



Introduction to

***Computer Information Systems
for Business***

Mark G. Simkin

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Introduction to

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Welcome to the world of computers and computer information systems! This preface introduces the organization and emphasis of this text, and makes suggestions for using it. The first section of this preface ("About This Book") describes the text and its ancillaries in detail. The next two sections ("To the Student" and "To the Instructor") contain personal messages and words of encouragement to classroom users. Finally, the last section acknowledges the contributions of the many people who assisted the author in this project.

This book was developed by the author over the course of ten years and published after more than twenty years of teaching, research, and employment in the area. It surveys the most important aspects of computer information systems with specific emphasis on the following areas: (1) *business applications* (defined in a broad context—see Chapter 1); (2) *current information*, with up-to-date discussions on such topics as microcomputer applications, management issues, curriculum models, language standards, and expert systems; (3) *practical usage*, with explanations of why each computer concept is important, how it relates to commercial usage, and relevant advantages and disadvantages; and (4) *professionalism*, including coverage of such controversial topics as ethics, computer crime, professional societies, professional certification, and careers.

Four additional aspects of the text are (1) who should read it, (2) its organization, (3) its special learning features, and (4) the ancillary program that accompanies it. Each of these topics is discussed separately in the paragraphs below.

About This Book

Who Should Read This Book

This book is primarily intended for students enrolled in survey computer information systems (CIS) courses in colleges and universities. Although its emphasis on business systems should have the strongest appeal to those enrolled in courses offered by business schools or departments, many organizations other than profit-seeking firms use computer information systems to gather, store, process, and distribute information. Therefore, this book should also be useful to those students studying such diverse disciplines as political science, public policy, journalism, engineering, law, military science, nursing, mining, transportation, medicine, and travel industry management.

Organization

This text is organized in sections, each of which contains two or more chapters devoted to a common theme or topic.

Section 1 is an *Introduction*. Chapter 1 discusses computers in general and several myths that surround them. Chapter 2 describes an actual tour of a computer center and discusses the characteristics of four major types of computers. Chapter 3 traces the history of computers, describes the present computer industry in some detail, and describes the computers of the future.

Section 2 discusses *Computer Hardware*—specifically, central processing units (Chapter 4), computer input equipment (Chapter 5), computer output equipment (Chapter 6), and communications equipment (Chapter 7). A detailed discussion of the binary codes and numbers used by this hardware to store and transmit data is provided in Appendix B.

Section 3 discusses *Secondary Storage* such as tape and disk media. Chapter 8 concentrates on the hardware characteristics of such devices while Chapter 9 discusses the uses of this hardware to create and store computerized file information. Chapter 10 discusses the important topic of computer data bases, focusing on data-base theory and usage in large-scale, commercial applications.

Section 4 is devoted to *Computer Software*, primarily computer programs. Chapter 11 provides a behind-the-scenes glimpse at the system software used to run a busy computer center while Chapter 12 discusses the application software (such as accounting software) more familiar to end users in noncomputer departments. The emphasis here is on management information systems. Finally, Chapter 13 discusses the often-overlooked importance of computer controls.

Section 5 discusses the tools and computer languages used in *System and Program Development*. This area is often called “software engineering” because it concentrates on developing computer programs systematically and therefore controlling project costs. Chapter 14 focuses on programming tools and Chapter 15 discusses programming languages. These two chapters, in turn, set the stage for the formal discussions of systems analysis and design in Chapter 16.

Section 6 discusses *Computers in Society*. Chapter 17 focuses on the organization and activities of computer departments and how these departments interact with end users. Chapter 18 concentrates on the important and often controversial topics of computer security, privacy, and crime.

Section 7 is about *Personal Computing*—specifically, microcomputer hardware (Chapter 19) and the uses of this hardware in creating and manipulating electronic word documents (Chapter 20), spreadsheets (Chapter 21), and data bases (Chapter 22).

Appendixes A and B contain supplementary material. Appendix A introduces programming in BASIC. Appendix B discusses computer codes, numbering systems, binary formats, and round-off problems.

