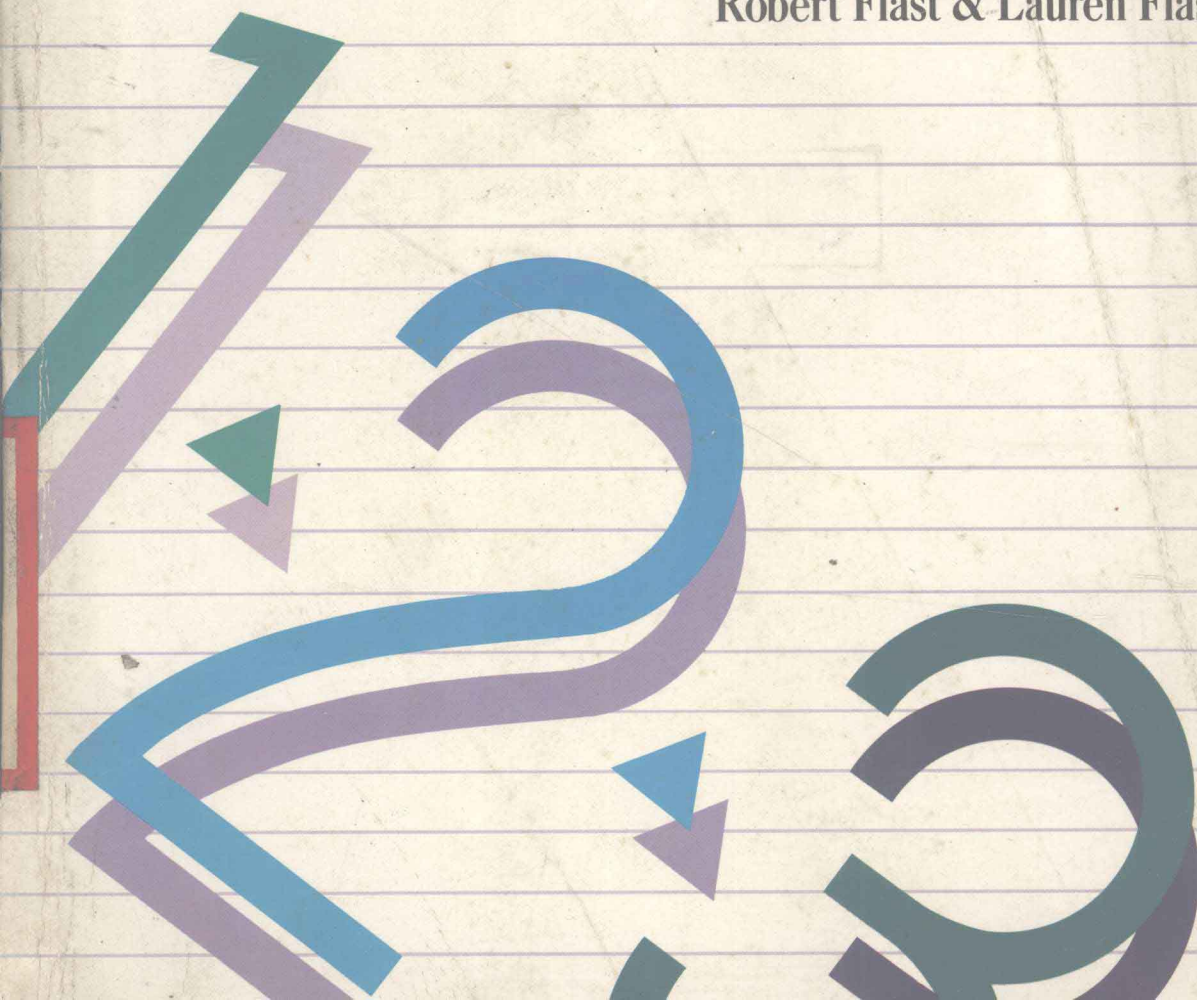


THE COMPLETE BOOK OF

1·2·3<sup>TM</sup>

MACROS

Robert Flast & Lauren Flast



THE COMPLETE BOOK OF

---

1-2-3

---

MACROS

---

Robert Flast  
and  
Lauren Flast

Osborne McGraw-Hill  
Berkeley, California

**Osborne McGraw-Hill**  
2600 Tenth Street  
Berkeley, California 94710  
U.S.A.

For information on translations and book distributors outside of the U.S.A., please write to Osborne **McGraw-Hill** at the above address.

