

Software Tools for Business

AN INFORMATION SYSTEMS APPROACH

Roger Hayen



SOFTWARE TOOLS FOR BUSINESS

An Information Systems Approach

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Preface

Where to Use This Book

This book is designed for use with introductory and intermediate courses in (1) software tools, (2) information systems in business, and (3) management information systems. For a course in software tools, this would serve as the primary text, whereas it would usually be a support text for other courses. The book's design provides "hands-on" computer projects for both kinds of courses.

The book has two primary missions: (1) instruction in the fundamental mechanics of operating software tools, and (2) applying the software tools to solve realistic business problems. The basic instruction mission is addressed through the descriptions of software tool operation and the Practice Tutorials and the Practice Exercises at the end of each lesson. This level of coverage is recommended when students are first introduced to the software tools. The application mission is explored through the Comprehensive Problems and the Case Application which are also presented at the end of each lesson. This course content is suggested when students have some prior knowledge of the software tools and the focus of the course is on exploring business applications. In this situation, the descriptions of software usage serve primarily as a reference for students.

The different levels of problems included in this book allow it to be used in two different ways:

1. For each desired software tool, a course could include both instruction in tool use and problem solution assignments. The Practice Exercises and Comprehensive Problems specifically support this situation.
2. The book could be used as a source of problems for hands-on projects with the instructional component of the book serving as a reference. The Case Applications facilitate this arrangement.

By selecting different levels of problems, different learning objectives may be attained for different levels of courses and even for different software tools within an individual course. Prepublication versions of this book have been used successfully in introductory spreadsheet and database courses, in introduction to information systems courses, in business software tools application courses, and in graduate-level introduction to management information systems courses. For each of these courses, different levels and combinations of problems were selected to achieve the desired learning objectives. Please refer to the Instructor's Manual for sample combinations.

Pedagogical Features

Software Tools for Business: An Information Systems Approach employs problem solving in learning the application of personal productivity software tools. The problem-solving learning objectives are supported by including the following features in the various lessons:

- Content Outlines—appear for reference to indicate the topics covered in each lesson.
- Margin Call Outs—highlight software tool operations and activities as a means for referencing commands in the context of their application in problem solving.
- Step-by-Step Narrations—integrate concepts and keystrokes within the context of solving problems by explaining both the how and why of each activity.
- Page Designs—differentiate between what is to be done and what is to be read with numerous screen shots that reinforce the results to be obtained.
- Caution Alert Boxes—provide warnings of possible actions that frequently cause difficulties in using a software tool.
- Keypoint Boxes—reinforce a main idea in the use or application of a software tool.
- Summary Figures—provide a concise synopsis of selected software tool operations for review and reference.
- When Things Go Wrong Sections—anticipate frequently occurring difficulties in using a software tool and explain suggested corrective actions.
- Lesson Summary Sections—contain a review that reinforces the concepts and software tool operations presented in the lesson.
- Reference Sections—provide a comprehensive summary of the commands available with each software tool.

Software Versions

The contents of this book are compatible with the following version of software tools:

Lotus 1-2-3	Releases 2.0 through 2.4 and 3.1
dBase	dBASE III+ and dBASE IV through version 2.0
WordPerfect	Versions 5.0 and 5.1
DOS	Versions 2.0 through 6.0

In a limited number of situations, the earlier version of the software tools do not contain all of the advanced features described in this book. However, earlier versions can be used to solve nearly all of the problems included in the book.

Supplements

The following supplemental materials are available to support this book:

- Data Disk—includes all of the worksheet, database, and document files needed to complete the Practice Exercises and Case Application problems. Students should create their own Data Disk from the Practice Exercises and Case Applications Disk provided with this book. This will serve as a backup copy of the files, in the

event of a problem with their disks, and will give students a place to store files that they create in solving problems. The data disk is available in the Instructor's Manual. Students should ask their instructors how to access this data.

Instructor's Resource Guide—includes a Solution Disk with complete answer files for the Practice Tutorials, Practice Exercises, Comprehensive Problems, and Case Applications. Teaching notes and tips provide guidance in using the Solution Disk. Transparency masters are supplied for key figures from the book.

