

# Succeeding in Business™ with Microsoft® Office **Access 2003**

*A Problem-Solving Approach*

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# Succeeding in Business<sup>TM</sup> with Microsoft<sup>®</sup> Office Access 2003: A Problem-Solving Approach

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*"With knowledge comes opportunity,  
with opportunity comes success."*

— Anonymous

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## **Succeeding in Business™ with Microsoft® Office Access 2003:**

A Problem-Solving Approach

by Karin Bast, Leon Cygman, Gerard Flynn, and Rebekah Tidwell

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# Preface

## THE SUCCEEDING IN BUSINESS™ SERIES

### **Because you're ready for more.**

Increasingly students are coming into the classroom with stronger computer skills. As a result, they are ready to move beyond “point and click” skills and learn to use these tools in a way that will assist them in the business world.

You've told us you and your students want more: more of a business focus, more realistic case problems, more emphasis on application of software skills and more problem-solving. For this reason, we created the **Succeeding in Business Series**.

The **Succeeding in Business Series** is the first of its kind designed to prepare the technology-savvy student for life after college. In the business world, your students' ability to use available tools to analyze data and solve problems is one of the most important factors in determining their success. The books in this series engage students who have mastered basic computer and applications skills by challenging them to think critically and find effective solutions to realistic business problems.

We're excited about the new classroom opportunities this new approach affords, and we hope you are too. We look forward to hearing about your successes!

The Succeeding in Business Team  
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**GETTING THE MOST OUT OF *SUCCEEDING IN BUSINESS WITH MICROSOFT OFFICE ACCESS 2003***

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*Succeeding in Business with Microsoft Office Access 2003* expects more from your students. Whether they were introduced to basic Office skills in another course, or you expect that they have learned them on their own, chances are students will need to refresh their skills before they delve into the challenging problem-solving this series requires.

To meet this need, Thomson Course Technology is proud to offer the *Succeeding in Business Skills Training CD* for Microsoft Office Access 2003, powered by SAM. You will find this CD in the back of this book.

The Access Skills Training CD offers training in a simulated environment on the exact skills needed to face the real-world business problems this textbook presents. The CD ensures students have the tools they need to be successful in their studies. Using the Access Skills Training CD, students can:

- Ensure they have mastered the prerequisites of the course.
- Refresh their knowledge of computer skills they learned in another course or on their own.
- Receive additional “granular” skills-based training as they move through the more complex skills and concepts covered in the textbook.



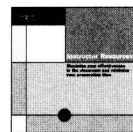
Students can use the Access Skills Training CD both before they begin and during their studies with the *Succeeding in Business* series. A relevant list of related skills (indicated by the SAM icon at right) is provided in the Introduction Chapter and prior to each chapter level. This enables students to self-assess their knowledge and use the Access Skills Training CD to refresh or expand their skills. We recommend students use this list and their Training CD to review the mechanics behind the skills that will be covered in more depth in the texts.

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## THE SUCCEEDING IN BUSINESS INSTRUCTOR RESOURCES

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A unique approach requires unique instructor support; and we have you covered. We take the next step in providing you with outstanding Instructor Resources—developed by educators and experts and tested through our rigorous Quality Assurance process. Whether you use one resource or all the resources provided, our goal is to make the teaching and learning experience in your classroom the best it can be. With Course Technology's resources, you'll spend less time preparing, and more time teaching.



To access any of the items mentioned below, go to [www.course.com](http://www.course.com) or contact your Course Technology Sales Representative.

### INSTRUCTOR'S MANUAL

The instructor's manual offers guidance through each level of each chapter. You will find lecture notes that provide an overview of the chapter content along with background information and teaching tips. Also included are classroom activities and discussion questions that will get your students thinking about the business scenarios and decisions presented in the book.

### EXAMVIEW® TEST BANK

ExamView features a user-friendly testing environment that allows you to not only publish traditional paper and LAN-based tests, but also Web-deliverable exams. In addition to the traditional multiple-choice, true/false, completion, short answer, and essay, questions, the **Succeeding in Business** series emphasizes new critical thinking questions. Like the textbook, these questions challenge your students with questions that go beyond defining key terms and focus more on the real word decision making process they will face in business, while keeping the convenience of automatic grading for you.



