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DESKTOP PLAN-II™

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DESKTOP/PLAN-II

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DESKTOP/PLAN-II **DEPARTMENT OF COMPUTER STUDIES**

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SECTION 1

GETTING STARTED–Operating DESKTOP/PLAN-II

Getting Started - "Booting" the System

Let's take a quick "guided tour" of DESKTOP/PLAN-II. During our "tour" you will get acquainted with how to operate the system.

We are going to assume that your Apple is one of the following:

1. An Apple II Plus
2. An Apple II with Applesoft card and Auto Start ROM
3. An Apple II or Apple II Plus with a Language System.

When your Apple II is ready to operate, start up DESKTOP/PLAN-II by putting the "Program Diskette" which came with this manual into the disk drive labeled #1. Follow this procedure:

1. Open the door on the front of the disk drive by gently pulling it out and up.
2. Hold the diskette in your right hand with your thumb over the diskette label and the other four fingers along the reverse side of the diskette. (This is the only way you should ever hold a diskette.)
3. Notice that there is a notch along the left edge of the diskette when holding it in this manner. Occasionally this notch will be covered with a "write protect" tab to keep the Apple from recording information on the diskette.

   This write protect tab should never be on the DESKTOP/PLAN-II program diskette.
4. Gently slide the diskette into the slot on the front of the drive. Push it gently until you feel a slight "click."
5. Now, close the door on the drive.
6. Turn on the video monitor and the printer attached to the Apple.
7. Turn on the Apple with the switch at the rear left corner.

The Apple will now "boot."

"Boot" is a term indicating that the Apple "pulls itself up by its boot straps" from its inert state.

When first turned on, the Apple does not have the instructions, called programs, telling it how to run DESKTOP/PLAN-II.

However, it does have one small program, permanently recorded in a special memory not erased when power is turned off. This special memory is called the Auto Start ROM. (ROM is an abbreviation for Read Only Memory.) The "bootstrap" program in the Auto Start ROM is automatically activated whenever power is turned ON. It instructs the Apple to:

find the first program to be "run" from Disk Drive #1

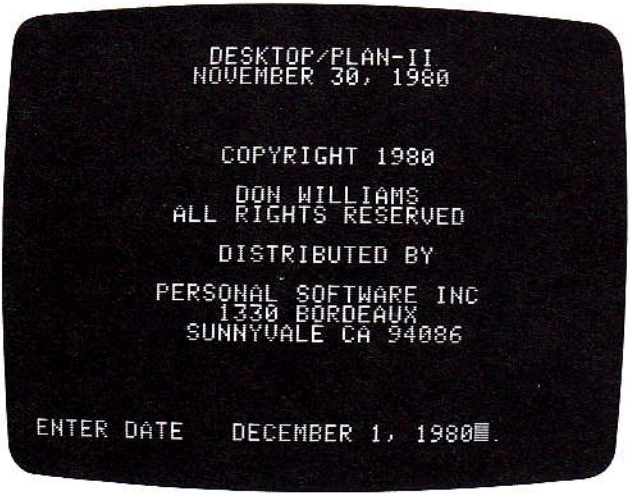
load that program into the Apple's main memory

then follow the instructions in that program.

When you turn on the Apple with the DESKTOP/PLAN-II program diskette in Disk Drive #1 the little red light on the front of the drive will come on, the drive will make some clicking and whirring noises, and the system will "boot."

The video screen will then appear as in Exhibit 1-a.

Exhibit 1-a - "Boot" Screen Display



Entering Information Into DESKTOP/PLAN-II

DESKTOP/PLAN-II is now "prompting" you for some information.

Notice the blinking white square. This is called a "cursor."

The information being requested by DESKTOP/PLAN-II is described immediately to the left of the cursor.

Notice the "dots" under the cursor and immediately to the right of the cursor. These dots indicate the maximum number of characters that may be typed in response to the prompt.

The date that is being prompted for is the date that will be displayed on many video screens while DESKTOP/PLAN-II is being operated and will be printed at the top of each printed page of reports.

This is the only place in the system the date may be changed. It may be typed in any format desired such as:

January 1, 1981
1/1/81
1-Jan-81

To enter the date, press the letter and number keys on the Apple keyboard that make up the date you want to enter.

Notice that as you press each key, the character appears on the video screen where the cursor had been and the cursor moves to the next position to the right.

Now, type today's date.

If you make a mistake while typing, press the "Left Arrow" key. The Left Arrow key is on the second row of keys from the bottom of the keyboard and is the second key from the right edge.

Each time you press the left arrow key, the character immediately to the left of the cursor will be erased and the cursor will move one position to the left.

When you have typed the date exactly as you want it to appear, press the key marked 'RETURN.'

If you type more characters than DESKTOP/PLAN-II will accept for the date, the system will:

1. "Beep" at you.

2. Flash the message

   "TOO MANY CHARACTERS/PLEASE RE-ENTER"

   at the bottom of the video screen.

3. Erase what you have just typed.

4. Put the cursor back at the first prompt position.

You must then re-type the requested information.

When you have correctly typed the date and pressed 'RETURN,' the date will be recorded on the diskette and the main DESKTOP/PLAN-II control program will be loaded. When this is completed (after about 15 seconds) the video screen will appear as in Exhibit 1-b.

All information you will be prompted for when operating DESKTOP/PLAN-II should be entered in the manner described for entering the date.

When entering numeric information, if the value of the number entered is outside the range that DESKTOP/PLAN-II can accept or non-numeric characters are entered, the message will be as follows:

OUT OF RANGE/OR INVALID CHARACTER

DESKTOP/PLAN-II Main Menu

DESKTOP/PLAN-II is a "menu driven" system. That is:

1. A list of functions from which you can select is displayed on the video screen. This is called the "menu."

2. You are prompted to enter a number corresponding to the number of the function which you desire to execute.

3. The system then executes the function you selected.

DESKTOP/PLAN-II is a menu driven system so that you do not have to remember codes or program names nor do you have to tell the system to run the various programs which make up the system.

DESKTOP/PLAN-II Functions

As can be seen by studying the Main Menu, DESKTOP/PLAN-II provides two main functions:

I. The capability of "creating" a "model."

II. The capability of "executing" a model.

We'll define the meaning of the word "model" in a moment.

In addition to these two main functions, a number of "utilities" are provided to assist the user in operating and customizing the system as well as to provide a capability "interfacing" to VisiCalc and Apple Plot. These utilities are accessed from a sub-menu.

The Utilities Sub-Menu is illustrated in Exhibit 1-c.

Exhibit 1-b Main Menu

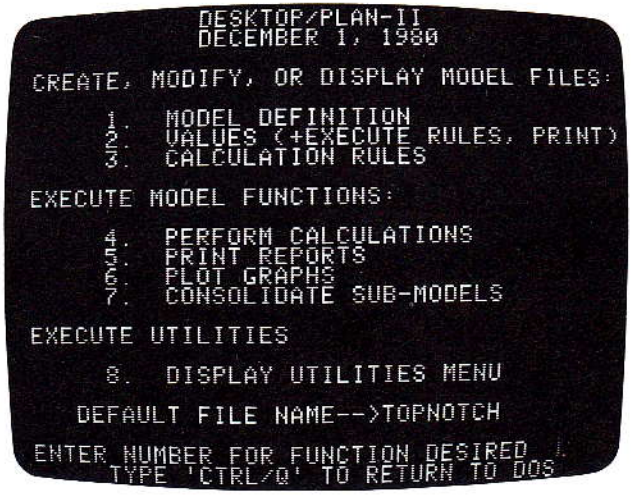
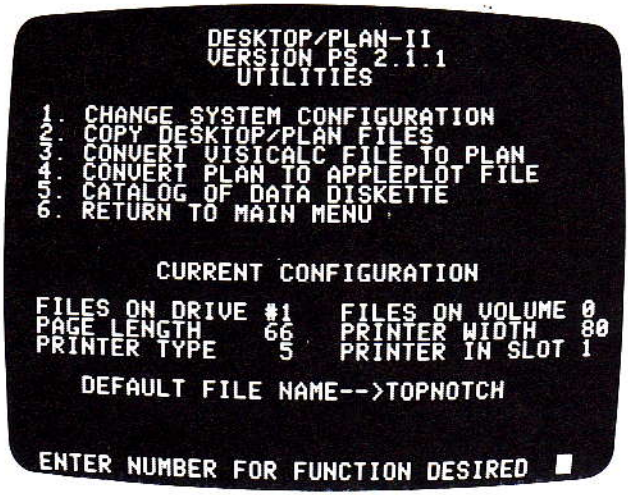


Exhibit 1-c - Utilities Sub-Menu Illustration



Selecting a Function From a Menu

To illustrate how to select a function from any menu in DESKTOP/PLAN-II, while looking at the Main Menu, press the 8 key and the 'RETURN' key.

