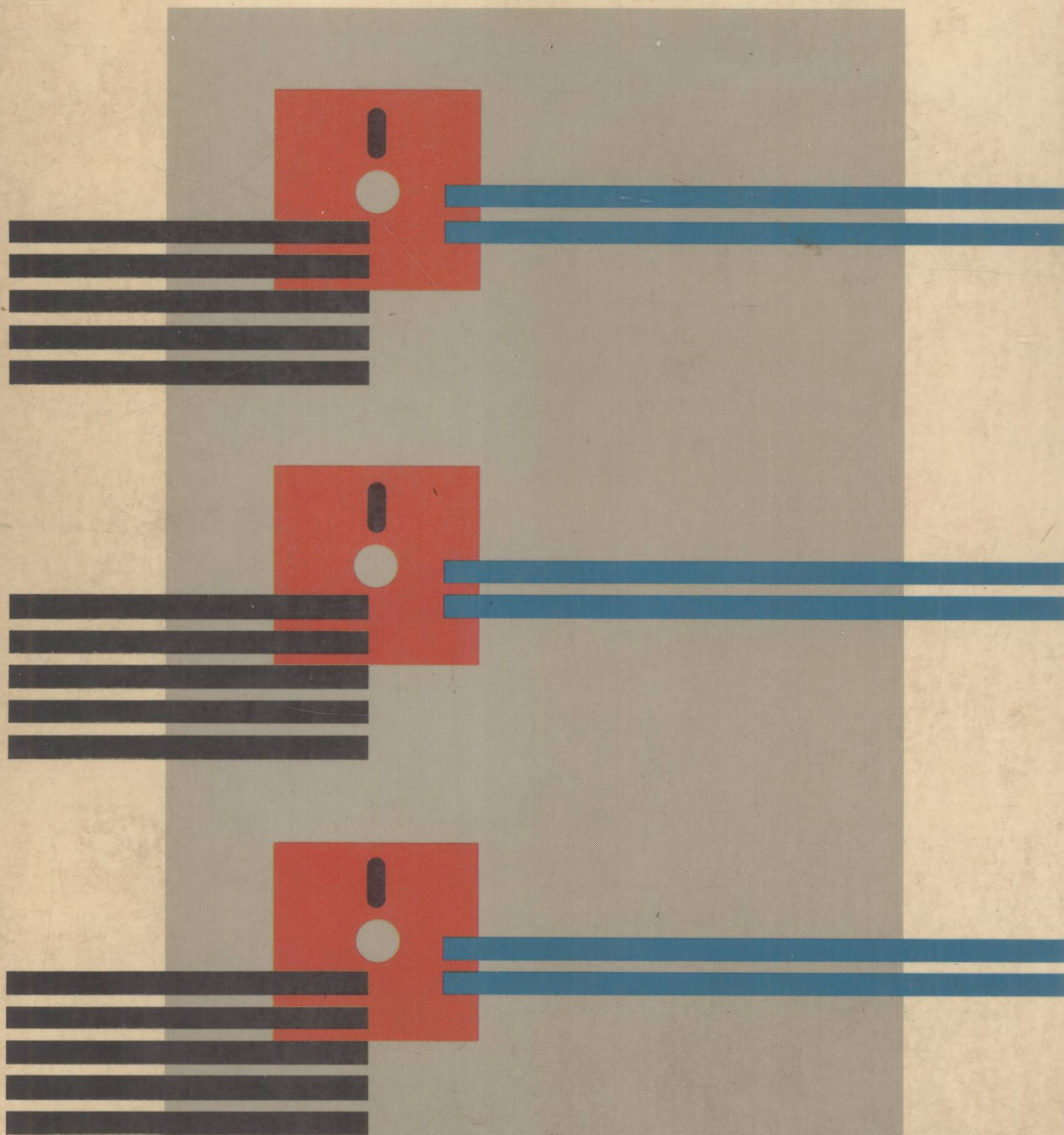




ALAN SIMPSON

UNDERSTANDING dBASE III®



UNDERSTANDING dBASE III®

Alan Simpson



SYBEX® Berkeley • Paris • Düsseldorf • London

dBASE II and dBASE III are registered trademarks of Ashton-Tate
CP/M, CBASIC, and CB-80 are registered trademarks of Digital Research Incorporated
MS-DOS and MBASIC are registered trademarks of Microsoft
WordStar and MailMerge are registered trademarks of MicroPro International
PC-DOS is a registered trademark of International Business Machines
SuperCalc is a registered trademark of Sorcim
Disk Doctor is a registered trademark of Super Soft
Quickcode is a registered trademark of Fox and Gellar
Microline is a registered trademark of Okidata Corporation

SYBEX is not affiliated with any manufacturer.

