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ABSOLUTE BEGINNER'S GUIDE

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Alison Balter

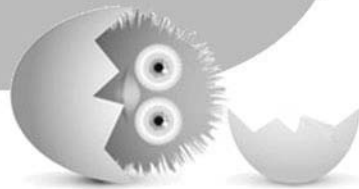
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Access[®] 2013

ABSOLUTE BEGINNER'S GUIDE



Alison Balter

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800 East 96th Street,
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Access 2013 Absolute Beginner's Guide

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Contents at a Glance

Introduction	1
1 Why Use Microsoft Access?	7
2 Getting Started with Microsoft Access	25
3 Tables: The Repository for Your Data	35
4 Using Queries to Retrieve the Data You Need	51
5 Using Forms to Display and Modify Information	69
6 Creating Your Own Forms	85
7 Using Reports to Print Information	99
8 Building Your Own Reports	109
9 Creating Your Own Tables	125
10 Relating the Information in Your Database	151
11 Enhancing the Queries That You Build	171
12 Advanced Query Techniques	189
13 Building Powerful Forms	209
14 Advanced Form Techniques	237
15 Building Powerful Reports	251
16 Advanced Report Techniques	269
17 Automating Your Database with Macros	281
18 Advanced Macro Techniques	299
19 Sharing Data With Other Applications	311
20 Working with Web Databases	343
21 Putting It All Together	363
Index	383

Table of Contents

Introduction	1
Who Should Read This Book	1
How This Book Is Organized.....	1
Requirements, Editions, and Features	2
Using This Book.....	5
1 Why Use Microsoft Access?	7
What Is a Relational Database?	8
What Types of Things Can I Do with Microsoft Access?	8
Access as a Development Platform for Small-Business Applications.....	9
Access as a Development Platform for Departmental Applications.....	9
Access as a Development Platform for Corporation-Wide Applications	10
Access as a Front End for Enterprisewide Client/Server Applications	11
Access as a Tool to Develop Web Applications.....	11
A Preview of the Database Components	11
Tables: A Repository for Data.....	11
Relationships: Tying the Tables Together	14
Queries: Stored Questions or Actions You Apply to Data	16
Forms: A Means to Display, Modify, and Add Data	17
Reports: Turning Data into Information	18
Macros: A Means of Automating a System	20
Modules: The Foundation of the Application Development Process	21
2 Getting Started with Microsoft Access	25
Creating a Database from a Template.....	26
Viewing Database Objects	27
Viewing Database Tables	27
Viewing Queries	30
Viewing Forms	30
Viewing Reports.....	31
Creating a Database from Scratch	31
Opening an Existing Database	32

Closing a Database	33
Exiting Access	33
3 Tables: The Repository for Your Data	35
Working with Table Data.....	36
Opening an Access Table	36
Navigating Around a Table.....	36
Closing a Table.....	38
Editing Table Data	39
Edit Existing Records	39
Undoing Changes	39
Adding Records to a Table	40
Add Records to a Table.....	40
Deleting Records.....	41
Selecting One or More Records.....	41
Deleting Records.....	42
Finding and Replacing Records.....	44
Filtering Table Data.....	47
Filtering by Selection	47
Removing Filters.....	48
4 Using Queries to Retrieve the Data You Need.....	51
What Is a Query and When Should You Use One?.....	51
Creating a Simple Query	52
Designing the Query.....	52
Adding Tables to Queries	53
Adding Fields to Queries	53
Ordering the Query Result.....	56
Sorting on a Single Field.....	56
Sorting on More Than One Field	57
Working with Simple Criteria	57
Using an Exact Match Query	57
Creating Criteria Based on Multiple Conditions.....	58
Saving a Query	66
Closing a Query.....	66

5	Using Forms to Display and Modify Information	69
	Moving from Record to Record in a Form	70
	Undoing Changes Made Within a Form	71
	Using a Form to Delete Records from a Table	73
	Copying Records Within a Form	76
	Finding a Record That Meets Specific Criteria	77
	Sorting Records	79
	Sort Records on a Single Field	80
	Filtering the Data Underlying a Form	80
	Use the Filter by Form Feature	80
	Removing a Filter	81
	Use Multiple Filter Criteria	81
	Closing a Form	83
6	Creating Your Own Forms	85
	The AutoForm Feature	86
	Create a Form by Using the AutoForm Feature	86
	Saving a Form	87
	Using the Form Wizard to Build a Form	87
	Creating Split Forms	88
	Creating Multiple Item Forms	90
	Creating Navigation Forms	91
	Customizing a Navigation Form	93
	Creating a Navigation Form with Horizontal and Vertical Tabs	95
7	Using Reports to Print Information	99
	Opening and Viewing a Report	100
	Preview a Report	100
	Moving from Page to Page	100
	Zooming In and Out	101
	Viewing Multiple Pages	102
	Working in Layout View	103
	Working in Report View	103
	Printing a Report	104
	Use Page Setup	104
	Sending Reports to the Printer	105
	Closing a Report	105

8	Building Your Own Reports	109
	Using the AutoReport Feature.....	110
	Viewing the Design of a Report.....	113
	Types of Reports Available.....	114
	Detail Reports.....	114
	Summary Reports.....	115
	Reports with Graphics.....	116
	Reports with Forms.....	116
	Reports with Labels.....	117
	Creating Mailing Labels.....	117
9	Creating Your Own Tables	125
	Building a New Table.....	126
	Building a Table from a Datasheet.....	126
	Designing a Table from Scratch	128
	Selecting the Appropriate Field Type for Data.....	129
	Short Text Fields: The Most Common Field Type.....	132
	Long Text Fields: For Long Notes and Comments.....	132
	Number Fields: For When You Need to Calculate.....	132
	Date/Time Fields: For Tracking When Things Happened	133
	Currency Fields: For Storing Money	133
	AutoNumber Fields: For Unique Record Identifiers.....	133
	Yes/No Fields: For When One of Two Answers Is Correct.....	134
	OLE Object Fields: For Storing Just About Anything	134
	Hyperlink Fields: For Linking to the Internet.....	134
	Attachment Fields: For Storing File Attachments Associated with a Record.....	134
	Calculated Fields: For Storing Your Database Calculations	135
	Using Indexes to Improve Performance.....	135
	Create an Index Based on a Single Field	136
	Create an Index Based on Multiple Fields	137
	The All-Important Primary Key.....	137
	Working with Field Properties.....	138
	The Field Size Property: Limiting What the User Enters into a Field	139
	The Format Property: Determining How Access Displays Data.....	139
	The Caption Property: Providing Alternatives to the Field Name.....	141
	The Default Value Property: Saving Data-Entry Time	142
	The Validation Rule and Validation Text Properties: Controlling What the User Enters in a Field.....	142

The Required Property: Making the User Enter a Value.....	144
The Allow Zero Length Property: Accommodating for Situations with Nonexistent Data	144
The Input Mask Property: Determining What Data Goes into a Field	145
The Lookup Wizard	147
10 Relating the Information in Your Database	151
Introduction to Relational Database Design	152
The History of Relational Database Design.....	152
Goals of Relational Database Design	152
Rules of Relational Database Design	152
Normalization and Normal Forms	154
Denormalization: Purposely Violating the Rules	158
Integrity Rules.....	158
The Types of Relationships	159
One-to-Many Relationships.....	159
One-to-One Relationships.....	160
Many-to-Many Relationships.....	161
Establishing Relationships in Access	161
Following Guidelines for Establishing Relationships.....	162
Modifying an Existing Relationship	164
Establishing Referential Integrity	164
The Cascade Update Related Fields Option	166
The Cascade Delete Related Records Option	167
11 Enhancing the Queries That You Build.....	171
Everything You Ever Needed to Know About Query Basics.....	172
Removing a Field from the Query Design Grid.....	172
Inserting a Field After a Query Is Built.....	172
Moving a Field to a Different Location on the Query Grid.....	173
Move More Than One Column.....	173
Updating Query Results.....	173
Update Results of a Query	174
Building Queries Based on Multiple Tables.....	174
Pitfalls of Multitable Queries.....	176
AutoLookup in Multitable Queries.....	177
Modifying the Datasheet View of a Query.....	178
Printing Query Results	181

Refining a Query by Using Criteria.....	184
Working with Dates in Criteria.....	185
12 Advanced Query Techniques.....	189
Creating Calculated Fields.....	190
Getting Help from the Expression Builder.....	191
Creating and Running Parameter Queries.....	192
Creating and Running Action Queries.....	194
Creating and Running Update Queries.....	195
Creating and Running Delete Queries.....	197
Creating and Running Append Queries.....	198
Creating and Running Make Table Queries.....	201
Using Aggregate Functions to Summarize Numeric Data.....	202
Creating Totals Queries.....	203
Working with Outer Joins.....	206
Establish an Outer Join.....	206
13 Building Powerful Forms.....	209
Power Control Techniques.....	210
Add Fields to a Form.....	210
Selecting, Moving, Aligning, and Sizing Form Objects.....	211
Modifying Object Tab Order.....	219
Conditional Formatting.....	219
Conditionally Format Data.....	220
Form Properties and Why Should You Use Them.....	221
Working with the Properties Window.....	221
Working with the Important Form Properties.....	222
Control Properties and Why to Use Them.....	227
The Format Properties of a Control.....	227
The Data Properties of a Control.....	230
The Other Properties of a Control.....	233
14 Advanced Form Techniques.....	237
Working with Combo Boxes.....	238
List Boxes.....	241
The Command Button Wizard: Programming Without Typing.....	241