You should now be looking at the Utilities Sub-Menu.

Returning to the Main Menu

We'll return to this menu later, but first let's return to the Main Menu. To do so, hold down the key marked 'CTRL' while simultaneously pressing the 'Q' key. (The 'CTRL' is the left most key on the second row of keys from the bottom.)

You may return to the Main Menu from any place in DESKTOP/PLAN-II by typing CTRL/Q as described above. When you type CTRL/Q the function which you are executing is immediately terminated and control is returned to the Main Menu.

If CTRL/Q is typed from the Main Menu, the user exits DESKTOP/PLAN-II and the system is re-booted.

What is a Model?

A model is a "small scale imitation of the real thing."

Many models are physical. We have all heard of, if not built, airplane and ship models. Businesses have built and operated pilot plants and and pilot production lines for years.

These are models which are small in physical size.

The purpose is to test the "likely effect" of operating the "system" under the conditions simulated by the pilot or model.

Some models are "abstract."

That is, instead of representing the system or process physically, the system or process is represented with abstract symbols, normally numbers and formulas.

Engineers and scientists have been using "abstract models" for years in their engineering design work. They test the likely effect of their designs of bridges, airplanes, roads, missiles, and many other types of systems.

And, so do many business people. Most of the time without realizing that they are building and operating models.

Business people prepare proforma financial estimates, sales forecasts, budgets, manpower plans, product cost estimates, job cost estimates, and a myriad of other "projections." These are abstract models because they use numbers and formulas.

An illustration is to subtract numbers representing Returns & Allowances from the numbers representing Gross Sales and write the results on the row representing Net Sales.

In actuality, this could be expressed as the formula:

NET SALES = GROSS SALES - RETURNS & ALLOWANCES

This a "model" according to our definition.

Often these models are prepared using an accountant's analysis pad, a pencil, an eraser, a calculator, and a typewriter. Along with a lot of "sweat."

DESKTOP/PLAN-II automates and speeds up the development and execution of these models.

It eliminates the requirement for programming and dealing with data processing professionals when developing a model.

It takes the drudgery out of performing the calculations and typing the finished analysis for presentation to management and others.

DESKTOP/PLAN-II Model Files

DESKTOP/PLAN-II models are comprised of files of information recorded on the diskettes used by the Apple II. Four types of files make up a model:

1. A Model Definition file contains information describing:

   The number of "rows" and "columns" of values in the model.

   A "title" to be printed on reports.

   The "column headings" defining the meaning of the values in each column.

   The "row descriptions" defining the meaning of the values in each row.

2. A Calculation Rules file contains information describing the computations to be performed on Planning Values:

3. One or more Planning Values files containing the numerical values of assumptions, constants, and initial values comprising the model.

4. One or more Computed Values files containing the numerical values after computations specified by the Calculation Rules have been executed on the Planning Values.

Each file is identified to DESKTOP/PLAN-II by a name chosen and entered by the user. DESKTOP/PLAN-II automatically appends to the name chosen by the user a code to identify each type of file. These codes are:

1. ".D" for a Model Definition file.

2. ".R" for a Calculation Rules file.

3. ".I" for a Planning Values file.

4. ".C" for a Computed Values file.

A-10-01

Thus, a model for a company named Topnotch Manufacturing Company might have four files recorded on diskette named as follows:

TOPNOTCH.D
TOPNOTCH.R
TOPNOTCH.I
TOPNOTCH.C

As a matter of fact, just such a model is recorded on the DESKTOP/PLAN-II program diskette you are working with.

To see these names recorded in the file directory on your diskette, select Function 8 from the Main Menu and Function 6 from the Utilities Sub-Menu.

After doing so, return to the Main Menu.

Exhibit 1-d is a report printed from the information in the TOPNOTCH Model Definition and the Planning Values files.

Exhibit 1-e is a report printed from the information in the Model Definition and Computed Values files.

Exhibit 1-d - Sample Report of Planning Values

TOPNOTCH MANUFACTURING COMPANY
QUARTERLY BUDGET
THIRD QUARTER-1979

NOVEMBER 9, 1980
PAGE 1

CALCULATION RULES WORKSHEET		JULY	AUGUST	SEPTEMBER	QUARTER TOTAL
ASSUMPTIONS					
PRIOR QUARTER MONTHLY SALES	(5)	213000	218000	215000	-
COMPUTED MONTHLY GROWTH RATE-%	(6)	-	-	-	-
RETURNS & ALLOWANCES -%	(7)	2.0	-	-	-
VARIABLE SELLING COST -%	(8)	7.0	-	-	-
MATERIAL COST -%	(9)	47.5	-	-	-
HOURLY LABOR RATE	(10)	7.25	-	-	-
NUMBER OF DIRECT LABOR PERS.	(11)	20	-	-	-
FACTORY BURDEN (% OF DIR LAB)	(12)	30.5	-	-	-
INCOME					
GROSS SALES	(22)	220000	-	-	-
RETURNS & ALLOWANCES	(23)	-	-	-	-
NET SALES	(26)	-	-	-	-
COST OF GOODS SOLD					
MATERIAL COST	(32)	-	-	-	-
LABOR COST	(33)	-	-	-	-
FACTORY OVERHEAD-FIXED	(34)	3100	-	-	-
FACTORY OVERHEAD-VARIABLE	(35)	-	-	-	-
TOTAL COST OF GOODS SOLD	(39)	-	-	-	-
GROSS MARGIN	(41)	-	-	-	-
OPERATING EXPENSES					
SELLING	(52)	4300	-	-	-
MARKETING	(53)	7900	-	-	-
GENERAL & ADMINISTRATIVE	(54)	12400	-	-	-
ENGINEERING & DEVELOPMENT	(55)	9650	-	-	-
RENT	(56)	3125	-	-	-
UTILITIES & COMMUNICATION	(57)	1650	-	-	-
TOTAL OPERATING EXPENSES	(59)	-	-	-	-
NET PROFIT BEFORE TAXES	(65)	-	-	-	-
CONSTANT 176	(99)	176	-	-	-
CONSTANT 100	(100)	100	-	-	-

PREPARED USING DESKTOP/PLAN-II

Exhibit 1-e - Sample Report of Computed Values

TOPNOTCH MANUFACTURING COMPANY
QUARTERLY BUDGET
THIRD QUARTER-1979

NOVEMBER 9, 1980
PAGE 1

COMPUTED VALUES (EXHIBIT 1-E)		JULY	AUGUST	SEPTEMBER	QUARTER TOTAL
ASSUMPTIONS					
PRIOR QUARTER MONTHLY SALES	(5)	213000	218000	215000	-
COMPUTED MONTHLY GROWTH RATE-%	(6)	0.47	0.47	0.47	-
RETURNS & ALLOWANCES -%	(7)	2.0	2.0	2.0	-
VARIABLE SELLING COST -%	(8)	7.0	7.0	7.0	-
MATERIAL COST -%	(9)	47.5	47.5	47.5	-
HOURLY LABOR RATE	(10)	7.25	7.25	7.25	-
NUMBER OF DIRECT LABOR PERS.	(11)	20	20	20	-
FACTORY BURDEN (% OF DIR LAB)	(12)	30.5	30.5	30.5	-
INCOME					
GROSS SALES	(22)	220000	221034	222073	663107
RETURNS & ALLOWANCES	(23)	4400	4421	4441	13262
NET SALES	(26)	215600	216613	217631	649845
COST OF GOODS SOLD					
MATERIAL COST	(32)	104500	104991	105485	314976
LABOR COST	(33)	25520	25520	25520	76560
FACTORY OVERHEAD-FIXED	(34)	3100	3100	3100	9300
FACTORY OVERHEAD-VARIABLE	(35)	7784	7784	7784	23351
TOTAL COST OF GOODS SOLD	(39)	140904	141395	141888	424187
GROSS MARGIN	(41)	74696	75219	75743	225658
OPERATING EXPENSES					
SELLING	(52)	19392	19463	19534	58389
MARKETING	(53)	7900	7900	7900	23700
GENERAL & ADMINISTRATIVE	(54)	12400	12400	12400	37200
ENGINEERING & DEVELOPMENT	(55)	9650	9650	9650	28950
RENT	(56)	3125	3125	3125	9375
UTILITIES & COMMUNICATION	(57)	1650	1650	1650	4950
TOTAL OPERATING EXPENSES	(59)	54117	54188	54259	162564
NET PROFIT BEFORE TAXES	(65)	20579	21031	21484	63094