Every effort has been made to supply complete and accurate information. However, SYBEX assumes no responsibility for its use, nor for any infringements of patents or other rights of third parties which would result.

Copyright©1986 SYBEX Inc., 2344 Sixth Street, Berkeley, CA 94710. World rights reserved. No part of this publication may be stored in a retrieval system, transmitted, or reproduced in any way, including but not limited to photocopy, photograph, magnetic or other record, without the prior agreement and written permission of the publisher.

Library of Congress Card Number: 84-52590
ISBN 0-89588-267-1

Printed by Haddon Craftsmen
Manufactured in the United States of America

10

20 19 18 17 16 15 14 13 12 11

UNDERSTANDING dBASE III

To Julie

Acknowledgments

Once again, top thanks go to Carole Alden, my editor from SYBEX, for being a great editor, teacher, and friend. And thanks to Rodney Zaks, Rudolph Langer, and everyone else at SYBEX for helping turn this idea into yet another real live book.

Special thanks to Bill and Cynthia Gladstone, my literary agents at Waterside Productions in Del Mar, California for turning my dream of being a writer into a reality, and for being great friends too. And thanks to Susan for being a good Waterside "road trip" buddy.

Thanks to my loved ones for patiently putting up with my neglect during my work on this manuscript.

And, of course, thanks again to all of my students for teaching me what to write about.

Introduction

dBASE IIITM is a database management system for microcomputers. This is a book about putting the computer to work for you using dBASE III. We will not be too concerned here about how the computer does it. This is a book about using the computer to our benefit. When we learn to drive a car, for example, we are not too concerned about the inner workings of the clutch or voltage regulator. Instead, we just want to get from point A to point B faster and more efficiently than walking. The same is true for the majority of computer users in the world today. Knowing about bits and bytes and B-trees is great, but most of us are more concerned about getting from A to B. Point A in the computer sense is doing dull tasks inefficiently, slowly, and with human error. Point B is letting the machine do dull tasks quickly, efficiently, and accurately.

This book is written with the computer novice in mind, but certainly more experienced users can learn from our examples too. The approach for teaching you to use dBASE focuses on the practical. Rather than just tell you what dBASE does, we show you with real-life everyday examples. We'll not only tell you what the dBASE commands mean, but we'll also teach you the concepts behind using the commands correctly. We'll also give you some good techniques for using dBASE III to its fullest potential.

If you have dBASE III handy, you should follow along by trying out the examples in the book. We assume that you are using a computer with two disk drives, drive A and drive B. The examples are set up such that the dBASE III system disk is in drive A, and the databases we create are on the disk in drive B. You can use any disk configuration that you wish, however. For example, drive B is specified as the drive to put databases on by preceding the filename with the symbol B: (i.e., CREATE B:MAIL, USE B:MAIL). If you don't have a drive B, just leave off the B: (i.e., CREATE MAIL, USE MAIL).

The contents of the book include the following. Chapters 1-7 deal with dBASE III basics: creating a database; adding data to it; searching, sorting, and editing the data; and printing formatted reports and

mailing labels. Chapters 8 and 9 deal with managing multiple data files, using an inventory system as the example. Chapters 10–16 discuss programming techniques which are used to go beyond the built-in capabilities of dBASE.

Appendix A discusses interfacing dBASE III with other programs such as WordStar, SuperCalc, and BASIC. Appendix B goes into graphics, and is basically just for fun. Appendix C is a summary of dBASE III commands that you can use as a reference. Appendix D discusses translating dBASE II data and programs to dBASE III.

