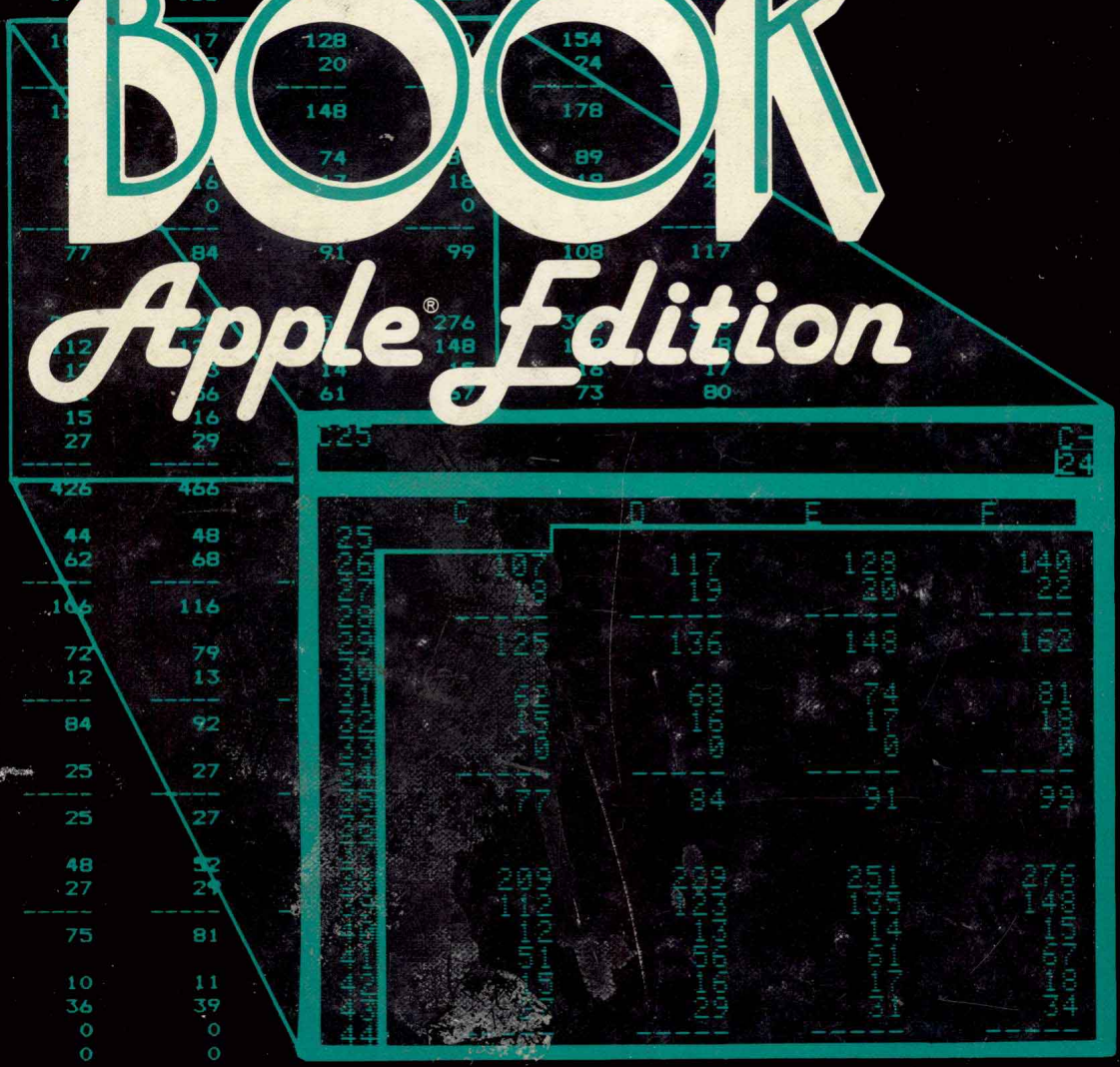
THE VISICALC® BOOK

Apple® Edition



DONALD H. BEIL

The VisiCalc® Book

Apple® Edition

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National Technical Institute for the Deaf
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Reston Publishing Company, Inc.
A Prentice-Hall Company
Reston, Virginia

Library of Congress Cataloging in Publication Data

Beil, Donald H.
The VisiCalc book Apple edition.

