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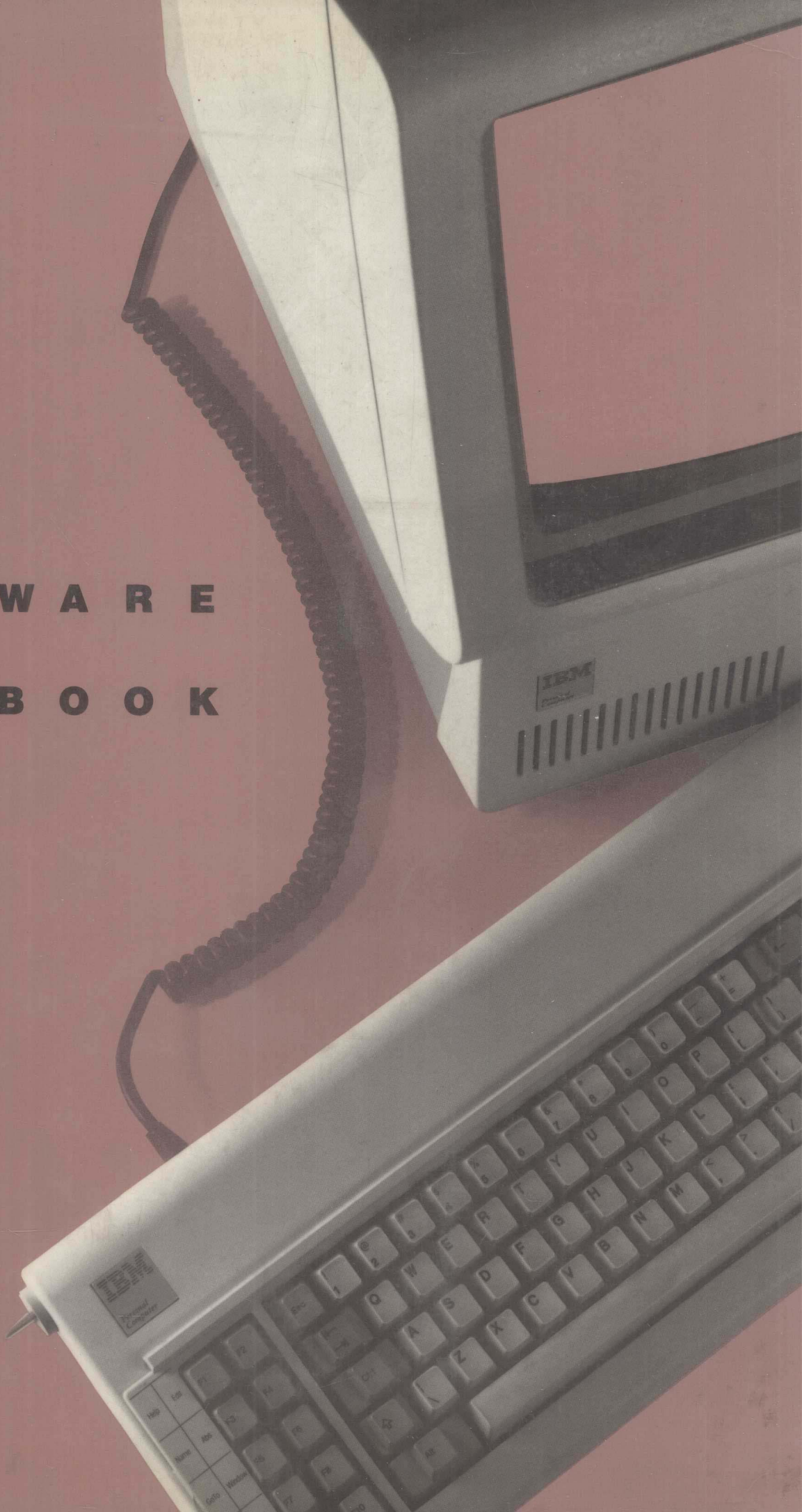
John W. Durham

PC SOFTWARE WORKBOOK

A Tutorial
Introduction to:
The PC and DOS,
PC-Write™,
PC-Calc + ™,
PC-File + ™
Second Edition



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PREFACE

PC Software Workbook provides you with a concise, step-by-step introduction to the use of the most popular types of software for microcomputers. These types are: (1) operating systems (PC-DOS or MS-DOS); (2) word processing programs (PC-Write); (3) electronic spreadsheet programs (PC-Calc+); and (4) database management programs (PC-File+). Thus, these tutorials can be used to give you hands-on experience with microcomputers and their software.

The goal of this workbook is to teach you to use such packages so that you will understand how to:

- Use an operating system to manage a microcomputer and its hardware, software, and data resources.
- Create, edit, store, and print a document using word processing functions.
- Build, modify, store, print, graph, and use an electronic spreadsheet.
- Create and use a database and retrieve, display, modify, and report information.