Configuring DOS for dBASE III

To take full advantage of the capabilities of dBASE III, you should boot up the computer with a special CONFIG.SYS file on the boot-up disk. The CONFIG.SYS file you need is stored on the dBASE III system disk. If you have a hard disk system, and usually boot up from the hard disk, just copy the CONFIG.SYS file to the main directory of the hard disk. To do so, stay logged on to the C drive, put the dBASE III system disk into drive A, and type the command:

```
COPY A:CONFIG.SYS
```

If you usually boot up from a floppy disk, copy the CONFIG.SYS file to the disk that you normally boot up from. First, make sure that there is no write-protect tab on the disk you normally boot up from, then put it in drive B. Put the dBASE III system disk in drive A. From the DOS A> prompt, type in the command:

```
COPY CONFIG.SYS B:
```

If it won't fit, you may need to erase a file on the boot-up disk. You could also create a disk specifically for booting up with dBASE III. Simply put a blank, unformatted disk in drive B, and the DOS disk in drive A. Make a formatted, bootable disk with the command:

```
FORMAT B:/S
```

When the formatting is complete, remove the DOS disk from drive A, and put in the dBASE III system disk. Type in the command:

```
COPY CONFIG.SYS B:
```


To reboot the system with the CONFIG.SYS file, remove the disk from drive A and insert the new disk with the CONFIG.SYS file on it. Hold down the Ctrl and Alt keys simultaneously, and press the Del key. The system will reboot back to the A> prompt using information from the CONFIG.SYS file. When you wish to use dBASE III in the future, be sure to boot up or reboot with the disk that has the CONFIG.SYS file on it.

For more information on the CONFIG.SYS file, see the file named READ.ME on the dBASE III system disk. From the A> prompt, enter the command:

TYPE READ.ME

and press RETURN. For a printed copy, first make sure the printer is on, then hold down the Ctrl key and type the letter P. Then type the command:

TYPE READ.ME

or the command:

TYPE A:READ.ME

and press RETURN. After the READ.ME file is printed, hold down the Ctrl key and type P again.

Selections from The SYBEX Library

ADVANCED BUSINESS MODELS WITH 1-2-3

by Stanley R. Trost

250 pp., illustr., Ref. 0-159

Take full advantage of the power of still best-selling 1-2-3, quickly and easily! If you are a business professional who wants to use the 1-2-3 software package for forecasts, budgets, financial analysis, data base management, or graphing, this book will provide you with models that are ready for use in everyday business situations. In addition, this book will guide you to advanced knowledge of 1-2-3, allowing you to create your own models from the examples in the text.

ADVANCED TECHNIQUES IN dBASE II

by Alan Simpson

250 pp., illustr., Ref. 0-228

If you are an experienced dBASE II programmer and would like to begin customizing your own programs, this book is for you. It is a well-structured tutorial that offers programming techniques applicable to a wide variety of situations. Data base and program design are covered in detail, and the many examples and illustrations clarify the text.

REAL WORLD UNIX™

by John D. Halamka

209 pp., Ref. 0-093

This book is written for the beginning and intermediate UNIX user in a practical, straightforward manner, with specific instructions given for many business applications.

DOING BUSINESS WITH MULTIPLAN™

**by Richard Allen King and
Stanley R. Trost**

250 pp., illustr., Ref. 0-148

This book will show you how using Multiplan can be nearly as easy as learning to use a pocket calculator. It presents a collection of templates for business applications.

UNDERSTANDING dBASE II™

by Alan Simpson

260 pp., illustr., Ref. 0-147

Learn programming techniques for mailing label systems, bookkeeping, and data management, as well as ways to interface dBASE II with other software systems.

THE THINKTANK™ BOOK

by Jonathan Kamin

200 pp., illustr., Ref. 0-224

Learn how the ThinkTank program can help you organize your thoughts, plans, and activities.

THE COMPLETE GUIDE TO MULTIMATE™

by Carol Holcomb Dreger

250 pp., illustr., Ref. 0-229

A concise introduction to the many practical applications of this powerful word processing program.

INTRODUCTION TO WORDSTAR®

by Arthur Naiman

202 pp., 30 illustr., Ref. 0-134

Makes it easy to learn WordStar, a powerful word processing program for personal computers.

ESPIONAGE IN THE SILICON VALLEY

by John D. Halamka

200 pp., illustr., Ref. 0-225

Discover the behind-the-scenes stories of famous high-tech spy cases you've seen in the headlines.

ASTROLOGY ON YOUR PERSONAL COMPUTER

by Hank Friedman

225 pp., illustr., Ref. 0-226

An invaluable aid for astrologers who want to streamline their calculation and data management chores with the right combination of hardware and software.



are different.

Here is why . . .

At SYBEX, each book is designed with you in mind. Every manuscript is carefully selected and supervised by our editors, who are themselves computer experts. We publish the best authors, whose technical expertise is matched by an ability to write clearly and to communicate effectively. Programs are thoroughly tested for accuracy by our technical staff. Our computerized production department goes to great lengths to make sure that each book is well-designed.