PREPARED USING DESKTOP/PLAN-II

Executing A Model

To see how simple it is to execute a model, notice that the there is a value printed on the sample report of Planning Values labeled:

HOURLY LABOR RATE (AVERAGE) (10)

The value is 7.25. Suppose that you desired to see the effect on NET PROFIT BEFORE TAXES, Row 65, on the report printed from Computed Values if the HOURLY LABOR RATE (AVERAGE) is changed from $7.25 to $9.50.

It will only be necessary to change a single value and then re-execute the Calculation Rules.

To do so, when prompted for the function desired from the Main Menu, select Function 2.

The video display now prompts you for what you want to do to a Values file.

Select Function 2, CHANGE VALUES IN AN EXISTING FILE.

Next, you'll be prompted for the required file names.

Default File Name

Notice the default file name is displayed, as in Exhibit 1-g. The "default file name" is a name, selected and entered by the user, which is automatically typed when the user is prompted for a file name and the user presses the RETURN key.

Since you are dealing with the TOPNOTCH model, merely press RETURN. The name TOPNOTCH will automatically be typed for you.

Press the RETURN key for both the Model Definition and Planning Values file names.

Prompts for "YES" or "NO" Responses

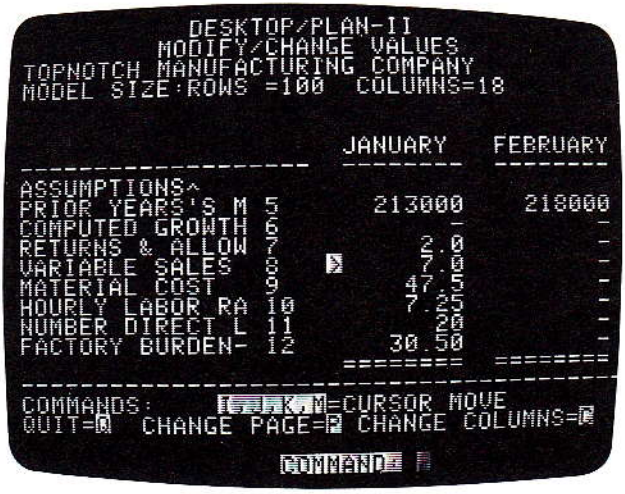
Next, you'll be prompted as to whether the entries you have just entered are what you want. If your "entries" are as you want them, you may merely press the RETURN key again or press the "Y" key followed by the RETURN key.

Any time during execution of DESKTOP/PLAN-II, you may respond to a question requiring a "Yes" or "No" answer with any of the following:

Y
N
RETURN only

When you type only the RETURN key, the systems assumes you meant "Yes." This "default" to "Yes" is used throughout the system with 3 exceptions. These are when you are asked if you really want to initialize a diskette and at two other points when files will be written after a "Y" response.

Exhibit 1-f -- Enter Planning Values



Entering Planning Values

After you have told DESKTOP/PLAN-II that your entries are correct, the Model Definition and Planning Values file are "read" from the diskette into the Apple's main memory and the video display will appear as in Exhibit 1-f.

Information from the Model Definition file and Planning Values file will be displayed.

From this display, you may:

1. Review what information has previously been entered and is currently part of the model.

2. Enter additional values.

3. Change previously entered values.

4. Replace the file recorded on diskette with the changes.

5. Record a new file on diskette with a different name.

6. Execute Calculation Rules.

Notice that the word COMMAND and a cursor are displayed in "inverse" video on the bottom line of the display. DESKTOP/PLAN-II is prompting for an indication of what you want to do.

The Data Pointer

> Press the "M" key. Notice that the "data pointer," the white block with the "angle bracket" pointing to the right, moves down one line on the screen.
>
> Press the "K" key. Notice that the data pointer moves one column to the right.
>
> Press the "I" key. Notice that the pointer moves up one row.
>
> Press the "J" key. Notice that the pointer moves one column to the left.

The purpose of the "data pointer" is to point to that row and column of the model where a value is to be entered if you were to type a numerical value.

Move the pointer, using the I, J, K, and M keys so that the pointer is pointing at the number "7.25."

Notice that to the left of the number is displayed

HOURLY LABOR RA 10

The first 16 characters of a "row description" from the Model Definition file describes the meaning of all the values that are displayed for that row.

The number 10 is the row number in the model.

Press the "9" key.

Notice that the word COMMAND has disappeared from the prompt line and has been replaced with NEW VALUE.

Now press the "left arrow" key.

Nothing happened. This is the only place in the system where the "left arrow" key will not erase a character.

Press the key marked "ESC." (The ESC key is the left most key on the third row of keys from the bottom of the keyboard.)

The "9" and NEW VALUE disappear and are replaced by COMMAND.

The "ESC" key allows you to "back out" a value you type before you press RETURN when entering values into DESKTOP/PLAN-II. (This is only effective when executing Function 2, ENTER VALUES of the system.)

Now type

9.50

by pressing the appropriate keys followed by RETURN.

The value "9.50" now replaces the value "7.50" at the location on the screen of the pointer.

Let's review how values are entered.

First, you positioned the pointer to the row and column in which the value was to be entered.

You used the keys

I to move the pointer up one row at a time
M to move the pointer down one row at a time
J to move the pointer left one column at a time
K to move the pointer right one column at a time

Notice that if you marked an arrow on each of these keys pointing in the direction each moved the data pointer, you would have a "diamond" with the key "pointing" in the direction the data pointer will be moved. This is illustrated below:

If addition to being able to move the pointer to any position within the "window" displayed, you may "scroll" the pointer to any position within the model and display any 10 rows and 2 contiguous columns of the model.

Press the "K" key several times. Notice that when the pointer is positioned under the second column on the display and "K" key is pressed, the numerical portion of the display is cleared. The column previously displayed under the second column is then displayed under the first column. The next higher numbered column of the model is displayed under the second column.

The values will be "scrolled" across the screen until the highest numbered column in the model is displayed under the second column of values. When the highest numbered column of the model is displayed as the second column of the display, further pressing of the "K" key will produce a "beep" on the Apple's speaker, indicating there are no more columns in the model.

Pressing the "J" key will have the exact opposite effect.

Pressing the "I" and "M" keys will "scroll" the information displayed by rows in exactly the same manner as scrolling across the columns with the "J" and "K" keys.

Moving the pointer in this manner is satisfactory when moving only a few rows or columns. However, it may be quite tedious to move from row 12 to row 51. Thus, a provision to direct DESKTOP/PLAN-II to immediately display information from a specific row or column has been provided.

You may directly specify the first row or column to be displayed by pressing either the "P" or "C" keys.

Press "P." Immediately you are prompted for the row number of the first row of the "page" to be displayed on the first line of the window.

Type 52 followed by RETURN.

Notice that immediately the window is cleared and a new page of information is displayed with the first row of information being row 52.

Press "P" again. Enter "1" to redisplay row 1 as the first line of the window.

Press "C." You'll be prompted for the first column to be displayed.

Enter "11" and press RETURN. Immediately the system should display columns 11 and 12 of the TOPNOTCH model.

Before going onto the next section, spend a few minutes moving the pointer to different locations in the TOPNOTCH model. Experiment with changing or entering new values.