**STUDENT DATA FILES AND SOLUTION FILES**

All student data files necessary to complete the hands-on portion of each level and the end-of chapter material are provided along with the solutions files.

**ANNOTATED SOLUTION FILES AND RUBRICS**

Challenging your students shouldn't make it more difficult to set grading criteria. Each student assignment in your textbook will have a correlating Annotated Solution File that highlights what to look for in your students' submissions. Grading Rubrics list these criteria in an auto-calculating table that can be customized to fit the needs of your class. Electronic file format of both of these tools offers the flexibility of online or paper-based grading. This complete grading solution will save you time and effort on grading.

**POWERPOINT PRESENTATIONS**

The PowerPoint presentations deliver visually impressive lectures filled with the business and application concepts and skills introduced in the text. Use these to engage your students in discussion regarding the content covered in each chapter. You can also distribute or post these files for your students to use as an additional study aid.

**FIGURE FILES**

Every figure in the text is provided in an easy to use file format. Use these to customize your PowerPoint Presentations, create overheads, and many other ways to enhance your course.

**SAMPLE SYLLABUS**

A sample syllabus is provided to help you get your course started. Provided in a Word document, you can use the syllabus as is or modify it for your own course.

## SUCCEEDING IN BUSINESS SERIES WALK-THROUGH

The Succeeding in Business approach is unique. It moves beyond point-and-click exercises to give your students more real-world problem solving skills that they can apply in business. In the following pages, step through *Succeeding in Business with Microsoft Office Access 2003* to learn more about the series pedagogy, features, design, and reinforcement exercises.

### Building the Database

Information Systems: Creating, Populating, Relating, and Maintaining the Tables in a Database

*"It is only the farmer who faithfully plants seeds in the Spring, who reaps a harvest in the Autumn."*  
—BC Forbes

**LEARNING OBJECTIVES**

**Level 1**

- Create a database and tables
- Work in Design view
- Set a field's data type, size, and properties
- Use the Input Mask Wizard and the Lookup Wizard
- Validate fields

**Level 2**

- Import data into a database
- Set a table's primary key
- Create foreign keys
- Create one-to-many and many-to-many relationships
- Use a subdatasheet to view related records

**Level 3**

- Learn about the role of the database administrator
- Compact, repair, and back up a database
- Document the database design using the Database Design Wizard
- Secure a database by setting a password
- Create user-level security in a database

**Chapter 2 Building the Database**

**TOOLS COVERED IN THIS CHAPTER**

Datasheet view	Input Mask Wizard	Security Wizard
Design view	Lookup Wizard	Subdatasheet
Documenter	Relationships window	Table Wizard
Import Spreadsheet Wizard		

**CHAPTER INTRODUCTION**

In Chapter 1, Don Linebarger, the information systems director at 4Corners Pharmacy, interviewed the pharmacy's owner, pharmacists, managers, and key employees to learn more about the data needs of the pharmacy and to understand the existing systems the pharmacy uses to conduct business. Don's work resulted in a plan that identifies the tables he needs to create, the fields to define in those tables, the data types and field sizes needed to store the data, and the relationships between tables. With his plan approved by management, Don is ready to begin building the database using Access.

In this chapter, you will learn different techniques for creating tables, entering data, verifying data, relating tables, documenting the database objects, backing up the database, repairing the database, and securing data.

**CASE SCENARIO**

Don Linebarger needs to begin work on the database for 4Corners Pharmacy by creating the database in Access and then creating the tables that will store the data the pharmacy needs to track customers, prescriptions, drugs, employees, training classes, health insurance companies, doctors, and clinics. The pharmacy's owner, Paul Ferrino, worked as a cashier, pharmacy technician, and pharmacist in his father's pharmacy before purchasing the pharmacy upon his father's retirement. Vincent Ferrino still works part-time at the pharmacy as a pharmacist. Although Vincent's business was successful for more than two decades, his system for managing data about the pharmacy is obsolete. Paul wants to automate many of the processes at the pharmacy so he can better evaluate and operate the business.

