

Contents at a Glance

Acknowledgments	xxxiii
Introduction	xxxix

Part I: Getting Started with Excel 1

Chapter 1: Introducing Excel	3
Chapter 2: What's New in Excel 2007?	25
Chapter 3: Entering and Editing Worksheet Data	35
Chapter 4: Essential Worksheet Operations	53
Chapter 5: Working with Cells and Ranges.....	71
Chapter 6: Introducing Tables	95
Chapter 7: Worksheet Formatting.....	109
Chapter 8: Understanding Excel's Files	131
Chapter 9: Using and Creating Templates.....	145
Chapter 10: Printing Your Work	155

Part II: Working with Formulas and Functions 173

Chapter 11: Introducing Formulas and Functions	175
Chapter 12: Creating Formulas That Manipulate Text.....	205
Chapter 13: Working with Dates and Times	223
Chapter 14: Creating Formulas That Count and Sum	249
Chapter 15: Creating Formulas That Look Up Values	273
Chapter 16: Creating Formulas for Financial Applications	291
Chapter 17: Introducing Array Formulas	313
Chapter 18: Performing Magic with Array Formulas.....	333

Part III: Creating Charts and Graphics 349

Chapter 19: Getting Started Making Charts	351
Chapter 20: Learning Advanced Charting.....	381
Chapter 21: Visualizing Data Using Conditional Formatting.....	421
Chapter 22: Enhancing Your Work with Pictures and Drawings	441

Part IV: Using Advanced Excel Features 459

Chapter 23: Customizing the Quick Access Toolbar	461
Chapter 24: Using Custom Number Formats	465
Chapter 25: Using Data Validation	481
Chapter 26: Creating and Using Worksheet Outlines	491
Chapter 27: Linking and Consolidating Worksheets	499
Chapter 28: Excel and the Internet	513
Chapter 29: Sharing Data with Other Applications	521

Contents at a Glance

Chapter 30: Using Excel in a Workgroup	531
Chapter 31: Protecting Your Work	539
Chapter 32: Making Your Worksheets Error-Free	551

Part V: Analyzing Data with Excel. 573

Chapter 33: Using Microsoft Query with External Database Files	575
Chapter 34: Introducing Pivot Tables	591
Chapter 35: Analyzing Data with Pivot Tables	609
Chapter 36: Performing Spreadsheet What-If Analysis	635
Chapter 37: Analyzing Data Using Goal Seek and Solver	649
Chapter 38: Analyzing Data with the Analysis ToolPak.....	667

Part VI: Programming Excel with VBA. 679

Chapter 39: Introducing Visual Basic for Applications	681
Chapter 40: Creating Custom Worksheet Functions	703
Chapter 41: Creating UserForms	715
Chapter 42: Using UserForm Controls in a Worksheet	733
Chapter 43: Working with Excel Events	745
Chapter 44: VBA Examples.....	757
Chapter 45: Creating Custom Excel Add-Ins	771

Part VII: Appendixes 783

Appendix A: Worksheet Function Reference	785
Appendix B: What's on the CD-ROM.....	799
Appendix C: Additional Excel Resources	809
Appendix D: Excel Shortcut Keys	815

Index	823
Wiley Publishing, Inc. End-User License Agreement.....	869

Contents

Acknowledgments	xxxiii
---------------------------	--------

Introduction	xxxix
------------------------	-------

Part I: Getting Started with Excel 1

Chapter 1: Introducing Excel	3
--	---

What Is Excel Good For?	3
Understanding Workbooks and Worksheets.....	4
Moving Around a Worksheet	6
Navigating with your keyboard	6
Navigating with your mouse	7
Introducing the Ribbon	7
Ribbon tabs	8
Contextual tabs	9
Types of commands on the Ribbon.....	10
Accessing the Ribbon using your keyboard	11
Using the shortcut menus.....	13
Customizing your Quick Access Toolbar	14
Working with Dialog Boxes	15
Navigating dialog boxes	16
Using tabbed dialog boxes	16
Using the Taskbar.....	17
Creating Your First Excel Worksheet	18
Getting started on your worksheet	18
Filling in the month names	19
Entering the sales data	19
Formatting the numbers	20
Making your worksheet look a bit fancier	20
Summing the values.....	21
Creating a chart	21
Printing your worksheet.....	22
Saving your workbook	23

Chapter 2: What's New in Excel 2007?	25
--	----

A New User Interface	25
Larger Worksheets	26
New File Formats	27
Worksheet Tables	27
Styles and Themes	28