When Finished Entering or Changing Values

When all values have been entered and you desire to "exit" the "Enter Values" mode, press "Q."

You will immediately be prompted with, "ARE YOU SURE."

Unless you follow that prompt with a "Y" RETURN, you'll be returned to the "COMMAND" mode.

If you do respond with "Y" RETURN, you'll be asked if you want to replace the old file. Respond with a "No" answer by pressing "N" and RETURN.

Next, you'll be prompted for a file name to save the Planning Values that have just been changed.

By pressing RETURN, the file will not be saved.

If you type a name followed by RETURN, DESKTOP/PLAN-II will record the Planning Values on the diskette with the name you entered.

For our "guided tour" do not save the file.

Executing Calculations

You should now see a prompt, "EXECUTE CALCULATIONS?"

Respond "Y."

Next, you'll be asked for the name of the Calculation Rules file.

Press RETURN so that you use the "default file name" TOPNOTCH.

DESKTOP/PLAN-II will now display a series of messages at the bottom of the video display describing what is is now doing. These are:

> LOADING EXECUTE -- The EXECUTE program is being loaded.
>
> READING CALCULATION RULES -- The Calculation Rules to be performed are being read into memory.
>
> EXECUTING CALCULATIONS -- The Calculation Rules are being performed on the Planning Values.

From the time you typed the RETURN key indicating you desired to use the Calculation Rules named TOPNOTCH until the rules have been completely executed should take about 40 seconds. As each rule is executed, its Rule Number as well as a "Comment" chosen by the model author is displayed on the bottom line of the video display.

Displaying Computed Values

When the calculations are completed, the Computed Values will be displayed in the same format as when Entering Values.

You may "scroll" around in the "array" of Computed Values using the

I, J, K, or M keys

P or C keys

to position the pointer at the portion of the Computed Values you would like to view.

Press a number key. Notice that the Apple just beeps at you. You cannot change Computed Values from the keyboard.

When you are done reviewing Computed Values, "Quit" the display mode.

Next you'll be asked if you want to save the Computed Values. Unless you are going to use the the PLOT capability, the CONSOLIDATE capability, or at some later time print reports from the Computed Values file, it is not necessary to save Computed Values files. They can be re-computed so quickly and easily and just take up space on the disk if you save them.

During our "guided tour," respond "N" to the question, "DO YOU WANT TO SAVE THE COMPUTED VALUES."

Thereafter, you will be asked if you want to print a report.

You'll learn about printing reports later, so respond "N."

You'll be immediately returned to the Main Menu.

This concludes our "guided tour" of DESKTOP/PLAN-II. Its purpose was to get you familiar with operating the system. The other functions of DESKTOP/PLAN- II operate identically. That is:

By Selecting Functions and Options from Menus

By Entering File Names

By Entering Values

By Responding with "Y" or "N" answers

Customizing DESKTOP/PLAN-II to Your System

DESKTOP/PLAN-II will operate on a number of configurations of equipment. Because of this, it is necessary to define the characteristics of your equipment to the system.

To do so, select Function 1 from the Main Menu and then Function 1, CHANGE SYSTEM CONFIGURATION from the Utilities Sub-Menu.

Exhibit 1-g illustrates the video display for setting the various parameters to customize DESKTOP/PLAN-II.

You may change any of the nine parameters by selecting the parameter number to be changed. To do so, type the number of the parameter, followed by RETURN. The cursor will immediately erase the "old" value and prompt for the new entry.

There are four categories of parameters you may set for your configuration. These are:

1. The characteristics of the printer attached to your system.
2. The disk drive number on which to store and retrieve DESKTOP/PLAN-II files.
3. The default file name you will use.
4. The message to be printed at the bottom of every page on printed reports.

Printer Parameters

The first category relates to the printer, and includes four parameters:

1. How it is interfaced to your Apple. Six different interfaces are provided.
2. The "slot" in the Apple's "main logic board" in which the interface is located.
3. The width of a printed line in characters.
4. The length of a printed page in lines.

You should set each of these four parameters at this time.

If you are unsure of what each should be, consult your dealer.

Disk Drive Specifications

Three parameters define to DESKTOP/PLAN-II the disk drive number on which the files are to be recorded.

Parameter 5 can be set to 1 or 2.

We strongly urge that you operate DESKTOP/PLAN-II on a two drive system and keep all of your files on Drive #2.

Set this parameter to 2 if you have a two drive system now.

Unless you are using disk drives other than Apple Disk II drives, don't changes Parameters 6 or 7. They are built into the system in the event you are using a CORVUS "hard disk." Special arrangements must be made to do so. See the Appendix for this capability.

Default File Name

You had an opportunity to use the default file name previously. The default file name saves a significant amount of typing file names when operating the other functions of DESKTOP/PLAN-II compared to earlier versions of the system.

Any name, beginning with an alphabetic character, up to 15 characters in length, may be chosen and entered. Normally, you should choose a name for your model which is easily remembered.

Select this parameter and type a name for your first model.

Page Footer Message

Each page of each printed report produced by the system contains this message. It is often used to indicate company confidentiality with a message such as, "'COMPANY NAME' - CONFIDENTIAL."

Set this parameter to anything you desire now.

Returning to the Main Menu

After you have set all the parameters so they represent your system, you may return to the Main Menu by entering END for the number of the parameter to be changed.

When you do so, DESKTOP/PLAN-II will automatically record these parameters in a file on the program disk in Drive #1 and return to the main menu.

Exhibit 1-g -- Change System Configuration Display

This Manual

The balance of this manual has two major objectives:

1. To describe the functional capabilities built into DESKTOP/PLAN-II.
2. To teach you how to use each of the capabilities.
3. To teach you how to build your own, customized models.
4. To serve as a reference guide when operating DESKTOP/PLAN.

How to Learn DESKTOP/PLAN-II

The best way to learn to use DESKTOP/PLAN-II is to build a model.

Therefore, we suggest you read though the rest of this manual. You probably won't remember all of the details of what you read.

Then, build a small model. As you do, refer to, and re-read the appropriate section of the manual. As you operate the computer, refer to the section of the manual describing how to operate the function then being used.

Your first model should be small and simple.

The process of building a model and operating DESKTOP/PLAN-II is relatively simple. But, we'll all but guarantee you'll make mistakes.

Make your mistakes on a small model. That's how you learn.

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SECTION 2

Functional Capability of DESKTOP/PLAN-II

DESKTOP/PLAN-II What is it?

DESKTOP/PLAN-II is a software system which turns the Apple II into a "problem solving tool" aimed at the business problems of most middle and upper level managers and many top executives--

> --the development and analysis of business plans such as budgets, cost and price analysis, sales forecasts, cash flow planning, capital budgeting, profit and loss projections, and a myriad of similar types of analysis--

These analyses are being done now. Many are relatively simple and straight forward. But they are usually very time consuming and tedious to perform.

> Hours are spent with pencil, paper, eraser, and calculator.
>
> Secretaries type, and re-type, reports.
>
> And, the boss asks, after all the work,
>
> "What if.....?"

The cycle is repeated - - again, again, and again.

DESKTOP/PLAN-II solves these problems by allowing business persons to develop customized business planning and analysis systems. Little or no computer knowledge or training is required.

After a customized system has been developed, the analysis can be easily and quickly executed over, and over, analyzing many alternatives. By merely changing one or two data values, such as sales growth rate, selling price, or cost, DESKTOP/PLAN-II can quickly determine the likely effect of such a change on the enterprise.

DESKTOP/PLAN-II General Capability

DESKTOP/PLAN-II provides the following functional capability to a user of the system:

With no computer programming knowledge or capability, a user develops a customized analysis, often called a "model."

The model is described to DESKTOP/PLAN-II by selecting a function from a menu. Thereafter, the user is prompted to answer questions displayed on the video display. These "model building" functions are:

> Enter the format and descriptive contents of reports of a desired analysis.
>
> Enter the values of assumptions and initial quantities to be analyzed.
>
> Enter the calculations to be performed on the data.

After entry of each portion of the model, DESKTOP/PLAN-II stores the data, calculations specified, and report descriptions in files recorded on diskettes.