Building Forms Based on More Than One Table	244
Creating One-to-Many Forms.....	244
Working with Subforms	247
15 Building Powerful Reports	251
The Anatomy of a Report.....	252
Control Properties and Why to Use Them	253
The Format Properties of a Control	253
The Data Properties of a Control	258
The Other Properties of a Control	258
Building Reports Based on More Than One Table	260
Creating One-to-Many Reports.....	260
Working with Subreports.....	266
16 Advanced Report Techniques.....	269
Working with Sorting and Grouping	270
Add Sorting and Grouping to a Report.....	270
Sorting and Grouping Settings.....	271
Group Header and Footer Properties and Why to Use Them	273
Report Properties and Why to Use Them.....	274
Working with the Properties Window	275
The Format Properties of a Report	275
The Report's Data Properties.....	276
Other Properties of a Report	277
Basing Reports on Stored Queries or Embedded SQL Statements	278
17 Automating Your Database with Macros	281
Learning the Basics of Creating and Running a Macro.....	282
Working with Macro Actions.....	282
Working with Action Arguments.....	284
Submacros.....	286
Program Flow.....	287
Running an Access Macro	289
Running a Macro from the Macro Design Window.....	290
Running a Macro from the Macros Group of the Navigation Pane.....	290
Triggering a Macro from a Form or Report Event.....	291
Modifying an Existing Macro	292
Inserting New Macro Actions.....	292
Deleting Macro Actions.....	292

Moving Macro Actions.....	293
Copying Macro Actions.....	293
Creating an Embedded Macro	294
18 Advanced Macro Techniques.....	299
Creating Data Macros.....	300
Respond to Events	300
Creating a Drillthrough Macro	301
Other New Features Available in Macros.....	304
Testing a Macro.....	305
Determining When You Should Use Macros and When You Shouldn't.....	306
Converting a Macro to VBA Code	307
Creating an AutoExec Macro	308
19 Sharing Data with Other Applications.....	311
What Is External Data?.....	312
Importing, Linking, and Opening Files: When and Why	312
Determining Whether to Import or Link	313
Looking at Supported File Formats.....	314
Exporting to Another Access Database	314
Exporting to an Excel Spreadsheet.....	316
Exporting to an Excel Spreadsheet Using the Context-Sensitive Menu.....	316
Exporting to an Excel Spreadsheet Using Drag and Drop.....	317
Exporting to an Excel Spreadsheet by Using the External Data Tab on the Ribbon	318
Exporting to ASCII.....	318
Export Tables and Queries to the ASCII File Format.....	318
Importing from Another Access Database	321
Import an Access Table	322
Importing Spreadsheet Data.....	323
Importing ASCII Data	326
Import ASCII Data into Access	326

Linking to Tables in Another Access Database.....	329
Linking to Another Type of Database.....	331
Link to Excel Spreadsheets	331
Linking to SQL Server Databases.....	333
The Linked Table Manager	338
Move and Update Table Links.....	338
20 Working with Web Databases.....	343
Working with Web Databases.....	344
Creating a Blank Web Database.....	344
Creating a Query.....	346
Creating and Working with Forms.....	349
Creating a New Form	350
Customizing an Existing Form	354
Using a Template to Create a Website	357
Viewing Your Website in a Browser	358
21 Putting It All Together.....	363
Designing the Tables to Store Your Data.....	364
Building the Forms to Edit Your Data.....	369
Designing the Clients Form	369
Designing the Projects Form	372
Adding a Command Button That Links the Clients and Projects Forms.....	374
Building the Queries to Extract the Data You Need.....	375
Designing the Reports to Display Your Data	377
Designing the rptClientListing Report	377
Building the Macros Necessary to Automate Your Application.....	380
Index	383

About the Author

Alison Balter is the president of InfoTech Services Group, Inc., a computer consulting firm based in Newbury Park, California. Alison is a highly experienced independent trainer and consultant specializing in Windows applications training and development. During her 28 years in the computer industry, she has trained and consulted with many corporations and government agencies. Since Alison founded InfoTech Services Group, Inc. (formerly Marina Consulting Group) in 1990, its client base has expanded to include major corporations and government agencies such as Cisco, Shell Oil, Accenture, Northrop, the U.S. Drug Enforcement Administration, Prudential Insurance, Transamerica Insurance, Fox Broadcasting, the U.S. Navy, the University of Southern California, Massachusetts Institute of Technology, and others.

Alison is the author of more than 300 internationally marketed computer training videos and CD-ROMs, including 18 Access 2000 videos, 35 Access 2002 videos, 15 Access 2003 videos, 14 Access 2007 User Videos, and 18 Access 2007 Developer Videos. Alison travels throughout North America giving training seminars on Microsoft Access, Microsoft SQL Server, and Visual Basic for Applications.

Alison is also the author of 13 books published by Sams Publishing: *Alison Balter's Mastering Access 95 Development*, *Alison Balter's Mastering Access 97 Development*, *Alison Balter's Mastering Access 2000 Development*, *Alison Balter's Mastering Access 2002 Desktop Development*, *Alison Balter's Mastering Access 2002 Enterprise Development*, *Alison Balter's Mastering Microsoft Access Office 2003*, *Teach Yourself Microsoft Office Access 2003 in 24 Hours*, *Access Office 2003 in a Snap*, *Alison Balter's Mastering Access 2007 Development*, three e-books on Microsoft Access 2007, and *Teach Yourself SQL Express 2005 in 24 Hours*. Alison is a co-author of three Access books published by Sams Publishing: *Essential Access 95*, *Access 95 Unleashed*, *Access 97 Unleashed*, and *Using Microsoft Access 2010*.

An active participant in many user groups and other organizations, Alison is a past president of the Independent Computer Consultants Association of Los Angeles and of the Los Angeles Clipper Users' Group. She served as president of the Ventura County Professional Women's Network for 2 years.

Alison's firm, InfoTech Services Group, Inc., is available for consulting work and onsite training in Microsoft Access, Visual Studio .NET, and SQL Server, as well as for Windows Server 2008, Windows Vista, Windows XP, Windows 7, Windows 8, PC networking, and Microsoft Exchange Server. You can contact Alison by email at Alison@TechIsMyThing.com, or visit the InfoTech Services Group website at <http://www.TechIsMyThing.com>.

Dedication

Many people are important in my life, but there is no one as special as my husband Dan. I dedicate this book to Dan. Thank you for your ongoing support, for your dedication to me, for your unconditional love, and for your patience. Without you, I'm not sure how I would make it through life. Thank you for sticking with me through the good times and the bad! There's nobody I'd rather spend forever with than you.

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We Want to Hear from You!

As the reader of this book, *you* are our most important critic and commentator. We value your opinion and want to know what we're doing right, what we could do better, what areas you'd like to see us publish in, and any other words of wisdom you're willing to pass our way.

We welcome your comments. You can email or write to let us know what you did or didn't like about this book—as well as what we can do to make our books better.

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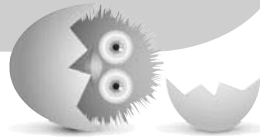
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INTRODUCTION



Who Should Read This Book

This book is for anyone comfortable using a personal computer who needs to collect and manipulate information. Experience with Microsoft Access 2013 or an earlier version of Access is helpful, but not necessary. This book takes you from the basic techniques on how to use Microsoft Access 2013 to a strong intermediate level. After reading this book, you should be comfortable creating and working with databases and the objects that they contain.

How This Book Is Organized

This book starts by covering the basics of working with Microsoft Access. You learn the basics of working with databases, tables, queries, forms, and reports. After learning the basics, you are ready to move to more advanced features, where you learn how to build your own databases and tables and how to relate the tables within your database. You are then ready to embark on a journey through power query, form, and report techniques. During the home stretch, you learn about three exciting aspects

of Access 2013. You learn how to create macros, how to share data with other applications, and how to build a database that runs in a browser. Finally, you see how to put everything that you learned together and build a complete application.

Requirements, Editions, and Features

Microsoft hasn't dramatically increased the hardware requirements for Access 2013 compared to those for earlier versions of Access. Access 2013 runs on existing hardware as well as or even better than earlier versions of Access.