Contents

Better Looking Charts.....	28
Page Layout View	29
Enhanced Conditional Formatting	30
Consolidated Options.....	31
SmartArt.....	31
Formula AutoComplete	32
Collaboration Features	33
Compatibility Checker	33
Improved Pivot Tables	33
New Worksheet Functions	34
Other New Features	34
Chapter 3: Entering and Editing Worksheet Data	35
Exploring the Types of Data You Can Use	35
About numerical values	35
About text entries.....	36
About formulas	36
Entering Text and Values into Your Worksheets	37
Entering Dates and Times into Your Worksheets	38
Entering date values.....	39
Entering time values	39
Modifying Cell Contents.....	39
Erasing the contents of a cell	39
Replacing the contents of a cell	40
Editing the contents of a cell	40
Learning some handy data-entry techniques	41
Automatically moving the cell pointer after entering data	41
Using arrow keys instead of pressing Enter	42
Selecting a range of input cells before entering data	42
Using Ctrl+Enter to place information into multiple cells simultaneously	42
Entering decimal points automatically	42
Using AutoFill to enter a series of values	43
Using AutoComplete to automate data entry	43
Forcing text to appear on a new line within a cell	44
Using AutoCorrect for shorthand data entry	44
Entering numbers with fractions	45
Simplifying data entry by using a form	45
Entering the current date or time into a cell.....	46
Applying Number Formatting	47
Improving readability by formatting numbers	47
Using automatic number formatting	47
Formatting numbers by using the Ribbon	48
Using shortcut keys to format numbers	48
Formatting numbers using the Format Cells dialog box.....	49
Adding your own custom number formats.....	51

Chapter 4: Essential Worksheet Operations	53
Learning the Fundamentals of Excel Worksheets	53
Working with Excel's windows.....	53
Moving and resizing windows	55
Switching among windows	55
Closing windows	56
Activating a worksheet	56
Adding a new worksheet to your workbook.....	57
Deleting a worksheet you no longer need.....	57
Changing the name of a worksheet	58
Changing a sheet tab's color	58
Rearranging your worksheets	58
Hiding and unhiding a worksheet	59
Controlling the Worksheet View.....	61
Zooming in or out for a better view	61
Viewing a worksheet in multiple windows	62
Comparing sheets side by side	63
Splitting the worksheet window into panes	63
Keeping the titles in view by freezing panes	64
Monitoring cells with a Watch Window	65
Working with Rows and Columns	66
Inserting rows and columns	66
Deleting rows and columns	67
Hiding rows and columns	67
Changing column widths and row heights	68
Changing column widths.....	68
Changing row heights	69
Chapter 5: Working with Cells and Ranges.	71
Understanding Cells and Ranges	71
Selecting ranges	72
Selecting complete rows and columns	73
Selecting noncontiguous ranges	73
Selecting multisheet ranges	74
Selecting special types of cells	76
Selecting cells by searching	77
Copying or Moving Ranges	78
Copying by using Ribbon commands.....	79
Copying by using shortcut menu commands	79
Copying by using shortcut keys	80
Copying or moving by using drag-and-drop	80
Copying to adjacent cells	81
Copying a range to other sheets	82
Using the Office Clipboard to paste	82
Pasting in special ways	84

Contents

Using the Paste Special Dialog box	85
Performing mathematical operations without formulas	86
Skipping blanks when pasting	86
Transposing a range	86
Using Names to Work with Ranges.....	87
Creating range names in your workbooks	87
Using the New Name dialog box	87
Using the Name box	88
Using the Create Names From Selection dialog box	88
Managing Names	89
Adding Comments to Cells.....	90
Formatting comments	91
Changing a comment's shape	92
Reading comments.....	93
Hiding and showing comments	93
Editing comments	93
Deleting comments	93
Chapter 6: Introducing Tables	95
What Is a Table?	95
Creating a Table	97
Changing the Look of a Table	98
Working with Tables	100
Navigating in a table	100
Selecting parts of a table.....	100
Adding new rows or columns	101
Deleting rows or columns	101
Moving a table	101
Setting table options	102
Working with the Total Row.....	102
Removing duplicate rows from a table	103
Sorting and filtering a table	104
Sorting a table	105
Filtering a table	106
Converting a table back to a range	107
Chapter 7: Worksheet Formatting	109
Getting to Know the Formatting Tools	109
Using the Formatting Tools in the Home Tab	110
Using the Mini toolbar	110
Using the Format Cells dialog box	112
Using Formatting in Your Worksheets	112
Using different fonts.....	112
Changing text alignment	115
Choosing horizontal alignment options	116
Choosing vertical alignment options	116
Wrapping or shrinking text to fit the cell	116
Merging worksheet cells to create additional text space	117

