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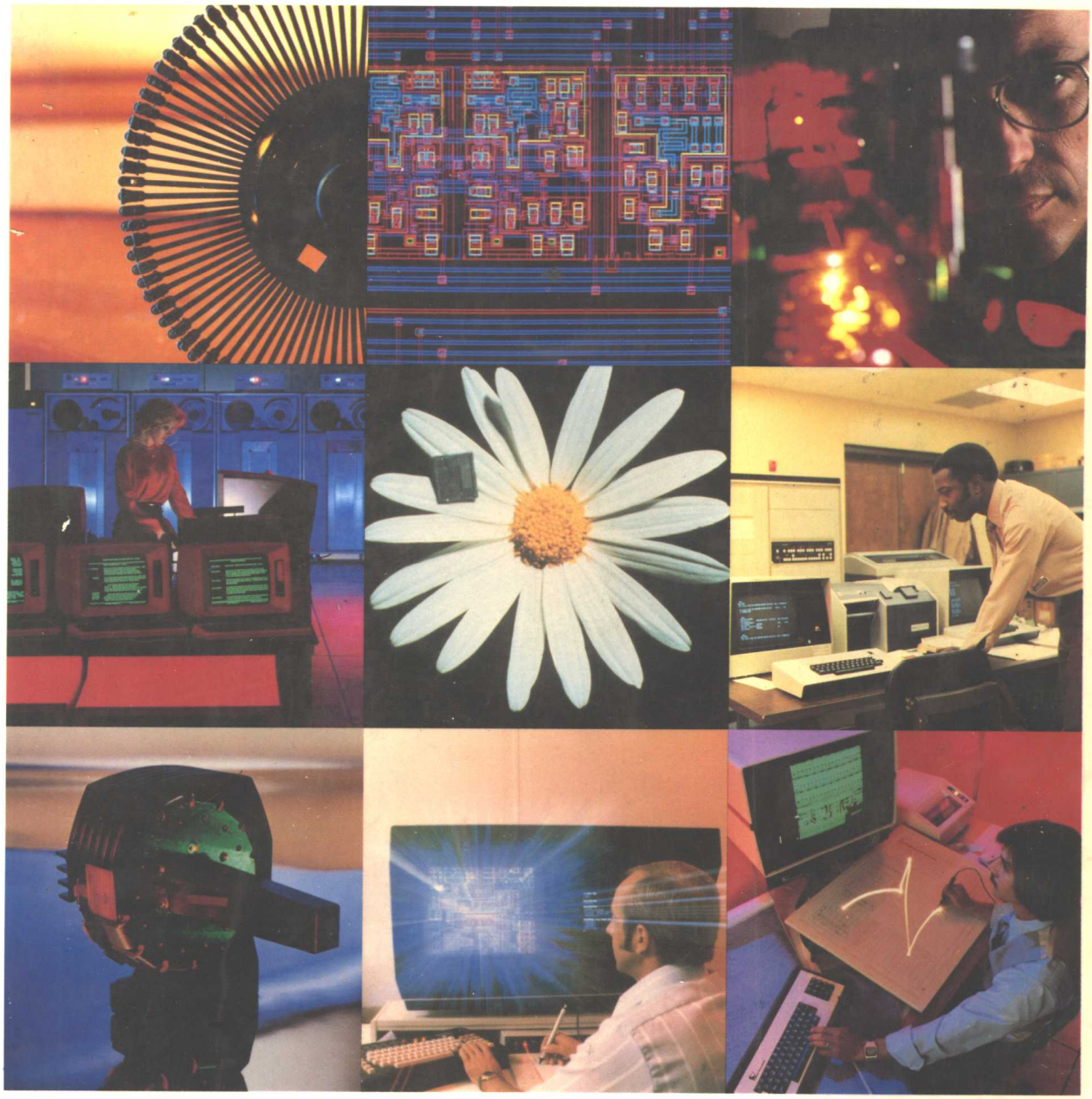

Computers and Data Processing Today with BASIC

Steven L. Mandell

Computers and Data Processing Today

with BASIC

Steven L. Mandell
Bowling Green State University

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A study guide has been developed to assist you in mastering concepts presented in this text. The study guide reinforces concepts by presenting them in condensed, concise form. Additional illustrations and examples are also included. The study guide is available from your local bookstore under the title *Study Guide to Accompany Computers and Data Processing Today,* prepared by Steven L. Mandell.

