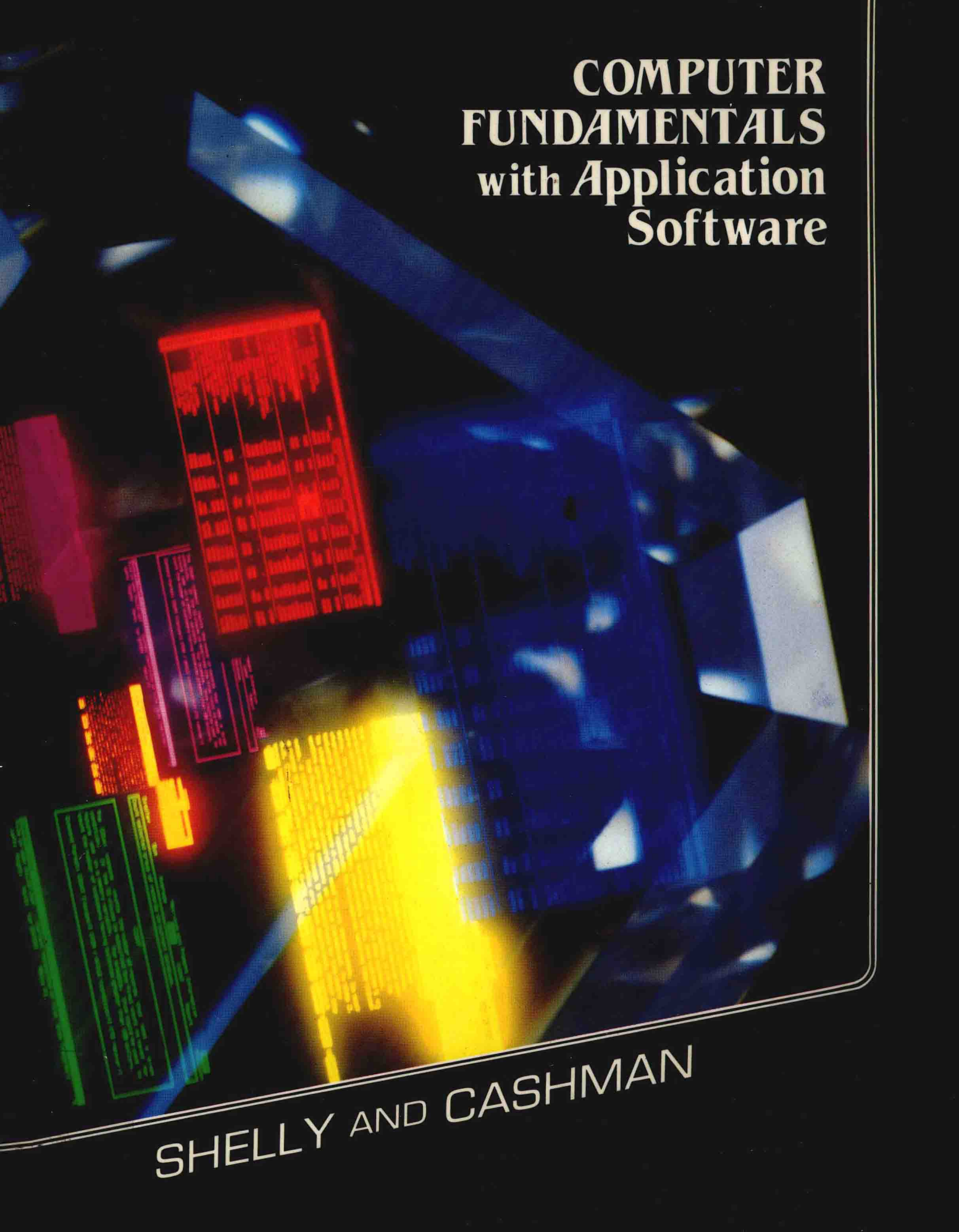




COMPUTER FUNDAMENTALS with *Application* Software

SHELLY AND CASHMAN

COMPUTER FUNDAMENTALS **with Application Software**

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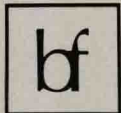
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PREFACE

Many people refer to this era in history as the age of high technology, the age of information processing.....the age of the computer! Whatever term is used, it is now recognized that an understanding of the computer, how it works, how it processes data to produce useful information, and how it can be used as a tool in the home, in school, and in our work environment is a necessary part of the general education for all who live in this information processing age.

