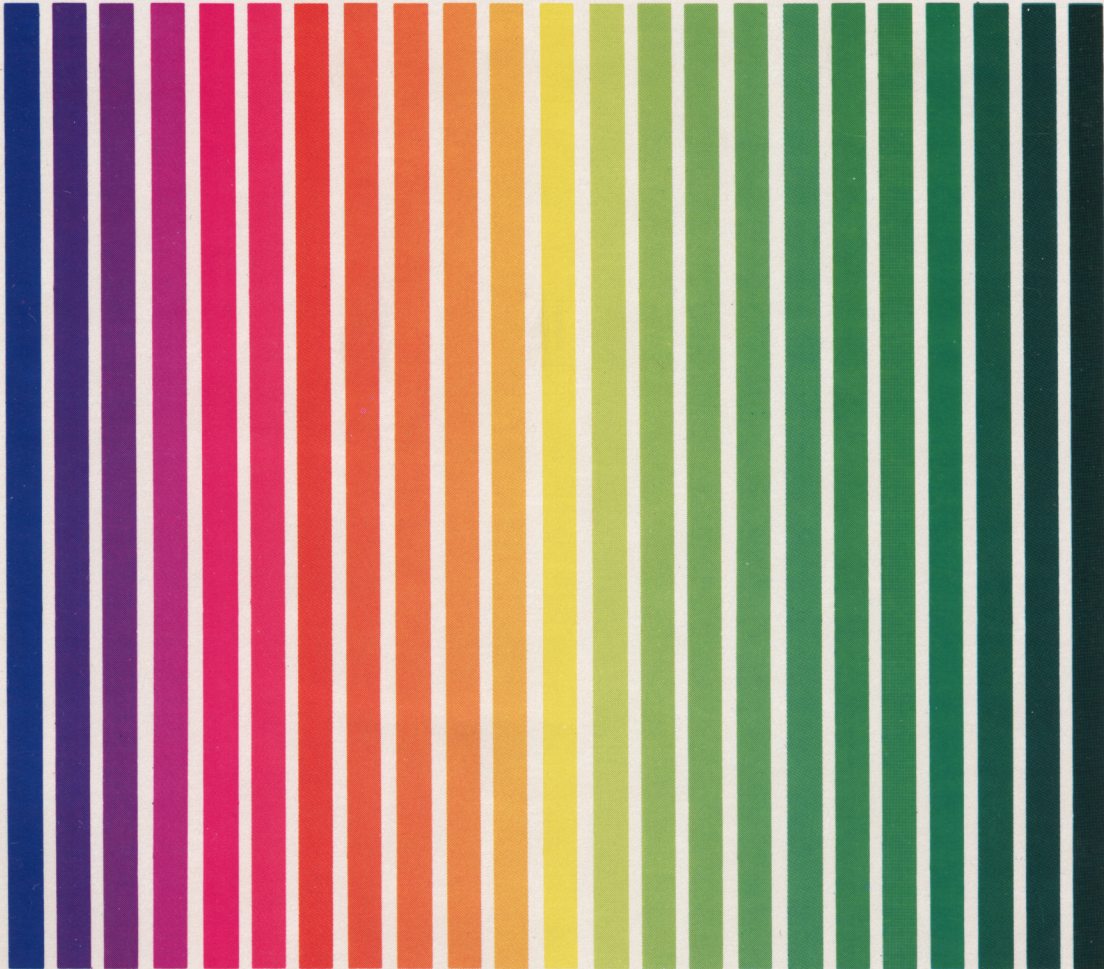


APX ATARI® PROGRAM EXCHANGE



James L. Bruun

DECISION MAKER

Suggests decisions considering up to ten factors

Cassette: 8K (APX-10044)

Diskette: 16K (APX-20044)