Contents

Displaying text at an angle	117
Controlling the text direction.....	118
Using colors and shading	118
Adding borders and lines	119
Adding a background image to a worksheet.....	121
Using Named Styles for Easier Formatting	122
Applying styles.....	123
Modifying an existing style.....	124
Creating new styles	124
Merging styles from other workbooks	125
Controlling styles with templates	125
Understanding Document Themes	126
Applying a theme.....	127
Customizing a theme	128
Chapter 8: Understanding Excel's Files	131
Excel File Operations	131
Creating a new workbook	131
Opening an existing workbook	132
Selecting a different location	134
Using the My Places bar.....	134
Filtering filenames	134
Choosing your file display preferences.....	135
Saving a Workbook	136
Using AutoRecover	136
Specifying a password	137
Other workbook options	138
Setting workbook properties	139
Inspecting a document	140
Encrypting a document	140
Restricting permissions	140
Adding a digital signature	140
Marking a document final	140
Checking compatibility	140
Closing workbooks	141
Safeguarding your work	141
Excel File Compatibility	142
Recognizing the Excel 2007 file formats.....	142
Saving a file for use with an older version of Excel	143
Chapter 9: Using and Creating Templates	145
Exploring Excel Templates	145
Viewing templates	145
Creating a workbook from a template	146
Modifying a template	148
Understanding Custom Excel Templates	149
Working with the default templates	150
Using the workbook template to change workbook defaults	150
Using the worksheet template to change worksheet defaults	151

Contents

Editing your templates.....	151
Resetting the default workbook and worksheet settings.....	151
Creating custom templates.....	151
Saving your custom templates	152
Ideas for creating templates	153
Chapter 10: Printing Your Work	155
Printing with One Click	155
Changing Your Page View.....	157
Normal View	157
Page Layout View.....	158
Page Break Preview	159
Adjusting Common Page Setup Settings.....	160
Adjusting the page margins	160
Changing the page orientation	162
Specifying the paper size	162
Specifying the print area	162
Understanding page breaks	162
Inserting a page break	162
Removing page breaks you've added	163
Using a background image	163
Printing row and column titles.....	164
Scaling printed output	165
Printing cell gridlines.....	165
Printing row and column headers	166
Adding a Header or Footer to Your Reports	166
Selecting a predefined header or footer	166
Understanding header and footer element codes	167
Other header and footer options	168
Adjusting the Settings in the Print Dialog Box	168
Choosing your printer	169
Specifying what you want to print	169
Printing multiple copies of a report	169
Preventing Certain Cells from Being Printed.....	170
Preventing Objects from being Printed	170
Creating Custom Views of Your Worksheet	171
Part II: Working with Formulas and Functions	173
Chapter 11: Introducing Formulas and Functions	175
Understanding Formula Basics	175
Using operators in formulas	176
Understanding operator precedence in formulas	177
Using functions in your formulas	179
Examples of formulas that use functions	179
Function arguments.....	180
More about functions.....	181

Entering Formulas into Your Worksheets	181
Entering formulas manually	183
Entering formulas by pointing	183
Pasting range names into formulas	183
Inserting functions into formulas	184
Function entry tips	186
Editing Formulas	187
Using Cell References in Formulas	187
Using relative, absolute, and mixed references	187
Changing the types of your references	190
Referencing cells outside the worksheet	190
Referencing cells in other worksheets	190
Referencing cells in other workbooks	190
Using Formulas In Tables	191
Summarizing data in a table	191
Using formulas within a table.....	193
Referencing data in a table	194
Correcting Common Formula Errors	195
Handling circular references.....	196
Specifying when formulas are calculated	198
Using Advanced Naming Techniques	199
Using names for constants	199
Using names for formulas	199
Using range intersections	200
Applying names to existing references	202
Tips for Working with Formulas.....	203
Don't hard-code values.....	203
Using the Formula bar as a calculator	203
Making an exact copy of a formula.....	204
Converting formulas to values	204
Chapter 12: Creating Formulas That Manipulate Text	205
A Few Words About Text	205
How many characters in a cell?	205
Numbers as text	206
Text Functions	206
Determining whether a cell contains text	207
Working with character codes	207
The CODE function.....	208
The CHAR function	208
Determining whether two strings are identical	209
Joining two or more cells	210
Displaying formatted values as text	211
Displaying formatted currency values as text	212
Repeating a character or string.....	212
Creating a text histogram	212
Padding a number	213
Removing excess spaces and nonprinting characters	214

Contents

Counting characters in a string	214
Changing the case of text	214
Extracting characters from a string.....	215
Replacing text with other text	216
Finding and searching within a string	216
Searching and replacing within a string	217
Advanced Text Formulas	217
Counting specific characters in a cell	217
Counting the occurrences of a substring in a cell	217
Extracting a filename from a path specification	218
Extracting the first word of a string	218
Extracting the last word of a string.....	218
Extracting all but the first word of a string	219
Extracting first names, middle names, and last names	219
Removing titles from names	220
Creating an ordinal number	220
Counting the number of words in a cell	220
Chapter 13: Working with Dates and Times	223
How Excel Handles Dates and Times	223
Understanding date serial numbers	223
Entering dates	224
Understanding time serial numbers	226
Entering times	227
Formatting dates and times	228
Problems with dates.....	229
Excel's leap year bug	229
Pre-1900 dates.....	229
Inconsistent date entries	230
Date-Related Functions	230
Displaying the current date	231
Displaying any date	231
Generating a series of dates	232
Converting a nondate string to a date.....	233
Calculating the number of days between two dates	233
Calculating the number of work days between two dates.....	234
Offsetting a date using only work days.....	234
Calculating the number of years between two dates	235
Calculating a person's age.....	236
Determining the day of the year	237
Determining the day of the week	237
Determining the date of the most recent Sunday	237
Determining the first day of the week after a date	237
Determining the nth occurrence of a day of the week in a month.....	238
Calculating dates of holidays	238
New Year's Day	239
Martin Luther King, Jr. Day	239
Presidents' Day	239