This workbook contains **tutorials** on how to use software packages, not just descriptions of the products. Thus, its four chapters have hands-on exercises and assignments. **Hands-On Exercises** ask you to perform each major operation of a package. **Hands-On Assignments** at the end of each section give you opportunities to use the packages on your own. Answers to these assignments are provided in an accompanying **Instructor's Manual**. The tutorials have been class tested and used successfully by faculty and students in lower and upper division courses in Computer Information Systems. The tutorials should thus provide a valuable introduction to the use of microcomputer software packages.

Note: the versions of the software described here are PC-DOS or MS-DOS 2.0 (or later), PC-Write version 3.0, PC-Calc+ version 1.0, and PC-File+ version 2.0. They all require an IBM PC or compatible computer, at least 256k bytes of main memory (in some cases more - see the individual chapters), and at least one double-sided floppy disk drive. They work well with most popular printers and monitors. PC-DOS is an IBM product, and, along with MS-DOS, was developed by Microsoft Corporation. PC-Write (a product of Quicksoft), along with PC-Calc+ and PC-File+ (products of Buttonware) are copyrighted by their authors, but you have permission to copy them for others. Consult the manuals for these packages for details.

The authors welcome suggestions and comments. Please send them to us through Richard D. Irwin, Inc.

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CONTENTS

CHAPTER ONE
USING THE PC AND DOS

OUTLINE OF CONTENTS

INTRODUCTION

This chapter introduces **personal computers** (**PC**s) and the **disk operating system** (**DOS**).

Hardware Requirements

This chapter assumes you have at least the following hardware:

- ☐ **System unit.**
  A PC with at least 256k (about 256,000 bytes) of main memory.

- ☐ **Secondary storage.**
  2 floppy diskette drives or one floppy disk drive and one hard disk drive.

- ☐ **Video display unit.**
  A one-color display.

- ☐ **Printer.**
  Any dot-matrix or compatible printer will do.

- ☐ **Diskettes.**
  At least one blank 5-1/4" floppy diskette.

- ☐ **Hardware variations.**

  You may have other hardware. Most variations from what has been described won't affect your use of the software described in this book. For example, if you have more than 256k bytes of main memory, no changes at all are needed to run the programs discussed here. Similarly, if you have 3-1/2" "microfloppy" disk drives, nothing really changes, although your disks look a little different and probably hold more.

  However, one kind of variation might cause some confusion: if you have a hard disk. Most hard disk systems in colleges and universities have one floppy disk drive and one hard disk drive. On pure floppy-disk systems, the two disk drives are called "A:" and "B:"; on systems equipped with hard disks, the drives are probably called "C:" (the hard disk) and "A:" (the floppy disk).

On pure floppy-disk systems, the usual setup is that the disk with the programs on it goes in drive A:, while your own disk (which will hold your data) goes in drive B:. We will usually assume this arrangement.

On hard-disk systems, however, the usual routine is that the software is stored on drive C:, while your floppy disk goes in drive A:. If this kind of system is what you have, you will need to pay close attention to the instructions that follow. Wherever the instructions refer to particular disk drives, you will have to make the following translations:

hard disk drive	=	floppy disk drive
C: (programs)		**A:** (programs)
A: (data)		**B:** (data)

HANDS-ON EXERCISE 1- 1: YOUR HARDWARE

[NOTE: Whenever you encounter "Hands-On" exercises, if you have access to a computer, pause in your reading and do them. Even if you do not have access to a computer, you can benefit by thinking them carefully through. To enhance your learning still more, there are additional exercises at the end of each chapter.]

Make a sketch of your computer system showing the following features. Show the connections from the peripheral units to the system unit.

a. System unit
b. Floppy disk drives
c. Hard disk drive (if any)
d. Display unit
e. Keyboard
f. Printer

Label the sketch with the manufacturer and model number of the computer. Beneath or next to your sketch, write down the following information about the computer hardware (you may have to ask your instructor for some of this information):

a. How much main memory does it have?

b. What is the memory capacity of the floppy disk drives?

c. What is the capacity of the hard disk drive (if any)?

Hands-On Exercise 1- 1, continued

d. What kind of display hardware does the system have (especially important - find out if the system has a "monochrome" display as opposed to a "color graphics" display)

e. What kind of printer is connected?

Software Requirements

Besides the hardware described above, you will need certain software. All of the software described in Chapters 2, 3, and 4 is **shareware** (it is legally copyable with certain restrictions - details are given in those chapters). However, DOS is not shareware; it is, in general, not legally copyable.

☐ **A copy of DOS for the PC**

Either the IBM operating system (called "**PC-DOS**") or the generic version (called "**MS-DOS**") will do. The choice will depend on the particular kind of computer system which you have. (If you do not have an IBM computer, probably you will need MS-DOS; otherwise, the type of system should probably be PC-DOS.) The two kinds of DOS have certain technical differences, and are not completely alike in all respects, but the user rarely notices any distinction.