Edition B

User-Written Software for ATARI Home Computers

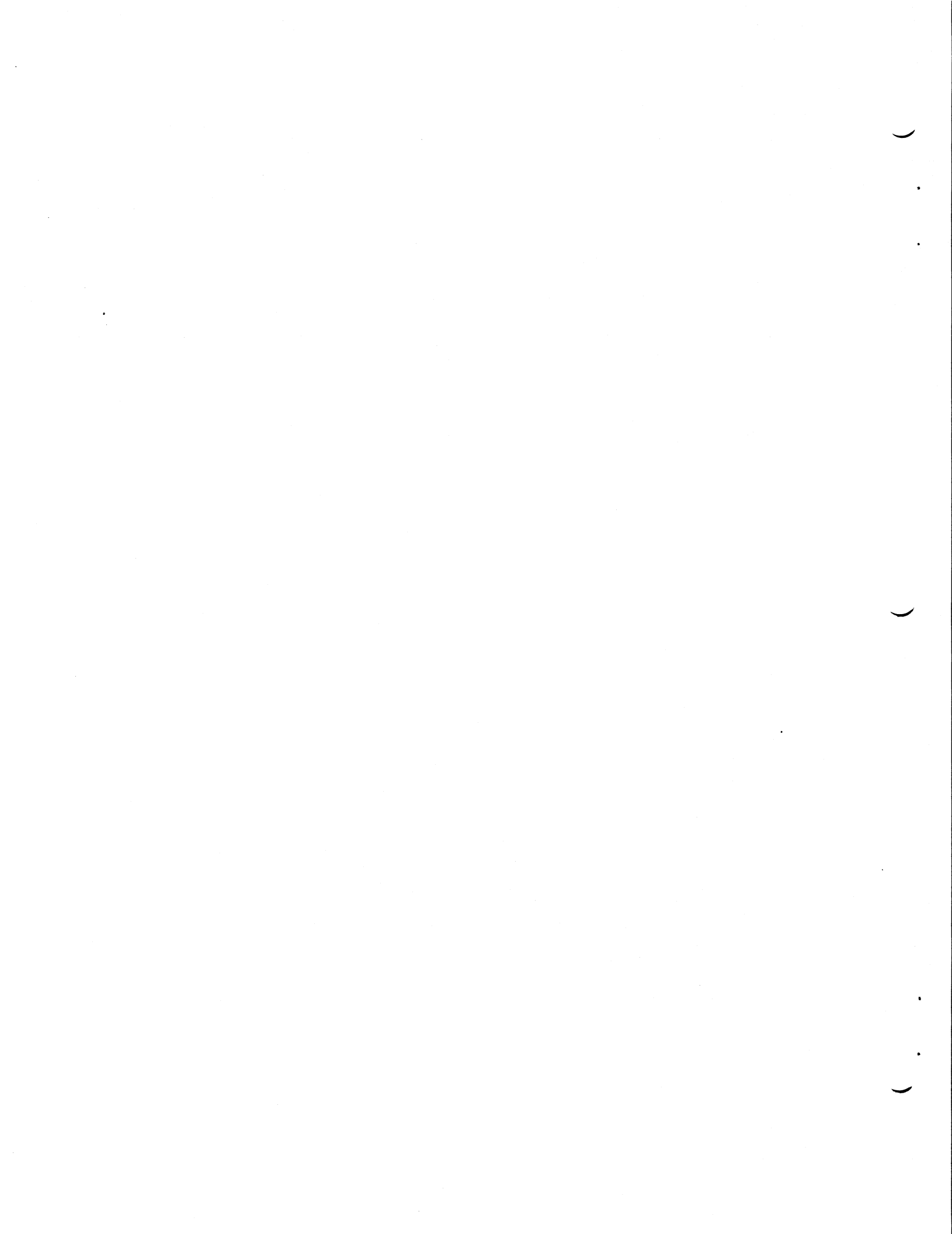
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Edition B



DECISION MAKER

by

James L. Bruun

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INTRODUCTION

OVERVIEW

The DECISION MAKER can help you with business and personal decisions involving as many as ten different choices and ten different factors entering into those choices. Via a series of prompted menus, you enter all the possible outcomes and the factors entering into the decision (e.g., expense and convenience). Then you weight each factor and evaluate how the factor measures up in each outcome. The program computes the best choice, based on the data you entered, and it displays a bar chart of all the choices. You enter all information via the computer keyboard. The program displays all resulting information on your TV screen.