Contents

Memorial Day	239
Independence Day	240
Labor Day	240
Veterans Day	240
Columbus Day	240
Thanksgiving Day	240
Christmas Day	240
Determining the last day of a month	240
Determining whether a year is a leap year	241
Determining a date's quarter.....	241
Time-Related Functions	241
Displaying the current time	242
Displaying any time	242
Calculating the difference between two times.....	243
Summing times that exceed 24 hours.....	244
Converting from military time	246
Converting decimal hours, minutes, or seconds to a time	246
Adding hours, minutes, or seconds to a time	246
Rounding time values	247
Working with non-time-of-day values	248
Chapter 14: Creating Formulas That Count and Sum.	249
Counting and Summing Worksheet Cells	249
Basic Counting Formulas	251
Counting the total number of cells	252
Counting blank cells	252
Counting nonblank cells	253
Counting numeric cells	253
Counting text cells	253
Counting nontext cells	253
Counting logical values	253
Counting error values in a range	253
Advanced Counting Formulas	254
Counting cells by using the COUNTIF function.....	254
Counting cells by using multiple criteria	255
Using And criteria	256
Using Or criteria	257
Combining And and Or criteria	257
Counting the most frequently occurring entry	257
Counting the occurrences of specific text	258
Entire cell contents	259
Partial cell contents	259
Total occurrences in a range.....	260
Counting the number of unique values	260
Creating a frequency distribution.....	260
The FREQUENCY function	261
Using formulas to create a frequency distribution	262
Using the Analysis ToolPak to create a frequency distribution	263
Using a pivot table to create a frequency distribution.....	264

Contents

Summing Formulas	265
Summing all cells in a range.....	265
Computing a cumulative sum	266
Summing the “top n” values.....	268
Conditional Sums Using a Single Criterion.....	268
Summing only negative values	269
Summing values based on a different range	269
Summing values based on a text comparison	269
Summing values based on a date comparison.....	270
Conditional Sums Using Multiple Criteria	271
Using And criteria	271
Using Or criteria	272
Using And and Or criteria	272
Chapter 15: Creating Formulas That Look Up Values.	273
Introducing Lookup Formulas	273
Functions Relevant to Lookups	274
Basic Lookup Formulas	275
The VLOOKUP function	276
The HLOOKUP function	277
The LOOKUP function	277
Combining the MATCH and INDEX functions.....	278
Specialized Lookup Formulas.....	280
Looking up an exact value	280
Looking up a value to the left.....	281
Performing a case-sensitive lookup	282
Choosing among multiple lookup tables	283
Determining letter grades for test scores.....	283
Calculating a grade-point average	284
Performing a two-way lookup	285
Performing a two-column lookup	286
Determining the cell address of a value within a range.....	287
Looking up a value by using the closest match.....	288
Chapter 16: Creating Formulas for Financial Applications.	291
The Time Value of Money.....	291
Loan Calculations.....	292
Worksheet functions for calculating loan information	292
The PMT function	293
The PPMT function	293
The IPMT Function	294
The RATE function	294
The NPER function	294
The PV Function	294
A loan calculation example	295
Credit-card payments.....	296
Creating a loan amortization schedule	297

Summarizing loan options by using a data table.....	299
Creating a one-way data table	299
Creating a two-way data table	300
Calculating a loan with irregular payments	302
Investment Calculations	303
Future value of a single deposit	303
Calculating simple interest.....	303
Calculating compound interest	304
Calculating interest with continuous compounding.....	307
Future value of a series of deposits.....	307
Depreciation Calculations.....	310
Chapter 17: Introducing Array Formulas	313
Understanding Array Formulas	313
A multicell array formula	314
A single-cell array formula	315
Creating an array constant	316
Array constant elements.....	317
Understanding the Dimensions of an Array	317
One-dimensional horizontal arrays	317
One-dimensional vertical arrays.....	318
Two-dimensional arrays	318
Naming Array Constants	319
Working with Array Formulas	320
Entering an array formula	320
Selecting an array formula range	321
Editing an array formula	321
Expanding or contracting a multicell array formula	322
Using Multicell Array Formulas	323
Creating an array from values in a range	323
Creating an array constant from values in a range	323
Performing operations on an array	324
Using functions with an array	325
Transposing an array	325
Generating an array of consecutive integers	326
Using Single-Cell Array Formulas.....	327
Counting characters in a range.....	327
Summing the three smallest values in a range	328
Counting text cells in a range.....	329
Eliminating intermediate formulas	330
Using an array in lieu of a range reference	331
Chapter 18: Performing Magic with Array Formulas	333
Working with Single-Cell Array Formulas	333
Summing a range that contains errors	333
Counting the number of error values in a range	334
Summing the n largest values in a range.....	335