To be sure you can run Access 2013, here's a look at the basic hardware and operating system requirements:

- 1GHz or faster x86 or x64-bit processor
- 1GB of RAM (32 bit); 2GB of RAM (64 bit)
- 3GB available hard disk space
- 1024 × 576 resolution monitor
- Windows Server 2008 R2 (32 bit or 64 bit), Windows Server 2012, Windows 7, Windows 8, or later operating systems

Now take a peek at some of the techniques for using Access 2013 that you'll learn about:

- **Overview**—Chapter 1, "Why Use Microsoft Access," begins by teaching you about relational databases and what Microsoft Access 2013 offers. You preview the database components and see the types of things you can do with Microsoft Access. .
- **Getting started**—Chapter 2, "Getting Started with Microsoft Access," covers the process of creating your own database, both with and without a template. You learn how to view database objects, and how to perform important tasks such as how to open and close databases.
- **Table basics**—Chapter 3, "Tables: The Repository for Your Data," shows you how easy it is to work with data in Access. You learn how to add, edit, and delete table data. You also learn how to search for and filter data.
- **Retrieving the data you need**—Chapter 4, "Using Queries to Retrieve the Data You Need," shows you all the basics of working with queries. You learn techniques such as how to select fields, apply criteria, and order the query result.
- **Displaying data with forms**—Chapter 5, "Using Forms to Display and Modify Information," shows you how to manipulate table data from within a form.

You learn how to add, edit, and delete data and how to search and filter form data.

- **Creating forms**—Chapter 6, “Creating Your Own Forms,” shows you how to build forms using the AutoForm feature and the wizards. You learn about three important types of forms: Navigation, Split, and Multiple Item.
- **Printing data with reports**—Chapter 7, “Using Reports to Print Information,” first shows you how to open, view, and print an existing report. You learn important techniques such as how to zoom, move from page to page, and view multiple pages.
- **Creating Reports**—Chapter 8, “Building Your Own Reports,” shows you how to use the AutoReport feature and the wizards to build your own reports. You even learn how to design mailing labels!
- **Building tables**—Chapter 9, “Creating Your Own Tables,” covers the process of creating new tables. In this chapter, you learn important techniques such as how to select the best field type and how to work with field properties.
- **Relating the data in your database**—Chapter 10, “Relating the Information in Your Database,” shows you how to relate the tables that you build. After this chapter provides you with a crash course on database design, you learn how to establish relationships and how to enforce referential integrity.
- **More about queries**—Chapter 11, “Enhancing the Queries That You Build,” enhances what you learned about queries in Chapter 4. In this chapter, you learn how to build queries based on multiple tables. You also learn how to modify the datasheet view of a query and how to work with criteria in text, number, and date fields.
- **Advanced query techniques**—Chapter 12, “Advanced Query Techniques,” shows you how to add calculations to the queries that you build, how to run parameter queries when you don’t know the criteria at design time, and how to use action queries to update your table data. You also learn how and why to work with outer joins.
- **Working with forms**—Chapter 13, “Building Powerful Forms,” enhances what you learned about forms in Chapters 5 and 6. In this chapter, you learn how to work with form controls, how to apply conditional formatting, and how to modify form and control properties.
- **Advanced form techniques**—Chapter 14, “Advanced Form Techniques,” shows you how to work with combo boxes and the Command Button Wizard and how to build forms based on more than one table. You also learn how to work with subforms.

- **Working with reports**—Chapter 15, “Building Powerful Reports,” enhances what you learned about reports in Chapters 7 and 8. In this chapter you learn how to work with report bands, work with controls, build multitable reports, and work with subreports.
- **Advanced report techniques**—Chapter 16, “Advanced Report Techniques,” shows you how to add sorting and groupings to the reports that you build. You learn how to work with group header and footer properties and how to take advantage of report properties.
- **Using macros to automate your database**—Chapter 17, “Automating Your Database with Macros,” shows you how to automate the databases that you build. In this chapter, you learn important techniques such as how to create and run macros, how to control the flow of the macros that you build, and how to create submacros. You also learn how to take advantage of embedded macros.
- **Advanced macro concepts**—Chapter 18, “Advanced Macro Techniques,” shows you how to use data macros and drill through macros. You learn how to work with variables and error handling, and finally, you learn how to take advantage of a special macro: AutoExec.
- **Sharing data with other applications**—One of Access’s greatest strengths is its capability to share data with other applications. In Chapter 19, “Sharing Data with Other Applications,” you learn how to export data to and import data from Excel, text files, and other Access databases. You learn how to link to data in other databases, and how to use a powerful tool called the Linked Table Manager to manage the links that you create. As a special bonus, you learn how to link to data in a SQL Server database so that you can take advantage of Access’s strong capability to participate in a client/server environment.
- **Running your application in a web browser**—Chapter 20, “Working with Web Databases,” shows you how to take your database to the web. In this chapter, you learn about web databases and what they are. You learn how to build and modify web forms. Finally, you witness your completed application running in a web browser.
- **A complete application**—Chapter 21, “Putting it All Together,” shows you how to build a database, complete with all the necessary elements. You learn how to design the tables, queries, forms, reports, and macros that compose your completed database.

Whether it’s the new and exciting macro environment, or the ability to easily take Access data to the web, it won’t take long for you to get to know this new and

exciting version of Microsoft Access. Access 2013 is fast, stable, and extremely packed with new and thrilling features. *The Absolute Beginners Guild to Access 2013* is your personal guide to learning how to use Access 2013 and how to get the most out of what it has to offer.

Using This Book

This book enables you to customize your own learning experience. The step-by-step instructions give you a solid foundation in using Access 2013.

Here's a quick look at a few structural features designed to help you get the most out of this book.

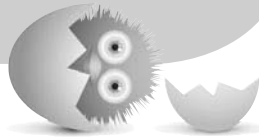
- **Chapter objectives**—At the beginning of each chapter is a brief summary of topics addressed in that chapter. The objectives enable you to quickly see what is covered in the chapter.
- **The Absolute Minimum**—Each chapter ends with a section called “The Absolute Minimum.” Rather than just providing a review of what you just learned, this section consolidates the key points in the chapter and often adds a few ideas not covered in the body of the chapter.

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IN THIS CHAPTER

- So what exactly is a relational database?
- What sorts of things can I use Microsoft Access for?
- What composes an Access database?

1



WHY USE MICROSOFT ACCESS?

In this chapter, you learn what a relational database is. You then explore all the types of objects available in Microsoft Access. You are exposed to tables, relationships, queries, forms, reports, and modules. You then discover some of the exciting things you can do with Access. With that information under your belt, you will be ready to dive into the exciting world of working with Microsoft Access.

What Is a Relational Database?

The term database means different things to different people. For many years, in the world of the older database technologies, database was used to describe a collection of fields and records. Access refers to this type of collection as a *table*. In Access terms, a *database* is a collection of all the tables, queries, forms, reports, macros, and modules that compose a complete system. *Relational* refers to concepts based on set theory. These concepts are covered in Chapter 10, "Relating the Information in Your Database."

What Types of Things Can I Do with Microsoft Access?

Access offers a variety of features for different database needs. You can use it to develop five general types of applications:

- Personal applications
- Small-business applications
- Departmental applications
- Corporation-wide applications
- Front-end applications for enterprisewide client/server databases
- Web applications
- Access as a development platform for personal applications

At a basic level, you can use Access to develop simple, personal database-management systems. Some people automate everything from their wine collections to their home finances. The one thing to be careful of is that Access is deceptively easy to use. Its wonderful built-in wizards make Access look like a product that anyone can use. After answering a series of questions, you have finished application switchboards that enable you to easily navigate around your application, data-entry screens, reports, and the underlying tables that support them. Actually, when Microsoft first released Access, many people asked whether the author was concerned that her business as a computer programmer and trainer would diminish because Access seemed to let absolutely anyone write a database application. Although it's true that you can produce the simplest of Access applications without any thought for design and without any customization, most applications require at least some design and customization.

If you're an end user and don't want to spend too much time learning the intricacies of Access, you'll be satisfied with Access as long as you're happy with a wizard-generated personal application. After reading this text, you can make some modifications to what the wizards have generated, and no problems should occur. It's when you want to substantially customize a personal application without the proper knowledge base that problems can happen.

Access as a Development Platform for Small-Business Applications

Access is an excellent platform for developing an application that can run a small business. Its wizards let you quickly and easily build the application's foundation. The ability to create macros and to build code modules allows power users and developers to create code libraries of reusable functions, and the ability to add code behind forms and reports allows them to create powerful custom forms and reports.