Bibliography: p. 8
Includes index.
1. Apple computer—Programming. 2. VisiCalc (Computer program) I. Title.

QA76.8.A66B44 001.64'2 82-597
ISBN 0-8359-8398-6 AACR2
ISBN 0-8359-8397-8 (pbk)

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10 9 8 7 6 5 4 3 2 1

Printed in the United States of America

Preface

This book has been an exciting project. In large part VisiCalc itself is responsible. Its creators are recognized in Chapter 1, Introduction.

VisiCalc, a computer program, is a tool that in a short time has achieved widespread use, extreme popularity, and significant praise for its usefulness and originality of design. In writing about its use, I hope to serve a variety of VisiCalc users:

New VisiCalc users will find a series of presentations that help the user become familiar with VisiCalc capabilities and manner of functioning. The book is organized to present a straightforward approach to using VisiCalc productively on a computer and to understanding the relationships between hardware, VisiCalc, spreadsheets, data, and the people who use this system. The large number of practice problems is included to help the new user become a skilled user. Many figures illustrate and explain how VisiCalc can be used.

Potential VisiCalc purchasers will find a presentation of both the capabilities and the limitations of using VisiCalc. This book can place this product in perspective and help in deciding if VisiCalc can be productive for solving problems for a potential user. There are several versions of VisiCalc; all function similarly, but have some differences. The versions described in this book are cited in Chapter 1, Introduction.

Data Processing managers who are responsible for evaluating and approving software purchases within their corporation or institution

can use this book to evaluate the appropriateness of this product to meet the needs of those requesting it.

Experienced VisiCalc users will find presentations on creating templates, on preparing documentation, on user training, and on recognizing, preventing, and correcting errors. The book is also an indexed reference guide, which presents the features of VisiCalc. It provides a general orientation to producing VisiCalc sheets that are useful parts of the system that we use or may be used by our clients, secretary, or supervisor. A short training session is outlined; it can be used to train those who will work with the templates that we prepare.

Educators and trainers can use the book as a framework for coursework and training on the use of VisiCalc. The book provides an understanding of the power of VisiCalc and of the cautions necessary with this system. Practice problems are included; these can be assigned to students or trainees to help them in developing their skills.

Managers, clients, and others who use results obtained from VisiCalc models or who work with models prepared by others can use the book to develop an understanding of how those models are built and how reliable they are when used.

I want to recognize and thank Larry Benincasa of Reston Publishing Company for his immediate and continued enthusiasm and support of this project.

I discussed the book regularly with Dominic Fantauzzo of the National Technical Institute for the Deaf at the Rochester Institute of Technology (NTID/RIT) and benefited from his enthusiasm, suggestions, and interest. He, John Sweeney, and Paul Taylor each asked to read the manuscript and each offered valuable comments. Others at NTID/RIT who have helped or provided support include Rick Curwin, Robert Taylor, Lorna O'Brien, Warner Strong, William Castle, Nancy Fabrize, Barry Keesan, Mike Kleper, Sondra Milko, Bruce Peterson, Sheila Reasoner, Rosanne Rivers, Doug Sargent, and Alan Willett.

Philip F. Paul provided an important review of the manuscript, and I benefited from his suggestions.

Others who have been supportive or helpful, often in ways unknown to them, include Roz Beil; Sikandar Shaikh, C. R. Myers, and Nick Francesco, all of The Computer Center in Rochester, New York; Frank Hacknauer; Marc Nodell; David Cole; and Al Tommervik.

My introduction to VisiCalc was through the product manual written by Dan Bricklin and Bob Frankston.

David Kroenke's framework for considering a computer system influenced my thinking and the organization of my writing in several chapters.