Today there are over 10 million personal computers in homes, schools, and businesses throughout the world. To use these computers effectively, a new generation of software, commonly called APPLICATION SOFTWARE, has been developed. Although thousands of products are available, there are three broad categories of software that currently dominate the market. They are: 1) Electronic spreadsheet software; 2) Database management software; and 3) Word processing software. A skill in using these application software packages is becoming essential for students in secondary school or college and for employees in nearly any area of business or government.

Teaching computer concepts and application software

The purpose of this textbook is to provide an introduction to basic computer concepts, and, in addition, provide instruction on how to use electronic spreadsheet, database management, and word processing software. It is important with a textbook of this type to include state-of-the-art material. Therefore, the units of instruction in the appendices on application software include the following software packages:

• SuperCalc3

• dBASE III

• WordStar

These software packages are widely used in industry and serve as the basis for instruction on application software in this textbook. Free educational versions of each of these software packages are made available to educators by Boyd & Fraser Publishing Company, together with Computer Associates International, Inc., producer of SuperCalc3; Ashton-Tate, producer of dBASE III; and MicroPro International Corporation, producer of WordStar. The contribution these companies are making by allowing their software to be used to further the education of thousands of students is deeply appreciated. They are solving one of the most pressing problems in computer education — providing realistic industry software for use in the classroom. We are confident your students will benefit from the generosity of these forward thinking companies.

Again, these software packages are made available **FREE OF CHARGE** by Boyd & Fraser Publishing Company. Schools may copy this software as required for classroom use at no charge. The free software is available for IBM Personal Computers and IBM compatible computers. It is important to understand that these are not tutorial software packages, but are the **actual working application software packages as used in industry**. Upon completion of the units of instruction in the Appendices, students will have the ability and skill to create a meaningful spreadsheet using SuperCalc3; create and manipulate a database using dBASE III; and create and print documents using WordStar.

Teaching approaches

Because of the thorough coverage of computer concepts in the textbook, a number of teaching approaches can be used in the classroom. For schools that operate on a quarter or semester basis, the following approaches can be taken:

1. Comprehensive approach — In this approach, each chapter in the textbook is covered in sequence, and all projects in the Appendices covering SuperCalc3, dBASE III, and WordStar are included. This approach would require that some laboratory work related to instruction on application software be conducted outside class.
2. Overview approach — In this approach, the chapters in the textbook and the first project on SuperCalc3, the first project on dBASE III, and the first project on WordStar could be covered. This approach provides an overview of application software and provides enough skill to create a simple spreadsheet, create and display a database, and create and print a simple document.
3. Specialized approach — In this approach, the chapters in the textbook are covered, but only a single piece of software is covered in depth. For example, for those teachers who feel word processing is the most important

skill for students to have when emerging from the introductory course, only the projects related to WordStar could be covered.

4. Personal Computer approach — For instructors desiring to emphasize personal computer hardware and application software, it is suggested that Chapters 1, 2, 5, 6, 7, 9, and 12 be covered in addition to all three appendices covering SuperCalc3, dBASE III, and WordStar.

The approach used will depend upon the number of class hours per week, whether lecture and laboratory are a scheduled part of class activity, and, of course, the objective of the class.

Textbook approach

The first significant approach taken in the development of this textbook was the recognition that the personal computer is an integral part of the information processing industry. Thus, the use and application of the personal computer is discussed throughout the textbook in the same detail as minicomputers and mainframes. It is important to recognize, however, that this is not a personal computer book. Instead, this is a textbook devoted to teaching students about the full range of computers and the processing concepts associated with each.