Special Learning Features

This book was designed to assist in learning about computer information systems and to make this learning enjoyable. This is only as it should be: the world of computers is an exciting field and we are living in a remarkable age of progress in computer science and technology. The following paragraphs describe the special instructional features of this text and, suggest ways readers can use this book more effectively.

Dialogues. One unique feature of this book is the use of a *dialogue* to begin each chapter. Each dialogue is a discussion between two people that introduces the chapter’s subject matter in an informal, easy-to-read manner. Each dialogue sets the stage for the remainder of the chapter and helps readers understand the concepts in the chapter.

Chapter Outlines. In addition to the dialogues, each chapter begins with a *chapter outline* that contains the major subject headings. These outlines can be used for chapter overviews and also as frameworks when preparing for examinations.

Chapter Introductions. Each chapter begins with a short introduction to preview the chapter material and indicate the order in which chapter material will be presented. However, the introductions do not contain technical information or detailed explanations of important concepts.

Key Terms You Should Know. Each chapter explains a number of *key terms* that help teach the “lingo” of computer information systems. The key terms are highlighted in bold type in order to draw attention to their importance and to make them easier to find at a later time. Each term is highlighted only once—at the primary place where it is explained.

The key terms for each chapter have also been listed in alphabetical order at the end in a separate section entitled *Key Terms You Should Know*. Readers may find it useful to glance at each list after reading a chapter for review purposes or to test their understanding of chapter concepts. Readers who encounter a term that they do not remember can either look for it as a highlighted word in the chapter, or, alternately, first find it in the index or separate glossary at the end of this text. The list of key terms may also be useful to determine whether or not a chapter discusses a specific concept.

Computers in Action Series. Each chapter contains one or more *computers in action* application features that describe CIS concepts in actual commercial uses. These “real-world” examples illustrate some of the many ways that computer systems meet today’s informational needs in productive, effective ways.

Chapter Summaries. Each chapter contains a *chapter summary* that provides an overview of the chapter material and can be used as an annotated guide to the chapter itself. Since these summaries are brief, however, they are recommended more for review purposes than for primary learning purposes.

Review Questions. Several *review questions* can be found at the end of each chapter that test comprehension of the concepts covered in the chapter. Students can use these questions to reinforce chapter materials or for self-testing. Instructors can use these questions for short-answer examinations or for classroom discussions.

Exercises. Each chapter contains several *exercises*. These are “paper-and-pencil” assignments that call for specific information. These exercises are intended to strengthen understanding of the chapter material and, in several cases, illustrate real-world computational challenges.

Your Opinion, Please. Each chapter ends with one or more *opinion questions* that introduce controversial topics and that do not have a right or wrong answer. These questions are intended as springboards for classroom discussions and often lead to enjoyable learning experiences.

Glossary. A *glossary* containing brief definitions of more than 700 names, terms, and phrases is provided at the end of the text. Readers can use this glossary for quick explanations of specific terms, but should use the text itself if more detailed discussions are required.

Index. A complete, comprehensive *index* is found at the end of this book. This is separate from the glossary.

The Ancillary Program

A full range of ancillary materials for both students and instructors accompanies this text. These materials include the following:

Instructor's Manual. Prepared by the author, the *Instructor's Manual* contains the following items for each chapter: (1) a list of chapter objectives, (2) a detailed lecture outline complete with transparency references, (3) an expanded chapter synopsis with italicized key terms, (4) a list of teaching suggestions, (5) a separate list of suggestions for classroom discussions and demonstrations, (6) page references for answers to review questions, and (7) answers to chapter exercises. Approximately 100 transparencies are included in the *Instructor's Manual*.

Transparencies. Approximately 65, two-color transparency acetates are distributed separately to book adopters by the publisher. Many of the transparencies have been prepared from the illustrations in this book; others are new.

Instructor's Test Bank. A separate test item file of more than 2,000 true-false, multiple-choice, and fill-in-the-blank questions is available to instructors in a separate *test bank*. All questions have been pretested on the author's earlier computer classes in order to eliminate ambiguous or faulty questions.

