MICROCOMPUTING TODAY

STEVEN L. MANDELL

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MICROCOMPUTING TODAY

PREFACE

MicroComputers have forever changed the landscape of information processing and revolutionized the manner in which individuals and businesses approach problem solving and decision making. The challenge I face in all my introductory computer courses is to present the fundamental concepts of computing within the context of personal computer power while not relegating the material to merely a user manual for applications software packages.

An understanding of basic computing concepts coupled with the current state of micro computing technology will allow students to cope with the very significant changes that will occur in the very near future. The virtual organization and internet web sites are only two of many new exciting concepts that have already altered the vision of the information society that was presented to graduating seniors when they were freshmen.

MicroComputing Today is my attempt at preventing students from believing that their academic computer course will be either obsolete or irrelevant before they graduate. In particular this material was designed to provide the basic support for any introductory computer course. It is my goal to provide a text that can provide either the basis for an entire short course on personal computers or serve as the conceptual backbone for a course focusing on any of the available software application packages or programming languages.

The seven chapters and two appendices provide an encapsulated but broad introduction to computer concepts and micro computing technology. Every effort has been made to maintain the currency of the information but in this field new generations are measured in months rather than years.

Chapter I	The World of Computers
Chapter II	Computer Fundamentals: The Inside Story
Chapter III	Application Software: Productivity Tools
Chapter IV	System Software
Chapter V	Communications: Connectivity for Personal Computers
Chapter VI	Power Applications: Tools for Special Jobs
Chapter VII	Contemporary Concerns
Appendix A	Consumers' Guide to Computing
Appendix B	Going Online: The Internet and Some Information Utilities
Appendix C	Bombs and Disasters: What to Do When Your Computer Doesn't Cooperate

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CHAPTER STRUCTURE

The structure of the text was designed with a focus on student learning and an eye on faculty flexibility. The material in the chapters build on each other, yet can be used independently. Learning objectives are presented at the outset of each chapter so that students can recognize their responsibility in mastering the material. High interest material is presented throughout the chapters in two special features: Windows on Computing and Profiles. To further assist the students in mastering difficult material, Concept Summaries have been utilized to enhance the learning process.

SUPPORT MATERIALS FOR THE INSTRUCTOR

A complete Instructor's Manual includes Learning Objectives, Chapter Outlines, Answers to Review Questions, and Activities and Research Problems. In addition a test bank is available through Westest.

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It is appropriate at this point to thank the following people who reviewed the book and provided invaluable comments.

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University of Charlston

Most prefaces for new books would conclude at this point; however, the tremendous efforts on the part of my assistants in creating Micro-Computing Today requires special recognition. Although I have been writing computer textbooks for nearly twenty years, I have been specially blessed on this project with the professional support of two outstanding individuals: Sarah Basinger and Sally Oates. Sarah Basinger is primarily responsible for the context of the text material while Sally Oates has established quality control and production coordination. This book would not have been published without the efforts of Sarah and Sally.

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Figure 1–1 Computerized Automobile Diagnosis
This mechanic uses a computer that pinpoints problems in a car's performance.

computer An electronic device used to accept, process, store, access, and display information without human intervention.

microcomputer A small computer (desk-size or less) that uses a single microchip as its processor; also called *personal computer* or *home computer.*

INTRODUCTION

Computers are fast becoming as prevalent as microwave ovens and VCRs. We may be surprised when we learn that a friend does not own one. Of course, computer manufacturers would like to put a computer in every house, and they may get their wish soon. Computers are getting smaller, easier to use, and less expensive as technology advances; besides, they have many new capabilities that make them ideal for entertainment and education—common uses that are apt to attract first-time buyers.

Even if you don't have a **microcomputer,** or personal computer, at home, it is very likely that you will use a computer at work. Computers at automobile dealerships help mechanics find out what is wrong with a car and enable sales personnel to complete a deal (see Figure 1–1). Government agencies use computers to store vast amounts of information about constituents. Hospitals have computers that help nurses, doctors, technicians, and clerks keep track of a patient's progress, tests, and—yes—bills. The computers at corporations help clerks to monitor transactions and secretaries write important documents. If you have ever worked in a fast-food restaurant, grocery store, or other shop, chances are you used special computerized cash registers and scanners that not only figure a customer's bill but also keep track of inventory. It seems there is no escaping learning how to use a computer. In fact, it makes sense to know just what a computer is and what it does.