Collectively the data, specified calculations, and report descriptions are known as the model.

After the model is developed, the user can execute the specified calculations, print reports, plot the computed results, and display either the initial data or computed results on the video display.

DESKTOP/PLAN-II allows the user to change or modify the information in any of the files comprising the model and either replace the original file or create a new file with the modified information.

The model may be re-executed as many times as desired, testing different assumptions or initial planning values. "What if .....?" questions may be easily answered.

After execution of calculations, the results of calculations may be stored in a file on disk.

The user can display data on the video display, before or after calculations have been executed.

Files of data of computed values may be consolidated with like files into "summary" models. Data from unlike files may be "passed forward" to new models.

For instance, identical sub-models of a chain of stores may be executed. After all stores have been modeled, the results can be summarized into a total of the entire enterprise.

Or, a large organization could have sub-models of manufacturing, engineering, marketing, and administration. After calculations for all sub- models have been executed, totals can be "passed forward" to a summary model of the entire organization and calculations performed on these totals.

DESKTOP/PLAN-II Reports

DESKTOP/PLAN-II prints reports from specifications describing the desired report and values immediately after execution of computations or from data files maintained by the system.

Report specifications are entered by the user responding to questions from DESKTOP/PLAN-II and are stored in files recorded on diskettes. A Model Definition file contains the following information:

a. The maximum number of rows and columns for which a report may be printed.

b. Up to three lines of report heading/title information.

c. Up to two lines of column headings for each column specified.

d. Up to 30 characters of alphabetic description of the data in each row.

e. Codes to cause the printing of:

    1. "Underscores" of the columns of data

    2. "Double underscores" of the columns of data

    3. Sub-headings

    4. Blank rows

    5. The start of a new page with appropriate page headings

Numeric data, printed under the column headings, may be printed with zero, one, or two, three, or four digits to the right of the decimal point.

In addition to the specifications contained in the Model Definition file, additional flexibility in report formats is provided by responses to questions interactively posed immediately prior to reports being printed. These are:

a. An option to print the row numbers of each row on the report.

b. A selection of the row number from which to begin printing the report.

c. A selection of the row number through which to print the report.

d. A selection of the beginning and ending columns with which to print the report.

e. The number of columns of the model to print on each sheet of the report.

f. A unique "run description," of up to 30 characters, to be printed on each page of the report.

The specifications of the last report printed are retrieved automatically by the system. If the current report being printed is to use the same responses to the above specifications they may be used without re-entry.

After a report is printed, the user is given the option of printing an additional copy of the report.

After all copies of the report are printed, a different report, using the same data, but with different row and column specifications may be requested and printed.

DESKTOP/PLAN-II Values

DESKTOP/PLAN-II uses data arranged in rows and columns, much as information is arranged on an accountant's columnar analysis pad.

In most applications, a "row" of data refers to a different type of information, such as "Gross Sales," "Returns & Allowances," and "Net Sales."

A "column" of data normally contains the data for all of the "rows" for a specific time period.

DESKTOP/PLAN-II allows a user to specify up to 300 rows of data and up to 18 columns of data for each row in any model.

The system will NOT accommodate a model where the maximum number of rows and columns are both specified.

(The constraint is the availability of memory after all files have been read into memory. There is no way to precisely determine the size of model which may be executed without knowing the total number of alphabetic characters comprising all row and column descriptions. While models of over 200 rows by 18 columns have been executed on a 48k system, it is suggested that if consolidation of sub-models is to be performed, models of 18 by no greater than 150 rows be specified).

DESKTOP/PLAN-II generates and maintains two types of value files:

> "Planning Values" contain data on which calculations have not yet been executed.
>
> "Computed Values" contain data on which calculations HAVE been executed.

Calculations

Calculations are performed on Planning Values by DESKTOP/PLAN-II as a result of DESKTOP/PLAN-II interpreting and executing "Calculations Rules."

Calculation Rules are determined by the user, arranged in the sequence to be executed, and entered into the system.

Rules are entered by selecting from a set of pre-written "standard planning calculation rules." These rules perform the types of arithmetic commonly used by planners and include the following:

A. Rules to do arithmetic on rows of values

B. Rules to do arithmetic on columns of values

C. Rules to "generate" data

In addition to standard rules, DESKTOP/PLAN-II provides the capability for the user to write a program in BASIC to execute computations not provided by the standard rules. These "Custom Rules" are easily incorporated into the EXECUTE function of DESKTOP/PLAN-II.

Up to 20 different Custom Rules may be incorporated into EXECUTE.

Data Generation Calculation Rules

The standard "data generation" rules provided are:

1. Extend or fill the values in a row
2. Interpolate between the values in a beginning column to the values in an ending column
3. Compute the growth rate of a row of values
4. Grow a row with a beginning value by the growth rate in a second row
5. Fill a column with a specified value
6. Convert all the values in a row to zero
7. Copy a row of values and shift the values right a specified number of columns

Line Arithmetic Calculation Rules

The standard "row arithmetic" rules provided are:

1. Add one row to another
2. Add a group of rows
3. Subtract one row from another
4. Multiply one row by another
5. Divide one row by another
6. Compute the percent the values in a row represent of a specified value
7. Accumulate a row of values so that each column of the resulting row contains the sum of the current and all preceeding columns

Column Arithmetic Calculation Rules

The standard "column arithmetic" rules provided are:

1. Add a group of columns
2. Add one column to another
3. Subtract one column from another
4. Multiply one column by another
5. Divide one column by another
6. Compute the percent the values in a column represent of a specified value

Custom Rules

"Custom Rules" are small programs, written in the BASIC programming language which allow DESKTOP/PLAN-II to execute the most complex computations that any computer can perform.

While most of the arithmetic required by most models can be accomplished using the "standard" calculation rules of DESKTOP/PLAN-II, occasionally there is a need to perform computations which cannot be accomodated by the standard rules.

It may be necessary to perform one computation if the result of a previous calculation produced a negative result but a different calculation if the result is positive. BASIC provides a capability of testing for the condition and choosing which set of computations to perform based on the result of the test.

An illustration of this requirement is the calculation in a cash flow analysis. If "cash on hand" is below a pre-determined requirement, then execute a sub- routine to compute "borrowings." If "cash on hand" is above some amount, then execute a sub-routine to add the excess cash to "short term investments."

Another illustration is a requirement to perform a calculation until a result is reached. This is called looping. It is the type of calculation that a computer does very well.

For instance, there is no formula for the computation of Internal Rate of Return. An "IRR" is computed by arbitrarily picking a estimated IRR and then testing to see if the dollars earned on the investment equals the estimated IRR. If it does not, the estimated IRR is adjusted by a small increment, and the test is repeated. This cycle is repeated until the estimated IRR equals the computed estimate.

The looping and testing capability of BASIC allow a computer to perform this type of calculation.

DESKTOP/PLAN-II provides the capability of incorporating up to 20 independent "Custom Rules" into a model.

Entering Calculation Rules

Rules are entered in DESKTOP/PLAN-II by selecting each rule to be executed from a menu of available rules.

Rules are entered in the sequence they are to be executed.

After selecting the rule to enter, the user is prompted for row and column numbers on which the calculation is to be performed as well as a brief comment regarding the purpose of the rule.

In addition to entering a new rules file, the user may:

1. Add rules to an existing file
2. Insert rules between previously entered rules
3. Delete a previously entered rule
4. Display and or modify an existing rule
5. Print the rules file
6. Save the rules file to disk

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SECTION 3

System Functions

System Functions-Overview

DESKTOP/PLAN-II provides several major functional capabilities:

1. System Control and Menu Selection.
2. Create, Modify, or Display Model Files.
3. Execute Model Functions.
4. Display Utilities Menu/Status.

System Control and Function Selection

System Control and Function Selection never appears on any menu any place in the system. However, several functions are performed by System Control and Function Selection:

1. Displays the Main Menu, Utility Menu, and "System Parameters."

2. Prompts the user for the function to be executed.

3. Reads the files necessary to perform the selected function.

4. Automatically loads the appropriate programs to execute the selected function.

A user is automatically returned to the "Main Menu" upon the completion of execution of the selected function.