It was further decided in the development of this textbook that computer hardware and software should not be treated as individual units of study. Instead, the approach is to integrate these concepts throughout the text. For example, in Chapter 1, the student is provided with an overview of the basic concepts of information processing. This chapter includes material on the need for information processing; the basic components of a personal computer; software concepts; how a personal computer processes data using an electronic spreadsheet application; a tour of a large computer center; the information center; and the use of the computer and application software.

Chapter 2 contains a discussion of the evolution of the electronic computer industry. This chapter includes not only a discussion of significant announcements in computer hardware and software, but also includes information intended to make the student aware of important social issues related to this new technology.

In Chapter 3, students are presented with the concepts of fields, records, and files, and the importance of data relationships, together with a more detailed discussion of the types of processing that can occur on a computer. The basic concepts of both sequential and random retrieval of data and updating files are also explained. Chapter 4 presents the student with an explanation of the flow of data in both interactive and batch processing systems. Chapters 5, 6, 7, 8, and 9 provide a thorough coverage of computer hardware, including the hardware associated with computer input, output, and auxiliary storage. Also included is the coverage of internal data representation, main computer memory, and user interface.

File and data base management systems are widely used on computers of all types, ranging from personal computers to mainframes. Chapter 10 covers the basic concepts of file and data base management systems. The important subject of data communications is covered in Chapter 11. Special emphasis is placed upon the use of local area networks.

Subsequent chapters are concerned with the important topics of application software, programming languages, operating systems as applied to both personal computers and large computers, and program design. A chapter is included on systems analysis and design which is intended to provide the student with an overview of this important area.

The concluding chapters are designed to point out to the student some of the jobs which are available in the information processing industry, as well as the structure of the industry itself. In addition, an analysis of the social issues associated with the world of high technology, including such issues as national data banks, computer crime, software piracy, and the more general question, Will computers contribute to the quality of life? will be explored.

Appendices

As noted previously, the Appendices contain detailed instruction on how to use SuperCalc3, dBASE III, and WordStar. Various problems are explained relating to each of the software packages. Using a step-by-step approach, numerous screens illustrate the exact sequence of operations necessary to solve the problems. Each software package is explained in a separate appendix. Within each appendix, a number of projects are explained. At the end of each project, student assignments are presented. The student assignments should be completed using a personal computer. Upon completion of the assignments in the appendices, students will have gained experience in creating a spreadsheet, creating and manipulating a database, and using a word processing system.

Student learning aids

At the conclusion of each chapter in the textbook, a comprehensive summary is provided. Review questions are included to serve as the basis for testing one's knowledge of the concepts presented in the chapter. A series of questions presenting controversial issues is included at the end of each chapter. The questions relate to the material presented in the chapter. Teachers are urged to include a discussion of these issues as a part of the classroom activity, probing into these issues with students to assist in developing critical thinking about important issues in information processing. Research projects are also included as a part of each chapter.

Workbook and study guide and computer projects

For additional student activities, a Workbook and Study Guide which accompanies this textbook is available. The material in the workbook is designed to further enhance the instructional materials in each chapter. Each chapter in the workbook includes a chapter review, key words with definitions, matching, true/false and multiple choice self-tests, and other types of projects designed to assist the student in mastering the material in the textbook. Most students entering an introductory course desire to interact with the computer as rapidly as possible. In addition, there is a great need to expose students to the operation of personal computers and computer terminals from the user's viewpoint. To meet both of these needs, the Workbook and Study Guide contains a series of computer projects that simulate typical uses of the computer in an interactive environment. These projects have been very successful in motivating students. It is recommended that the projects be used, beginning with the first week of instruction. The projects are written in BASIC, and the source listings are provided free of charge in the Instructor's Guide for the Workbook and Study Guide. In addition, disks containing the software projects may be obtained from Boyd & Fraser Publishing Company at no charge. The disks are available for the TRS-80 computer, Apple II computers, and IBM Personal Computers.

