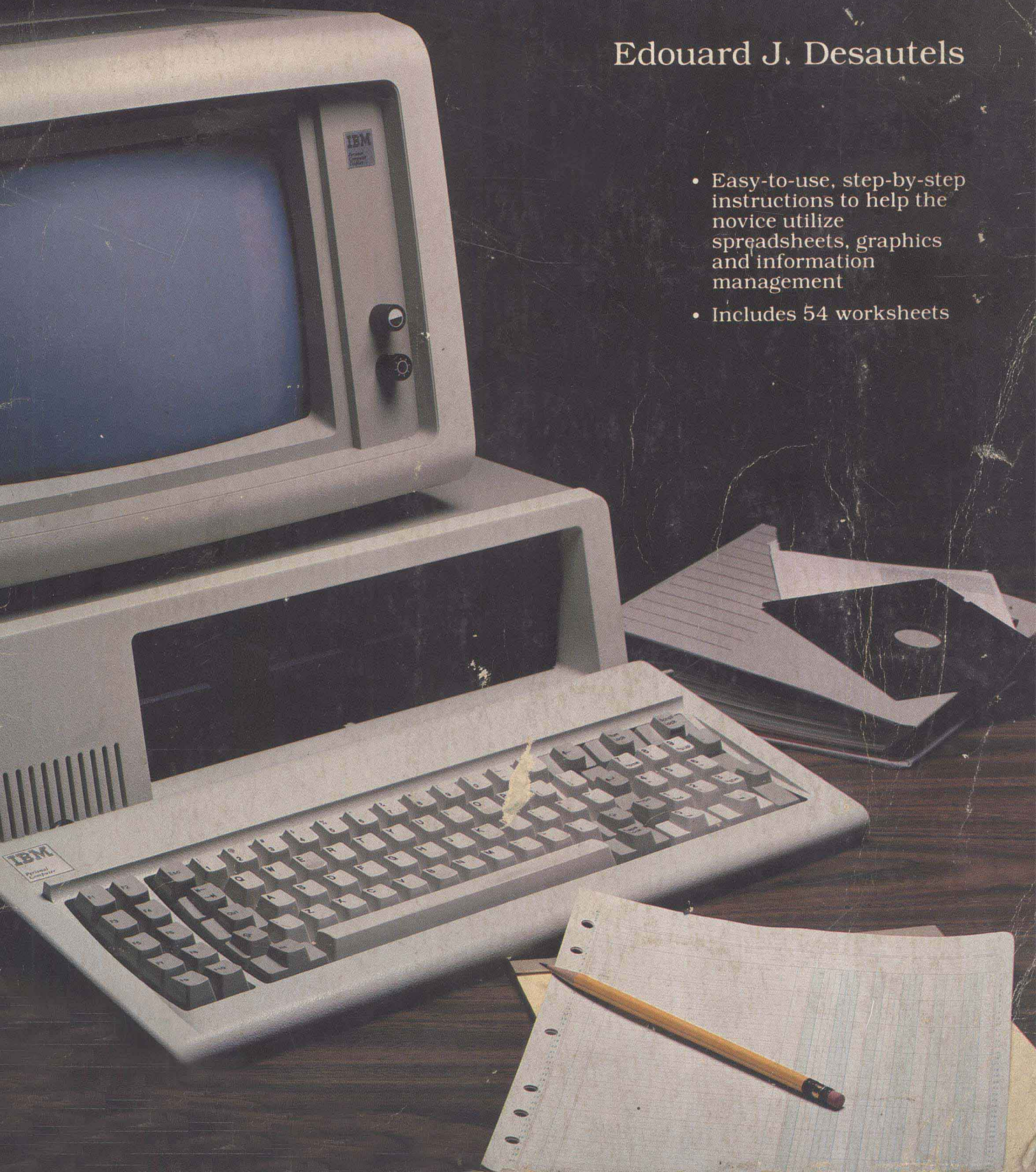
MICROPOWER SERIES

LOTUS 1-2-3™
for the IBM Personal Computer and XT

Edouard J. Desautels

- Easy-to-use, step-by-step instructions to help the novice utilize spreadsheets, graphics and information management
- Includes 54 worksheets



MICROPOWER SERIES

Book/Diskette

LOTUS 1-2-3™
for the IBM Personal Computer and XT

Edouard J. Desautels

University of Wisconsin—Madison

wcb
Wm. C. Brown Publishers
Dubuque, Iowa

Micropower Series

Lotus 1-2-3 is a registered trademark owned by the Lotus Development Corporation.