Student Study Guide. The *Student Study Guide* is sold separately as a learning aid for students. For each chapter, the guide contains complete chapter outlines, learning objectives, chapter summaries, suggestions for relevant mini-projects, and the following types of self-test questions: (1) multiple-choice, (2) true-false, (3) matching, and (4) short-answer. Answers to all self-test questions are provided. The *Student Study Guide* was written by Steven Backe, an EDP auditor, programmer, and university instructor with over 10 years experience in the computer profession.

Software

web TestPak. The **web TestPak** is a test-generating system available free to text adopters. Instructors can use TestPak to choose test questions from the existing test file as well as to generate scoresheets and answer keys. Using the word-processing features of the package, instructors can also modify existing questions, create their own test questions, or store new questions on personal diskettes. TestPak versions, along with easy-to-follow users' guides, are available for the following microcomputers: (1) Apple IIc, (2) Apple IIe, and (3) IBM PC and compatibles.

web QuizPak. The **web QuizPak** is a computer-assisted instruction package that students can use for learning purposes. It is offered free to adopters. The package contains test questions that are different from those in the TestPak described above. Once the user selects a chapter, the system selects questions (true/false, multiple-choice) at random from the chapter and gives the user a quiz. The program displays a score for each quiz taken, and a total score for the quiz session. QuizPak runs on the Apple IIe or IIc and the IBM PC. Only one disk drive is needed.

web GradePak. This is a computerized service available free to qualifying adopters of this text. A single disk holds data for classes of up to 500 students with room for 60 scores per student. GradePak calculates class averages on all scores and overall class averages. It also provides a grade profile report showing what each student requires to earn an A, B, C, or D for the term. GradePak allows numeric input as well as letter grades. It is available for the Apple II Plus, IIe, and IIc, and for the IBM PC.

Survey courses challenge the instructor to provide an overview of an entire discipline in a short period of time. The introductory CIS course intensifies this challenge because of the wide range of student backgrounds and experiences as well as the relatively technical nature of the material. Two important issues involved in teaching a survey course about computer information systems are (1) curriculum standards and (2) lack of time.

Curriculum Standards

Although there is no technical meaning of the term *computer literacy*, several professional organizations have spent considerable time and effort to develop model curricula and define course standards. The author fully subscribes to the professional codes of ethics espoused by these organizations and is dedicated to furthering higher education in the field. Thus, this book was written to conform to the recommendations of the following professional bodies:

AACSB. The American Assembly of Collegiate Schools of Business (AACSB) is the major accreditation body for schools of business in the United States. This book responds to the AACSB recommendation that students obtain a basic understanding of “management information systems and computer applications.”

ACM. This book subscribes to the educational philosophy of the Association for Computing Machinery (ACM), which encourages students to learn “a combination of technical and organizational skills” rather than just technical computer skills. Chapters 9, 12, 13, 16, 17, and 18 are particularly relevant to the organizational aspects of computers and business information systems.

DPMA. This book includes the major topical areas recommended by the Data Processing Management Association (DPMA) in the entry-level Comp. 1 (Introduction to Computers) course. Important revisions to this model course were made by the DPMA Education Foundation in June 1985 to include such topics as word processing and data analysis with spreadsheets—topics that form the bases of Chapters 20 and 21 of this text.

Time Constraints

Introduction to Computer Information System for Business attempts to survey the topic of computer information systems in a single book containing 22 chapters and 2 appendixes. Thus, a logical question for instructors to ask when organizing this material for a course is How can I cover 22 chapters within the limited time frame of a school quarter or semester? Two suggestions are provided below.

Skip Some Chapters. One possibility is to skip certain topics. One advantage of this text is that it was written in a modular fashion, thereby enabling instructors to skip specific chapters without fear of omitting preparatory material. Chapters 10, 11, 13, 16, 19, 20, 21, and 22 contain material that is often covered in other courses. Chapters 1, 2, 3, 17, and 18 contain “easy” material that most students can master on their own.