The main limitation of using Access for developing a custom small-business application is the time and money involved in the development process. Many people use Access wizards to begin the development process but find they need to customize their applications in ways they can't accomplish on their own. Small-business owners often experience this problem on an even greater scale than personal users. The demands of a small-business application are usually much higher than those of a personal application. Many doctors, attorneys, and other professionals have called the author after they reached a dead end in the development process. They're always dismayed at how much money it will cost to make their application usable. An example is a doctor who built a series of forms and reports to automate her office. All went well until it came time to produce patient billings, enter payments, and produce receivable reports. Although at first glance these processes seem simple, on further examination the doctor realized that the wizard-produced reports and forms did not provide the sophistication necessary for her billing process. Unfortunately, the doctor did not have the time or programming skills to add the necessary features. So, in using Access as a tool to develop small-business applications, you must be realistic about the time and money involved in developing anything but the simplest of applications.

Access as a Development Platform for Departmental Applications

Access is perfect for developing applications for departments in large corporations. Most departments in large corporations have the development budgets to produce well-designed applications.

Fortunately, most departments also usually have a PC guru who is more than happy to help design forms and reports. This gives the department a sense of ownership because it has contributed to the development of its application. If complex form, report design, or coding is necessary, large corporations usually have on-site resources available that can provide the necessary assistance. If the support is not available within the corporation, most corporations are willing to outsource to obtain the necessary expertise.

Access as a Development Platform for Corporation-Wide Applications

Although Access might be best suited for departmental applications, you can also use it to produce applications that you distribute throughout an organization. How successful this endeavor is depends on the corporation. There's a limit to the number of users who can concurrently share an Access application while maintaining acceptable performance, and there's also a limit to the number of records that each table can contain without a significant performance drop. These numbers vary depending on factors such as the following:

- How much traffic already exists on the network.
- How much RAM and how many processors the server has.
- How the server is already being used. For example, are applications such as Microsoft Office being loaded from the server or from local workstations?
- What types of tasks the users of the application are performing. For example, are they querying, entering data, running reports, and so on?
- Where Access and Access applications are run from (the server or the workstation).
- What network operating system is in place.

The author's general rule of thumb for an Access application that's not client/server-based is that poor performance generally results with more than 10 to 15 concurrent users and more than 100,000 records. Remember that these numbers vary immensely depending on the factors mentioned and on what you and the other users of the application define as acceptable performance. If you go beyond these limits, you should consider using Access as a front end to a client/server database such as Microsoft SQL Server—that is, you can use Access to create forms and reports while storing tables and possibly queries on the database server.

Access as a Front End for Enterprisewide Client/Server Applications

A client/server database, such as Microsoft SQL Server or Oracle, processes queries on the server machine and returns results to the workstation. The server software can't display data to the user, so this is where Access comes to the rescue. Acting as a front end, Access can display the data retrieved from the database server in reports, datasheets, or forms. If the user updates the data in an Access form, the workstation sends the update to the back-end database. You can accomplish this process either by linking to these external databases so that they appear to both you and the user as Access tables or by using techniques to access client/server data directly.

Access as a Tool to Develop Web Applications

Introduced with Access 2010 was the ability for you to use Access to build web applications, which are applications that can run in a browser. Access's web capabilities have been greatly enhanced in Access 2013. Chapter 20, "Working with Web Databases," cover the intricacies of designing and building a web database.

A Preview of the Database Components

As mentioned previously, tables, queries, forms, reports, macros, and modules combine to compose an Access database. Each of these objects has a special function. The following sections take you on a tour of the objects that make up an Access database. The examples use the sample Northwind database to illustrate the use of each object. If you want to follow along, you can create the Northwind database as covered in Chapter 2, "Getting Started with Microsoft Access." You can log in as any user, which will take you to the Home form. Close the Home form to follow along.

Tables: A Repository for Data

Tables are the starting point for an application. Whether data is stored in an Access database or you reference external data (such as data in an Excel spreadsheet) by using linked tables, all the other objects in a database either directly or indirectly reference tables.

To view all the tables that are contained in an open database, you select Tables from the list of objects available in the database (see Figure 1.1). A list of available tables appears (see Figure 1.2).

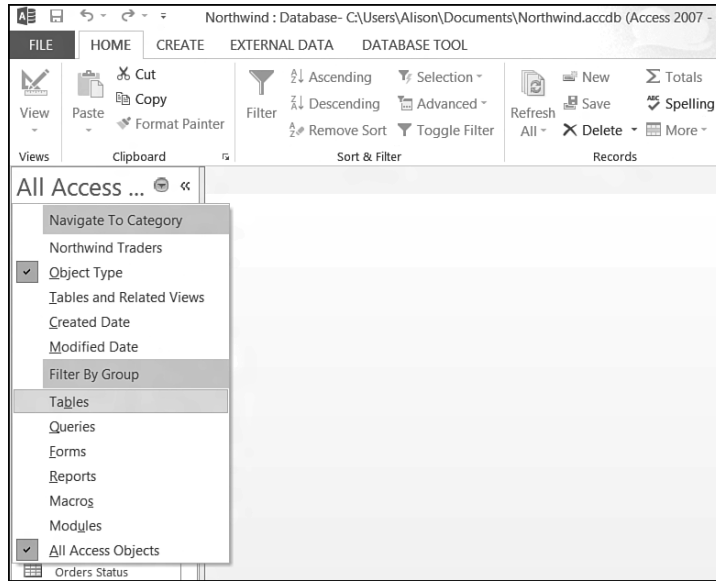


FIGURE 1.1

To view the tables in a database, select Tables from the list of available objects.

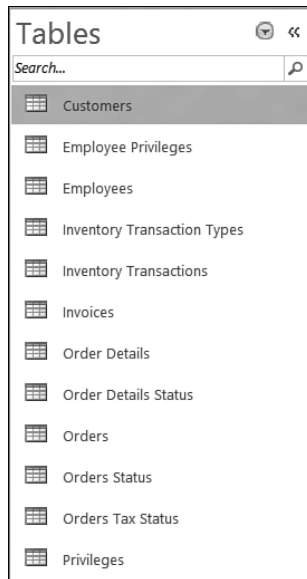


FIGURE 1.2

You can view the tables contained in a database.

To view the data in a table, double-click the name of the table you want to view. (You can also right-click the table and then select Open.) Access displays the table's data in a datasheet that includes all the table's fields and records (see Figure 1.3). You can modify many of the datasheet's attributes and even search for and filter data from within the datasheet; these techniques are covered later in this chapter.

ID	Company	Last Name	First Name	E-mail Address	Job Title	Business Pho
1	Company A	Bedecks	Anna		Owner	(123)555-0100
2	Company B	Gratacos Solsor	Antonio		Owner	(123)555-0100
3	Company C	Axen	Thomas		Purchasing Representativ	(123)555-0100
4	Company D	Lee	Christina		Purchasing Manager	(123)555-0100
5	Company E	O'Donnell	Martin		Owner	(123)555-0100
6	Company F	Pérez-Olaeta	Francisco		Purchasing Manager	(123)555-0100
7	Company G	Xie	Ming-Yang		Owner	(123)555-0100
8	Company H	Andersen	Elizabeth		Purchasing Representativ	(123)555-0100
9	Company I	Mortensen	Sven		Purchasing Manager	(123)555-0100
10	Company J	Wacker	Roland		Purchasing Manager	(123)555-0100
11	Company K	Krschne	Peter		Purchasing Manager	(123)555-0100
12	Company L	Edwards	John		Purchasing Manager	(123)555-0100
13	Company M	Ludick	Andre		Purchasing Representativ	(123)555-0100
14	Company N	Grilo	Carlos		Purchasing Representativ	(123)555-0100
15	Company O	Kupkova	Helena		Purchasing Manager	(123)555-0100

FIGURE 1.3

A table's datasheet contains fields and records.

If the table is related to another table (such as the Northwind database's Customers and Orders tables), you can also expand and collapse the subdatasheet to view data stored in child tables (see Figure 1.4).

ID	Company	Last Name	First Name	E-mail Address	Job Title	Business Pho																																																																											
1	Company A	Bedecks	Anna		Owner	(123)555-0100																																																																											
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FIGURE 1.4

Datasheet view of the Customers table in the Northwind database.

As an Access user, you often want to view the table's design, which is the blueprint or template for the table. To view a table's design (see Figure 1.5), right-click the table name in the Navigation Pane, and then select Design View. In Design view, you can view or modify all the field names, data types, and field and table properties. Access gives you the power and flexibility you need to customize the design of tables. Chapter 3, "Tables: The Repository for Your Data," and Chapter 9, "Creating Your Own Tables," cover these topics.

Field Name	Data Type	Description (Optional)
Company	AutoNumber	
Last Name	Short Text	
First Name	Short Text	
E-mail Address	Short Text	
Job Title	Short Text	
Business Phone	Short Text	
Home Phone	Short Text	
Mobile Phone	Short Text	
Fax Number	Short Text	
Address	Long Text	
City	Short Text	
State/Province	Short Text	
ZIP/Postal Code	Short Text	
Country/Region	Short Text	
Web Page	Hyperlink	
Notes	Long Text	
Attachments	Attachment	

Field Properties	
General	Lookup
Field Size	Long Integer
New Values	Increment
Format	
Caption	
Indexed	Yes (No Duplicates)
Text Align	General

A field name can be up to 64 characters long, including spaces. Press F1 for help on field names.