Paul's top priority was hiring Don, who will create the system for the pharmacy, train users, and maintain and expand the system over time.

Thought-provoking quotes at the beginning of each chapter set the stage for the concepts to be presented.

The Learning Objectives provide a quick reference for topics covered in the chapter.

Each chapter begins with an introduction that provides an overview of the skills and concepts students will learn.

This listing offers quick reference to the skills that students will be introduced to in the chapter.

A business case about a pharmacy is used throughout the Access text, placing the concepts covered in a real-life context.



**Chapter 2 Building the Database**

**LEVEL 1**

**CREATING THE DATABASE TABLES**

**ACCESS 2003 SKILLS TRAINING**

- Add a field to a table between other fields
- Add a field to a table structure
- Add a lookup field to a table using the Lookup Wizard
- Change field properties
- Change the data type
- Change the Format property for a field in Table Design view
- Create custom input masks
- Create one or more tables in Design view
- Define Date/Time and Yes/No fields
- Define Number and Currency fields
- Define Text fields
- Delete a field from a table structure
- Modify field properties for one or more tables in Table Design view
- Move a field in a table structure
- Specify a default value
- Specify a required value
- Specify the primary key
- Specify validation text for one or more fields
- Use the Input Mask Wizard

**REVIEWING THE DATABASE DESIGN**

Throughout the database design process, Don researched and evaluated existing and missing sources of data at the pharmacy. He also interviewed the owner, pharmacists, managers, and key employees to learn about how they plan to use the database so he can better understand the needs of the business. One of Don's most important roles is to make sure that the database he develops stores the pharmacy's data in the correct format and outputs the correct queries, forms, and reports for users.

You learned in Chapter 1 that a relational database is a collection of related tables. As an information systems professional, Don knows the importance of properly planning and designing the database so that it meets users' needs and expectations. Paul already knows that Vincent's system for tracking prescriptions, refills, and customers does not work because it is prone to data-entry errors and inconsistent data. In addition, Paul has limited tools available to him in Excel to search a large amount of information.

Chapters contain three levels of complexity. The levels first introduce an application concept, then lead students through a problem-solving exercise using the software. With each level, the complexity of the material increases, while the exercises become less structured.

Large, clear figures provide a visual aid to the concepts presented, making it easy for students to follow along.

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A list of related skills for each chapter is provided, so that students can use the Skills Training CD to practice and reinforce basic skills.

**Chapter 2 Building the Database**


**Figure 2.25: Selecting tblHealthPlan as the data source for the lookup field**

Don clicks the Next button to display the next dialog box, in which he must select the field or fields in the data source (tblHealthPlan) that he wants to include in the lookup field. Don wants to display the PlanID values in the lookup field, so he selects this field in the Available Fields list box, and then clicks the Select Single Field button to move the PlanID field to the Selected Fields list box, as shown in Figure 2.26.

**Figure 2.26: Selecting the PlanID field as the lookup field**

Don could select additional fields to be displayed in the lookup column, but because he only needs to display the PlanID values, he clicks the Next button, which opens the dialog box that lets him sort the values displayed in the lookup field. Selecting a sort order is optional, but as more health plans are added to tblHealthPlan, data entry will be easier if the health plans are sorted in ascending order by PlanID. Don clicks the list arrow for

## Chapter 2 Building the Database

To add the CustID field back to the table design, Don right-clicks the CustFirst field in the design grid, and then clicks Insert Rows on the shortcut menu. He types CustID as the field name, selects AutoNumber as the data type, and types CustomerID (primary key) as the field description. With the field selected, he clicks the Primary Key button  on the Table Design toolbar to make this field the table's primary key, and then saves the table design. When he changes to Datasheet view, the numbers are listed in sequential order from 1 to 41, which matches the original numbering in Paul's Customer table.

Don returns to Design view, adds the input mask back to the DOB field, and saves the table design. The tblCustomer table is now populated with data that will not cause any referential integrity problems later.

## Best Practice

## Importing Records with AutoNumber Fields into a Table

When you import data from another database into a table that contains an AutoNumber field, you should be aware of two potential problems.