Copyright © 1984 by Wm. C. Brown Publishers. All rights reserved

Library of Congress Catalog Card Number: 83-073557

ISBN 0-697-00337-X

2-00337-01 2-00337-02

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the publisher.

Printed in the United States of America Second Printing, 1984

Book/Diskette

LOTUS 1-2-3™

for the IBM Personal Computer and XT

PREFACE

This book is intended to show you how you can effectively use the 1-2-3 program from Lotus. It is designed so that you do not have to have had any previous experience with computers in order to use 1-2-3.

The first chapter sketches the kinds of situations in which 1-2-3 excels. The next chapter shows you how to start using the IBM Personal Computer. Then we begin looking at the specifics of using 1-2-3. Although it is easier to read the chapters in the order in which they appear, you can often skip ahead if you wish to look into some feature of special interest to you. A comprehensive index will help you find your way.

Many of the features of 1-2-3 are presented while solving a sequence of realistic problems, such as evaluating the accumulation in an IRA (Individual Retirement Account). Some of these problems are solved a second time, so that you can better appreciate the contrast of different approaches.

Almost everyone today has to come to grips with numbers--lots of them. 1-2-3 is such a powerful tool in helping you manage information that you should seriously consider equipping yourself with it. Perhaps this book will help you make such a decision.

Although the book contains detailed instructions on how you yourself can do everything that is shown, an optional diskette may be used to reduce the typing that would otherwise be required. (See the appendix for further information.) It is assumed that you have already purchased the appropriate version of the Lotus 1-2-3 software. If not, you may obtain it from your IBM Personal Computer supplier.

此为试读,需要完整PDF请访问: www.ertongbook.com

Acknowledgments

Steve Miller and his colleagues at Lotus Development Corporation were very helpful.

Philip Desautels provided original artwork for this book.

Nicole Desautels contributed most of the hand-drawn artwork and helped with the typing.

Francine Desautels cooperated in relinquishing the IBM PC so I could use it.

Jeannine Desautels, beside doing some careful proofreading, was very supportive.

Hal Jennings gave me invaluable feedback.

Bob Stern, my editor, suggested I write this book.

Contents

Preface

1 WHY USE LOTUS 1-2-3? 1
Why Use Spreadsheet Programs? 1
Simple Examples of Uses of 1-2-3 2
The "What-If?" Phase 3
Avoiding Extraneous Details 5
Driving the Point Home with Bottom Line Results 5
The New Generation of Desk-Top Computer Programs 6
A Picture Is Worth a Thousand Numbers 7
What About Big Problems? 9
Information Management for Insight 10
SUMMARY 12
Coming up 12

2 GETTING ACQUAINTED WITH THE IBM PERSONAL COMPUTER 13
Physical Components of an IBM Personal Computer 14
Using Diskettes 15
The 1-2-3 Diskettes 16
Operation of the IBM Personal Computer 17
One-Time Preparation of the 1-2-3 Diskettes 19
Installing the Drivers 21
Installing 1-2-3 on an IBM XT 21
Using Files in 1-2-3 and DOS 22
Formatting Data Diskettes 23
SUMMARY 25
Coming up 27

3 USING 1-2-3: SOME PRELIMINARIES 28
Entering 1-2-3 28
Moving About on the Worksheet 30
The Function Keys 31
Keyboard Use 33
Writing on the Worksheet 34
Leaving 1-2-3 and Returning to DOS 36
Going from DOS to 1-2-3 38
Commands in the Lotus Access System Menu 39
Top-Level 1-2-3 Commands 39
Saving and Retrieving Worksheets 40
Retrieving a Worksheet 41
Panic Button 42
Using the Enter Key 42
The 1-2-3 Tutorial Program 43
Getting Help 44
SUMMARY 45

4 SOLVING A SIMPLE PROBLEM 47
Labels 47
Using the Arrow Keys 47
Clearing the Screen 48
A Simple Example 49
Getting 1-2-3 to Compute 51

Printing Worksheets 52
Automatic Recalculation 55
There Must Be a Better Way--Copying 57
Copying With Selective Changes 59
Estimating the Value of an IRA 61
The Power of Electronic Spreadsheets 64
SUMMARY 64