Disclaimer

The businesses referenced in the exercises, problems, and cases of this book were selected to indicate how these businesses might use software tools. These references are *not* intended to illustrate either effective or ineffective handling of an administrative situation or of an actual software tool application by a particular business.

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In any project of this type, "the book" overshadows many family activities. A special thanks goes to my family for their encouragement, support, and perseverance during this project.

Roger Hayen
Mt. Pleasant, Michigan

Note to the Student

Software Tools for Business: An Information Systems Approach is designed to help you prepare for a career in business by teaching you how to apply software tools to solve the business problems that actual managers of businesses often encounter. This book uses a unique approach to learning software tools—one that carefully blends software tool operations, business concepts, information systems concepts, and problem-solving techniques. It is written for those who have little or no experience with computers or business. The primary objective of this book is to assist you in developing the knowledge and skills you need to effectively use popular software tools in solving common business problems. This text will also enable you to build a solid foundation for the continued learning you will need during your future career to keep pace with the development of these software tools.

A Balanced Approach to Concepts and Hands-On Training

Businesses do not have spreadsheet, database, or word processing problems. What they have are business problems to which these tools can be applied. Real managers select and apply software tools to solve a variety of business problems. Like a mechanic learning about tools in a mechanics' toolbox, you have an equally important need to learn about the variety of situations in which software tools are used, as well as a need to master their basic operation. When you encounter a real problem in business, you need to be able to reach into your software toolbox and pick the appropriate tool for the problem at hand. The problem-solving approach of this book provides you with strong reinforcement for learning where and how software tools are used in businesses. This approach will help you to learn how to select and apply the appropriate tool in different situations. As you progress through the lessons of this book, you will be essentially a consultant to various clients as they encounter each new problem, much like an actual business analyst.

The best way to really learn how to use a software tool is to actually apply the tool in solving problems. Nearly everybody can learn how to type data into a software tool application, but learning how to properly use that tool to produce information that supports informed management decision making is more than typing. Real managers solve problems; they do not just type solutions other people develop. This book is founded on the principle of learning by doing; thus, you will be actually applying software tools to produce information in solving realistic business problems. This book provides instruction in the mechanics of operating software tools by focusing on

those commands that are needed for obtaining required information rather than on covering every command in the software tool. Hands-on experience with problems that address business and information systems concepts provide learning reinforcement that goes beyond what is achieved by lecture and discussion. This kind of experience offers more than mere keystrokes for operating the software tools, because it calls for the application of critical thinking in developing problem solutions.

As appropriate, the business problems presented in this book are associated with the application of systems analysis and design techniques needed for applying the particular software tools. For example, with a spreadsheet problem using conditional logic, decision tables are used to describe the design of the logic to be implemented. And, with database programming, dataflow diagrams and structure charts are used to illustrate system components. In addition, several of the problems involve information system applications, such as estimating program development time for a custom business computer system, determining the amount of time system analysts are engaged in daily activities, managing the assignments of systems analysts, and producing computer system documentation. This exploration of generally accepted information systems concepts reinforces learning about these systems development techniques.

Many of the problems included in this book are ones that were addressed with the computer tools that were available long before spreadsheet, database management, and word processing software became available on personal computers. The hardware and software have changed significantly, but the problems managers face have remained almost the same. By applying software tools to business problems, you will learn the balanced approach of operating software tools together with the related business and information systems concepts.

Distinguishing Characteristics

This book is unique in the breadth and depth of the different business problems it offers for you to solve. Overall the book is organized as a series of lessons about each software tool with problems at the end of each lesson. These problems span levels of learning difficulty from simple tutorials to extensive case applications. This variety makes possible the flexible use of this book in meeting different learning objectives.

Practice Tutorials. The tutorials directly reinforce the software tool skills presented in a lesson by guiding you in the use of software tool operations with step-by-step instructions. These tutorials build skills in the fundamental commands used to manipulate the software tool.

Practice Exercises. The exercises support learning the tool skills of a lesson while you gain experience with a variety of business problems. These Practice Exercises are tied to an information systems framework and have approximately the same scope as Practice Tutorials, but they require critical thinking in formulating a solution.

Comprehensive Problems. The problems ask you to apply the skills of a lesson to a business problem in which you develop the entire application, in instances where problems build from one lesson to the next. In this manner, prototyping is applied in systems development, which calls for critical thinking in designing and producing the solution.