There are many versions of DOS, with the oldest numbered 1.0. This book assumes you have a version no older than DOS 2.0. Usually, a program which runs with an older version (a lower version number, such as 1.0 or 1.1) will also run under a newer version (higher version number, such as 3.0 or 3.1). The opposite is not true. Many programs require a DOS version of 2.0 or later. In addition, disks which were written under older versions of DOS are usually readable by computers running later versions, but the reverse is not true. (Of course, a disk written under a completely different operating system, such as Apple DOS, will be completely useless to a computer running PC-DOS or MS-DOS; disks written by PC-DOS are normally usable on computers running MS-DOS, and vice versa.)

DOS 2.0 will run in a computer with as little as 64k of main memory and with only one floppy disk drive. Later versions of DOS may require more memory or double-sided disk- drives; consult DOS manuals for details. The other software described in this Workbook (PC-Write, PC-Calc+, and PC-File+) will not run on systems with less than 256k main memory (280k for PC-Calc+), or with single-sided disk drives.

DOS is not a single program. Rather, it is a collection of related programs which collectively make up the **operating system** of a PC. We will discuss DOS in more detail below.

☐ **Additions to the standard DOS system**

In many systems, "**menu**" programs have been added to DOS to make it easier to use applications software. While such systems are convenient for the applications which they manage, our purpose in this chapter is to learn about DOS. (Menu systems are especially common on computers equipped with hard disks.) If you have a system on which a menu program is running, find out how to exit from it so that you can work directly with DOS.

HANDS-ON EXERCISE 1- 2: YOUR SYSTEM SOFTWARE

Find out and write down the following information about your system (you may have to ask your instructor for some of this information).

a. What version of DOS will be used?

b. Will DOS be on a floppy or hard disk?

c. From what disk or diskette drive will the computer "boot" (start up)?

d. Will a menu system be used? If so, how do you exit from the menu to get to DOS?

THE PERSONAL COMPUTER

The "**PC**" is the most common kind of microcomputer in the business world. The first version was made by International Business Machines Corp. (IBM), but now many manufacturers of computers have made their own versions. IBM PCs are the most common kind, and are regarded as a kind of standard. Versions of PCs made by other manufacturers usually act like an IBM PC, so they are called "**IBM compatibles.**" The "compatibles" are not perfect imitations of IBM microcomputers, so you may find a program that runs well on an IBM PC but not on a compatible.

As offered by IBM in 1986, the PC line consisted primarily of two types of computers: the "**XT-type**" machines were based on the Intel 8088 microprocessor chip, while the "**AT-type**" machines were based on the Intel 80286 chip. Competing manufacturers usually offered the same kinds of machines. AT-type computers are significantly faster and potentially have more memory than the more common XT types. Of course, they are also more expensive.

In 1987, IBM introduced a new series of computers to replace the PC. These new "**Personal System/2 (PS/2)**" machines are based primarily on 80286 or 80386 chips and are faster and more powerful than the machines they replace. Strictly speaking, when we use the term "PC" we do not include these new IBM computers. The Personal System/2 computers are intended eventually to use a new operating system called "**OS/2**," which should become available in 1988. This new operating system differs significantly from the DOS described below. However, PS/2s can (and, at present, usually do) run DOS; even when running OS/2, the PS/2 can imitate a DOS computer to a certain extent by running the "DOS compatibility box".

What you will read here are the features and uses of PCs which are widely found. Descriptions should be valid for most PCs, whether made by IBM or not. Not covered here is a set of microcomputers which are not compatible at all with IBM equipment. These include Apple computers, most Commodore, Atari, and older Radio Shack computers, and any computer running the CP/M or CP/M 86 operating system.

What makes a PC a PC? It is not the physical appearance of the microcomputer. Basically, it is a combination of the internal circuitry and the operating system that is unique. The computer is usually designed around one of four microprocessor chips designed by Intel Corporation - the 8088, 8086, 80286, or 80386. The 8088 microprocessor is still the most common of the chips; it has a 16-bit internal word structure, with 8-bit input and output. The 8086 is a similar chip, but has 16-bit input and output. The 80286 has 32-bit internal word length, with a 16-bit input-output system. The three chips are fairly compatible. For example, an 80286 or 8086 is designed to execute any instruction which an 8088 will execute (but not vice versa). The 80386 is a true 32-bit microprocessor with many commands not available in the other chips.

As noted, PCs usually use the DOS operating system (main system control program). It is the combination of DOS with the 8088 (or similar) chip which makes the computer a PC. This combination is now the single most common computing system in the world, by far the most common in business applications. Many thousands of programs are written for PCs - probably more than for any other kind of computing system.

As 80286- and 80386-based computers become more common, new operating systems will probably appear, such as OS/2. These new operating systems will be intended to exploit the increased power and speed of the new hardware. Particularly important will probably be new operating system abilities such as multitasking (the ability to run more than one program at a time), the ability to link up with other computers, and increased memory. The new operating systems will probably be able to run most programs which were originally written to run under DOS.