Cover Each Chapter in Less Detail. Since the chapters in this text were written in a nontechnical, conversational style, most students should be able to understand much of the basic material on their own. A possible syllabus that covers all 22 chapters in a 15-week period is provided in the instructor’s manual that accompanies this text.

To the Student

If you are reading this book while taking a computer class, you may have some reservations either because you are uncomfortable about computers or because you feel you already know all about them. The paragraphs below provide some words of encouragement for both cases.

To the "First-Timer"

Many of us did not grow up using personal computers and some of us didn't even have calculators! To older students who have not studied them before as well as to many younger students, computers can be threatening.

There is nothing magical about computers although the speeds at which they work—measured in millions of instructions per second—are probably a little “unbelievable” to most of us. Computers are actually dumb robots that do exactly what they are told. Therefore, we are all smarter than the “smartest” computer and there is little reason to be afraid of them. Five computer myths along these lines are discussed in Chapter 1.

Contrary to popular belief, understanding computers does not require a strong mathematics or engineering background, but it does require some work. As in so many other areas, for example, the computer industry has developed its own “jargon” and you will have to spend some time learning what the words mean in order to “speak” it. However, this is no different than learning the specialized vocabulary of any other discipline.

A final point is that, unlike theory courses, the topic of computer information systems is a “real-world” study. Computerized business information systems are used every day and there are many analogies to manual systems. Thus, with a combination of reading and question-asking, most students are able to grasp the concepts easily, understand business information systems in some detail, and complete a course with a high grade!

To the Individual with Computer Experience

If you are a recent high school graduate, you are much more likely to be knowledgeable about computers today than your counterpart of just a few years ago. Then, too, it is possible that you are familiar with computer concepts from your work experience. In such instances, there is a tendency to dismiss the need for further study at the survey level of this book. This may not be advisable.

While this feeling may be justified in your case, most students find that their understanding of computerized business information systems from previous high school courses or job experiences is limited. Sometimes, this is because prior courses only taught programming or using prewritten software while at other times, job training was limited to as little as a single computerized application. These are microcosms of computer information systems that neither discuss their many facets nor explain how the “pieces” fit together to accomplish commercial data-processing tasks.

A complete understanding of business information systems includes the study of such fascinating subjects as data communications, methods of file organization, computer controls, and the role of computers in society. These topics form an important part of this text and are also good reasons why you might benefit from reading it.

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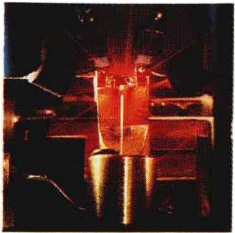
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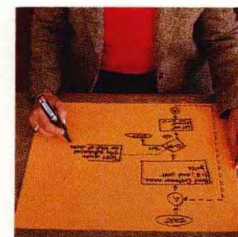
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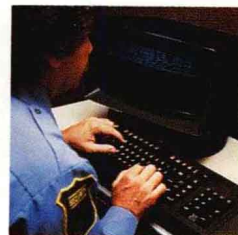


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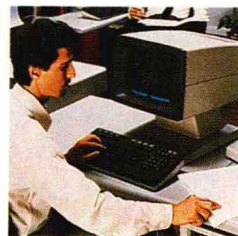
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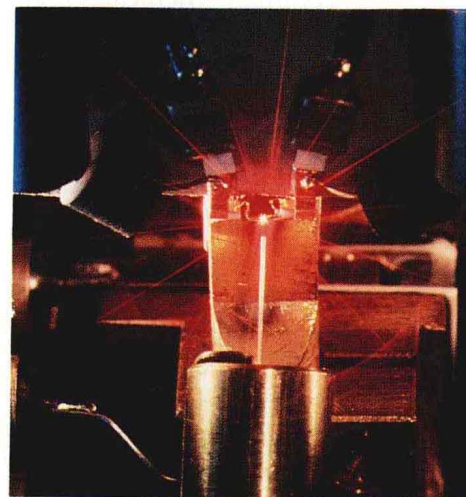
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