Of particular interest in the Workbook and Study Guide are activities for SuperCalc3, dBASE III, and WordStar. A separate set of activities are included for each project in the three appendices. These activities include additional student assignments to create spreadsheets, databases, or documents, computer exercises which allow students to increase their understanding of the application software packages, true-false questions, and multiple-choice questions. The Workbook and Study Guide activities for the SuperCalc3, dBASE III, and WordStar appendices are an integral part of the educational process and should be included in all classes teaching the application software packages.

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Gary B. Shelly
Thomas J. Cashman

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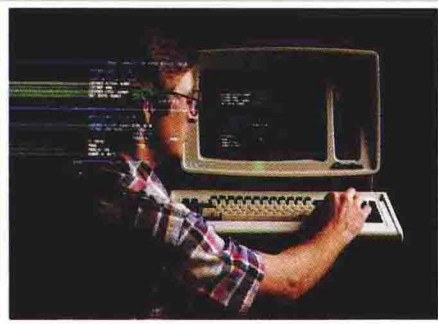
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STOCK QUOTATIONS

NEW YORK STOCK EXCHANGE					
COMPANY SYMBOL	OPEN	HIGH	LOW	LAST	NET CHG
Aluminum Co. of Am.	20.12	20.12	20	20.12	+0.12
American Express Co.	15.12	15.12	15	15.12	+0.12
Bank of Am. Corp.	12.12	12.12	12	12.12	+0.12
Boeing Co.	18.12	18.12	18	18.12	+0.12
Chrysler Corp.	14.12	14.12	14	14.12	+0.12
IBM Corp.	16.12	16.12	16	16.12	+0.12
General Electric Co.	13.12	13.12	13	13.12	+0.12
Johnson & Johnson	11.12	11.12	11	11.12	+0.12
McDonald's Corp.	10.12	10.12	10	10.12	+0.12
Merck & Co. Inc.	9.12	9.12	9	9.12	+0.12
Procter & Gamble	8.12	8.12	8	8.12	+0.12
Walmart Stores Inc.	7.12	7.12	7	7.12	+0.12
Yield	10.12	10.12	10	10.12	+0.12

OVER-THE-COUNTER EXCHANGE					
COMPANY SYMBOL	OPEN	HIGH	LOW	LAST	NET CHG
Aluminum Co. of Am.	20.12	20.12	20	20.12	+0.12
American Express Co.	15.12	15.12	15	15.12	+0.12
Bank of Am. Corp.	12.12	12.12	12	12.12	+0.12
Boeing Co.	18.12	18.12	18	18.12	+0.12
Chrysler Corp.	14.12	14.12	14	14.12	+0.12
IBM Corp.	16.12	16.12	16	16.12	+0.12
General Electric Co.	13.12	13.12	13	13.12	+0.12
Johnson & Johnson	11.12	11.12	11	11.12	+0.12
McDonald's Corp.	10.12	10.12	10	10.12	+0.12
Merck & Co. Inc.	9.12	9.12	9	9.12	+0.12
Procter & Gamble	8.12	8.12	8	8.12	+0.12
Walmart Stores Inc.	7.12	7.12	7	7.12	+0.12
Yield	10.12	10.12	10	10.12	+0.12

AMERICAN STOCK EXCHANGE					
COMPANY SYMBOL	OPEN	HIGH	LOW	LAST	NET CHG
Aluminum Co. of Am.	20.12	20.12	20	20.12	+0.12
American Express Co.	15.12	15.12	15	15.12	+0.12
Bank of Am. Corp.	12.12	12.12	12	12.12	+0.12
Boeing Co.	18.12	18.12	18	18.12	+0.12
Chrysler Corp.	14.12	14.12	14	14.12	+0.12
IBM Corp.	16.12	16.12	16	16.12	+0.12
General Electric Co.	13.12	13.12	13	13.12	+0.12
Johnson & Johnson	11.12	11.12	11	11.12	+0.12
McDonald's Corp.	10.12	10.12	10	10.12	+0.12
Merck & Co. Inc.	9.12	9.12	9	9.12	+0.12
Procter & Gamble	8.12	8.12	8	8.12	+0.12
Walmart Stores Inc.	7.12	7.12	7	7.12	+0.12
Yield	10.12	10.12	10	10.12	+0.12