In addition, the user is automatically and immediately returned to the "Main Menu" whenever the user types "CTRL/Q." (This accomplished by pressing the key marked "CTRL" and the key marked "Q" simultaneously.)

Create, Modify, or Display Model Files

"Create, Modify, or Display Model Files" provides the capability for the user of DESKTOP/PLAN-II to initially enter a model as well as a later time to make changes or additions to a previously entered model files.

A DESKTOP/PLAN-II model is comprised of four types of files of information stored on a floppy diskette. These are:

1. A "Model Definition" file.

2. A "Planning Value" file.

3. A "Calculation Rules" file.

4. One or more "Computed Values" files.

Model Definition File

A Model Definition file contains the information used by DESKTOP/PLAN-II to print the reports and describe the meaning of rows and columns of information when the user is entering Planning Values or displaying Computed Values.

The Model Definition file is created as a result of the user selecting Function 1 from the Main Menu and then answering questions posed by the system. When all information has been entered, DESKTOP/PLAN-II automatically creates a file of what the user entered and saves the file on disk.

When the user completes entering the report description information, DESKTOP/PLAN-II saves the description information in a file on a diskette.

This function may also be used to make modifications such as corrections or additions to an already existing Model Definition file.

Planning Values File

A Planning Values File is created by selecting Function 2 from the Main Menu. The file contains the numerical values of assumptions, constants, and initial values upon which computations are to be executed. When Function 2 is selected the user can do the following:

1. Enter and create a new file of Planning Values.

2. Modify a previously entered Planning Values file, optionally replace the original file, create a new, additional file, and optionally immediately execute calculations.

3. Display values from a Planning Values or Computed Values file.

Calculation Rules File

Calculation Rules are instructions to the DESKTOP/PLAN-II to perform computations on Planning Values. Calculation Rules are entered or modified by the user selecting Function 3 from the Main Menu.

Calculation Rules are executed on Planning Values by selecting Function 4 from the Main Menu or after changing values in existing Planning Values file.

RULES provides the capability of creating and maintaining a file of Calculation Rules for the EXECUTE program to interpret and execute on Planning Values.

The user can perform the following functions to enter and maintain a Calculation Rules file:

1. Enter rules for a new rules file or add additional rules to an existing file.

2. Insert a rule into the current file.

3. Delete a rule from the current file.

4. Display/Modify a rule in the current file.

5. Print a listing of the rules in the current file.

6. Write the current file to diskette.

Computed Values Files

Computed Values files contain the numeric values resulting from the execution of Calculation Rules on Planning Values.

Because Calculation Rules can be executed so easily and quickly, unless the plotting or consolidation capabilities are to be used, there is little reason to have the system create Computed Values files.

A Computed Values file is created after Calculation Rules have been executed and the user has finished "displaying" the results on the video display. The user is asked if he wants to save the Computed Values. If the response is "Y," the file is automatically created by the system after entry of the file name.

Execute Model Functions

Execute Model Functions allows the user to do the following:

Perform Calculations on Planning Values files.

Print Reports from model files

Plot Graphs from Computed Values files

Consolidate Sub-models

Perform Calculations

Perform Calculations causes the Calculation Rules to be executed on the data in a Planning Values file. The function is invoked by selecting Function 4 from the Main Menu.

After the rules have been executed, the user can perform any or all of the following functions without returning to the Main Menu:

1. Display the Computed Values.
2. Save the Computed Values in a file.
3. Print reports.

Print Reports

Print Reports allows the user to print reports according to specifications from three sources.

1. The Model Definition file.
2. Specifications of the printer and how it is attached to the Apple II, the page length, and page width from parameters stored in the Parameters file.
3. User responses to "prompts" immediately before printing begins.

As many copies of the report as desired may be printed.

Upon completion of printing, the user may specify additional reports with different lines and columns of data to be printed.

At the time the report is printed, the user can specify what rows of the report to print, which columns, the number of columns per

printed page, whether to stop at the end of each page, and enter a unique "run identification."

Plot Graphs

Plot Graphs allows the user to automatically graphically represent Computed Values on the video screen and Silentype printer.

Two types of graphs may be created.

1. Line Graphs.
2. Bar Charts

Consolidate Sub-Models

Consolidate Sub-models provides two capabilities:

1. The capability of summarizing several Computed Values files into a consolidated model.
2. The capability of transferring individual rows of Computed Values from different Computed Values files to a master model.

Display Utilities Menu/Status

The DISPLAY UTILITIES/MENU/STATUS function of the main menu, Function 8, presents a video display with several purposes:

1. Displays the currently specified "systems parameters."

2. Presents a menu of available DESKTOP/PLAN-II "utility" functions

System Parameters

The parameters maintained by DESKTOP/PLAN-II for controlling its operation are listed below:

1. FILE ON DRIVE #. This parameter specifies to DESKTOP/PLAN-II that all of the model files are to be read from the specified disk drive or be recorded on that drive.

2. FILES ON VOLUME. This parameter specifies to DESKTOP/PLAN-II that all model files will be found on the specified volume. (This specification is used only if DESKTOP/PLAN-II is operated on a direct access device which can hold multiple volumes, such as a Corvus hard disk which can hold up to 82 volumes. Users with Apple Disk II drives should ignore this specification.)

3. PAGE LENGTH. Page Length describes the number of lines which are to be printed on each sheet of paper.

4. PRINTER WIDTH. Printer Width describes the number of printed characters that can fit on each printed line.

5. PRINTER TYPE. Printer Type describes how the user's printer is interfaced to the Apple II. The system recognizes 6 different types of printer interfaces.

6. PRINTER IN SLOT. The Printer Slot specification specifies in which of the Apple II's "slots" the interface card is located.

7. DEFAULT FILE NAME. The Default File Name is a name entered by the user and maintained by the system. It may be used by the user whenever the user is prompted for a file name by pressing the 'RETURN' key.

All of the above parameters may be changed by the user by selecting Function 1 from the Utilities Sub-Menu.

Utilities Functions

DESKTOP/PLAN-II provides 5 utility functions. These are:

1. Change System Configuration.
2. Copy DESKTOP/PLAN-II model files.
3. Convert VisiCalc files to DESKTOP/PLAN-II files.
4. Convert DESKTOP/PLAN-II model files to Apple Plot files.
5. Initialize a diskette on which to save model files in drive 2.
6. Display a catalog of the files on the diskette in the specified disk drive.

Modifying Models

DESKTOP/PLAN-II was developed with the certain knowledge that every "model builder" continually adds to and improves the model.

Each of the "model development sub-systems," ENTER MODEL DEFINITION, ENTER VALUES, and ENTER CALCULATION RULES, has incorporated into it the capability of originally creating the file as well as facilities for loading a previously created file, making changes, and then saving the modified file.

When any of these three functions are selected, the user is given the opportunity of either entering a new file or modifying an old file. All three operate in an identical manner as when entering the original file with the exception of ENTER MODEL DEFINITION.

When modifying an existing file, ENTER MODEL DEFINITION has a sub-menu to select which of the components, Report Headings, Column Headings, or Row Descriptions, are to be changed.

When modifying Model Definitions, Planning Values, or Calculation Rules the user is given the opportunity of replacing the original file with the newly modified file or of creating a new, additional file with a new file name.

This may be useful if an additional model is to contain much the same information as an already existing model.

SECTION 4

System Operations

Operating the System - Overview

DESKTOP/PLAN-II is a "menu driven" system. That is, the user is presented with lists of functions that can be performed. The user is then "prompted" to enter a number corresponding to the function that is desired.

All program loading is done automatically by the system as a result of the user selecting a function.

All other information entered by the user, such as file names, row and column descriptive information, and model values is checked for valid "range" of numeric information and maximum allowable characters of alphabetic information.

If invalid data is entered by the user, the Apple "beeps" and flashes a message at the bottom of the display indicating the error.

While programs are being loaded, files being read, or computations being performed, the Apple flashes a message advising the user what is happening. When the Apple has completed its work and requires input from the user, the Apple again "beeps" at the user.

A word of caution! Never operate DESKTOP/PLAN-II with the "write protect" tab on the diskette.