REQUIRED ACCESSORIES

Cassette version
8K RAM
ATARI 410 Program Recorder
Diskette version
16K RAM
ATARI 810 Disk Drive
ATARI BASIC Language Cartridge

CONTACTING THE AUTHOR

Users wishing to contact the author about DECISION MAKER may write to him at:

1275 Terry Drive
Idaho Falls, Idaho 83401

GETTING STARTED

LOADING DECISION MAKER INTO COMPUTER MEMORY

1. Insert the ATARI BASIC Language Cartridge in the slot of your computer.
2. If you have the cassette version of DECISION MAKER:
 - a. Turn on your computer and connect your program recorder to the computer and to a wall outlet.
 - b. Turn on your TV set.
 - c. Slide the DECISION MAKER cassette into the program recorder's cassette holder and press REWIND on the recorder until the tape rewinds completely. Then press PLAY.
 - d. Type CLOAD on your computer and then press the RETURN key two times. The tape will load into computer memory.
 - e. After the tape finishes loading, the word READY will display on your TV screen. Type RUN and press the RETURN key. The first display screen of DECISION MAKER will appear on your TV screen.

If you have the diskette version of DECISION MAKER:

- a. Turn on your disk drive.
- b. When the BUSY light goes out, open the disk drive door and insert the DECISION MAKER diskette with the label in the lower right-hand corner nearest to you. Close the door.
- c. Turn on your computer and TV set.
- d. When the READY prompt displays on your TV screen, type RUN "D:DCSN" and press the RETURN key. If you're using more than one disk drive, remember to follow the device initial (D) with the number of the drive containing the DECISION MAKER diskette (e.g., RUN "D2:DCSN" for disk drive two). The program will load into computer memory and start.

THE FIRST DISPLAY SCREEN

Your TV screen will change to a light brown or orange, with four boxed areas. You enter all your information in the top three boxes. The bottom box always displays instructions. The display looks approximately as follows.

```
-----  
|  ATTRIBUTES    CHOICES    WEIGHTS  |  
|-----|-----|-----|  
| |         | |         | |         |  
| |         | |         | |         |  
| |         | |         | |         |  
| |         | |         | |         |  
| |         | |         | |         |  
| |         | |         | |         |  
| |         | |         | |         |  
| |         | |         | |         |  
| |         | |         | |         |  
|-----|-----|-----|  
-----  
|-----INSTRUCTIONS-----|  
| Welcome to the DECISION MAKER |  
| program. You can evaluate and   |  
| choose between complex choices. |  
|  
| Press RETURN to continue.    |  
|-----|
```

Figure 1 First Display Screen

The instructions in the lower box will guide you through the information you need to type in. Sometimes you need to press the RETURN key to continue; at other times, your last character typed in causes the program to continue automatically. Both the menus and these instructions point out which method works at which times. To begin entering your information, press the RETURN key.

USING THE DECISION MAKER

CHOICES MENU

Let's follow a decision through the various menus. Suppose we need to decide whether to buy the family a new stereo (AM-FM radio, turntable, cassette deck--the works!), a second color TV set for the den, or a video cassette recorder (so there'll be no more complaints about missed programs because of ball games). Our choices, then, are:

- * stereo
- * color TV
- * video cassette recorder (VCR)

Because we've already pressed the RETURN key to continue, the CHOICES menu screen displays:

<u>ATTRIBUTES</u>	<u>CHOICES</u>	<u>WEIGHTS</u>

-----INSTRUCTIONS-----

Input your choices.

Type END when finished.

Figure 2 CHOICES Menu

The line of asterisks (*) represent the grey bar on the real display, which indicates your location on the menu. When you type in your choice, the characters will replace this bar. You can use as many as ten characters per choice. If you type in a ten-character choice, the program moves you automatically to the next line in the CHOICES column. If you type in a choice with fewer characters, then press the RETURN key to continue.

You may use as many as ten choices. If you type in the maximum number, the program

automatically goes to the next menu. If you use fewer choices, type END and press the RETURN key to go on to the next menu. We'll enter STEREO on line one, COLOR TV on line two, and VCR on line three. The screen will look roughly like this:

ATTRIBUTES	CHOICES	WEIGHTS
	STEREO	
	COLOR TV	
	VCR	
	END*****	

INSTRUCTIONS
Input your choices.
Type <u>END</u> when finished.

Figure 3 Filled-in CHOICES Menu

We press the RETURN key to go on to the ATTRIBUTES menu.