Lotus and 1-2-3 are trademarks of Lotus Development Corporation.

IBM is a registered trademark of International Business Machines, Inc.

Framework is a trademark of Ashton-Tate.

## THE COMPLETE BOOK OF 1-2-3 MACROS

Copyright © 1986 by McGraw-Hill, Inc. All rights reserved. Printed in the United States of America. Except as permitted under the Copyright Act of 1975, no part of this publication may be reproduced or distributed in any form or by any means, or stored in a database or retrieval system, without the prior written permission of the publisher, with the exception that the program listings may be entered, stored, and executed in a computer system, but they may not be reproduced for publication.

1234567890 DODO 898765

ISBN 0-07-881199-6

Jonathan Erickson, Acquisitions Editor  
Lorraine Aochi, Technical Editor  
Greta Mayfield, Applied Computer Consulting (Oakland, California), Technical Reviewer  
Kevin Shafer, Senior Editor  
Lynn Heimbucher, Editorial Assistant  
Fran Haselsteiner, Copy Editor  
Pamela Webster, Text Design  
Yashi Okita, Cover Design

THE COMPLETE BOOK OF

---

1-2-3

---

MACROS

---

---

# Introduction

---

**P**ower users of 1-2-3 unite! You are probably tired of typing the same 1-2-3 commands over and over as you build and modify your applications.

At the simplest level, the macro facility can help you deal with this. Essentially all of the macros in this book can be thought of as tools for avoiding repetitive keystrokes. However, since in many of these instances the large amount of repetitive typing would be intolerable, you probably would not choose to use 1-2-3 at all.

If you are willing to accept the trials and tribulations of programming in the language of 1-2-3 commands, you will find that you can do virtually anything that a conventional language will permit you to do, and *more*. The *more* comes from the work that is saved by operating within the fixed world of the spreadsheet.

The macro features—by providing iteration, looping, and branching capabilities—fulfill the minimum requirements for a programming language, with the single exception of character or string manipulation. Therefore, most programs written in other languages can be translated and integrated into your spreadsheet applications. For example, the automatic calculation of a regression analysis could be incorporated into a spreadsheet that you are using to maintain a database of records.

The macros in this book are intended to demonstrate the potential range of applications available through the use of this valuable 1-2-3 feature. Experiment with them, modify them, and use them as models for new applications. As you become more experienced and your applications become longer and more sophisticated, you should begin to develop and inject good programming discipline into your design of macros. For example, some of the macros in this book use the /XC command to call subroutines from a main routine. This is one method that is used in the structured top-down approach to programming.

Documenting the macros with abbreviated comments like those in the listings will make it easier for you to make corrections or changes. Do not forget to back up your work, even while it is in progress.

The macros in the book apply to either the IBM PC or the PC XT.

## How to Use This Book

Each chapter provides a listing of the commands and formulas you will need to enter in order to produce a model. Instructions for graphics or database functions are provided at the beginning of each chapter.

A complete illustration, including sample data, is presented in each model. After entering the model, use the sample data to test the accuracy of what you have entered. If your answer is different from the answer in the book, there are several things you can do to determine what the problem is.

## What to Do If Problems Occur

The first thing to do is print out a listing of your model and compare it with the listing in this book. Remember that every character and space is significant, except the colon (:) that is printed on the listing for clarity. Close inspection will probably reveal a typing error.

If you still have problems with a model after eliminating data-entry errors, please write to the authors at this address:

Robert and Lauren Flast  
660 Fairmont Avenue  
Westfield, New Jersey 07090

In your letter include a description of the problem and the data entered that caused the problem. Most important, include a copy of your listing of the model. If the authors have all of these elements, they will do everything they can to find the cause of the problem. If you discover any errors in the book while you are using it, they would also like to know about those.