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Many word-processing technicians have participated in preparing the manuscript. Although by choice they are usually not recognized by name, I want to do so. They are Laura Beiderbecke, Sharyn Bendzus, Dorothy Cerniglia, Petr J. Chudoba, Debra Dietch, Kathy Exner, Barbara Hall, Marcia Hood, Mary Jo Ingraham, Jane Johnson, Irene Kulesa, Tammy Marin, Theresa Northrup, Katrina Poquette, Betty Shaffer, Anita Sherman, and Gary Stape.

Ellen Cherry's work as production editor on this book for Reston Publishing Company was thorough and was done with great care. It was a pleasure to work with her again.

Others at Reston who have been helpful include Nikki Harden and Carol King.

My wife Marian and our sons Noah and Gabriel support me continually.

Donald H. Beil

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Chapter 1

Introduction

Using VisiCalc® successfully involves an understanding of this product as part of a full system that includes not only VisiCalc itself but a number of other considerations as well. This environment or system includes

- The VisiCalc program we use.
- The computer on which we use the program.
- Uses to which we put VisiCalc, that is, the electronic sheets which we prepare and use.
- Data we enter when we use electronic sheets.
- People who use this system.

In this chapter, we'll briefly discuss the importance of each of these.

THE VISICALC SOFTWARE PROGRAM

VisiCalc is a computer program that is sold for a variety of computers. It was written by Dan Bricklin and Bob Frankston, Software Arts, Inc., which has it copyrighted, and is marketed by VisiCorp (Personal Software), Inc., and others. The program is sold as a package con-

VisiCalc® is a registered trademark of Personal Software, Inc., VisiCorp.

sisting of the VisiCalc program on a diskette, an accompanying manual, and a reference card, all packaged in a binder.

Its capabilities are discussed generally in Chapter 2, The Capabilities of a VisiCalc System, and specifically throughout other chapters. Likewise, its limitations are discussed in Chapter 12, The Limitations of a VisiCalc System, and throughout the book. Other chapters describe how we use this system. A thorough understanding of what VisiCalc can and cannot do and how it is used is vital for us if we want to determine if and how it can be used to solve problems that we face.

All examples in the book have been prepared on Apple II Plus microcomputers. VisiCalc 13 sector version 1.37 and 16 sector version VC-202B0-AP2 have been used. The latter has more capabilities and is the version described. (It is also a recent update of an earlier 16 sector release.) Users of other available versions will find that the versions are conceptually identical and with some exceptions function similarly.

THE COMPUTER ON WHICH WE USE VISICALC

VisiCalc is available for a number of computers. For each, it's a different program, one that will function on a particular model of a particular brand of computer but which is not transferable to other computers. Although there are variations from version to version, the differences are slight in comparison to the commonalities between them.

The computer, or hardware, on which we use, or run, VisiCalc will make a difference in how we can use it. For example, the size of the memory will directly affect our use of VisiCalc, since it can limit the problem solution we prepare. Other considerations include the screen capabilities of the system—that is, how many characters (letters, numbers, decimal points, etc.) can be on one line and how many lines can appear on the screen, and the restriction that only upper case letters are available on some hardware. Other topics are also discussed in Chapter 12, The Limitations of a VisiCalc System.

Each of us must decide on the importance of these capabilities and limitations to our applications for VisiCalc. We must also consider the uses for our computer other than VisiCalc and how well the system meets those needs as well as our VisiCalc needs.

THE USES FOR VISICALC

We will see that as we use VisiCalc to solve problems, we create what are called electronic sheets. To prepare them we'll need to know how to build these sheets. We'll discuss this in the following chapters: 3, Getting Started; 4, Commands; 5, Labels, Numbers and Formulas; 6, Built-in Functions; and 7, Other Topics.

In Chapter 9, Creating Templates, we'll discuss how to prepare models or patterns called templates. These are electronic sheets on which we've prepared models with some, but not all, of the values needed to calculate relationships. We'll complete these by entering the required values and rapidly obtaining our desired results.

We'll present ways of dealing with errors in our work in Chapter 8, Recognizing, Preventing, and Correcting Errors. Chapter 10, Documentation, provides some simple formats that we can use to record information of value to users (including ourself) of our work.

This area, using VisiCalc productively to solve our problems, is a major emphasis of this book.