DESKTOP/PLAN-II File System

Each file used by DESKTOP/PLAN-II is given a name by the user. Certain "conventions" must be followed.

File names may be from 1 to 15 characters in length.

Any valid Apple II character, except a comma (,) and a "double quote" may appear in the name. However, it is suggested that only alphabetic characters and the digits 0 through 9 be used. We suggest you don't use "spaces."

The first letter of the name must be an alphabetic character.

DESKTOP/PLAN-II automatically adds a "file type" designation to the name of a file given by the user.

These are:

.D for a Model Definition file
.I for a Planning Values input file
.R for a Calculation Rules file
.C for a Computed Values file

The file names for a model of "Topnotch Manufacturing Company" will appear in the file directory if the name TOPNOTCH is used as:

TOPNOTCH.D
TOPNOTCH.I
TOPNOTCH.R
TOPNOTCH.C

These "file type designators" are automatically added to the name given by the user.

The "file type designator" allows a user to refer to all files in a model by using an identical name.

However, when under control of Apple DOS, (when the user is prompted with the character "]"), the file designator must be included when typing the name. This would normally only be necessary when deleting files from a diskette or renaming a file.

Files created by DESKTOP/PLAN-II using the Consolidate function are automatically given the designation ".I". This allows additional Planning Values to be added to the file as well as allowing Calculation Rules to be executed on these values.

Default File Name

DESKTOP/PLAN-II uses a feature called "The Default File Name." What this means is that there is a name chosen and entered by the user from Function 1 of the Utilities Sub-Menu.

This default file name is displayed on the Main Menu, Utilities Sub-Menu and on most displays which prompt the user for a file name.

Whenever the user is prompted for a file name, the user may use the default file name by merely pressing the RETURN key.

If the user chooses NOT to use the default file name but instead types a different name, this newly typed name becomes the NEW default file name until the user is returned to the Main Menu.

Users who have used previous versions of DESKTOP/PLAN-II will find this one of the major enhancements incorporated into this version.

Entering Information Into DESKTOP/PLAN-II

When DESKTOP/PLAN-II is being operated, the user is asked to type information on the keyboard for one of several purposes:

1. To select the function to be performed.

2. To enter file names on which DESKTOP/PLAN-II is to operate.

3. To enter "data" into the Model Definition, Planning Values, or Calculation Rules file.

4. To allow the user to verify that information previously typed is correct.

DESKTOP/PLAN-II "prompts" the user by displaying a message on the screen describing the information required, a row of dots or periods indicating the maximum number of characters of typed information that will be accepted, and a flashing cursor in the first position that information can be entered.

As the user types the characters, each character will appear on the screen replacing the "period" in the screen position. After printing the character entered, the cursor is moved to the next position for which a character will be accepted.

After typing the characters for the information requested, all responses should be terminated by pressing the 'RETURN' key.

After DESKTOP/PLAN-II senses the 'RETURN' key, a number of "validity" checks are performed. These are:

If the data being "prompted" for is to be numeric only, all characters are checked to insure that only valid decimal digits, a decimal point, and a "minus sign" (-) (in the first position, only) have been typed.

The information entered by the user is checked to insure that no more than the maximum allowable number of characters are typed.

To insure that only certain acceptable characters, such as "Y" for a "yes" answer or "N" for a "no" answer, have been entered.

To insure that numeric data is within both a lower and upper limit for the value being entered.

In the event the information entered does not pass any of these checks, DESKTOP/PLAN-II takes the following action:

1. The Apple "beeps" at the user.
2. A message, "INVALID DATA/RE-ENTER" is flashed for 1 1/2 seconds at the bottom of the screen.
3. The invalid data previously typed is erased from the screen and the "periods" are redisplayed.
4. The "cursor" is re-displayed over the first data entry position.

The data should then be correctly re-typed.

The "Special Word"-END

There is one word which has special meaning to DESKTOP/PLAN-II:

END

'END' (typed without the quote marks) is the entry used to determine that the user has completed entering information on a currently displayed screen and signifying to the system that it should proceed to its next function.

Yes or No Responses

There are numerous occasions while operating DESKTOP/PLAN-II that the user is prompted for a "Yes or No Response."

These should be answered by pressing "Y" or "N" followed by pressing the "RETURN" key.

In addition, in all but two instances, the user may merely press the RETURN key for a "Yes" response. (These two instances were specifically excluded from this feature so that files would not accidentally be destroyed.)

DESKTOP/PLAN-II's "Menu Structure"

DESKTOP/PLAN-II is a "menu driven" system. That is, a list of options from which the user can select is presented on the video screen.

This list of options is called a "menu." Each option is numbered. The user is "prompted" to enter the number corresponding to the function desired.

When the user selects the option for the function desired by typing the number indicating the selection, DESKTOP/PLAN-II automatically proceeds to execute the function by prompting for required file names and loading the appropriate programs.

When the function has been completed, DESKTOP/PLAN-II automatically returns to the "main menu."

DESKTOP/PLAN-II has a number of menus which are presented to the user:

1. The "main menu" to select the major function to be performed by DESKTOP/PLAN-II.

2. A "sub-menu" to select which function to perform when modifying a Model Definition file.

3. A "sub-menu" to select which function to perform when entering or modifying calculation rules.

4. A "sub-menu" to select which of 21 calculation rules are to be entered for later execution.

Exhibit 1-b illustrates the "main menu."

Exhibit 1-c illustrates the Utilities Sub-Menu.

The remaining menus will be illustrated at the time their use is described.

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SECTION 5

Developing a Model Definition

Designing a Model

Developing a Model Definition is a simple process.

The desired format should first be layed out on paper, at least for the first one or two models, similarly to the way it would be done if the analysis were being done on the traditional spread sheet. As a user gains experience, the Model Definition may be developed as it is entered into DESKTOP/PLAN-II.

Exhibit 5-a is an illustration of a worksheet for the Topnotch Manufacturing Company model that was illustrated in Section 1, Exhibit 1-e.

Developing a Model Definition is normally a four step process.

First, write the Report Heading in the upper left corner of the paper. A report may have 1, 2, or 3 lines in the heading, each with up to 30 characters of information.

Second, write in the heading (up to 2 lines) to be printed above each column of values. Each line of each heading may be up to 9 characters long.

Write the exact description to be printed on the report of the numerical contents of each row.

As these descriptions are written, blank rows should be left and underscores marked as they are to appear on the printed report.

If the row description is a sub-heading within the body of the report, that is, no numerical values are to be printed on the row, enter the "^" symbol as the last character in the row description.

Next, the codes for blank rows, column underscores, and form feeds are entered. These codes are entered as the first, and only, character in a row description. The codes are:

- # Pound sign for a blank row
- \- Minus sign to cause column underscores to be printed
- = Equal sign to cause column double underscores to be printed
- * Asterisk to cause a "form feed"

Exhibit 5-a

TOPNOTCH MANUFACTURING CO.
QUARTERLY BUDGET
THIRD QUARTER 1979

		JULY	AUGUST	SEPTEMBER	QUARTER TOTAL
1	ASSUMPTIONS ^				
5	PRIOR QUARTER MONTHLY SALES				
6	COMPUTED MONTHLY GROWTH RATE	%			
7	RETURNS & ALLOWANCES	%			
8	VARIABLE SELLING COST	%			
9	MATERIAL COST	%			
10	HOURLY LABOR RATE				
11	NUMBER OF DIRECT LABOR PER				
12	FACTORY BURDEN (% OF DIR LAB)				
19	=				
20	#				
21	INCOME ^				
22	GROSS SALES				
23	RETURNS & ALLOWANCES				
25	—				
26	NET SALES				
30	#				
31	COST OF GOODS SOLD ^				
32	MATERIAL COST				
33	LABOR COST				
34	FACTORY OVERHEAD - FIXED				
35	FACTORY OVERHEAD - VARIABLE				
38	—				
39	TOTAL COST OF GOODS SOLD				
40	#				
41	GROSS MARGIN				
50	#				
51	OPERATING EXPENSES ^				
52	SELLING				
53	MARKETING				
54	GENERAL & ADMINISTRATIVE				
55	ENGINEERING & DEVELOPMENT				
56	RENT				
57	TELEPHONE & UTILITIES				
58	—				
59	TOTAL OPERATING EXPENSES				
60	#				
65	NET PROFIT BEFORE TAXES				
66	=				
99	CONSTANT 176				
100	CONSTANT 100				

Line Numbers

Specific row and column numbers are used by DESKTOP/PLAN-II to refer to row descriptions and numeric values in the model. The "maximum number of rows" and the "maximum number of columns" in the model are entered as part of the Model Definition.