Contents

Computing an average that excludes zeros	335
Determining whether a particular value appears in a range	336
Counting the number of differences in two ranges	337
Returning the location of the maximum value in a range	337
Finding the row of a value's nth occurrence in a range	338
Returning the longest text in a range	338
Determining whether a range contains valid values	338
Summing the digits of an integer	339
Summing rounded values	340
Summing every nth value in a range	341
Removing non-numeric characters from a string	342
Determining the closest value in a range	343
Returning the last value in a column	343
Returning the last value in a row	344
Ranking data with an array formula	344
Working with Multicell Array Formulas	345
Returning only positive values from a range	345
Returning nonblank cells from a range	346
Returning a list of unique items in a range	347
Displaying a calendar in a range	347

Part III: Creating Charts and Graphics 349

Chapter 19: Getting Started Making Charts	351
What Is a Chart?.....	351
Understanding How Excel Handles Charts.....	352
Embedded charts	353
Chart sheets	353
Creating a Chart	355
Hands On: Creating and Customizing a Chart	355
Selecting the data	356
Choosing a chart type	356
Experimenting with different layouts	357
Trying another view of the data	358
Trying other chart types	358
Trying other chart styles.....	360
Working with Charts	360
Moving and resizing a chart	361
Copying a chart	361
Deleting a chart	361
Adding chart elements	361
Moving and deleting chart elements.....	361
Formatting chart elements	362
Printing Charts.....	363
Understanding Chart Types	363
Choosing a chart type	364
Chart type examples	365
Column charts.....	365
Bar charts	367

Line charts	368
Pie charts	370
XY (scatter) charts	371
Area charts	373
Doughnut charts	374
Radar charts	374
Surface charts	377
Bubble charts	377
Stock charts	379
Learning More	380
Chapter 20: Learning Advanced Charting.	381
Understanding Chart Customization	381
Selecting Chart Elements	381
Selecting with the mouse	382
Selecting with the keyboard	383
Selecting with the Chart Element control	383
User Interface Choices for Modifying Chart Elements	384
Using the Format dialog box	384
Using the Ribbon and Mini Toolbar	385
Modifying the Chart Area	386
Modifying the Plot Area	387
Working with Chart Titles	388
Working with the Legend	389
Working with Gridlines	391
Modifying the Axes	391
Value axis options	391
Category axis options	396
Working with Data Series	398
Deleting a data series	398
Adding a new data series to a chart	398
Changing data used by a series	399
Changing the data range by dragging the range outline	399
Using the Edit Series dialog box	400
Editing the Series formula	400
Displaying data labels in a chart	401
Handling missing data	402
Adding error bars	403
Adding a trendline	404
Modifying 3-D charts	406
Creating combination charts	407
Displaying a data table	409
Creating Chart Templates	410
Learning Some Chart-Making Tricks	411
Creating picture charts	411
Creating a thermometer chart	412
Creating a gauge chart	413
Displaying conditional colors in a column chart	414
Creating a comparative histogram	415

Contents

Creating a Gantt chart	417
Plotting mathematical functions with one variable	418
Plotting mathematical functions with two variables	419
Chapter 21: Visualizing Data Using Conditional Formatting	421
About Conditional Formatting	421
Specifying Conditional Formatting.....	422
Formatting types you can apply	423
Making your own rules	424
Conditional Formats That Use Graphics.....	425
Using data bars	425
A data bar example	425
Using data bars in lieu of a chart	427
Using color scales.....	428
A color scale example	428
An extreme color scale example	429
Using Icon Sets	430
An icon set example.....	430
Another icon set example	432
Displaying only one icon	433
Creating Formula-Based Rules	434
Understanding relative and absolute references	435
Conditional formatting formula examples	436
Identifying weekend days	436
Displaying alternate-row shading.....	436
Creating checkerboard shading	437
Shading groups of rows	437
Displaying a total only when all values are entered	437
Working with Conditional Formats	439
Managing rules	439
Copying cells that contain conditional formatting	439
Deleting conditional formatting	439
Find and Replace limitations	440
Locating cells that contain conditional formatting	440
Chapter 22: Enhancing Your Work with Pictures and Drawings	441
Using Shapes	441
Inserting a Shape	441
Adding text to a Shape	444
Formatting Shapes	445
Grouping objects	446
Aligning and spacing objects	446
Reshaping Shapes	446
Printing objects	447
Using SmartArt.....	448
Inserting SmartArt	448
Customizing SmartArt	449
Changing the layout.....	450
Changing the Style	452
Learning more about SmartArt.....	452