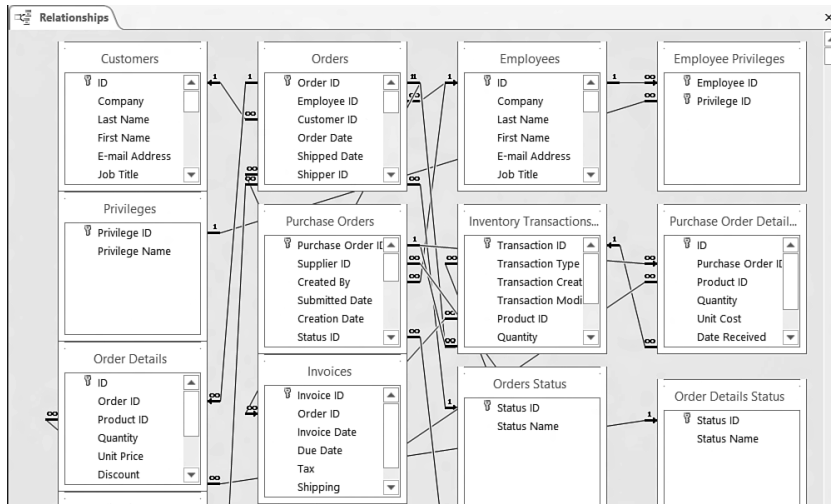
FIGURE 1.5

The design of the Customers table.

Relationships: Tying the Tables Together

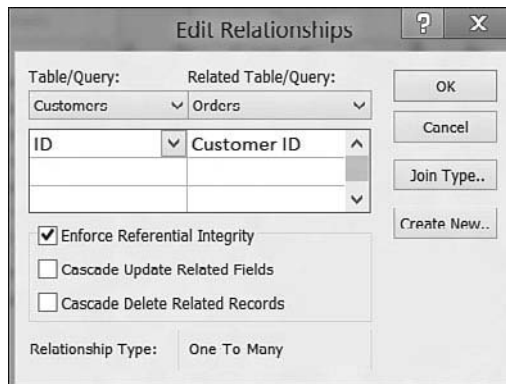
To properly maintain data's integrity and ease the process to work with other objects in a database, you must define relationships among the tables in a database. You accomplish this by using the Relationships window. To view the Relationships window, select Relationships from the Database Tools tab of the Ribbon. The Relationships window appears. In this window, you can view and maintain the relationships in the database (see Figure 1.6). If you or a fellow user or developer have set up some relationships, but you don't see any in the Relationships window, you can select All Relationships in the Relationships group on the Design tab of the Ribbon to unhide any hidden tables and relationships.

Many of the relationships in Figure 1.6 have join lines between tables and show a number 1 on one side of the join and an infinity symbol on the other. This indicates a one-to-many relationship between the tables. If you double-click a join line, the Edit Relationships dialog box opens (see Figure 1.7). In this dialog box,

**FIGURE 1.6**

The Relationships tab, where you view and maintain the relationships in a database.

you can specify the exact nature of the relationship between tables. The relationship between the Customers and Orders tables in Figure 1.7, for example, is a one-to-many relationship with referential integrity enforced. This means that the user cannot add orders for customers who don't exist. Notice in Figure 1.7 that the Cascade Update Related Fields check box is not selected. This means that if the user cannot update the CustomerID field. Because Cascade Delete Related Records is not checked in Figure 1.7, the user cannot delete from the Customers table customers who have corresponding orders in the Orders table.

**FIGURE 1.7**

The Edit Relationships dialog box, which enables you to specify the nature of the relationships between tables.

Chapter 10 extensively covers the process to define and maintain relationships. For now, you should establish relationships both conceptually and literally as early in the design process as possible. Relationships are integral to successfully design and implement your application.

Queries: Stored Questions or Actions You Apply to Data

Queries in Access are powerful and multifaceted. A query retrieves data from your database based on criteria you specify. An example is a query that retrieves all employees who live in Florida. Select queries enable you to view, summarize, and perform calculations on the data in tables. Action queries enable you to add to, update, and delete table data. To run a query, first close the Relationship window if you still have it open. Next select Queries from the Objects list and then double-click the query you want to run. Or you can click in the list of queries to select the query you want to run and then right-click and select Open. When you run a Select query, a datasheet appears, containing all the fields specified in the query and all the records meeting the query's criteria (see Figure 1.8). When you run an Action (Append, Update, Delete, or Make Table) query, Access runs the specified action, such as making a new table or appending data to an existing table. In general, you can update the data in a query result because the result of a query is actually a dynamic set of records, called a *dynaset*, based on the tables' data. A dynaset is a subset of data on which you can base a form or report.

Product	Order ID	Order Date	Shipped Date	Customer	Quantity	Unit Price
Northwind Traders Dried Plums	30	1/15/2006	1/22/2006	Company AA	30	\$3.50
Northwind Traders Beer	30	1/15/2006	1/22/2006	Company AA	100	\$14.00
Northwind Traders Dried Pears	31	1/20/2006	1/22/2006	Company D	10	\$30.00
Northwind Traders Dried Apples	31	1/20/2006	1/22/2006	Company D	10	\$53.00
Northwind Traders Dried Plums	31	1/20/2006	1/22/2006	Company D	10	\$3.50
Northwind Traders Chai	32	1/22/2006	1/22/2006	Company L	15	\$18.00
Northwind Traders Coffee	32	1/22/2006	1/22/2006	Company L	20	\$46.00
Northwind Traders Chocolate Biscuit	33	1/30/2006	1/31/2006	Company H	30	\$9.20
Northwind Traders Chocolate Biscuit	34	2/6/2006	2/7/2006	Company D	20	\$9.20
Northwind Traders Chocolate	35	2/10/2006	2/12/2006	Company CC	10	\$12.75
Northwind Traders Clam Chowder	36	2/23/2006	2/25/2006	Company C	200	\$9.65

FIGURE 1.8

The result of running the Product Orders query.

When you store a query, Access stores only the query's definition, layout, or formatting properties in the database. Access offers an intuitive, user-friendly tool that helps you design queries: the Query Design window (see Figure 1.9). To open this window, select Queries from the Objects list in the Navigation Pane, choose the query you want to modify, right-click, and select Design View.

The query pictured in Figure 1.9 selects data from the Customers table. It displays the Company, Job Title, Work Phone, Home Phone, and Mobile Phone from the Customers table. Chapter 4, “Using Queries to Retrieve the Data You Need,” Chapter 11, “Enhancing the Queries That You Build,” and Chapter 12, “Advanced Query Techniques,” cover the process of designing queries. Because queries are the foundation for most forms and reports, they are covered throughout this book as they apply to other objects in the database.

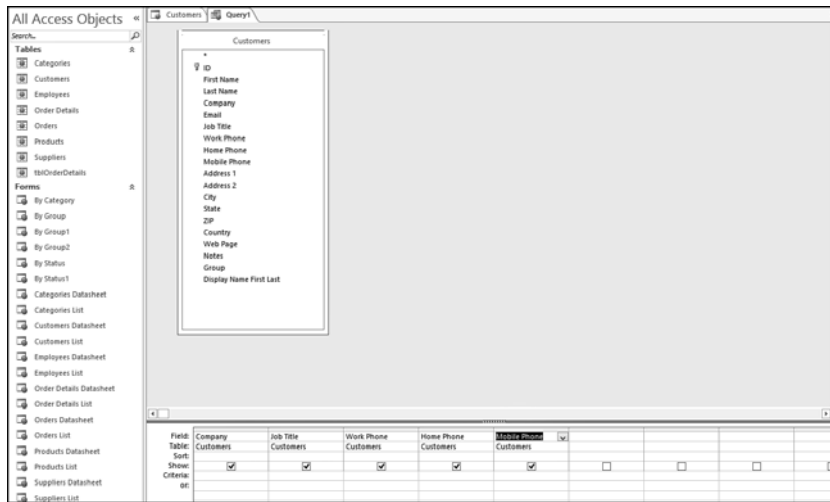


FIGURE 1.9

The design of a query that selects data from the Customers table.

Forms: A Means to Display, Modify, and Add Data

Although you can enter and modify data in a table’s Datasheet view, you can’t control the user’s actions very well, nor can you do much to facilitate the data-entry process. This is where forms come in. Access forms can have many traits, and they’re flexible and powerful.

To view a form, you select Forms from the Objects list. Then you double-click the form you want to view or right-click in the list of forms to select the form you want to view and then click Open. Figure 1.10 illustrates a form in Form view. This Customer Details form is actually two forms in one: one main form and one subform. The main form displays information from the Customers table, and the subform displays information from the Orders table (a table related to the Customers table). As the user moves from customer to customer, the form displays the orders associated with that customer. When the user clicks to select an order, the form displays the entire order.