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(Continued after Index)

PREFACE

In the last few years there has been an explosion in the number of students taking first courses in computers and data processing. This explosion has resulted in the need for a wide variety of books and teaching materials. In the time since the First Edition of *Computers and Data Processing* was published, I've had numerous inquiries into the possible availability of an introductory computer text that would be more concise and briefer than *Computers and Data Processing,* but maintain its clarity and teaching style. Two years of hard work with my publisher have resulted in the book you hold in your hand—*Computers and Data Processing Today.* I believe that this book continues my philosophy of presenting the educational material in a logical, uncluttered manner, while including relevant real-world examples. Additionally, by virtue of its full-color format and extensive use of graphics, I believe this book is one of the most visually appealing introductory computer books yet published.

In structuring the material to be included in this book, I worked closely with my introductory students at Bowling Green State University trying out different teaching approaches. I taught several experimental sections of the introductory computer course, shifting some of the programming material to a very early stage in the course. This afforded the students an opportunity to begin their laboratory experience (BASIC on Apples) after the second week. Tradition has always placed this material after hardware, but I found the students were able to grasp programming concepts prior to knowing the technology. The extremely positive feedback I received from the students concerning this non-traditional approach led to the new organizational

structure in this book. This organization was further reinforced by certain first draft reviewers, who in fact, reported that they often teach their courses in this fashion and thus were most receptive to this new ordering of materials. However, even with this new organization the book remains flexible enough for the instructor to reorder the topics in any order he or she chooses. The book, therefore, remains an extremely flexible teaching device.

The basic pedagogical format found in this book is designed to aid in the clear, straightforward presentation of the material, while including motivational real-world examples. Each chapter begins with a brief introductory section that provides a logical link with the previous material. The chapter outline that follows permits the student to develop a frame of reference for the text material. This outline also provides a useful guide when preparing for exams. At the conclusion of the chapter material, there is a point-by-point summary in sentence form followed by approximately ten review questions.

Two additional features in the pedagogical design warrant special attention, and are also related to the title of this book, *Computers and Data Processing Today*. Several Highlight boxes are included in each chapter that present material of current interest. These materials are designed to be motivational and entertaining, while at the same time providing current perspectives that enrich the book's content. The Highlights appear in the margins so as not to break up the flow of the text material. Secondly, because of the tremendous proliferation of microcomputers today, it became apparent that adequate attention had to be devoted to their special requirements. This arose both from my own teaching experience as well as from comments received from instructors all around the country. Rather than just including a separate chapter on microcomputers, the decision was made to integrate this information throughout the book by providing a separate "Focus on Microcomputing" section at the end of each chapter. This section integrates microcomputer concepts and applications into the material discussed in that particular chapter. This should prove to be an extremely valuable addition for students entering a "micro world."

The importance of good flowcharting techniques can never be under-estimated. This was also made clear to me in reviews of a preliminary version. Therefore, in the book, the flowcharting material presented in the text and in the BASIC/Pascal appendices is augmented through the use of a separate appendix entitled "Common Program Logic Flowcharts." Individuals with courses utilizing a language laboratory will find this addition provides significant flexibility in teaching program design. A second appendix, "Career Opportunities," is also included to give students a practical insight into computer-related careers. Finally, at the end of the text is a comprehensive glossary and a separate index.

In order to provide appropriate materials for the widest variety of teaching situations, there are three versions of this book available. First a version with a very complete BASIC language supplement expanded to include microcomputer implementation; second, a version with a Pascal supplement; and finally a language free version.

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Finally, as I indicated above, I was very fortunate to have had several outstanding college educators serve as reviewers for this project. It is very difficult to fully express my thanks for their help and aid in shaping this project. Without the professional efforts of the following individuals, this book would not be nearly as effective a teaching vehicle: Don Cartlidge, New Mexico State University; James W. Cox, Lane Community College, Oregon; Richard H. Harms, Santa Ana College, California; Fred L. Head, Cypress College, California; Kathleen Ott, New Mexico Junior College; Curtis G. Rawson, Kirkwood Community College, Iowa; Al Stehling, San Antonio College; Rein Turn, California State University, Northridge; Kenneth W. Veatch, San Antonio College; Louis A. Wolff, Moorpark College, California.