Using WordArt	452
Working with Other Graphic Types	453
About graphics files	453
Using the Clip Art task pane	454
Inserting graphics files	455
Copying graphics by using the Clipboard	456
Displaying a worksheet background image	457
<hr/>	
Part IV: Using Advanced Excel Features	459
<hr/>	
Chapter 23: Customizing the Quick Access Toolbar	461
About the QAT.....	461
Adding New Commands to the QAT	462
Other QAT Actions.....	464
Behind the Scenes	464
Chapter 24: Using Custom Number Formats	465
About Number Formatting.....	465
Automatic number formatting	466
Formatting numbers by using the Ribbon	466
Using shortcut keys to format numbers	467
Using the Format Cells dialog box to format numbers	467
Creating a Custom Number Format	468
Parts of a number format string	469
Custom number format codes	470
Custom Number Format Examples	472
Scaling values.....	472
Displaying values in thousands	472
Displaying values in hundreds	473
Displaying values in millions	473
Adding zeros to a value	475
Displaying leading zeros.....	475
Displaying fractions	476
Displaying a negative sign on the right	476
Formatting dates and times	477
Displaying text with numbers	478
Suppressing certain types of entries	478
Filling a cell with a repeating character	479
Chapter 25: Using Data Validation	481
About Data Validation	481
Specifying Validation Criteria	482
Types of Validation Criteria You Can Apply	483
Creating a Drop-Down List.....	484
Using Formulas for Data Validation Rules.....	485
Understanding Cell References	485
Data Validation Examples	487
Accepting text only	487
Accepting a larger value than the previous cell	487

Contents

Accepting nonduplicate entries only	487
Accepting text that begins with A.....	488
Accepting only a date that's a Monday	488
Accepting only values that don't exceed a total.....	488
Chapter 26: Creating and Using Worksheet Outlines	491
Introducing Worksheet Outlines	491
Creating an Outline	494
Preparing the data	494
Creating an outline automatically.....	495
Creating an outline manually	495
Working with Outlines.....	496
Displaying levels	496
Adding data to an outline.....	496
Removing an outline	496
Hiding the outline symbols	497
Chapter 27: Linking and Consolidating Worksheets	499
Linking Workbooks	499
Creating External Reference Formulas	500
Understanding the link formula syntax	500
Creating a link formula by pointing	500
Pasting links.....	501
Working with External Reference Formulas	501
Creating links to unsaved workbooks	501
Opening a workbook with external reference formulas	502
Changing the startup prompt.....	503
Updating links	503
Changing the link source	503
Severing links.....	503
Avoiding Potential Problems with External Reference Formulas	504
Renaming or moving a source workbook	504
Using the Save As command	504
Modifying a source workbook	504
Intermediary links	505
Consolidating Worksheets	505
Consolidating worksheets by using formulas	505
Consolidating worksheets by using Paste Special	506
Consolidating worksheets by using the Consolidate command	507
An example	508
Refreshing a consolidation	509
More about consolidation	511
Chapter 28: Excel and the Internet	513
Understanding How Excel Uses HTML	513
Understanding the Different Web Formats	514
Creating an HTML file	514
Creating a single file Web page.....	515

Contents

Opening an HTML File	516
Working with Hyperlinks.....	516
Inserting a hyperlink	517
Using hyperlinks	518
Using Web Queries.....	518
Chapter 29: Sharing Data with Other Applications	521
Understanding Data Sharing.....	521
Copying and Pasting	521
Copying from Excel to Word	522
Pasting static information.....	523
Pasting a link	524
Embedding Objects in a Worksheet	526
Embedding Word documents.....	526
Embedding other types of documents	527
Embedding an Excel Workbook in a Word Document	527
Embedding a workbook in Word by copying.....	528
Embedding a saved workbook in Word	529
Creating a new Excel object in Word	529
Chapter 30: Using Excel in a Workgroup	531
Using Excel on a Network	531
Understanding File Reservations	532
Sharing Workbooks	533
Understanding shared workbooks	533
Designating a workbook as a shared workbook	534
Controlling the advanced sharing settings	535
Tracking changes	535
Updating changes	535
Resolving conflicting changes between users	536
Controlling the Include in Personal View settings	536
Tracking Workbook Changes	536
Turning Track Changes on and off	536
Reviewing the changes	538
Chapter 31: Protecting Your Work	539
Types of Protection	539
Worksheet Protection	540
Unlocking cells	540
Sheet protection options	542
Assigning User Permissions	542
Workbook Protection	543
Requiring a password to open a workbook	543
Protecting a workbook's structure	544
Protecting a workbook's windows	545
VB Project Protection	545
Related Topics	546
Saving a workbook as a PDF file	546
Marking a workbook final	547