FIGURE 1.10

The Customer Details form, which includes customer, order, and order detail information.

Like tables and queries, you can also view forms in Design view. The Design view provides tools you may use to edit the layout of your form. To view the design of a form, you select Forms from the Objects list, choose the form whose design you want to modify, and then right-click and select Design View. Figure 1.11 shows the Customer Details form in Design view. Chapter 5, “Using Forms to Display and Modify Information,” Chapter 13, “Building Powerful Forms,” and Chapter 14, “Advanced Form Techniques,” cover forms in more detail.

Reports: Turning Data into Information

Forms enable you to enter and edit information, but with reports, you can display information, usually to a printer. Figure 1.12 shows a report in Preview mode. To preview any report, select Reports from the Objects list. Double-click the report you want to preview or right-click the report want to preview from the list of reports in the Navigation Pane, and then click Open. Notice the report in Figure 1.12. It shows the Monthly Sales Report which outputs the sales by product for a month. If you attempt to run this report, Access loads the Sales Reports Dialog form. Here you select how you want to view the sales, the sales period, and the year, quarter, or month as appropriate. For the example, I selected Sales by Product, Monthly Sales, 2006 for the year, and June for the month. Like forms, reports can be elaborate and exciting, and they can contain valuable information.

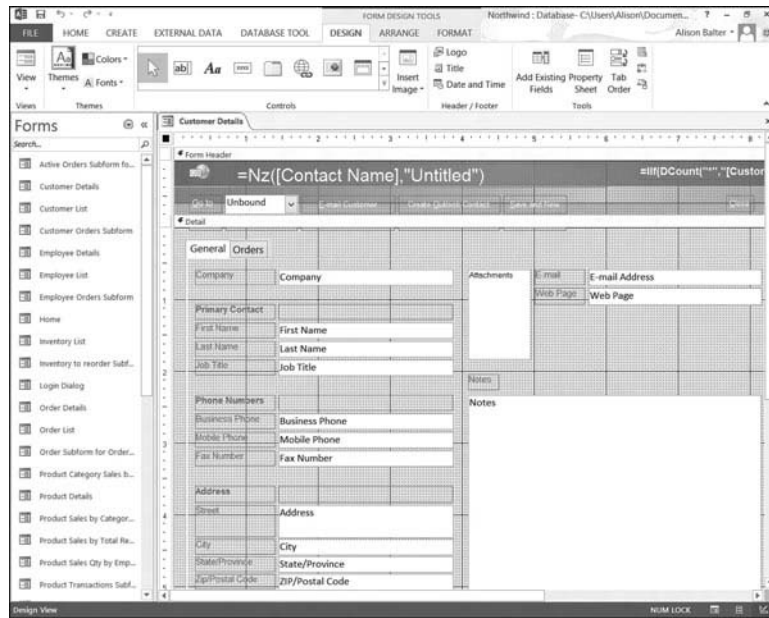


FIGURE 1.11

The design of the Customer Details form.

The screenshot shows a preview of a report titled 'Monthly Sales Report'. The report is dated Wednesday, August 22, 2012, at 5:20:35 PM. The report content is as follows:

Product	Sales
Northwind Traders Boysenberry Spread	\$2,250.00
Northwind Traders Dried Apples	\$1,590.00
Northwind Traders Fruit Cocktail	\$1,560.00
Northwind Traders Chocolate	\$1,020.00
Northwind Traders Dried Pears	\$900.00
Northwind Traders Cajun Seasoning	\$660.00
Northwind Traders Coffee	\$230.00
Northwind Traders Clam Chowder	\$96.50
June Sales Total	\$8,306.50

Page 1 of 1

FIGURE 1.12

A preview of the Monthly Sales report.

As you may have guessed, you can view reports in Design view, as shown in Figure 1.13. To view the design of a report, select Reports from the Objects list, select the report you want to view, and then right-click and select Design View. Figure 1.13 illustrates a report with many sections; in the figure, which shows the Design view of the Invoice report, you can see the Page Header, Order ID Header,

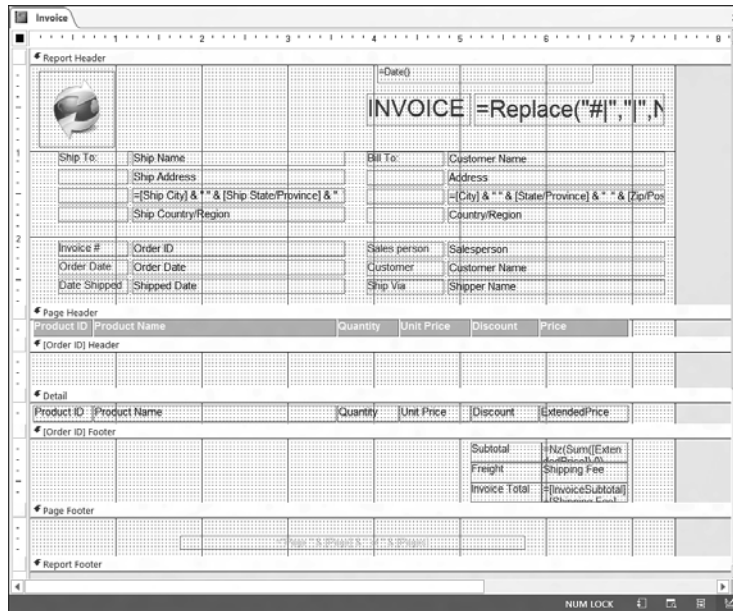


FIGURE 1.13

Design view of the Invoice report.

Detail section, Order ID Footer, and Page Footer (just a few of the many sections available on a report). Just as a form can contain subforms, a report can contain subreports. Chapter 7, “Using Reports to Print Information,” Chapter 15, “Building Powerful Reports,” and Chapter 16, “Advanced Report Techniques,” cover the process of designing reports.

Macros: A Means of Automating a System

Macros in Access aren’t like the macros in other Office products. You can’t record them, as you can in Microsoft Word or Excel, and Access does not save them as Visual Basic for Applications (VBA) code. With Access macros, you can perform most of the tasks that you can manually perform from the keyboard, Ribbon, and QuickAccess toolbar. Macros enable you to build logic in to your application flow.

To run a macro, select Macros from the Objects list, and then double-click the macro you want to run. Or you can right-click the macro and click Run. Access then executes the actions in the macro. To view a macro’s design, you select Macros from the Objects list, select the macro you want to modify, right-click, and select Design View to open the Macro Design window (see Figure 1.14). The macro pictured in Figure 1.14 opens the form called Startup Screen, and then opens the form called Login Dialog. Chapter 17, “Automating Your Database with

Macros,” and Chapter 18, “Advanced Macro Techniques,” cover the process of building and working with macros.

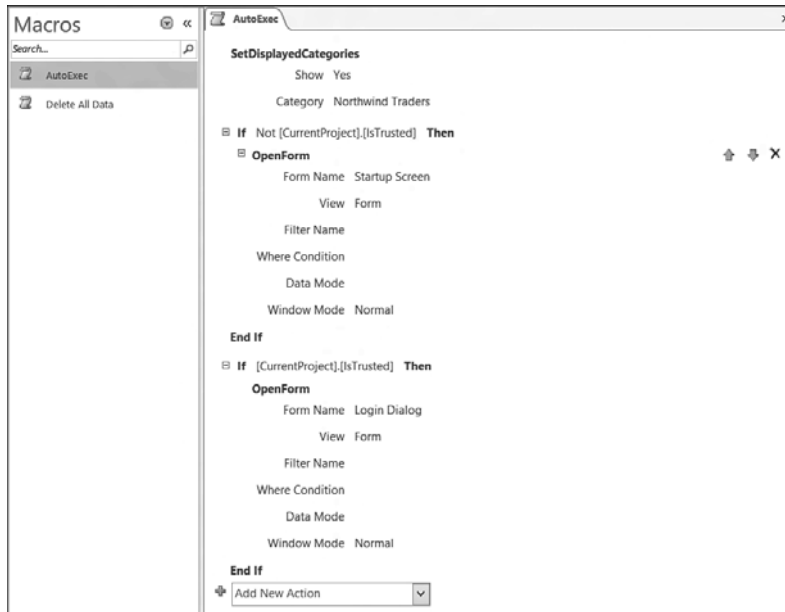


FIGURE 1.14

The design of a macro that opens two forms.

Modules: The Foundation of the Application Development Process

Modules, the foundation of any complex Access application, enable you to create libraries of functions that you can use throughout an application. You usually include subroutines and functions in the modules that you build. A function always returns a value; a subroutine does not. By using code modules, you can do just about anything with an Access application. Figure 1.15 shows an example of a module called PurchaseOrders. You can double-click the module in the Navigation Pane to access the module code. This will take you to the Visual Basic Editor (VBE) where you can view and modify the programming code. To return to the Access environment, click the View Microsoft Access toolbar button, or use the Alt-F11 keystroke combination.