A special debt of appreciation goes to Professor Fred Head of Cypress College and to Professor Kathleen Ott, New Mexico Junior College, who in addition to reviewing the entire manuscript, helped greatly in the completion of the "Focus on Microcomputing" Sections. Their meeting a very tight timetable, their good nature, dedication, and enthusiasm will long be remembered.

SUPPLEMENTARY EDUCATIONAL MATERIAL

The Study Guide to accompany this text includes numerous materials for student reinforcement. Each chapter in the Study Guide includes the following: Key Terms; a Narrative Summary of the chapter; a Structured Learning Section; an extensive set of Questions and Answers (True/False, Matching, Short Answers). The format for the student materials supporting the language supplements is slightly different. For each section in the language supplement there is: Structured Learning, Worksheet, and Programming Problems.

A complete instructor resource package has been designed to reduce administrative efforts. The classroom support includes: Learning Objectives, Detailed Outlines, Answers to Review and Discussion Questions, and Additional Review and Discussion Questions. Extensive materials have been included for language versions of this text. For each section in the language supplement, there are an average of four programming problems; each problem is accompanied by a flowchart and a list of any differences for microcomputers.

A Test Bank of over 1,000 multiple choice questions is also included in the Instructor's Manual. In addition, the WESTEST computerized testing service is available from West Publishing Company with these questions in machine-readable form.

There are over 100 Transparency Masters provided. Most of these visuals are novel, and not mere reproductions of artwork found in the text. Additionally, a narrative script of a tour of a modern computer facility is provided to augment a set of color slides available to adopters from West Publishing Company.

ACKNOWLEDGMENTS

Many individuals and companies have been involved in the development of the material for this book. Numerous corporations and government agencies provided the color pictures found in this book in addition to applications material. Many professionals provided the assistance required for a completion of a text of this magnitude: Rod Harris, Pat Cooke, Robert Szymanski, Rebecca Parks, Patricia Ostrowski on student material; Terrye Gregory and Stephen Gregory with BASIC and Pascal; and Norma Morris, Donna Pulschen, and Candace Streeter in manuscript development. The design of the book is a tribute to the many talents of William Stryker. One final acknowledgment goes to my publisher and valued friend, Clyde Perlee, Jr., for his encouragement and ideas.

Steven L. Mandell

CONTENTS

Introduction 2

Chapter Outline 4

Computers in Business 4
Retailing 4
Banking 4

HIGHLIGHT: Debit Card Experiment 6

Manufacturing 6
Computers and Small Business 7

HIGHLIGHT: Computer on Board the Space Shuttle 8

Computers in Government 8
Military 8
Internal Revenue Service 9
Planning for the Environment 10
Weather Forecasting 10
Law Enforcement 11

Computers in Medicine 12
Clerical and Administrative Functions 12
Information Retrieval Functions 13
Computer-Assisted Diagnosis 13