OTHER EXCHANGES					
COMPANY SYMBOL	OPEN	HIGH	LOW	LAST	NET CHG
Aluminum Co. of Am.	20.12	20.12	20	20.12	+0.12
American Express Co.	15.12	15.12	15	15.12	+0.12
Bank of Am. Corp.	12.12	12.12	12	12.12	+0.12
Boeing Co.	18.12	18.12	18	18.12	+0.12
Chrysler Corp.	14.12	14.12	14	14.12	+0.12
IBM Corp.	16.12	16.12	16	16.12	+0.12
General Electric Co.	13.12	13.12	13	13.12	+0.12
Johnson & Johnson	11.12	11.12	11	11.12	+0.12
McDonald's Corp.	10.12	10.12	10	10.12	+0.12
Merck & Co. Inc.	9.12	9.12	9	9.12	+0.12
Procter & Gamble	8.12	8.12	8	8.12	+0.12
Walmart Stores Inc.	7.12	7.12	7	7.12	+0.12
Yield	10.12	10.12	10	10.12	+0.12

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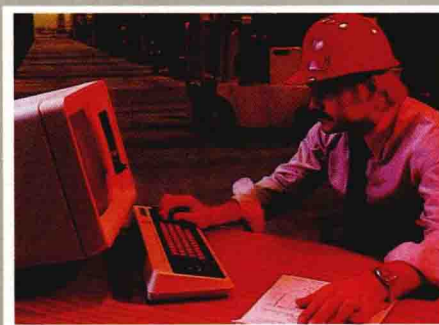


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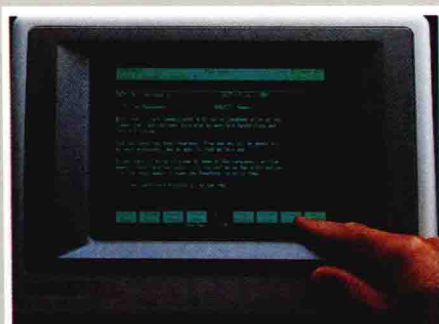
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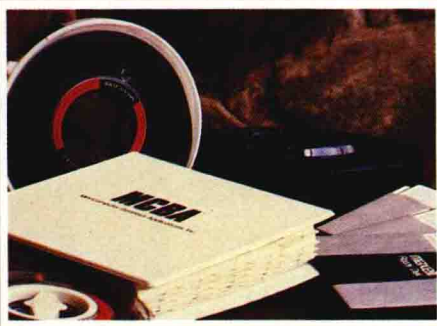


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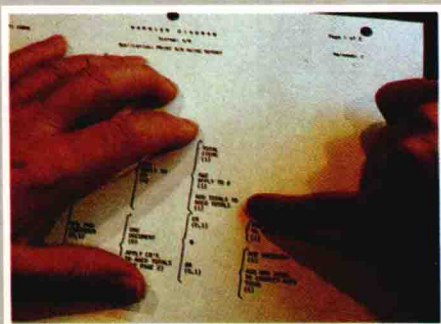


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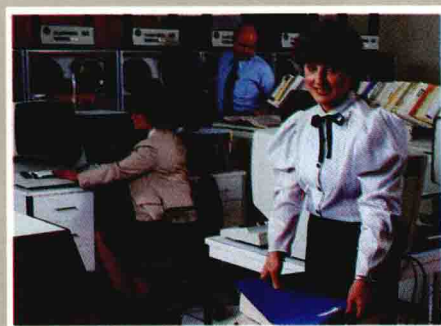


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