Contents

Inspecting a workbook.....	547
Using a digital signature.....	548
Getting a digital ID	548
Signing a workbook.....	548
Chapter 32: Making Your Worksheets Error-Free	551
Finding and Correcting Formula Errors	551
Mismatched parentheses	552
Cells are filled with hash marks	552
Blank cells are not blank	553
Extra space characters	553
Formulas returning an error.....	554
#DIV/0! errors	554
#N/A errors	555
#NAME? errors	555
#NULL! errors	555
#NUM! errors	556
#REF! errors	556
#VALUE! errors	556
Absolute/relative reference problems	556
Operator precedence problems	557
Formulas are not calculated	558
Actual versus displayed values	558
Floating point number errors	559
“Phantom link” errors	560
Using Excel’s Auditing Tools.....	560
Identifying cells of a particular type	560
Viewing formulas	562
Tracing cell relationships	562
Identifying precedents	563
Identifying dependents	564
Tracing error values	564
Fixing circular reference errors.....	564
Using background error-checking feature.....	564
Using Excel Formula Evaluator	566
Searching and Replacing.....	567
Searching for information	567
Replacing information	568
Searching for formatting.....	568
Spell Checking Your Worksheets	569
Using AutoCorrect	570

Part V: Analyzing Data with Excel

573

Chapter 33: Using Microsoft Query with External Database Files

575

Understanding External Database Files.....	575
Importing Access Tables	576

Contents

Retrieving Data with Query: An Example	578
The database file	578
The task.....	579
Using Query to get the data	579
Selecting a data source	579
Using the Query Wizard	581
Query Wizard: Choosing the columns	581
Query Wizard: Filtering data	582
Query Wizard: Sort order	583
Query Wizard: Finish	583
Specifying a location for the data	584
Working with Data Returned by Query	585
Adjusting the external data range properties	585
Refreshing a query	585
Deleting a query.....	586
Changing your query	586
Using Query Without the Wizard.....	586
Creating a query manually	586
Using multiple database tables	588
Adding and editing records in external database tables	588
Formatting data	588
Learning More about Query	589
Chapter 34: Introducing Pivot Tables	591
About Pivot Tables	591
A pivot table example	592
Data appropriate for a pivot table.....	594
Creating a Pivot Table.....	595
Specifying the data.....	595
Specifying the location for the pivot table	596
Laying out the pivot table	597
Formatting the pivot table	599
Modifying the pivot table	601
More Pivot Table Examples	602
Question 1	603
Question 2	604
Question 3	604
Question 4	605
Question 5	606
Question 6	606
Learning More	607
Chapter 35: Analyzing Data with Pivot Tables	609
Working with Non-Numeric Data	609
Grouping Pivot Table Items	611
A manual grouping example	611
Viewing grouped data	611

Contents

Automatic grouping examples	612
Grouping by date.....	612
Grouping by time.....	615
Creating a Frequency Distribution	616
Creating a Calculated Field or Calculated Item.....	618
Creating a calculated field	619
Inserting a calculated item	621
Referencing Cells within a Pivot Table	624
Creating Pivot Charts	626
A pivot chart example	627
More about pivot charts	629
Another Pivot Table Example	630
Producing a Report with a Pivot Table	632
Chapter 36: Performing Spreadsheet What-If Analysis	635
A What-If Example.....	635
Types of What-If Analyses	637
Manual What-If Analysis	637
Creating Data Tables.....	637
Creating a one-input data table	637
Creating a two-input data table	640
Using Scenario Manager	643
Defining scenarios	643
Displaying scenarios.....	645
Modifying scenarios	645
Merging scenarios	646
Generating a scenario report	647
Chapter 37: Analyzing Data Using Goal Seek and Solver	649
What-If Analysis, in Reverse	649
Single-Cell Goal Seeking	650
A goal-seeking example	650
More about Goal Seeking	651
Introducing Solver	652
Appropriate problems for Solver	652
A simple Solver example	653
More about Solver	656
Solver Examples	658
Solving simultaneous linear equations	658
Minimizing shipping costs	660
Allocating resources	662
Optimizing an investment portfolio	664
Chapter 38: Analyzing Data with the Analysis ToolPak.	667
The Analysis ToolPak: An Overview	667
Installing the Analysis ToolPak Add-in	668
Using the Analysis Tools.....	668
Introducing the Analysis ToolPak Tools	669
The Analysis of variance tool	669
The Correlation tool.....	670

The Covariance tool	670
The Descriptive Statistics tool	670
The Exponential Smoothing tool	671
The F-Test (two-sample test for variance) tool	671
The Fourier Analysis tool	672
The Histogram tool	672
The Moving Average tool	673
The Random Number Generation tool	673
The Rank and Percentile tool	675
The Regression tool	675
The Sampling tool	676
The t-Test tool	676
The z-Test (Two-Sample Test for Means) tool	677

Part VI: Programming Excel with VBA **679****Chapter 39: Introducing Visual Basic for Applications** **681**