Computers in Education 15

HIGHLIGHT: Computerized Auto Sales 16

Privacy 16
Data Banks 16
Privacy Law 18

Computer Crime/Security 20

HIGHLIGHT: Computers in Organized Crime 21

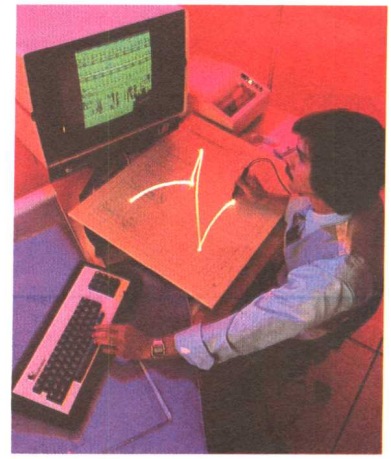
Computer Crime 21
Computer Security 22

Summary Points 24

Review Questions 25

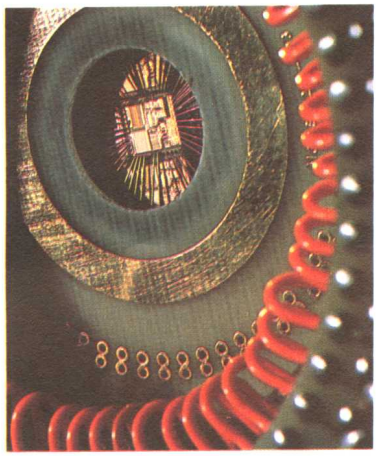
FOCUS ON MICROCOMPUTING: Personal Computers: As Common As Television Sets 26

CHAPTER 1



The Role of Computers in Today's Society 2

CHAPTER 2



Information Processing 28

Introduction 28

Chapter Outline 30

Background 30

PROFILE: Ada Lovelace 32

Early Developments to State-of-the-Art 33

PROFILE: John Vincent Atanasoff 35
Electronic Processing 35

HIGHLIGHT: Computer Charting of Airplay 37

First Generation: 1951-1958 37
Second Generation: 1959-1964 39
Third Generation: 1965-1971 41
Fourth Generation: 1972-? 43
Perspective 44

HIGHLIGHT: A Nanosecond 47

Data Processing 47
Input 49
Processing 49
Output 49
Feedback 49

PROFILE: T. J. Watson 50

Data Organization 50

Data Processing Example 51

Conclusion 52

Summary Points 53

Review Questions 54

FOCUS ON MICROCOMPUTING: Innovators in the Micro World 56

CHAPTER 3

The Programming Process 58

Introduction 58

Chapter Outline 60

Computer Problem Solving 60
Problem-Solving Process 60

Defining the Problem 60
Output 61
Input 61

HIGHLIGHT: Micromouse 62

Processing 62
Designing a Solution 62
Basic Logic Patterns 62
Pseudocode 64
Flowcharts 64
Special Considerations in Solution Design 65
Input 66

HIGHLIGHT: No More Yelling "Hold the Mayo" 68

Writing the Program 69
Desirable Program Qualities 70

Compiling, Debugging, and Testing the Program 70
Levels of Language 70
Machine Language 70
Assembly Language 71
High-level Programming Languages 71
Language Translation 71
Debugging the Program 73

HIGHLIGHT: The First Computer "Bug" 75

Testing the Program 75

Programming Case Study 75
Defining the Problem 75
Designing a Solution 76
Writing the Program 78
Compiling, Debugging, and Testing the Program 78

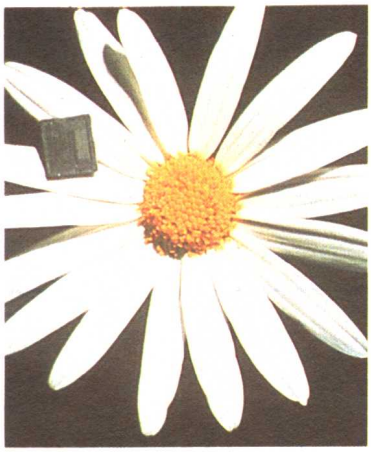
Structured Programming 79

Summary Points 82

Review Questions 83

FOCUS ON MICROCOMPUTING: Programs for Your Microcomputer 84

CHAPTER 4



Computer Hardware 86

Introduction 86

Chapter Outline 88

Digital and Analog Computers 88

Central Processing Unit 88

HIGHLIGHT: Analog versus Digital 89

Instructions 90

Stored-Program Concept 92

Storage 92
Storage Locations and Addresses 92
Primary Storage 93
Read-Only Memory (ROM) 97

HIGHLIGHT: Computerized Film Backgrounds 100

Registers 100

Data Representation 100
Binary Representation 100
Hexadecimal Number System 102
Computer Codes 103
Code Checking 105