ATTRIBUTES MENU

You now enter the factors, or attributes, that you must consider in coming to a decision. Let's say we'll consider four attributes:

- *How expensive is the equipment?
- *How much room will the equipment take?
- *How much will all family members use the equipment?
- *What additional expenses will we have to use the equipment (e.g., tapes, records)?

We'll call the first attribute EXPENSE, the second ROOM, the third FAM. USE, and the fourth ADDED EXP.

The ATTRIBUTES menu looks like this:

<u>ATTRIBUTES</u>	<u>CHOICES</u>	<u>WEIGHTS</u>
*****	STEREO	
	COLOR TV	
	VCR	

<u>INSTRUCTIONS</u>
Input common attributes.
Type <u>END</u> when finished.

Figure 4 ATTRIBUTES Menu

The asterisks (representing a grey bar on your TV screen) show our current position at the top of the ATTRIBUTES column. We'll type in each attribute name in the same way we typed in each choice. The same limitations apply: (1) you may enter as many as ten attributes; (2) their names can be no longer than 10 characters; (3) press the RETURN key for names less than ten characters; and (4) type END and press the RETURN key if you use fewer than ten attributes. The filled-in ATTRIBUTES menu looks like this:

ATTRIBUTES	CHOICES	WEIGHTS
EXPENSE	STEREO	
ROOM	COLOR TV	
FAM. USE	VCR	
ADDED EXP.		
END*****		

INSTRUCTIONS
Input common attributes.
Type <u>END</u> when finished.

Figure 5 Filled-in ATTRIBUTES Menu

When we press the RETURN key, the program goes on the the WEIGHT-OF-ATTRIBUTES Menu.

WEIGHT-OF-ATTRIBUTES MENU

Now we must decide how important each attribute is relative to the other attributes we're considering. We'll assign each attribute a number between 00 and 99. The higher the number, the more important that attribute is in our consideration. For best accuracy, try to weight the least important attribute at or near 00 and the most important attribute at or near 99. The WEIGHT-OF-ATTRIBUTES Menu looks like this:

ATTRIBUTES	CHOICES	WEIGHTS
EXPENSE	STEREO	**
ROOM	COLOR TV	
FAM. USE	VCR	
ADDED EXP.		

INSTRUCTIONS
Weigh attributes in importance.
Higher numbers mean most important.
Type integers from 00 to 99.

Figure 6 WEIGHT-OF-ATTRIBUTES Menu

Let's assume family usage is the most important consideration; we'll assign it a weight of 90. Next comes the initial expense, which we'll weight at 75. Third in importance are the additional expenses incurred in using the equipment, which we'll weight at 60. Least important, but still to be considered, is the amount of room the equipment will take up--we'll weight this attribute at 10.

Enter each weight as a two-digit number. For numbers less than 10, use a leading zero (e.g., 06). The program highlights in grey the attribute you're currently weighting. If you make a mistake in typing the first digit, you can erase the digit by backspacing. However, if you make a mistake in typing the second digit, you can't correct it, because the program automatically moves to the next attribute when you type in the second digit.

After you enter the weight for the last attribute, the program automatically displays the next menu. Our filled-in menu now looks as follows.

ATTRIBUTES	CHOICES	WEIGHTS
EXPENSE	STEREO	75
ROOM	COLOR TV	10
FAM. USE	VCR	90
ADDED EXP.		60

-----INSTRUCTIONS-----

Weigh attributes in importance.
Higher numbers mean most important.
Type integers from 00 to 99.

Figure 7 Filled-in WEIGHT-OF-ATTRIBUTES Menu

RELATIVE-WEIGHTS-OF-ATTRIBUTES MENU

The next menu is an information screen telling you about the last kind of information you'll need to provide:

<u>ATTRIBUTES</u>	<u>CHOICES</u>	<u>WEIGHTS</u>
EXPENSE	STEREO	75
ROOM	COLOR TV	10
FAM. USE	VCR	90
ADDED EXP.		60

-----INSTRUCTIONS-----

Now compare the relative weights
of each choice for each attribute .
Higher numbers mean more desirable.

Press RETURN to proceed.