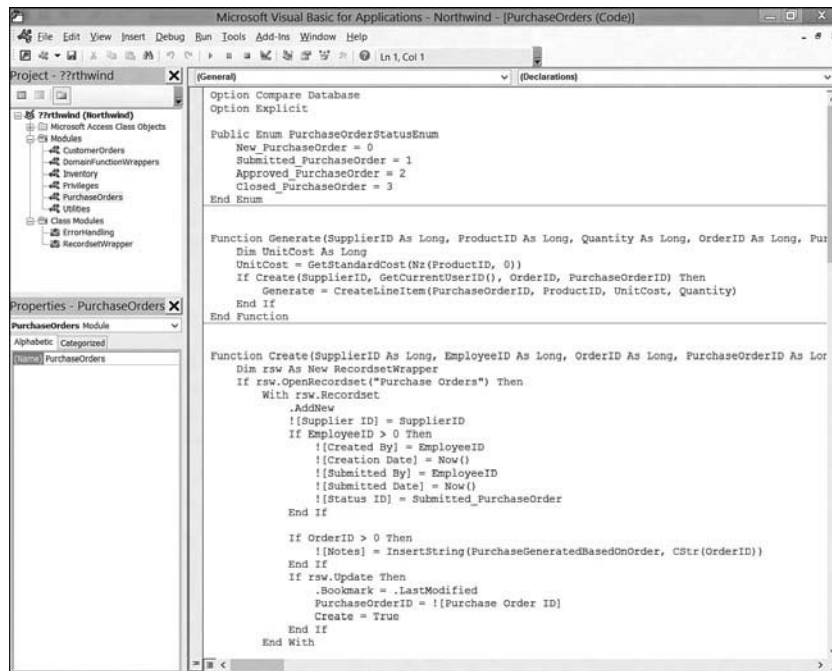


FIGURE 1.15

The PurchaseOrders module in Design view, showing the General Declarations section and the Generate and Create functions.

THE ABSOLUTE MINIMUM

With this chapter under your belt, you should now have a clear understanding of what a database is and how you can benefit from using Microsoft Access. Access is a wonderful tool to manage any type of data. As you learned in the chapter, you can use it for anything from managing your exercise history to gathering data over the Internet.

Access databases are composed of tables and other objects. The tables contain columns and rows. The columns are called *fields*, and the rows are called records. Each field contains specific information about a *record*. For example, the City field contains the city associated with a customer.

As you saw, Access is a relational database. Quite simply stated, this means that the tables in an Access database usually relate to one another. For example, the Customers table relates to the Orders table in that each order is associated with an existing customer. If you take advantage of referential integrity between tables, you cannot add an order unless it is associated with an existing customer.

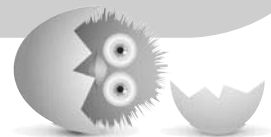
After you create tables and relate them, you need to insert, edit, and delete table data. You can accomplish this using Access forms, which can be rich in design and features.

Whereas you modify table data using forms, you view table data using reports. Reports are designed to be viewed on the screen or sent to a printer.

Forms and reports are often based on queries. Select queries return specific rows and columns of data. You can designate criteria so that you get just the data that you need. Whereas select queries return data, action queries modify data. Action queries include insert, update, delete, and make table queries.

Finally, macros and modules enable you to automate the applications that you build. Using macros and modules you can automate tasks that you would usually perform on the keyboard. You can also use macros and modules to validate data. For example, you can use a macro, or programming code, to ensure that if a credit card is selected as the type of payment, that the user enters a credit card number.

All the concepts in this chapter are developed throughout the book. Now that you have an idea what Access is all about, you can jump in and start using it.



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Index

A

Access

- features of, 8-9
 - development platform for corporation-wide applications, 10
 - development platform for departmental applications, 9
 - development platform for small-business applications, 9
 - front end for enterprise-wide client/server applications, 11
 - tool to develop web applications, 11
- limitations of, 9

Action queries

- Append queries, 198-200
- Make Table queries, 201-202

adding

- fields to queries, 55
- records to tables, 41

aggregate functions, summarizing numeric data, 202-203

Allow AutoCorrect property, 234

Allow Zero Length property, 144

And condition, 59, 185

Append queries, 198-200

application creation. See database application creation

Attachment fields, 134

AutoExec macro, creating, 309

AutoLookup, multitable queries, 177-179

AutoNumber fields, 133

AutoReport feature, creating reports, 110

Auto Tab property, 234

B

Bottom Margin property, 229

C

Calculated fields, 135

Cancel property, 235

Caption property, 141

ClientListing report, 377-378

Clients form

- designing, 369-372
- linking with Projects form, 374

Clients table, 364-365

closing

- queries, 66
- reports, 105

columns, moving more than one at a time, 173

command buttons for linking forms, 374

comparison operators, 62

components of databases, 11 - forms, 17-18 - macros, 20-21

modules, 21

- queries, 16-17
- relationships, 14-16
- reports, 18-20
- tables, 11-14

conditional formatting, 219-221

Conditional Formatting dialog, 220

conditions, multiple conditions (criteria), 58-62

ContactType table, 367

controlling object spacing in forms, 217

control properties

- Data properties, 232-233
- Other properties, 258

controls, Other properties, 233-235

ControlTip Text property, 235

criteria, 57

- refining queries, dates, 185-186
- refining queries, 184-185

criteria

- exact match queries, 57-58
- multiple conditions, 58-62

Currency fields, 133

custom display formats, creating, 140

Customer Details form, 19

Custom Format property, 141

customizing Navigation forms, 93-95

D

- data
 - conditionally formatting, 220-221
 - editing underlying data in forms, 70
 - filtering in forms, 82
 - numeric data, summarizing with aggregate functions, 202-203
 - replacing in tables, 45-46
 - selecting field types for, 129-132
- database application
 - creation, 363
 - form design, 369
 - Clients form, 369-372
 - linking Clients and Projects forms, 374
 - Projects form, 372-374
 - macro design, 380-381
 - query design, 375-377
 - report design, 377-380
 - table design, 364-368
- database components, 11
 - forms, 17-18
 - macros, 20-21
 - modules, 21
 - queries, 16-17
 - relationships, 14-16
 - reports, 18-20
 - tables, 11-14
- databases, 8
- Data properties, controls, 232-233
- datasheets, creating tables from, 126-127
- datasheet view, modifying of queries, 178-181
- datasheet view, opening tables, 36
- Date(), 143
- date criteria expressions, 186
- dates, criteria (refining queries), 185-186
- Date/Time fields, 133
- Default property, 235
- Default Value property, 142
- deleting records from tables, 41-43
 - forms, 73
- design of reports, viewing, 113
- designing
 - forms, 369
 - Clients form, 369-372
 - linking Clients and Projects forms, 374
 - Projects form, 372-374
 - macros, 380-381
 - queries, 375-377
 - reports, 377-380
 - tables, 364-368
 - from scratch, 128-129
- Design view, 114
 - Allow Zero Length property, 144
 - Caption property, 141
 - Default Value property, 142
 - Input Mask property, 145-147
 - labels, 122
 - Required property, 144
 - Validation Rule property, 143
 - Validation Text property, 144
- Detail reports, 114
- development platforms for corporation-wide applications, 10
- development platforms for departmental applications, 9
- development platforms for small-business applications, 9
- Display Control property, 233

E

- editing underlying data in forms, 70
- Edit Relationships dialog box, 14
- embedded SQL statements, basing reports on, 279
- Employees table, 368
- Enabled property, 232
- enforced referential integrity, 177
- Enter Key Behavior property, 234
- exact match queries, 57-58

F

- field names, 129
- field properties, 138
 - Allow Zero Length property, 144
 - Caption property, 141
 - Default Value property, 142
 - Field Size property, 139
 - Format property, 139-140
 - Input Mask property, 145-147
 - Required property, 144
 - Validation Rule property, 142-143
 - Validation Text property, 142-144
- Field Properties pane, 139
- fields
 - adding to queries, 55
 - Attachment fields, 134
 - AutoNumber fields, 133
 - Calculated fields, 135
 - Currency fields, 133
 - Data/Time fields, 133
 - foreign key fields, 144

Hyperlink fields, 134
 inserting after queries are built, 172
 Long Text fields, 132
 Memo field, 132
 moving to different locations on query grids, 173
 Number fields, 132
 OLE Object fields, 134
 removing from query design grid, 172
 Short Text fields, 132
 tblClients, 364
 tblContactType, 367
 tblEmployees, 368
 tblProjects, 366
 tblTerms, 367
 Yes/No fields, 134
 Field Size property, 139
 field types, selecting for data, 129-132
 Filter by Selection feature, 47-48
 filtering
 data in forms, 82
 table data, 47
 by selection, 47-48
 Filter Lookup property, 232
 filters, removing, 48
 Find and Replace dialog box, Find tab, 44
 Find feature, 44-45
 finding records, 44-45
 Find tab, 44
 Font Italic property, 229
 Font Name property, 229
 Font Size property, 229
 Font Underline property, 229
 Font Weight property, 229
 Fore Color property, 229
 foreign key fields, 144