First, when you use an AutoNumber field to create primary key values in a table, Access uses each incremented value only once. For example, if you delete a record with the value 11 in an AutoNumber field, record 11 is deleted permanently from the table. To the user, record 11 does not exist after you delete it, and there is no way to reenter a record with that AutoNumber value. However, if you import data into another table that also contains an AutoNumber field, Access creates a record 11 in the new table because AutoNumber 11 is an available record number in the new table. This difference can cause problems when the AutoNumber field has matching foreign key values with referential integrity enforced in the relationship. In this case, record 11 does not exist in the primary table. However, when you import the data into a new table, record 11 does exist, and all subsequently imported records are renumbered. If you try to revalue data using the AutoNumber field, the foreign key values in the related table might not match.

Second, after importing data into a new or existing table, you cannot change a field's data type to AutoNumber because Access will not create AutoNumber values in a table that contains data. You can use a Number data type and the Long Integer data type to revalue the field in an AutoNumber field, but you cannot create AutoNumber values in a table that contains imported or other existing data. If your table design includes an AutoNumber field, create the table structure prior to importing data into it so you can keep the AutoNumber field.

## Importing Data from an Excel Worksheet

In some cases, you might need to import data stored in an Excel worksheet into a table. If you have not yet created the table in the database, you can import the data and create the table at the same time. In the discovery phase, Don received some Excel files from Paul containing data that he needs to store in the database. One of those files, Clinic.xls, contains

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LEVEL 2

Best Practice boxes offer tips to help students become more efficient users of the application.

## Chapter 2 Building the Database

## Steps To Success: Level 1

With the tables created, Don wants to protect the database and improve its operation.

1. Start Access and open the **Hudson.mdb** database in exclusive mode from the STS folder.
2. Run the Compact and Repair utility, and then set the option to compact the database when you close it.
3. Create a backup copy of the Hudson database and save it using the default filename in the STS folder.
4. Document the designs for all tables in the database. Include the table relationships and the field names, data types, and field sizes in the report. Export the report as a Rich Text Format file using the default filename and save it in the STS folder.
5. Suggest three strong passwords that you could use to secure the Hudson database, but do not set any passwords.
6. Create an encrypted copy of the Hudson database, using the filename **HudsonEncrypted.mdb** and saving it in the STS folder.
7. Describe a situation in which you might need to hide a table in the Hudson database (but do not actually hide the table).
8. Use the information in tblJobTitle to describe how you would assign users in specific positions at the pharmacy to groups and describe the kind of access to the database needed by each group. (Do not set user-level security in the Hudson database.)
9. Close the Hudson.mdb database and Access.

## CHAPTER SUMMARY

This chapter presented the different ways to transform a database design into a collection of related tables in an Access database. In Level 1, you learned how to use Datasheet view, Design view, and the Table Wizard to create tables. You also learned how to create fields in a table, how to set their data types, and how to set properties that format data and ensure its accuracy. These properties included setting a field's caption, formatting values using an input mask, validating fields to ensure accurate and consistent data, and entering a default value in a field. You also learned how to create a lookup field to automate data entry in a field.

In Level 2, you learned how to populate the tables in the database by importing data from another Access database and from an Excel workbook. Importing existing data into a database saves data entry time and reduces the risk of incorrect data, but it also is subject to problems. You learned how to troubleshoot problems, such as importing data with

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How To boxes offer a quick reference to the steps needed to complete certain tasks.


## Chapter 2 Building the Database

table's structure (called the table definition) or the table definition and the data stored in the table. You can also choose to import the relationships for the imported table.

## How To

## Import an Existing Table into an Access Database

1. Open the database into which you will import the existing table.
2. Click File on the menu bar, point to Get External Data, and then click Import. The Import dialog box opens.
3. Use the look in list arrow to browse to and select the database that contains the table that you want to import, and then click the Import button. The Import Objects dialog box opens.
4. Click the table that you want to import. If you want to import more than one table, press and hold the Ctrl key; click each table to import, and then release the Ctrl key.
5. Click the Options button. The Import Objects dialog box expands to include options for importing tables.
6. To import the tables and their relationships, select the Relationships check box in the Import section.
7. To import the table definition and data, click the Definition and Data option button; to import only the table definition, click the Definition Only option button.
8. Click the OK button.