Figure 8 Information Screen

The last kind of information we need to enter concerns how important an attribute is for each choice. Once again, we consider relative importance and assign higher numbers to choices for which the attribute is significant and lower numbers to choices for which the attribute is insignificant. For example, when we consider how the attribute EXPENSE fares relative to each choice, we might conclude that a color TV is likely to cost the least (if we can find a discount or sale), and therefore would receive a fairly high weight--say, 90--for costing less than the other choices (that is, it's a desirable feature). On the other hand, our stereo with all the trimmings is likely to be a substantial investment; we'll therefore assign it a low number, because low numbers reflect less desirability--say, 30. The video cassette recorder falls in between; we'll weight it as 50. We do the same kind of weighting for each attribute.

The RELATIVE-WEIGHTS-OF-ATTRIBUTES Menu guides you through assigning numbers for each attribute relative to each choice. You work through one attribute at a time. The menu highlights in grey the current attribute and choice for which you need to assign a weight. The menu looks roughly as follows.

ATTRIBUTES	CHOICES	WEIGHTS
EXPENSE	STERED	**
ROOM	COLOR TV	
FAM. USE	VCR	
ADDED EXP.		

INSTRUCTIONS		
Now compare the relative weights of each choice for each attribute . Higher numbers mean more desirable.		
Type integers from 00 to 99.		

Figure 9 RELATIVE-WEIGHT-OF-ATTRIBUTES Menu

The same rules apply for entering these weights as applied to assigning weights to each attribute: (1) enter two-digit numbers; (2) you can backspace and correct the first digit, but not the second; (3) the program automatically moves to the next line when you enter the second digit of each weight.

You'll spend the most time on this menu. For example, if you have ten choices with ten attributes, you'll need to type in 100 numbers. It's helpful to think through all your numbers before beginning to type them in.

MOST LOGICAL CHOICE DISPLAY

After you enter your two-digit number for the last attribute and last choice, the program automatically calculates the most logical choice and displays a bar chart of all the choices and a conclusion statement of the most logical choice. This display looks roughly as follows (the asterisks represent grey bars).

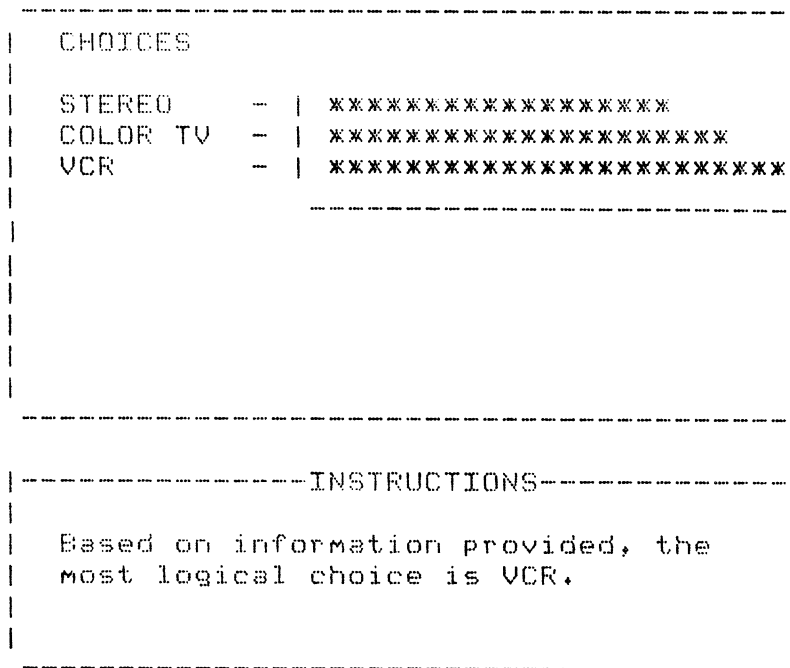


Figure 10 MOST LOGICAL CHOICE Display

The display shows all choices and their relative merits on the bar graph. The longest bar will always fill the screen limits; the lesser choices will display as shorter bars. This is the final display in the program. Pressing any key causes the READY prompt to display. To restart the DECISION MAKER program, type RUN.

TROUBLESHOOTING

KEYBOARD PROBLEMS

If you accidentally press the ATARI key, all characters you type thereafter display in inverse video, which, by itself, causes no problem. However, the program recognizes the word END and numbers in normal video only. Correct the problem by pressing the ATARI key again to return to normal video.