Format property, 139-140
 form properties, 221
 Properties window, 221-222
 forms, 17-18
 controlling object spacing, 217
 controls, Other properties, 233-235
 deleting records from tables, 73
 designing, 369
 Clients form, 369-372
 linking Clients and Projects forms, 374
 Projects form, 372-374
 editing underlying data, 70
 filtering data, Form feature, 82
 modifying object tab order, 219
 Multiple Item forms, 90
 Navigation forms
 creating, 91-92
 creating with Horizontal and Vertical tabs, 95-96
 customizing, 93-95
 subforms, 248
 frmClients, 369-372
 linking with frmProjects, 374
 frmProjects, 372-374
 linking with frmClients, 374
 front end for enterprisewide client/server applications, 11
 functions, aggregate functions (summarizing numeric data), 202-203

H

Horizontal tabs, creating
 Navigation forms, 95-96
 Hyperlink fields, 134

I

indexes, 135
 creating based on a multiple fields, 137
 creating based on a single field, 136
 Primary Key index, 137
 Indexes window, 137
 inner joins, 206
 Input Mask property, 145-147
 Input Mask Wizard, 146
 inserting fields after queries are built, 172

J

joins, 206
 establishing, 206-207

K

keyboards, navigating tables, 36

L

labels
 Design view, 122
 reports, 116
 Label Wizard, 116
 Left Margin property, 229
 limitations of Access, 9
 linking Clients and Projects forms, 374
 Locked property, 232
 logical operators, 143
 Long Text fields, 132
 Lookup Wizard, 132, 147-148

M

macros, 20-21
 AutoExec macro,
 creating, 309
 designing, 380-381

mailing labels, 116
 creating, 116-121

Make Table queries, 201-202

Memo field, 132

Microsoft Access, features
 of, 8-9
 development platforms
 for corporation-wide
 applications, 10
 for departmental
 applications, 9
 for small-business
 applications, 9
 front end for enterprise-
 wide client/server
 applications, 11
 tool to develop web
 applications, 11

modifying
 datasheet view of queries,
 178-181
 object tab order, 219

modules, 21

mouse actions, navigating
 tables, 36

moving
 columns, more than one
 column at a time, 173
 fields to different locations
 on query grids, 173

multiple filter criteria, filtering
 data, 82

Multiple Item forms, 90

multitable queries
 AutoLookup, 177-179
 building, 174
 pitfalls of, 176-177

multitable reports, 260

N

Name property, 234

navigating tables, 36-37

Navigation Bar, 70

Navigation forms
 creating, 91-92
 with Horizontal and Vertical
 tabs, 95-96
 customizing, 93-95

New Formatting Rule dialog, 220

New Label Size dialog, 117

Now(), 143

Number fields, 132

numeric data, summarizing with
 aggregate functions, 202-203

O

object spacing, controlling in
 forms, 217

object tab order, modifying, 219

OLE Object fields, 134

opening tables, 36

operators, comparison
 operators, 62

Or condition, 185

ordering query results, 56
 sorting on multiple fields, 57
 sorting on single fields, 56

Other properties, controls, 233-235

Other properties (controls), 258

outer joins, 206
 establishing, 206-207

P

Page Setup, printing reports, 105

placeholders
 creating custom formats, 140
 Input Mask property, 145

Primary Key index, 137

primary keys, 137

printers, sending reports to,
 105

printing
 query results, 181-183
 reports, 105

ProjectsByEmployee report,
 378-380

Projects form
 designing, 372-374
 linking with Clients
 form, 374

Projects table, 366

properties
 control properties
 Data properties,
 232-233
 Other properties,
 258
 field properties. *See* field
 properties, 139
 form properties, 221
 Properties window,
 221-222
 tblClients, 365
 tblProjects, 366

Properties window, 221-222

PurchaseOrders module, 22

Q

qryClientListing, 375

qryProjectsByEmployee,
 375-377

queries, 16-17
 Action queries
 Append queries,
 198-200
 Make Table queries,
 201-202
 adding fields, 55
 Append queries, 198-200
 building based on multiple
 tables, 174
 closing, 66

criteria, 57
 exact match queries, 57-58
 multiple conditions, 58-62
 designing, 375-377
 inserting fields after queries are built, 172
 Make Table queries, 201-202
 modifying datasheet view of, 178-181
 multitable queries
 AutoLookup, 177-179
 pitfalls of, 176-177
 refining
 with criteria, 184-185
 with criteria, dates, 185-186
 results, printing, 181-183
 stored queries, basing reports on, 279
 Totals query, 203-205
 updating results, 173-174
 wildcards, 60-62
 query design grid, removing fields, 172
 query grid
 adding groups of
 contiguous fields to, 55
 noncontiguous fields to, 55
 moving fields to different locations, 173
 query results, ordering, 56
 sorting on multiple fields, 57
 sorting on single fields, 56

R

records
 adding to tables, 41
 deleting from tables, 41-43
 forms, 73
 finding, 44-45
 selecting, 41

referential integrity, enforced referential integrity, 177
 refining queries, with criteria, 184-185
 dates, 185-186
 relational databases, 8
 relationships, 14-16, 151
 Relationships tab, 15
 removing
 fields from query design grid, 172
 filters from table data, 48
 Replace feature, 45-46
 replacing data in tables, 45-46
 reports, 18-20
 basing on embedded SQL statements, 279
 basing on stored queries, 279
 closing, 105
 control properties, Other properties, 258
 creating
 with AutoReport, 110
 with Report Wizard, 110-113
 designing, 377-380
 Detail reports, 114
 graphics, 116
 mailing labels, creating, 116-121
 multitable reports, 260
 printing, 105
 Summary reports, 115
 types of, 114
 viewing design of, 113
 Report Wizard, creating reports, 110-113
 Required property, 144
 right-click, filtering data, 48
 Right Margin property, 229
 rptClientListing report, 377-378
 rptProjectsByEmployee, 378-380

S

selecting
 field type for data, 129-132
 records, 41
 sending reports to
 printers, 105
 Short Text fields, 132
 sorting
 on multiple fields, query results, 57
 on single fields, query results, 56
 SQL statements, embedded (basing reports on), 279
 Status Bar Text property, 234-235
 stored queries, basing reports on, 279
 subforms, 248
 summarizing numeric data with aggregate functions, 202-203
 Summary reports, 115

T

Tab Index property, 235
 table data
 filtering, 47
 by selection, 47-48
 filters, removing, 48
 Table Design view, 128
 tables, 8, 11-14, 36
 Attachment fields, 134
 AutoNumber fields, 133
 building queries based on multiple tables, 174
 Calculated fields, 135
 creating from datasheets, 126-127
 Currency fields, 133
 Date/Time fields, 133

- designing, 364-368
 - from scratch, 128-129
- field properties, 138
 - Allow Zero Length property, 144
 - Caption property, 141
 - Default Value property, 142
 - Field Size property, 139
 - Format property, 139-140
 - Input Mask property, 145-147
 - Required property, 144
 - Validation Rule property, 142-143
 - Validation Text property, 142-144
- Hyperlink fields, 134
- indexes, 135
 - creating based on a multiple fields, 137
 - creating based on a single field, 136
- Long Text fields, 132
- multitable reports, 260
- navigating around, 36-37
- Number fields, 132
- OLE Object fields, 134
- opening, 36
- primary keys, 137
- records
 - adding, 41
 - deleting, 41- 43
 - finding, 44-45
 - selecting, 41
- replacing data, 45-46
- selecting field types for data, 129-132
- Short Text fields, 132
- Yes/No fields, 134
- Table window, 38
- Tab Order dialog box, 219
- Tab Stop property, 235
- Tag property, 235
- tblClients
 - fields, 364
 - properties, 365
- tblContactType, 367
- tblEmployees, 368
- tblProjects, 366
- tblTerms, 367
- Terms table, 367
- Text Align property, 229
- tool to develop web applications, 11
- Top Margin property, 229
- Totals query, 203-205

U

- updating query results, 173-174

V

- Validation Rule property, 142-143, 232
- Validation Text property, 142-144, 232
- Vertical property, 234
- Vertical tabs, creating
 - Navigation forms, 95-96
- viewing design of reports, 113

W-X

- wildcard characters, 46
- wildcards, queries, 60-62
- windows
 - Properties window, 221-222
 - Table window, 38
- wizards
 - Input Mask Wizard, 146
 - Label Wizard, 116
 - Lookup Wizard, 132, 147-148
 - Report Wizard, creating reports, 110-113

Y-Z

- Yes/No fields, 134