Finally, if you would prefer not to enter the models into the computer yourself, diskettes containing all of the models in this book are available from the authors at the aforementioned address.

---

# Contents

---

	Introduction	vii
<b>PART I</b>	Utilities	1
MACRO 1	Keyboard Functions	3
MACRO 2	Sort Utility	7
MACRO 3	Query Utility	11
MACRO 4	Graph Utility	15
MACRO 5	Print Utility	17
MACRO 6	Backup Utility	21
MACRO 7	A Menu for Macros	23
<b>PART II</b>	Database Handling	27
MACRO 8	Database Processing — Transaction History	29
MACRO 9	Database Processing — Accumulations	33
MACRO 10	Database Processing — Analysis	37
<b>PART III</b>	Text Processing	43
MACRO 11	Outline Processing	45
MACRO 12	Form-Letter Printer	51
<b>PART IV</b>	Business Applications	57
MACRO 13	Earned Interest Table	59
MACRO 14	Mortgage Amortization Table	63
MACRO 15	Last Payment on a Loan	67
MACRO 16	Remaining Balance on a Loan	71

MACRO 17	Tax Depreciation Schedule	75
MACRO 18	Depreciation Switch	81
MACRO 19	Future Value of an Investment With Uneven Cash Flow	85
MACRO 20	The Lease/ Buy Decision	89
MACRO 21	Queuing Theory	95
PART V	Statistical Math Applications	103
MACRO 22	Permutations and Combinations	105
MACRO 23	Binomial Distribution	109
MACRO 24	Poisson Distribution	113
MACRO 25	Chi-Square Distribution	115
MACRO 26	Linear Regression	119
MACRO 27	Greatest Common Denominator	125
MACRO 28	Prime Factors of Integers	129
MACRO 29	Area of a Polygon	133
MACRO 30	Curvilinear Interpolation	137
MACRO 31	Real Roots of Polynomials	141
MACRO 32	Statistics	145



---

# PART I

---

## Utilities

---

**T**his section of the book is designed to help you save time with common functions used in creating spreadsheets and graphics. When working with Lotus 1-2-3, you will find yourself using many functions again and again. Instead of having to create the commands repeatedly, it is more convenient to have a piece of code that can be transported to any worksheet, modified slightly, and used by typing two keys. The macros that follow perform such useful functions as printing a specified set of ranges and supplying page breaks, which are useful when you have a collection of worksheets to print from one spreadsheet. You can update your worksheet, invoke your print macro, and walk away. The rest of the macros in this section are of this type, and they will save you time and keystrokes.



---

# MACRO 1

---

## Keyboard Functions

---

As powerful as Lotus 1-2-3 is, keypunching large quantities of data on the numeric keypad can be inconvenient. The macros that follow are simple and easy to use, and they make the numeric keypad more convenient and helpful. The macros enable you to use the RETURN key to move the cursor down a column or to the right along a row of data. You may modify these macros to move up or to the left, but since these movements are less often used, the modifications are not shown here.

After typing the macros shown in the formula listing, type /RNC \X and press RETURN. Then type **B7** and press RETURN.

A	B	C	D	E	F	G
2	THE MACRO BELOW ENABLES YOU TO MOVE THE CURSOR					
3	TO THE RIGHT BY TYPING THE RETURN KEY					
4	TYPE /RNC TO GIVE THIS MACRO A NAME					
5	USE \X FOR THE NAME, B7 FOR THE MACRO RANGE					
6						
7	\X	{?}	WAIT FOR INPUT			
8		{RIGHT}	MOVE CURSOR TO RIGHT			
9		/XG	INVOKE GOTO COMMAND			
10		\X	GOTO RANGE NAMED \X			
11						
12	THE MACRO BELOW ENABLES YOU TO MOVE THE CURSOR					
13	DOWN BY TYPING THE RETURN KEY					
14	TYPE /RNC TO GIVE THIS MACRO A NAME					
15	USE \Z FOR THE NAME, B17 IS THE MACRO RANGE					