PROGRAM OPERATION LIMITATIONS AND WARNINGS

The program accepts and stores any displayable keyboard character that you type in for choices and attributes, including all graphics characters, cursor movement characters, clear screen, and so on. However, when the program uses these special characters in the menu displays, they can destroy the carefully built screen. Because the program doesn't remember what the display looks like, it can't restore the screen. If you run into this situation, you'll have to start over.

The program is very compact and somewhat complex. Save a working copy before modifying it for any reason.

ADVANCED TECHNICAL INFORMATION

This section describes the variables and subroutines used in the program. This information can help you more easily modify DECISION MAKER to suit your needs.

Variables

<u>NAME</u>	<u>USE</u>
K0 - K100	Constants, used to save memory
SROWT	Top row of screen
SROWB	Bottom row of screen
SCOLL	Left column of screen
SCOLR	Right column of screen
CHAR - INCHAR\$	Character last input from keyboard
WEIGHTS(10)	Array to hold weights of attributes
CHOICES\$(100)	String variable to hold names of choices
ATTS\$(100)	String variable to hold names of attributes
NUMS\$(100)	String variable to hold compressed weights of each choice/attribute combination
INFIELD\$(21)	String variable filled with inverse video spaces
INDAT\$(20)	String variable to hold input character strings
FLASH\$(20)	String variable to hold inverted characters
FLASHMSG\$(20)	String variable to hold names to be inverted
ATSAV\$(20)	String variable to save uninverted attributes
CHSAV\$(20)	String variable to save uninverted choices
HLINES\$(40)	String variable to hold a horizontal line
BLANK\$(40)	String variable filled with a line of blanks
ACCUM(10)	Array to hold combined values of solution
LARGEST	Holds largest accumulated value
LARGI	Holds pointer to largest accumulated value
BXCOLL	Left edge of box to be drawn
BXCOLR	Right edge of box to be drawn
BXROWT	Top edge of box to be drawn
BXROWB	Bottom edge of box to be drawn
INCOL	Column at which to get input
INROW	Row at which to get input
INLEN	Number of characters or digits to accept

Subroutines

<u>NAMES</u>	<u>LINE NUMBERS</u>	<u>USES</u>
INVERT	10000-10040	INPUT: FLASHMSG\$ OUTPUT: FLASH\$ Inverts FLASHMSG\$ to FLASH\$ by adding 128 to each character.
GECHAR	10320	OUTPUT: CHAR, INCHAR\$ Inputs a keyboard character.
GENUM	10350-10450	INPUT: INCOL, INROW, INLEN OUTPUT: INDAT Gets a number from INCOL, INROW. Prints an INFIELD\$ INLEN long. Ignores keystrokes other than 0-9.
SCRN1	10500-10720	INPUT: DATA statement 10730 OUTPUT: Five boxes on screen Builds the first display screen
BLDBOX	11000-11140	INPUT: BXROWT, BXROWB, BXCOLL, BXCCLR OUTPUT: A box on the screen
GALPHA	12000-12090	INPUT: INCOL, INROW, INLEN OUTPUT: INDAT\$ Inputs a string of INLEN characters from INCOL, INROW. Prints a field of INLEN INFIELD\$ characters, then gets input from the field.
CLEARIN	13000-13040	Clears input block
FRST	13050-13090	Just a section of duplicate code. Used to save memory.