Because tblCustomer already exists in the 4Corners database, Don just needs to import the data stored in Paul's table, and not the table definition. Don opens Paul's Customer.mdb database, opens the Customer table in Datasheet view, and then confirms that the structures of the two tables are exactly the same. Then he selects all of the records except for the one with CustomerID 1 because he already entered this record into the table. Don clicks the Copy button  on the Table Datasheet toolbar, closes the Customer database, clicks the Yes button to keep the data he copied on the Clipboard, and then opens tblCustomer in the 4Corners database in Datasheet view. He clicks the second record in the datasheet, clicks Edit on the menu bar, and then clicks Paste Append. Don was expecting the data to appear in the tblCustomer datasheet, but instead he receives a message that the values aren't appropriate for the input mask. Don clicks the OK button in the dialog box, and then clicks the No button to cancel importing the records from the Customer database. Don opens the Customer table in the Customer database again and examines the data. He realizes that some of the values in the DOB field have only a single digit in the month value, such as the digit 4 for April instead of the digit 04. Because the input mask on the DOB field in tblCustomer requires entry of a two-digit month and date, Don must delete the input mask from the DOB field, temporarily, to be able to copy and paste the customer records. He changes to Design view for tblCustomer, selects and deletes the input mask for the DOB field, and then saves the table and changes back to Datasheet view. He clicks the second record again, and then tries to paste the copied records. This time, he is successful. A message indicates that he is going to paste 40 records, which is correct, so he clicks the Yes button. The records now appear in tblCustomer, as shown in Figure 2.33.

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Steps to Success activities within each level offer students the opportunity to apply the skills they have learned before moving to the next level.

## Chapter 2 Building the Database

## Steps To Success: Level 3

With the tables created, Don wants to protect the database and improve its operation.

1. Start Access and open the **Hudson.mdb** database in exclusive mode from the STS folder.
2. Run the Compact and Repair utility, and then set the option to compact the database when you close it.
3. Create a backup copy of the Hudson database and save it using the default filename in the STS folder.
4. Document the designs for all tables in the database. Include the table relationships and the field names, data types, and field sizes in the report. Export the report as a Rich Text Format file using the default filename and save it in the STS folder.
5. Suggest three strong passwords that you could use to secure the Hudson database, but do not set any passwords.
6. Create an encrypted copy of the Hudson database, using the filename **HudsonEncrypted.mdb** and saving it in the STS folder.
7. Describe a situation in which you might need to hide a table in the Hudson database (but do not actually hide the table).
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## CHAPTER SUMMARY

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In Level 2, you learned how to populate the tables in the database by importing data from another Access database and from an Excel workbook. Importing existing data into a database saves data entry time and reduces the risk of incorrect data, but it also is subject to problems. You learned how to troubleshoot problems, such as importing data with

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The Chapter Summary provides a brief review of the lessons in the chapter.

## Chapter 2 Building the Database

misplaced data types and nonmatching values into a related table's foreign key field when there are no matching values in the primary table's primary key field. You also learned how to create relationships in a database, how to create an index on a nonprimary key field, how to set a field's properties to require data entry, and how to create a composite primary key. Finally, you learned how to view related records using a subdatasheet.

In Level 3, you examined the role of the database administrator and his duties of securing and maintaining a database. The database administrator provides database maintenance, including compacting and repairing a database, scheduling and storing database backups, and documenting the database design. The database administrator is also charged with securing the database by setting a password, encrypting the database, hiding database objects, and setting user-level security for groups of users.