Summary Points 105

Review Questions 106

FOCUS ON MICROCOMPUTING: Hardware 108

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Introduction 110

Chapter Outline 112

Punched Cards 112

Key-to-Magnetic Media 113

HIGHLIGHT: Ski School Computer 114

Source-Data Automation 114
Magnetic-Ink Character Recognition 115

HIGHLIGHT: The Songwriter's Helper 116

Optical Recognition 116
Remote Input 119

Printers 122
Impact Printers 122

HIGHLIGHT: Computers and Sports 125

Nonimpact Printers 126

HIGHLIGHT: Psychiatric Programming 127

Special-Purpose Output 128
Visual Display Terminals 128
Plotters 131
Computer Output Microfilm 131

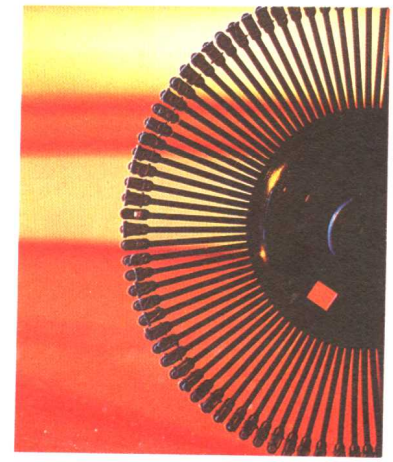
HIGHLIGHT: Biological Computers 132

Summary Points 132

Review Questions 132

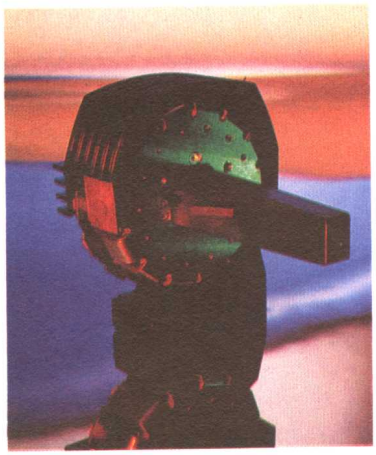
FOCUS ON MICROCOMPUTING: Input/Output 134

CHAPTER 5



Communicating with the Computer: Input/Output Devices 110

CHAPTER 6



Remote Access Communication Systems 136

Introduction 136

Chapter Outline 138

Communication Channels 138
Message Transmission 138
Grades of Transmission 139

HIGHLIGHT: Pager Developments, or "Beefed-Up Beepers" 140

Modes of Transmission 140

Multiplexers and Concentrators 141

Programmable Communications Processors 142

Networks 142
Architecture 142
Distributed Data Processing 146
Southern Railway Company 146
Bank of America 148

HIGHLIGHT: Telecommuting: A Modern Alternative 151

Satellite Communication Systems 151
Current Satellite Usage 152

HIGHLIGHT: Medallions Help System Subscribers 154

Satellite Business Systems 154

HIGHLIGHT: Computer Maps 156

Summary Points 156

Review Questions 157

FOCUS ON MICROCOMPUTING: Communication Networks 158

Introduction 160

Chapter Outline 162

Classification 162

Sequential-Access Media 162
Magnetic Tape 162

HIGHLIGHT: Computer Sales Pitches 166

Cassette Tape 166

Sequential Design 166
Example of Sequential Processing 170
Interrogating Sequential Files 172

HIGHLIGHT: Jackpot Banking 173

Assessment of Sequential Design 173

Direct-Access Media 173
Magnetic Disk 173
Floppy Disk 176

Direct-Access Design 177
Interrogating Direct-Access Files 178
Assessment of Direct-Access Design 180

Indexed-Sequential Design 180

HIGHLIGHT: Computer Tutor 181

Examples of Indexed-Sequential Processing 181
Assessment of Indexed-Sequential Design 183

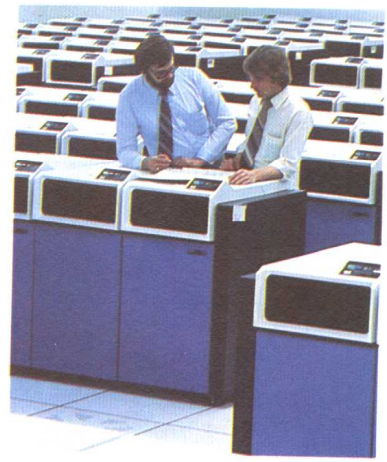
Mass Storage 184

Summary Points 184

Review Questions 185

FOCUS ON MICROCOMPUTING: Data Storage 186

CHAPTER 7



Storage Devices and Process Design 160

CHAPTER 8

Software
188

Introduction 188

Chapter Outline 190

Programs 190

Operating Systems 190
Types of Operating Systems 190
Components 191
Control Programs 191
Processing Programs 192