5 USING FUNCTIONS AND COPING WITH CHANGE 66
A Teacher's Gradebook 66
Using Functions 69
Coping with Change 72
Deleting Rows or Columns 72
Inserting Rows or Columns 73
Inserting an Extra Column 76
Erasing Errors 77
Correcting Errors: Using the EDIT Mode 78
/M, The Move Command 83
Building Formulas Faster 84
Specifying Ranges in Formulas 86
Visible Ranges 86
Named Ranges 87
Using the Keyboard Effectively 89
Getting to the End Quickly 89
How Big is the Worksheet? 90
SUMMARY 91

6 WHAT IF IT WON'T FIT ON THE SCREEN? 93
Printing Long Worksheets 94
Printing Longer Worksheets 95
Getting Continuous Printing 97
Printing Wide Worksheets 98
Printing More Columns Using Compressed Print 99
Stopping Unwanted Printing 101
Freezing Titles 101
1-2-3 in Stereo: Split Screens 103
SUMMARY 105

7 1-2-3 GRAPHICS 106
Getting Very Simple Graphical Output 106
Scaling for Graphs 109
@MAX and @MIN 110
Changing Column Widths 111
Longer Titles 113
Error Flag 113
Equipment for Using Graphics 114
Getting Graphical Output 115
Printing Graphs 118
IRAs Revisited: "What-If?" Graphs 121
Data Tables 124
Larger Data Tables 127
Browsing Over the IRA Table 132
SUMMARY 133

8 MORE COMPLEX CALCULATIONS 134
More Functions 134
Mathematical and Engineering Functions 135
Trigonometric Functions 136
Other Functions 136
Using 1-2-3 as a Programmable Printing Calculator 137
Viewing and Printing Formulas 138
Faster Computing 140
CHOOSE Function 141
Logical Functions 142
Other Logical Functions and Operators 144
Precedence Rules in Formulas 145
@NPV, Net Present Value Function 146
Internal Rate of Return @IRR 147
Other Financial Functions 148
@HLOOKUP and @VLOOKUP 149
SUMMARY 153

9 FORMATS AND DATES 155
Global Formats 155
Changing GLOBAL Formats 156
Range Formats 158
More Global Formats 159
Date Functions and Date Formats 160
Statistical Functions 162
Range Formats versus Global Formats 164
Changes Within a Window 164
Freezing Values 165
SUMMARY 166

10 USING DISK FILES 168
Transposing Data 168
Using the Print File Command 170
PRN Format 172
DIF Files 172
Erasing Files 173
Duplicate File Names 174
Splitting Large Worksheets 174
Combining Files 175
Consolidating Worksheets: Adding and Subtracting Files 176
A Consolidation Example 176
Subtracting Worksheets 179
Renaming Files 179
Erasing, Copying, and Archiving Files 180
SUMMARY 181

11 ORGANIZING AND SORTING WORKSHEETS 182
Case Study: an Expense Journal 182
Another Approach to Organizing a Worksheet 184
Expense Journal with Categories; Drawing Lines 186
Sorting Rows 187
Sorting Columns 190
SUMMARY 191

12 WORD PROCESSING IN 1-2-3 193
Typing a Simple Memo 193
Typing Longer Reports 195
Using Another Word Processor 196
Importing Files 197
Telecommunications 199
SUMMARY 199

13 INFORMATION MANAGEMENT 201
Creating a Database 201
Database Query Command 202
More Challenging Queries 205
Deeper Criteria Ranges for Multiple Choices 208
Special Label-Matching Criteria 209
Saving Your "Finds" 209
Using the Command UNIQUE 211
Using the Command DELETE 212
Database Statistical Functions 212
SUMMARY 214

14 SAVING KEYSTROKES USING MACROS 216
A Simple Macro 216
Bigger Macros 219
Using Commands in Macros 220
Interactive Macros and the Invisible X Commands 221
A Mailing List Macro 224
A Form Letter Prepared Using a Single Macro 226
Seeing Macros Used, Step-by-Step 228
SUMMARY 229

15 SELECTED FEATURES OF 1-2-3 230
Automatic Retrieval of Worksheets 230
XY Graphs Revisited 231
The DATA FILL Command 232
XY Graphs and the DATA FILL Command 233
Using Named Graphs: What Was That We Just Saw? 235
Two-Way Data Tables: /DT2 236
Protecting Labels and Formulas 239
Controlling the Pointer Moves in Forms 241
Printing More Lines Per Page 242
SUMMARY 243

16 GETTING THE MOST FROM 1-2-3 244
The 1-2-3 User's Manual 244
Getting Help 245
Some Sound Practices 245
Pushing the Limits 246
Looking Ahead 247

Appendix: Using the Optional Diskette 248
Loading a Worksheet 248
Diskette Content 249

Index 251

Chapter 1

WHY USE LOTUS 1-2-3?

