

COMPUTERS *in* SOCIETY

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Preface

Objectives

The importance of computers in society today simply cannot be overstated. Virtually every sphere of activity is in some way affected by the computer and there is every reason to believe that computer use will increase in the future. Because of the tremendous impact that computers have had and will continue to have on society, it is essential that people—regardless of their major field of interest—understand how the computer can be used effectively for social applications.

It is the primary purpose of this book to provide students with an understanding of how computers can be utilized for a wide variety of applications—business, scientific, industrial, educational, legal, and so on—and to provide an assessment of their effectiveness in these areas. Our intention is to consider—realistically as opposed to ideally—the past, present, and future significance of the so-called Computer Revolution.

The book is designed to be used by liberal arts students as well as computer majors. The text focuses on the need for users as well as computer professionals to work closely in automating an application. We point out that unless users understand how computers are best employed, as well as the pitfalls associated with their use, computerization will not be entirely satisfactory. Similarly, computer professionals must be made aware of the needs of the user, and the concerns that many people have about computerization. Thus the book has two primary goals: (1) to provide nonmajors with an appreciation for computers but, at the same time, indicate the main problem areas that arise when computers are used; and (2) to provide computer majors with an awareness of the social uses of computers and of the philosophical, legal, and even moral issues that some computer applications raise.

Note that this is *not* an introductory text on the principles of information processing. It considers the principles of information

processing only insofar as those principles provide an understanding of how computers are applied to social problems.

It is the objective of this book, then, to provide students—both majors and nonmajors—with the following:

1. An understanding of how computers are utilized effectively for solving business, scientific, industrial, and social problems
2. An understanding of the potential problems inherent in computer processing
3. An understanding of computer capabilities, from the user's point of view
4. An understanding of how computers actually process data by focusing on programming in BASIC
5. An understanding of some of the crucial philosophical, social, economic, and political issues—past, present, and future—that relate to information processing

Market

This book can be used in a wide variety of computer courses. It can serve as a computer literacy textbook in a liberal arts or an interdisciplinary program, designed to familiarize non-computer-oriented students with information processing, the ways in which computers are currently being used, and the ways in which they are apt to be used in the future.

This book can also be used in a computer course in the computer science or business department. Such a course would be designed to familiarize computer majors with the more general applications and issues related to their field.

The text presents the computer professional's perspective as well as the humanistic perspective. Classroom discussion drawing out individual opinions on these perspectives will add to the course and help bridge the communication gap that exists between users and computer professionals.

How This Book Differs from Other Books in the Field

Most Computers in Society books can be separated into two main categories: those that devote approximately half the text to computer concepts and those that deliberately avoid computer concepts and provide, instead, general descriptions of computer use and misuse.

Our book combines the major advantages of both these approaches while minimizing the disadvantages. Specifically:

1. Our book includes technical features, but from a user-oriented point of view. It describes enough of the concepts and the terminology to enable a noncomputer person to communicate effectively with a computer professional.
2. It is our philosophy that to understand how computers process data, one needs to understand at least the fundamentals of programming. Hence we have provided a chapter on programming in BASIC. This is an inclusive chapter that teaches the fundamentals of the BASIC language. Students will be able to write and debug simple and intermediate-level programs after studying the chapter.
3. Most Computers in Society books contain a short section of several pages on minicomputers and microcomputers. We feel that this subject merits much greater attention, not only in light of their current utilization, but because of their future potential as well. Hence we have included an entire chapter on minis and micros, one that focuses on their application as well as their technical features.
4. The pedagogic approach used in this text is appropriate for an introductory course. The perspective used is not to idealize computing as some books do, nor to present an unsophisticated and overly simplified point of view as other texts do. Rather, we have included a very realistic, user-oriented perspective that explores the social issues relating to computer utilization.
5. We have incorporated into this text our traditional approach—attention to the organizational flow of material focus on pedagogy rather than on length and breadth of material, and frequent reinforcement of material.

About the Authors

Each of the authors has expertise in a liberal arts field as well as in computers and draws on that background to provide the proper balance between technical concepts as well as humanistic issues. Nancy Stern has a Ph.D. in the history of science and technology, with a specialization in the history of computers, and has a considerable background in that field as well as in technological assessment and the sociology of science. Robert Stern has a J.D. degree and has considerable experience in the legal field, specifically in the areas relating to privacy and security.

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