THE DATA WE ENTER

With VisiCalc, as with any computer system, the results are heavily dependent upon the data provided, the numeric values and label information (for example, budget dollar amounts, employee names, etc.) that we enter. If we have an electronic sheet accurately prepared and then we enter data incorrectly, our results will most likely also be incorrect. We'll see that a VisiCalc system has limited capabilities for verifying the accuracy of data, a limitation that requires cautious use on our part. In Chapter 9, Creating Templates, we'll discuss this topic thoroughly.

SYSTEM USERS

If we want to use VisiCalc productively, we must be fully informed regarding its use. In addition, we'll find that others may use the VisiCalc electronic models, or templates, that we prepare. If others use our work, we must ensure that they are properly trained and have sufficient knowledge of their crucial responsibilities in the functioning of the full system. Chapter 11, What Our Client, Secretary, or Supervisor Needs to Know, contains an outline of a training session that we could conduct to ensure appropriate results.

Chapter 13, Practice Problems, is designed to provide a variety of problems to assist VisiCalc users in developing skills to use this system. The problems also suggest a wide range of potential uses of VisiCalc.

The Preface contains a short review of how other current or potential VisiCalc users may find this book useful.

Chapter 2

The Capabilities of a VisiCalc System

INTRODUCTION

VisiCalc is a powerful versatile software tool available for a number of popular computer systems. Its power lies in its advertised ability to provide the capabilities found in our use of a pencil, a sheet of paper, and a calculator. But because it provides an "electronic sheet," the power of the computer is combined with this software to give results accurately and readily and with great flexibility. It is useful in a wide variety of applications.

Budgeting and forecasting are two prime examples. In this chapter, we'll combine these two topics into one area, "budget forecasting," and discuss the capabilities of VisiCalc. In Chapter 12, The Limitations of a VisiCalc System, we'll examine the limitations of a VisiCalc-based system.

A SAMPLE PROBLEM: BUDGET FORECASTING

We'll begin our budget forecasting cycle with information about our current budget. Figure 2-1 shows our starting point. Notice that we've started with a simplified version of an expense budget; we'll build toward a more realistic example. The example of Figure 2-1 contains only a few lines with one column total. But even at this level, the complexities of budget forecasting can be demonstrated. PERSONNEL

costs are dependent on the number of people employed (EMPLOYEES). BENEFITS are forecast as a percentage of PERSONNEL costs. TRAVEL expenses also depend on the number of people (EMPLOYEES).

As we sit down to do this forecast by hand, we have the budget worksheet of Figure 2-1 and some assumptions about the future. We expect to grow at 5 people per year, meaning that we'll go from 50 people in the current fiscal year (FY 0), to 55 next year (FY+1), to 60 in two years (FY+2), and finally to 65 people in three years (FY+3). Total PERSONNEL costs for the current year (FY 0) are calculated by multiplying the number of EMPLOYEES by the average salary of $20,000. Salaries are expected to rise 10% per year, with salaries for new employees calculated at the average salary for the year.

The computations of future PERSONNEL costs alone are not simple, as amounts are extended and increases for current employees are combined with costs for future new employees. However, once the PERSONNEL costs are determined, the BENEFITS computation is straightforward. In our example, BENEFITS are 25% of PERSONNEL costs. For the other lines, we'll need to make some assumptions about the future, for example, TELEPHONE, HOSPITALITY, and EQUIPMENT each increase at 10% per year, RENT is constant at $60,000 per year, and TRAVEL costs, currently budgeted at $800 per person, will increase 20% per year per person. We'll need to be careful with this line (TRAVEL) as it's also a function of the number of people working.

	BUDGET FORECAST			
	********** YEAR **********			
	FY 0	FY+1	FY+2	FY+3
	*******	*******	*******	*******
EMPLOYEES	50			
PERSONNEL	1000000			
BENEFITS	250000			
TELEPHONE	10000			
RENT	60000			
TRAVEL	40000			
HOSPITALTY	1000			
EQUIPMENT	18000			
TOTAL $	1379000			

Figure 2-1. A budget forecasting worksheet for four fiscal years showing data for the current year (FY 0).

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