Why use Lotus 1-2-3? Perhaps we should first ask the question: What is Lotus 1-2-3? The simple answer is that it is a computer program which operates on the IBM Personal Computer (PC) and IBM XT and 100% IBM-compatible computers all of which are designed to help you be more productive. Some firms which specialize in computer software sales describe 1-2-3 as a "financial management program." The Lotus Development Corporation, the firm responsible for creating 1-2-3, describes the 1-2-3 program as one " ... which gives you information management (electronic filing), spreadsheet (electronic worksheet for analysis and forecasting), and a business graphics program (spreadsheet information displayed in graph form), all in one." (The italics are mine.)

I think the financial management description is too narrow (although 1-2-3 can help you do a superb job of financial management). The description provided by the creators of 1-2-3 is accurate, but even this description fails to convey the scope of its uses. The name 1-2-3 alludes to the ease with which you can get it to help you do a better job whenever you have to deal with information, whatever your specific occupation. It is my wish that this book will help you harness the full power provided by 1-2-3.

An article about the Lotus 1-2-3 program published in the Wall Street Journal late in 1982 was headed "New Program for Personal Computers Termed Most Significant Since VisiCalc." The story by Richard A. Shaffer was published on October 15 after Shaffer had previewed the 1-2-3 program a few months before its commercial distribution. Those not familiar with the history of the VisiCalc program may not appreciate the significance of being compared to it. When the first version of the VisiCalc program appeared in 1978, it became possible for ordinary people to begin very quickly to make productive use of the then relatively new tool known as the personal computer. Since then, VisiCalc has set a standard by which computer professionals measure new software packages. Now, it is fair to state that 1-2-3 has set the new standard against which others will be judged.

Why Use Spreadsheet Programs?

There are basically two ways of getting a computer to help you in whatever work you do. One is for you (or someone you hire) to construct a computer program. That means writing a series of instructions which, if they are meaningful to the computer, will cause the computer to solve the problem you had in mind. In most walks of life, a single computer program will not usually suffice to help you with the many different activities with which you have

此为试读,需要完整PDF请访问: www.ertongbook.com

to deal, so very quickly you find yourself needing many computer programs.

The other approach to using computers involves finding an existing program that either does what you need or that makes it easier to do what you need than would be the case if you had to write the program yourself. One well-known example is typified by word processing programs. These let you use your computer as if it were a very smart typewriter.

That is exactly the reason for using 1-2-3. You don't have to write a program to solve your problem when you use 1-2-3. First you key in the relevant data. Then you specify how the data items are related and what answers you want calculated. Some of the work you can do in a few minutes using 1-2-3 would take several weeks, even months, of effort if you had to write your own programs.

With 1-2-3, you begin by putting the numbers where they should be, just as if you were writing them on a ledger sheet. And you decide where the results should appear in relationship to the other numbers. If you change your mind, it is a simple matter to move things around painlessly. If you decide to change a number, you simply type in its new value. As soon as you change that number, all the other results that depend on that number immediately change.

Simple Examples of Uses of 1-2-3

The following examples will give you a better idea of the kinds of problems you can easily handle using 1-2-3. For the time being we will ignore most of the details in setting up the formulas used in this and other examples.

Suppose you wanted to convince a friend that setting up an IRA, an individual retirement account, was a sound thing to do. You could begin by laying out a table that computes and displays the running balance in an IRA. For any given year for twenty-five years, the corresponding balance could be displayed. We can assume that the maximum individual contribution of $2,000 per year is made at the beginning of each year. Then, assuming that a fixed interest rate of 8% per year compounded annually applied, you could type that information in the table. Such a table appears in figure 1.1. Some of the intervening years have been omitted in the interest of brevity.