In the pursuit of timeliness, SYBEX has achieved many publishing firsts. SYBEX was among the first to integrate personal computers used by authors and staff into the publishing process. SYBEX was the first to publish books on the CP/M operating system, microprocessor interfacing techniques, word processing, and many more topics.

Expertise in computers and dedication to the highest quality product have made SYBEX a world leader in computer book publishing. Translated into fourteen languages, SYBEX books have helped millions of people around the world to get the most from their computers. We hope we have helped you, too.

For a complete catalog of our publications:

SYBEX, Inc. 2344 Sixth Street, Berkeley, California 94710
Tel: (415) 848-8233 Telex: 336311

Contents

INTRODUCTION

xiv

1

DATABASES

1

What is a Database? 1

Introduction to Database Management 4

2

MANAGING DATA

7

Creating a Database with CREATE 8

Adding Data with APPEND 11

Viewing Data with DISPLAY and LIST 17

3

SEARCHING THE DATABASE

21

Searching with LIST FOR 22

Searching with the LOCATE Command 26

4

SORTING THE DATABASE

33

Sorting with SORT 34

Sorting with INDEX 39

Sorts within Sorts 45

5

EDITING AND MODIFYING DATABASES

51

Editing with EDIT	52
Editing with BROWSE	54
Global Editing with CHANGE and REPLACE	56
Deleting from the Database with DELETE, PACK, and RECALL	59
MODIFY STRUCTURE of a Database	63

6

CREATING AND PRINTING FORMATTED REPORTS

69

REPORT FORM	70
Modifying Reports	82
Mailing Labels	83

7

MANAGING NUMBERS IN A DATABASE

89

Managing Numeric Data	90
SUM and COUNT	91
Managing Dates	93
Date Arithmetic	97
Sorting by Date	99
Total and Subtotal in Reports	101

8

MANAGING MULTIPLE DATA FILES

109

An Inventory System	111
Updating Databases with UPDATE	113

9

COMBINING AND SUMMARIZING DATABASES

121

- Multiple Databases 122
- Relational Databases 125
- Summarizing Databases with TOTAL 133

10

MEMORY VARIABLES

137

- Managing Data in RAM 138
- Storing Data to Memory Variables with STORE 140
- Math Functions 144

11

CREATING COMMAND FILES

149

- Creating Command Files with MODIFY 150
- Running Command Files with DO 151
- Setting Up Loops in Programs
with DO WHILE and ENDDO 152

12

MAKING DECISIONS

161

- Asking Questions with ACCEPT and INPUT 162
- Making Decisions with IF and ENDIF 163
- Making Decisions with DO CASE 169
- Macro Substitution 170

13

PROGRAM DESIGN AND DEVELOPMENT

175

- Step 1. The General Idea 176
- Step 2. Design the Database Structure 176

Step 3. Develop Pseudocode	177
Step 4. Write the Program	178
Step 5. Run and Test the Program	179

14

A MAILING LIST SYSTEM

185

The SORTER Command File	186
The EDDY Command File	188
The DELNAMES Command File	193
The DUPES Command File	194
Linking Command Files to the Mail Menu	197

15

DEBUGGING TECHNIQUES

201

Public Memory Variables and DISPLAY	202
SET TALK ON	203
SET ECHO ON	203
SET STEP ON	203
SET DEBUG ON	203
Make a Hardcopy of the Program	204

16

SETTING UP SCREEN DISPLAYS

211

Creating Forms with @, SAY, GET, and READ	212
Making Templates with PICTURE	215
Using the Custom Screens from a Menu	218
Ranges	220

17

SOME USEFUL TIPS

223

Using Abbreviations	224
Custom Screens with dFormat	224

Memo Fields	231
Quick Lookups	235
Complex Sorts	237
Record Numbers in Reports	241
Custom Configurations	242

APPENDICES

A INTERFACING dBASE III WITH OTHER SOFTWARE SYSTEMS 245

Interfacing with Word Processors	246
Interfacing with Spreadsheet Software	249
Interfacing with BASIC Data Files	253

B GRAPHICS WITH dBASE III 259

The Character Set	260
A General-Purpose Bar Graph Routine	266

C dBASE III VOCABULARY 275

D CONVERTING dBASE II FILES TO dBASE III FILES 293

The dConvert Program	294
Converting Databases	295

Converting Index Files	295
Converting Report Formats	296
Converting Memory Files	296
Converting Custom Screen Files	296
Converting Command Files	297

INDEX

298