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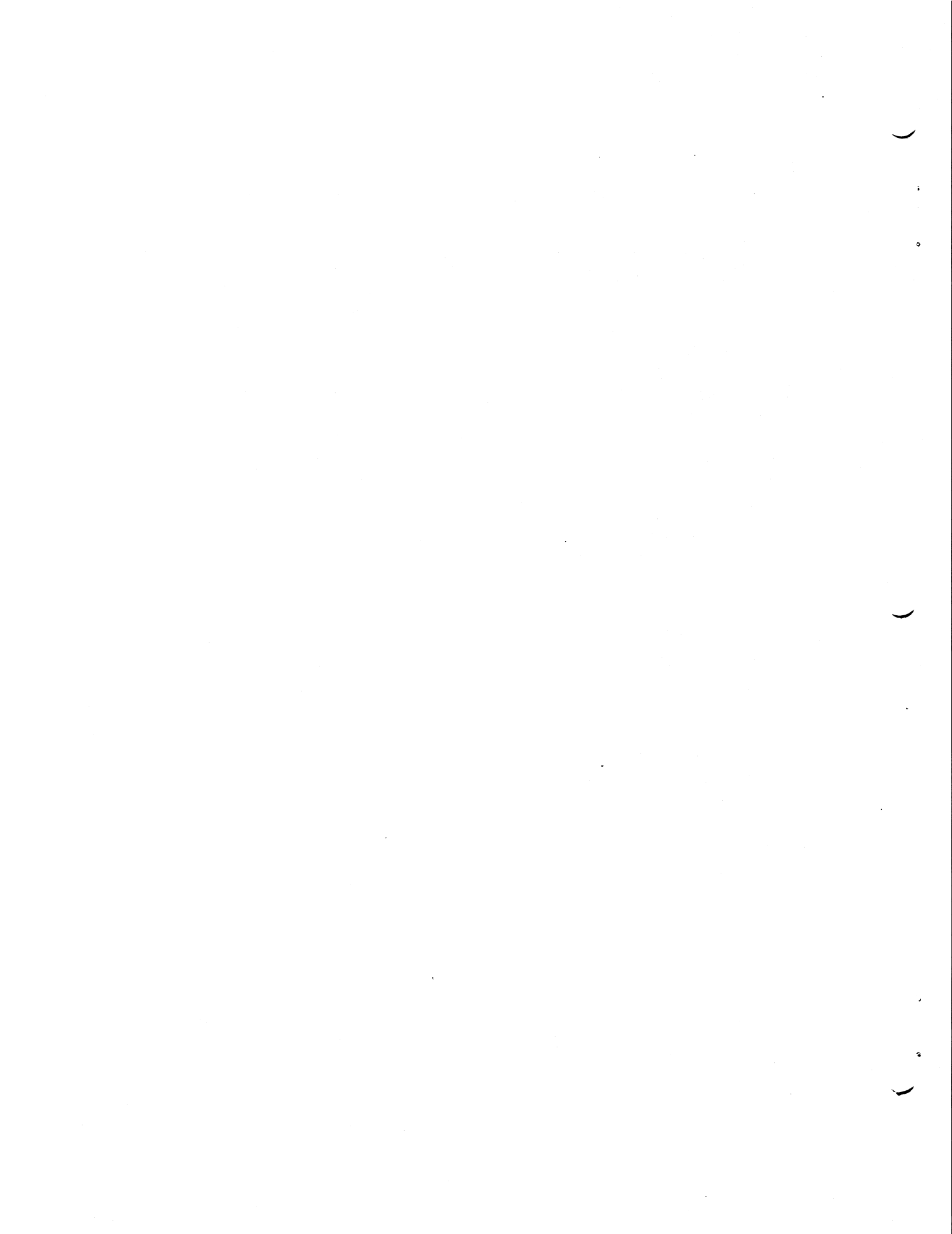
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We're interested in your experiences with APX programs and documentation, both favorable and unfavorable. Many of our authors are eager to improve their programs if they know what you want. And, of course, we want to know about any bugs that slipped by us, so that the author can fix them. We also want to know whether our

instructions are meeting your needs. You are our best source for suggesting improvements! Please help us by taking a moment to fill in this review sheet. Fold the sheet in thirds and seal it so that the address on the bottom of the back becomes the envelope front. Thank you for helping us!

1. Name and APX number of program.

2. If you have problems using the program, please describe them here.

3. What do you especially like about this program?

4. What do you think the program's weaknesses are?

5. How can the catalog description be more accurate or comprehensive?

6. On a scale of 1 to 10, 1 being "poor" and 10 being "excellent", please rate the following aspects of this program:

- _____ Easy to use
- _____ User-oriented (e.g., menus, prompts, clear language)
- _____ Enjoyable
- _____ Self-instructive
- _____ Useful (non-game programs)
- _____ Imaginative graphics and sound

7. Describe any technical errors you found in the user instructions (please give page numbers).

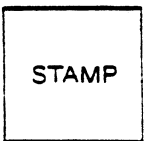
8. What did you especially like about the user instructions?

9. What revisions or additions would improve these instructions?

10. On a scale of 1 to 10, 1 representing "poor" and 10 representing "excellent", how would you rate the user instructions and why?

11. Other comments about the program or user instructions:

From



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