Rate	8%
Years	
1	2,160
2	4,493
3	7,012
4	9,733
5	12,672
...	...
10	31,291
...	...
15	58,649
...	...
20	98,846
...	...
25	157,909

Figure 1.1 IRA table with a $2,000 annual investment and an 8% rate

Do not be alarmed by all the numbers you see in figure 1.1. When we get into actually using 1-2-3, you will see how you can make it do most of the work. For instance, in the IRA table of figure 1.1, the actual typing required is limited to the entry of the labels Rate and Years, the two numbers 1 and 8, and a single formula to compute the first year's accumulation. The other year numbers and IRA values were produced by 1-2-3 through the use of one simple, short command. The same would be true even if we wanted the table extended to cover 50 or 100 years.

The "What-If?" Phase

If you wish to assess the impact of a different interest rate with 1-2-3, you merely type in the new interest rate at the spot occupied by the old interest rate. The consequences of this change are automatically recomputed and displayed. Thus, typing a 12% over the old 8% would transform our previous figure 1.1 into figure 1.2.

Rate	12%
Years	
1	2,240
2	4,749
3	7,559
4	10,706
5	14,230
...	...
10	39,309
...	...
15	83,507
...	...
20	161,397
...	...
25	298,668

Figure 1.2 IRA table with a $2,000 annual investment and a 12% rate

However, it may be difficult for you to keep track of how a rate change affects the balances. Wouldn't it be nice to see the impact of two different interest rates side by side, as in figure 1.3?

Rate	8%	Rate	12%
Years		Years	
1	2,160	1	2,240
2	4,493	2	4,749
3	7,012	3	7,559
4	9,733	4	10,706
5	12,672	5	14,230
...	...	...	...
10	31,291	10	39,309
...	...	...	...
15	58,649	15	83,507
...	...	...	...
20	98,846	20	161,397
...	...	...	...
25	157,909	25	298,668

Figure 1.3 IRA tables with 8% and 12% rates

Yes, of course, this is probably easier to work with. But how much extra effort does it take? With 1-2-3, going from either figure 1.1 or 1.2 to figure 1.3 can be accomplished in a few seconds, with fewer than ten keystrokes. It would take no more effort even if the tables we were working with had hundreds or even thousands of entries. If you find this hard to believe, read on, as we will show you in the remainder of this book exactly how you can do this with 1-2-3.

Avoiding Extraneous Details

In trying to persuade someone of the value of setting up an IRA, the impact of different rates of interest will play an important role. You might prefer not having to see every year's balance from year 1 to year 20 or year 25. You might like to see just the balances for a fixed term, say ten years, at specified rates, as in figure 1.4.

	+YEAR10
8%	31,291
10%	35,062
12%	39,309
14%	44,089

Figure 1.4 Ten-year balances at specified rates

Figure 1.4 shows an IRA's balance after ten years, under four different assumptions regarding the interest rates.

Is it possible, without a great deal of effort, to use 1-2-3 to include the effects of other terms? Figure 1.5 shows the consequences of maintaining an IRA for ten, fifteen, or twenty years.

	+YEAR10	+YEAR15	+YEAR20
8%	31,291	58,649	98,846
10%	35,062	69,899	126,005
12%	39,309	83,507	161,397
14%	44,089	99,961	207,537

Figure 1.5 IRA table for specified rates and terms

It takes very little effort to have figure 1.5 show balances for other interest rates or other time periods. You can change any one, or several, of the interest rates and any one, or several, of the column headings and then immediately recalculate all of the table entries at the push of just one button.

Driving the Point Home with Bottom Line Results

The value of an IRA is not truly understood until you contrast what the situation would be without an IRA. That is, most attempts to set aside money for whatever purpose first have to come to grips with the income tax. With an IRA, you can take up to $2,000 per year of the money you earned and place it in an IRA account. Without an IRA, if you had earned $2,000 or more, and you were in the 50% incremental tax bracket, you could set aside as true savings only $1,000 for every $2,000 you earned. (Of course, not every dollar you earn is taxed at the highest marginal rate.)

Obviously we need help in calculating the with-tax and without-tax comparisons to assess the full benefit of an IRA. It takes very little effort with 1-2-3 to generate a table such as depicted in figure 1.6.

Years	Taxed at 50%
1	1,080
2	2,246
3	3,506
4	4,867
5	6,336
...	...
10	15,645
...	...
15	29,324
...	...
20	49,423
...	...
25	78,954

Figure 1.6 Extra income with an 8% IRA in the 50% bracket

It would be even better to be able to compare the with-IRA versus the without-IRA situation by focussing on the critical items, which are the assumed rate of interest and the expected incremental tax bracket. Figure 1.7 shows just these items, assuming a term of 20 years. The 1-2-3 worksheet we will be constructing soon (it looks just like the table in figure 1.7) is so flexible that if you change any of the interest rates in the left column, or if you change any of the tax rates in the top row, or any combination of the above, the remaining table entries will immediately be updated on request. That makes it easy for you to assess the impact of the choices you have made.