➤A MICRO LOOK AT MICROCOMPUTERS

A computer is a machine that can help you to do a variety of jobs: write reports, figure budgets, file data, create pie charts, use a network, or play a game. These jobs require information; thus when you use your computer, you are actually part of an **information system.**

information system A system in which data is the input and information is the output.

INFORMATION SYSTEMS

People and organizations cannot function without information. Decision makers use information to increase knowledge and reduce uncertainty. An information system, therefore, is designed to transform data into information and make it available to decision makers. It manipulates data in various ways to reveal verifiable, relevant, timely, accurate, complete, and easy-to-understand information.

THE COMPONENTS OF AN INFORMATION SYSTEM

An information system has five major components: people, data, hardware, software, and procedures.

- The people in an information system can be categorized by their roles: providers, users, or clients. Providers are the people, such as programmers, who design and operate the system. **Users,** or end users, interact directly with the system to complete their jobs (see Figure 1–2). Clients, on the other hand, may not interact directly with the system although they do benefit from it. A customer ordering a product through a computer-based information system benefits when the product is received though does not enjoy direct use of the system's computer.

user A person who uses computer software or has contact with computer systems.

- **Data** refers to unprocessed facts, or raw material not useful for making meaningful decisions. For example, an admissions office has little use for each quiz or homework score. Once all of the scores are organized into a student's transcript of courses and final grades, however, the summary can provide useful **information** that helps the office evaluate the student's chances for success in college. Information, then, is processed data that increases understanding and helps people make intelligent decisions.

data Facts; the raw material of information.

information Data that has been organized and processed so it is meaningful.

- **Hardware** is the physical equipment in an information system. A common **configuration,** or assortment of components, in a personal computer system consists of the computer itself, two storage devices (a hard disk drive and a floppy disk drive), memory (circuitry that temporarily holds data and information for processing), two input devices (a keyboard and a mouse), and two output devices (a monitor and a printer) (see Figure 1—3). The external devices, such as printers, monitors, keyboards, and mice, are referred to as **peripherals.**

hardware The physical components of a computer system (for example, keyboards, printers, monitors).

configuration The specifications for, or items needed to use, a piece of software or hardware.

peripherals External devices such as keyboards and printers that are attached to the computer.

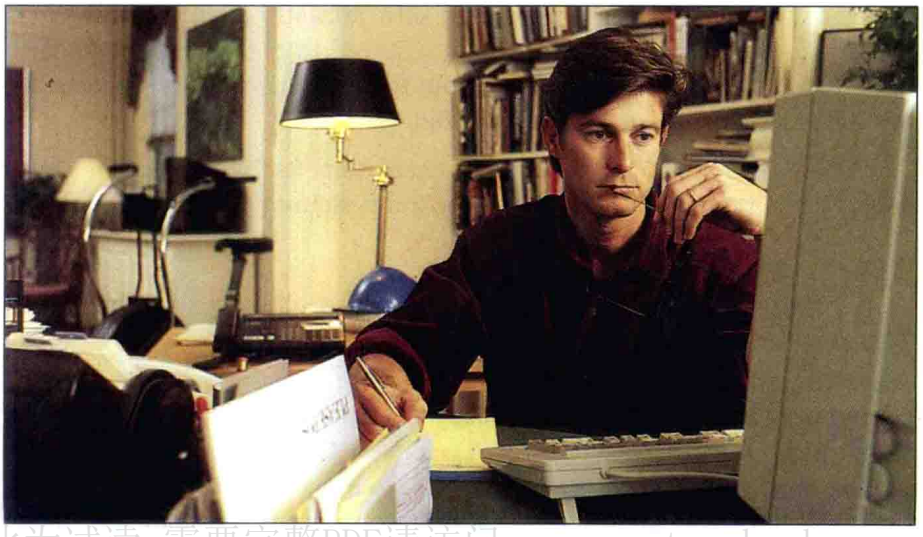

Figure 1–2 People as Part of an Information System

Many people in an information system are end users, whether at work (a), at school (b), or at home (c).

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