## CONCEPTUAL REVIEW

1. Describe the three methods presented in this chapter for creating a table in Access.
2. What are the rules for naming objects in Access?
3. Write the input mask to control data entry in a field so that users can enter only three uppercase letters followed by three digits.
4. How do you validate a field and inform users of the validation rule?
5. Give three examples not presented in this chapter of how you might use a lookup field to control data entry into a table.
6. Describe how to import data from an Excel workbook into an existing table.
7. Can you set a primary key field so it accepts null values? Why or why not?
8. Can you set a nonprimary key field to accept null values? If so, give three examples not presented in this chapter of fields that might contain null values.
9. Name one advantage and one disadvantage for setting a field's Required property to Yes.
10. What are the three values for the Indexed property? Give one example not presented in this chapter of how you might use each value for a field in a table that stores data about employees.
11. How do you create a many-to-many relationship between two tables in Access?
12. What is a subdatasheet? Can you change the values in the records displayed by the subdatasheet?
13. What is DBA?

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Conceptual Review questions provide a brief review of key concepts covered throughout the chapter.

Business-focused case problems provide additional practice for the problem-solving concepts and skills presented in each level.

## Chapter 2 Building the Database

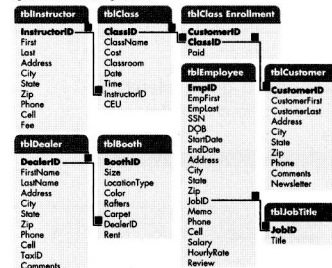
14. Describe the four ways to open an Access database.
15. What happens to a database's size and content when you compact it?
16. What is the Documenter?
17. How does encrypting a database provide security?
18. Describe the process for installing user-level security to an Access database.

## CASE PROBLEMS

## Case 1—Creating the Database for NHD Development Group Inc.

In Chapter 1, you created the database design for NHD Development Group to use at the Memories Antiques Mall in Cleveland, TN. Tim Richards, the company's chief information officer, reviewed your database design and worked to finalize it before you use Access to create the database. Figure 2.71 shows the database design that Tim approved.

Figure 2.71 Database design for NHD



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Each case problem focuses on a specific business discipline, such as accounting, information systems, marketing, sales, and operations management. Marginal icons representing each discipline make it easy to see which disciplines are covered in each case problem.

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## ABOUT THE AUTHORS

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Leon Cygman has an MBA majoring in Information Systems and is currently pursuing his PhD in Electronic Commerce. He has been instructing post secondary mathematics and computer applications for over 20 years. He has also been involved with curriculum design and has developed several online courses. Leon owns and operates a consulting company which specializes in advising small businesses on how to effectively leverage the Internet and computer information systems to their strategic advantage. Leon is a licensed private pilot and an avid backgammon player.

**Karin Bast****University of Wisconsin, La Crosse**

Karin Bast teaches at the University of Wisconsin-La Crosse in the Information Systems department (part of the College of Business). Her academic background consists of a BA in Mathematics and Psychology from the University of Minnesota-Minneapolis and an MBA from the University of Wisconsin-La Crosse. Her business career began as the Minneapolis manager of a branch of a computer time-sharing company. For more than 20 years she had her own consulting firm, advising small- and medium-sized businesses on systems development, software selection, application and training, and strategic planning. During her 18 years of teaching she has taught the introductory course in information systems as well as other courses in information and network management. She also has done PC and network support for the College of Business and led the campus-wide faculty development program. Her favorite hobbies are playing golf and reading mysteries.

**Gerard Flynn****Pepperdine University**

Gerard Flynn holds an MBA and is the technology training manager for Pepperdine University in Malibu, California, where he teaches a variety of classes, including Microsoft Access, Excel, Outlook, PowerPoint, Word, and Computer Science for Business Majors. Flynn is committed to improving efficiency in the workplace by making computer programs accessible to everyone.

**Rebekah Tidwell****Lee University**

Rebekah Tidwell is currently a part-time professor at Lee University in Cleveland, Tennessee and a freelance writer for Course Technology. She has also taught at East Tennessee State University, Tusculum College, and Carson Newman College. She has instructed Computer Info Systems, Database Development, Database Design, Systems Development and Design, Web Development and Design, and just about every course in between. She is a publisher of numerous papers and Course Instructor Manuals, as well as Course Technology's Visual Basic for Applications for Microsoft Office text. She enjoys painting, bicycling, scuba diving, swimming, and antiquing in her spare time.



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