		Tax Bracket			
		20%	30%	40%	50%
IRA Rates	8%	19,769	29,654	39,538	49,423
	10%	25,201	37,801	50,402	63,002
	12%	32,279	48,419	64,559	80,699
	14%	41,507	62,261	83,015	103,768

Figure 1.7 Extra IRA income due to tax deferment after 20 years

Here too, if you change any of the rate or bracket entries in figure 1.7, then pressing a single key will recalculate all of the table entries.

The New Generation of Desk-Top Computer Programs

1-2-3 is first and foremost a superb spreadsheet program. The examples we have just sketched out serve to suggest the power and

versatility associated with spreadsheets. It may not be clear at this point just how much effort it takes to construct these kinds of spreadsheets. In fact, it would be more fitting to speak of how little human effort they actually take.

There are, of course, other spreadsheet programs available. What sets 1-2-3 apart from these? Many factors do; among them are

speed:	1-2-3 computes very rapidly
capacity:	it lets you use as much memory as is available permitting spreadsheets with as many as 2,048 rows and 256 columns
ease of use:	you do not have to memorize intricate commands; 1-2-3 prompts you in English
helpfulness:	it remembers how you last used a particular spreadsheet so you do not have to keep repeating things you shouldn't have to repeat
scope:	1-2-3 provides much more than a spreadsheet capability. (Its support of graphics and data management are sketched in the remainder of this chapter, so let us move on.)

A Picture Is Worth a Thousand Numbers

Some people have a knack for reading tables of numbers. Other people are confused when they see too many numbers. 1-2-3 easily converts a mass of numbers into something more intelligible. Isn't the pie chart of figure 1.8 easier to grasp than the corresponding table in figure 1.9?

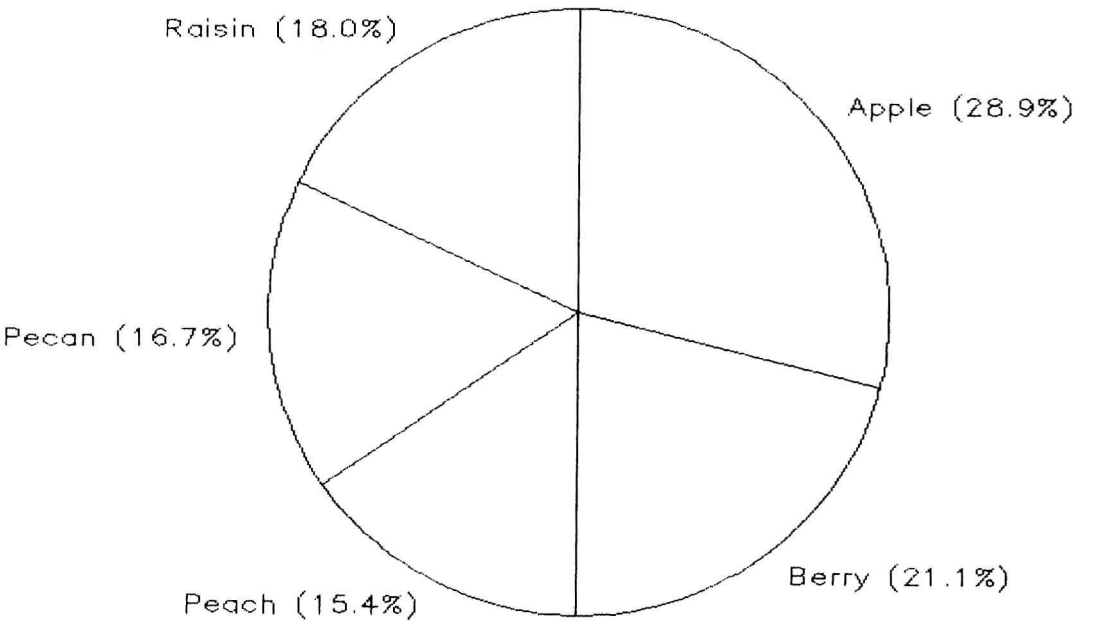


Figure 1.8 A pie chart prepared using 1-2-3

此为试读,需要完整PDF请访问: www.ertongbook.com