Case Applications. The applications involve the synthesis of software tool and business analysis knowledge emphasizing the problem-solving context of management information systems. These Case Applications encourage your critical thinking in the design and development of a viable solution and in making appropriate decisions by using the results.

Levels of difficulty for the end-of-lesson material are aligned with general educational objectives in the following way:¹

Problem Group	Learning Objective
Practice Tutorials	Knowledge
Practice Exercises	Comprehension
Comprehensive Problems	Application and analysis
Case Applications	Synthesis and evaluation

Depending on the amount of time available and the level of your prior experience, a combination of Practice Tutorials, Practice Exercises, Comprehensive Problems, and Case Applications can be used to achieve these learning objectives.

The Comprehensive Problems are self-contained and require you to build an entire solution by entering all of the data. The Practice Exercises and Case Applications make use of a Data Disk containing files with a partial solution that is accessed in solving the problem. You should see your instructor to arrange for accessing the files on the Data Disk.

The Comprehensive Problems and selected Practice Exercises are organized as spiral problems with the problems expanding or building from one lesson to the next. Spiral problems present a systems development environment similar to that of prototyping. As a result, the Comprehensive Problems for each software tool should be solved in the sequence encountered in the book. The spiral problems, which make use of results from a previous assignment, are indicated as being "continued." Each Case Application and most Practice Exercises are independent of the other assignments. As a result, Case Applications and most Practice Exercises may be solved in a sequence different from their arrangement in the text. Some problems are based on the company scenario that is described in a previous problem, but these problems do *not* require the solution of any previous assignment. Such problems are identified as a "second encounter."

Organization

The book has six parts:

Part I: Using Software Tools	Part IV: Using dBASE
Part II: Using DOS	Part V: Using WordPerfect
Part III: Using Lotus 1-2-3	Part VI: Integrating Solutions

Part I of the book contains an introduction to a management information framework and describes general terminology for interacting with software tools. Lesson T.2 in Part I is a guide to the keystroke terminology used in the book. You should read that lesson before embarking on any of the software tool lessons. Lesson T.1 in Part I introduces a management information framework for the Practice Exercises and Case Applications. This lesson should be studied before beginning the Practice Exercises or Case Applications in the Lotus 1-2-3, dBASE, or WordPerfect parts. After completing Lesson T.2 in Part I, the software tools may be explored in any desired sequence.

In Part II, the coverage of DOS is intended primarily as support for the other software tools. If you have no prior knowledge of this operating system, you should

¹Benjamin S. Bloom, *Taxonomy of Educational Objectives*, New York: David McKay Company, 1956.

complete this part before you begin the lessons for the other software tools. Otherwise, you may use this part as a reference when you need it.

Parts III, IV, and V consist of lessons that contain hands-on tutorials with step-by-step instruction on how to use each of these software tools in solving a business problem together with the problems for you to solve with that tool.

Part VI explores the integration of software tools where results from two or more tools are combined in producing the desired information for decision making. Software tool integration includes information systems concepts that are useful in linking data from other computer systems, such as a general ledger system, with software tools in developing a problem solution. The design of the Comprehensive Problems and Case Applications in this part enables them to be used as *capstone problems* that encompass the review of software tool operations that are included throughout the other lessons of the book.

Learning Strategy

This book supports a learning strategy that has been applied in the "corporate world." It is based on the general concept: "Give a person a loaf of bread, and you feed them for a day. Teach a person how to grow wheat and make bread, and you feed them for a lifetime." For software tools, the general strategy is as follows:

1. Read a description of a software tool's features and operation.
2. Explore the hands-on operation of the software tool by using tutorial exercises and problems.
3. Apply the software tool to your own business problem. Reference example solutions as necessary to assist in developing your application.

In many businesses, this learning strategy is applied in a self-paced environment with individuals learning to use a software tool as they develop solutions to their own problems. Often individuals do not have time to attend a special training seminar before using each new software tool. They are provided with a book describing the software tool and are expected to learn how to effectively use the tool. The Practice Tutorials and Practice Exercises in this book specifically support this learning strategy.

This book provides you with a foundation for learning to apply software tools to solve business problems. By following the learning strategy of this book, you will experience the application of current software tools and will be ready for the new software tools of tomorrow.

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