	A	B	C	D	E	F	G
16							
17	\Z	{?}	WAIT FOR INPUT				
18		{DOWN}	MOVE CURSOR DOWN				
19		/XG	INVOKE GOTO COMMAND				
20		\Z~	GOTO RANGE NAMED \Z				

For the second macro use the name \Z, which is located in B17. When typing in the macro, you do not need to include the comments; they are for your information only. Use the example shown in Figure 1-1 to test the macros. To use the macros, hold down the ALT key and type either X or Z. To quit the macro, hold down the CTRL key and press the SCROLL LOCK key to break the macro.

CUSTOMERS RECEIVABLES DATABASE												
A	B	C	D	E	F	G	H	I	J	K	L	M
	ADDRESS				DATE	ITEM	QUANTITY	PRICE	TOTAL	AMT REC'D	AMT DUE	
29	32 MULLEN, B	77 W. 4th St, NY, NY 10007			860223	23985	28	\$36.50	\$1,022.00	\$400.00	\$622.00	
30	34 THOMAS, M	26 Masters Way, Chicago, IL 69202			860223	39465	45	\$45.00	\$2,025.00	\$1,200.00	\$825.00	
31	35 GILLEY, H	12 Bay Ct, Chicago, IL 66452			860228	82301	56	\$29.50	\$1,652.00	\$1,652.00	\$0.00	
32	36 MULLEN, B	77 W. 4th St, NY, NY 10007			860312	23985	34	\$36.50	\$1,241.00	\$560.00	\$681.00	
33	37 GILLEY, H	12 Bay Ct, Chicago, IL 66452			860306	46321	65	\$17.00	\$1,105.00	\$0.00	\$0.00	
34	38 GILLEY, H	12 Bay Ct, Chicago, IL 66452			860307	35284	21	\$62.75	\$1,317.75	\$0.00	\$1,317.75	
35	39 GILLEY, H	12 Bay Ct, Chicago, IL 66452			860321	82301	43	\$29.50	\$1,268.50	\$1,268.50	\$0.00	
36	40 HERBERT, L	465 Fifth Ave, NY, NY 10045			860330	46398	55	\$32.75	\$1,801.25	\$0.00	\$1,801.25	
37												
38												
39												
40												
41												
42	TOTALS						347		\$11,432.50	\$6,185.50	\$5,247.00	

Figure 1-1. An example for testing the keyboard function macros (note the dates are entered in YYMMDD format)



---

# MACRO 2

---

## Sort Utility

---

Information in a list is usually in random order, with each new piece of information placed at the bottom of the list. As the list grows, finding a particular item becomes more cumbersome and slow. The solution is to sort the information in a meaningful way, perhaps alphabetically or in order of dollar value.

The following macro sorts a database of customer receivables in alphabetical order by the customers' last names. After typing in the macro as shown in the formula listing, name it by typing /RNC, name the range \S, press RETURN, and give the location as the first cell in which the macro appears, B6. You must name the two ranges used in the macro. When entering the macro, you do not need to include the comments; they are for your information only. The range **sortin** refers to the database itself.

	A	B	C	D	E	F	G
3		THE MACRO BELOW SORTS THE DATABASE ALPHABETICALLY					
4		IN ASCENDING ORDER BY CUSTOMER NAME					
5							
6	\S	/DS		INVOKE THE DATA SORT COMMAND			
7		Dsortin~		SELECT THE DATA RANGE NAME sortin			
8		Pname~		SELECT THE PRIMARY SORT-KEY name			
9		A~		SORT IN ASCENDING ORDER			
10		G		SELECT GO TO PERFORM THE SORT			

After entering the macro, try using the example given in Figure 2-1 to test whether it is working properly. Do not forget to name the ranges. To use the macro, hold down the ALT key and type S.

If you use the example exactly as shown, the range **sortin** will be A27 through M34. The primary sort key, **name**, is located in A26 in the sample database.