Introducing VBA Macros	681
Displaying the Developer tab	681
About Macro Security	682
Saving Workbooks That Contain Macros	684
Two Types of VBA Macros.....	684
VBA Sub procedures	684
VBA functions	685
Creating VBA Macros	687
Recording VBA macros.....	687
Recording your actions to create VBA code: The basics	687
Recording a macro: A simple example	688
Examining the macro.....	688
Testing the macro	689
Editing the macro	689
Another example	690
Examining the macro.....	690
Testing the macro	691
More about recording VBA macros.....	692
Absolute versus relative recording	692
Storing macros in your Personal Macro Workbook	692
Assigning a macro to a shortcut key.....	693
Assigning a macro to a button	693
Writing VBA code	694
The basics: Entering and editing code	694
How VBA works	695
Objects and collections	697
Properties	697
Methods	699
Variables	699
Controlling execution	699
A macro that can't be recorded.....	701
Learning More	702

Contents

Chapter 40: Creating Custom Worksheet Functions	703
Overview of VBA Functions	703
An Introductory Example	704
A custom function	704
Using the function in a worksheet	704
Analyzing the custom function	705
About Function Procedures	705
Executing Function Procedures	706
Calling custom functions from a procedure	706
Using custom functions in a worksheet formula.....	707
Function Procedure Arguments	707
A function with no argument	708
A function with one argument	708
Another function with one argument	708
A function with two arguments	710
A function with a range argument	710
Debugging Custom Functions	711
Inserting Custom Functions	712
Learning More	713
Chapter 41: Creating UserForms	715
Why Create UserForms?.....	715
UserForm Alternatives	716
The InputBox function.....	716
The MsgBox function.....	717
Creating UserForms: An Overview	720
Working with UserForms.....	720
Adding controls	721
Changing the properties of a control	722
Handling events	723
Displaying a UserForm.....	724
A UserForm Example	724
Creating the UserForm.....	724
Testing the UserForm.....	725
Creating an event-handler procedure	726
Another UserForm Example	726
Creating the UserForm.....	727
Testing the UserForm.....	728
Creating event-handler procedures	729
Testing the UserForm.....	730
Making the macro available from a worksheet button	731
Making the macro available on your Quick Access Toolbar	731
More on Creating UserForms	732
Adding accelerator keys	732
Controlling tab order	732
Learning More	732

Chapter 42: Using UserForm Controls in a Worksheet	733
Why Use Controls on a Worksheet?	733
Using Controls	735
Adding a control	735
About design mode	736
Adjusting properties	736
Common properties	737
Linking controls to cells	738
Creating macros for controls	738
Reviewing the Available ActiveX Controls.....	739
CheckBox control	739
ComboBox control.....	740
CommandButton control	740
Image control.....	741
Label control	741
ListBox control.....	741
OptionButton control.....	741
ScrollBar control	742
SpinButton control.....	743
TextBox controls	743
ToggleButton control	744
Chapter 43: Working with Excel Events	745
Understanding Events	745
Entering event-handler VBA code	745
Using Workbook-Level Events	747
Using the Open event	748
Using the SheetActivate event	749
Using the NewSheet event	749
Using the BeforeSave event	750
Using the BeforeClose event	750
Working with Worksheet Events	750
Using the Change event	751
Monitoring a specific range for changes	752
Using the SelectionChange event	752
Using the BeforeRightClick event	753
Using Non-Object Events	754
Using the OnTime event	754
Using the OnKey event	754
Chapter 44: VBA Examples	757
Working with Ranges	757
Copying a range.....	758
Copying a variable-size range.....	758
Selecting to the end of a row or column	759
Selecting a row or column	760
Moving a range	760

Contents

Looping through a range efficiently	760
Prompting for a cell value	762
Determining the type of selection.....	762
Identifying a multiple selection	763
Counting selected cells.....	763
Working with Workbooks	764
Saving all workbooks	764
Saving and closing all workbooks	764
Working with Charts	765
Modifying the chart type	765
Modifying chart properties.....	766
Applying chart formatting	766
VBA Speed Tips	766
Turning off screen updating	767
Preventing alert messages.....	767
Simplifying object references	767
Declaring variable types	768
Chapter 45: Creating Custom Excel Add-Ins	771
What Is an Add-In?	771
Working with Add-Ins	772
Why Create Add-Ins?	773
Creating Add-Ins	774
An Add-In Example	775
Setting up the workbook	775
Procedures in Module1	776
About the UserForm	776
Testing the workbook	777
Adding descriptive information	778
Protecting the project	778
Creating the add-in	779
Creating the user interface for your add-in macro	779
Installing the add-in.....	780
Part VII: Appendixes	783
Appendix A: Worksheet Function Reference	785
Appendix B: What's on the CD-ROM	799
Appendix C: Additional Excel Resources	809
Appendix D: Excel Shortcut Keys	815
Index	823
Wiley Publishing, Inc. End-User License Agreement	869