105  
  length, 126–127  
  variable-length, 105  
 structured programming, 141  
 Sub procedures  
  calling function from, 77  
  debugging, 201  
  definition, 67  
  executing directly, 71–72  
  executing from another procedure, 76  
  executing from button or shape, 74–75  
  executing from Macro dialog box, 72  
  executing, introduction, 69–71  
  executing with shortcut key, 72–73  
  introduction, 16  
  modules, 42  
  naming, 69  
  overview, 68  
  parentheses, 68  
 subscript out of range error, 348  
 subtraction (-) operator, 108  
 support  
  blogs, 353  
  Excel 2007 Power Programming with VBA  
   (Walkenbach), 354  
  Google, 353  
  Help system, 351  
  Microsoft Product Support, 351–352  
  user groups, 354  
  Web sites, 353  
 syntax errors, bugs, 192  
 system date, displaying, 126

• T •

TabStrip control, UserForms, 243  
Tan function, 132  
testing  
  macro, displaying UserForms, 253–254  
  UserForms, 273–274, 279–280  
testing, macros, 24  
text, inserting, 13  
Text property, 118  
TextBox control  
  properties, 269  
  UserForms, 243  
Time function, 132  
Timer function, 132  
TimeSerial function, 132  
TimeValue function, 132  
ToggleButton control  
  properties, 270  
  UserForms, 243  
toolbars  
  built-in, resetting, 309  
  custom, 312–314  
  VBE, 37  
Toolbox (VBE)  
  controls, adding to UserForms, 255–256  
  displaying, 242  
  tools, identifying, 242  
  ToolTipText property, 307  
Top property, UserForm controls, 258  
Trim function, 132

• U •

UBound function, 132  
UCase function  
  introduction, 132  
  UserForms macro, 239–240  
user defined data type, 97  
user groups, 354  
UserForms. see also dialog boxes  
  aesthetics, 274  
  ChangeCase example, adding command  
   buttons, 247–248
ChangeCase example, adding option buttons, 248–249
ChangeCase example, creating, 246–247
ChangeCase example, creating shortcut key, 252–253
ChangeCase example, testing, 253–254
Code module window, viewing, 244–245
common VBA code for, 275
controls, accessing programmatically, 245–246
controls, adding to, 242–243, 255–256
controls, changing properties, 243–244
controls, naming, 246
creating, 240–241, 276–278
dialog boxes, displaying, 240
displaying, 245
displaying, code for, 278
displaying, macro for, 251–254
event-handler procedures, adding, 250–251, 280–281
inserting into VBE, 241–242
ListBox example, 282–298
macros, making available, 279
overview, 239
reasons for, 223–224
testing, 273–274, 279–280
Toolbox, displaying in VBE, 242
Toolbox, identifying tools, 242
usefulness of, 239–240
validating data, 282

• V •

Val function, 132
Value property
  introduction, 117
  OptionButton control, 248
  UserForm controls, 258
values
  cells, prompting for, 209–210
  variables, 17
variable-length strings, definition, 105
variables
  date variables, 106
  declaring, 98–103
  module-only, 101
naming, 96
procedure-only, 99–100
public, 101–102
purging, 102–103
scope, 98–103
static, 102
types, macro speed, 219–220
values, 17
values, assigning, 95
variant data type, 97
VarType function, 132
VBA
  advantages, 15
  automation, 13
  custom commands, 13
  disadvantages, 15
  introduction, 11–12
  modules, 16
  objects, 16
  text insertion, 13
  uses, 12–14
VBE (Visual Basic Editor)
  activating, 35
  Code window, 37
  Docking tab, 52
  Editor Format tab, 50–51
  Editor tab, 48–50
  environment, customizing, 47–52
  General tab, 52
  Immediate window, 37
  menu bar, 36
  modules, 16
  overview, 35
  Project Explorer window, 37
toolbar, 37
  Toolbox, displaying, 242
  Toolbox, identifying tools, 242
  UserForms, inserting, 241–242
versions of Excel, 18–19
Visible property
  CommandBar controls, 307
  UserForm controls, 258
Visual Basic Editor program window, opening, 25
### W

- Walkenbach, John *(Excel 2007 Power Programming with VBA)*, 354
- warning prompt, 349
- watch expressions, debugging, 199–200
- Web sites, 353
- Weekday function, 132
- Width property, UserForm controls, 258
- WindowActivate event, 159
- WindowDeactivate event, 159
- WindowResize event, 159
- With-End-With structure, 220

**workbook events**
- Activate, 158
- AddinInstall, 158
- AddinUninstall, 158
- BeforeClose, 158, 165
- BeforePrint, 158
- BeforeSave, 158, 165–166
- Deactivate, 158
- NewSheet, 158
- Open, 158, 163–164
- SheetActivate, 158
- SheetBeforeDoubleClick, 158
- SheetBeforeRightClick, 158
- SheetCalculate, 158
- SheetChange, 158
- SheetDeactivate, 158
- SheetFollowHyperlink, 159
- SheetSelectionChange, 159
- WindowActivate, 159
- WindowDeactivate, 159
- WindowResize, 159

**workbook**
- activate events, 167–168
- as collections, 56

**deactivate events**, 167–168
- saving, containing macros, 29

**worksheet events**
- Activate, 159
- BeforeDoubleClick, 159, 169
- BeforeRightClick, 159, 169
- Calculate, 159
- Change, 159, 170–172
- Deactivate, 159
- FollowHyperlink, 159
- SelectionChange, 159

**Worksheet Function Object**, 136–137

**worksheet functions**
- entering, 136
- introduction, 126
- lookup function, 134–136
- maximum value in range, 133
- mortgage payment calculation, 133–134
- overview, 132–133

**worksheets**
- as collections, 56
- functions, 14
- rows/columns, increasing/decreasing, 348
- writing functions, 319

### X

- XML code, Ribbon customization, 301
- XoR logical operator, 108

### Y

- Year function, 132