HIGHLIGHT: Sometimes The Output is Wet 194

Programming Languages 194
Machine-Oriented Languages 194
Machine Language 194
Assembly Language 195
Procedure-Oriented Languages 198
COBOL 198
FORTRAN 200

HIGHLIGHT: Political Speeches by Program 201
PL/I 201
Problem-Oriented Languages 204
RPG 204

PROFILE: Captain Grace Hopper 206
Interactive Programming Languages 206

HIGHLIGHT: BASIC Software Packages 209

BASIC 209
Pascal 210
APL 213

Multiprogramming, Virtual Storage, Multiprocessing 215
Multiprogramming 215
Virtual Storage 216
Multiprocessing 217

Summary Points 219

Review Questions 220

FOCUS ON MICROCOMPUTING: Programming Languages and the Microcomputer 222

Introduction 224

Chapter Outline 226

Information System Theory 226
Definition of a System 226
The System's Interaction with Other Systems 227
The Organization as a System 227

System Methodology 229
System Analysis 229

HIGHLIGHT: Computer at the Cinema 230

System Design 233

HIGHLIGHT: Making It Big in System Design 234

System Implementation 235

HIGHLIGHT: Computers in the Leisure Industry 237

System Audit and Review 237

Management Information Systems 238
Levels of Management 238
Decision-Oriented Reporting 240
Management and MIS 241

Structured Design Methodology 241
Top-Down Design 242

Design Alternatives 242

HIGHLIGHT: Ahwatukee—Arizona Dream House 247

Data-Base Management 247
Data Organization 247

HIGHLIGHT: Data Base Corrals Rustlers 248

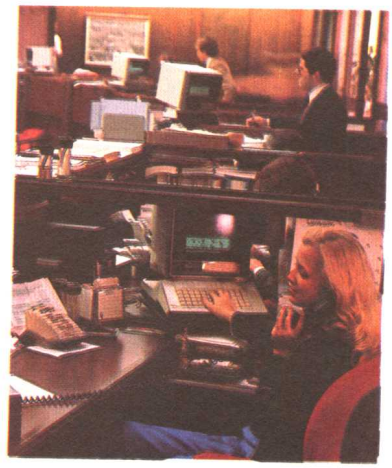
Data-Base Management System (DBMS) 248

Summary Points 250

Review Questions 251

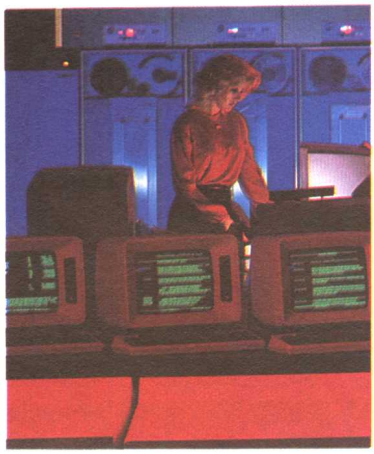
FOCUS ON MICROCOMPUTING: Using Microcomputers in Business 252

CHAPTER 9



System Analysis and Design 224

CHAPTER 10



Computer Systems 254

Introduction 254

Chapter Outline 256

Main Frames 256
Vendors 256
Vendor Support 256
Market Trends 256

Maxicomputers 259

Minicomputers 260
Distributed Processing 262

HIGHLIGHT: Software Stores 263

Software Support 263

Microcomputers 263
Vendors and Vendor Support 265
Applications 266
Computer Stores 269
Evaluating Microcomputers 269

HIGHLIGHT: Program Piracy 270

Software 270
Vendors 270
Market Trends 270

Service Bureaus and Time-Sharing Companies 271

Management Perspectives in Computer Systems 274

HIGHLIGHT: Looking Ahead 275

Summary Points 277

Review Questions 278

FOCUS ON MICROCOMPUTING: Selecting Your Microcomputer 280

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