DESKTOP/PLAN-II uses these values to reserve space for that many row descriptions, column headings, and numerical values. Effectively, DESKTOP/PLAN-II sets up a blank "electronic worksheet" with that many rows and columns.

The minimum number of rows that may be "reserved" is 10 and the maximum is 300. The "number of rows" must be entered in increments of 10.

The minimum number of columns which may be specified is 1 and the maximum is 18.

A row for which space has been reserved may be used for any numerical value even if the value is not to be printed. The only way a row of values will be printed is if a row description is entered for that row number. Thus, a row may be used for entering, saving, and using "constants" such as the numbers 100 or 176. Or, a row may be used during calculations to "save" the result of a calculation which is to be used in a later calculation, but not printed on a report.

A row of values might not be used at all but merely "reserved" for future expansion of the model. Rows are reserved for these purposes by specifying the maximum number of rows in the model to be greater than the sum of all the rows for which a row description is entered, including blank rows, underscores, form feeds, and sub-headings.

If very large models are being developed, it is suggested that the model be be constructed as a series of sub-models with values passed to a summary model using the CONSOLIDATE function of DESKTOP/PLAN-II.

DESKTOP/PLAN-II will accomodate model sizes of up to 300 rows and up to 18 columns on a 48k Apple. However, the system will not execute a model with both of these maximums specified. The absolute maximum size model which may be executed is impossible to determine because of the way Applesoft uses memory space for row descriptions. A model of 220 rows by 18 columns has been successfully executed on a 48k system and many models of 100 rows by 13 columns have been executed on 32k systems.

DESKTOP/PLAN-II prints row descriptions and their associated Planning or Computed Values in row number sequence. The rows do

not have to be numbered consecutively but they must be numbered in the sequence they are to appear on the printed report. It will be easier to develop, enter, and modify models in the future if the following practices are adhered to:

> Start numbering a group of rows, including the associated sub-heading, with a number ending in "1" (one), such as 1, 11, 21, or 91.
>
> End a group of rows under a sub-heading with a number ending in "0" (zero) such as 10, 20, 30, or 100. This will often be a blank with a row description of "#" (pound sign).
>
> Leave a few blank unused row numbers within the major sections of the report for later expansion of the model.
>
> Put constants in the last block of 10 or 20 rows reserved in the model. Later, when printing a report using these specifications, print the report from row number 1 through the last row the users of the report need to see. Thus, the constants will not be printed.

Study the illustration. These practices have been followed in the illustration.

With this knowledge of what and how row numbers are used, the next step in developing a Model Definition is to assign row numbers to the rows on the worksheet.

Entering Model Definitions Into DESKTOP/PLAN-II

Once the Model Definition has been developed, DESKTOP/PLAN-II and the Apple II are used for the first time.

Select Function 1 from the main menu.

You'll be asked if you want to "MODIFY AN OLD FILE ?" Your response should be "N" followed by a 'RETURN.'

Next, you'll be prompted for each line of the Report Heading. Enter it as it was written on the worksheet and/or as you want it to appear on all printed reports.

Enter the characters for each line by pressing the proper key for each character. If a character is mis-typed, press the "left arrow" key for each character to be "erased." The character will be removed from the screen and a period (.) will replace the deleted character.

When all the characters for the line are entered and displayed, press the 'RETURN' KEY.

If more characters than DESKTOP/PLAN-II will allow for an entry are typed, as indicated by the periods (.) displayed during the prompt, all the characters that have been typed for that entry will automatically be erased, the Apple will "beep," and the message "INVALID DATA/PLEASE RE-REENTER" will be displayed for 1 1/2 seconds. The cursor will then be repositioned to the prompt position of the first character.

If you do not desire anything to be printed on the report for a line, merely press 'RETURN.'

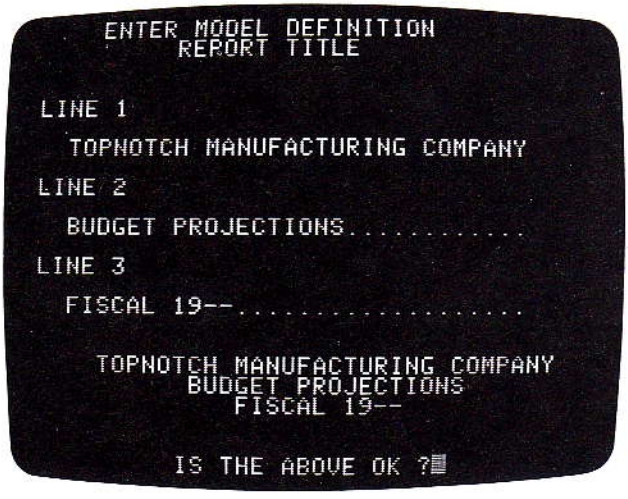
NOTE: If no entry is required for a description, pressing the 'RETURN' key will cause DESKTOP/PLAN-II to proceed to its next entry or function. This may be done only for fields of descriptive information such as report or column headings. If this is done when numeric information is requested, such as for values or row numbers, DESKTOP/PLAN-II will not accept the entry and the user will not be able to proceed until a valid entry has been made.

If 'RETURN' is the only response to a request for a file name, an error will be generated at the time DESKTOP/PLAN-II tries to use the file. All processing for the function is then terminated and an error message to the user is displayed. Control is then returned to the main menu.

If what has been entered is correct, "Y" and 'RETURN' will cause DESKTOP/PLAN-II to proceed to its next function. If not correct,

'N' and 'RETURN' will cause DESKTOP/PLAN-II to prompt for the heading line number to be changed. Typing 'END' will then cause the system to again prompt for verification that the information entered is correct.

Exhibit 5-b


ENTER MODEL DEFINITION
REPORT TITLE
LINE 1
TOPNOTCH MANUFACTURING COMPANY
LINE 2
BUDGET PROJECTIONS.....
LINE 3
FISCAL 19--.....
TOPNOTCH MANUFACTURING COMPANY
BUDGET PROJECTIONS
FISCAL 19--
IS THE ABOVE OK ?

Enter Number of Rows & Columns

Exhibit 5-c illustrates the "prompts" for the entry of the number of rows and columns to be reserved in the model.

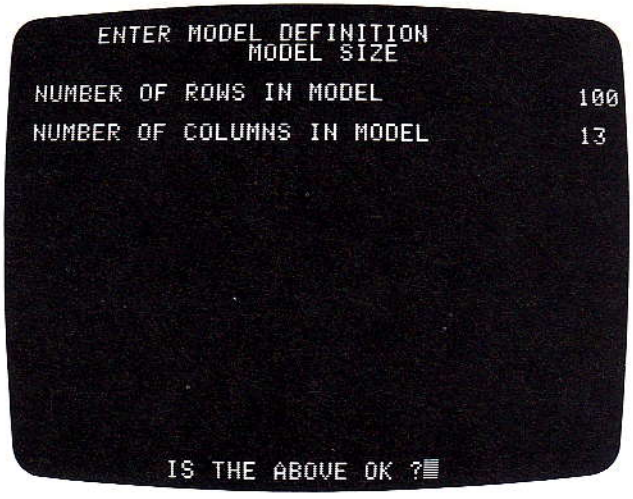
> IMPORTANT NOTE: The entries defining the size of the model cannot be changed for this model anytime after the "Y" response.

The "number of rows" can range from 10 to 300. The number entered must end with zero, i.e., be an even increment of 10.

The "number of columns" can range from 1 to 18.

All sub-models being used with the CONSOLIDATE function must have identical column and row specifications.

Exhibit 5-c


ENTER MODEL DEFINITION
MODEL SIZE
NUMBER OF ROWS IN MODEL
100
NUMBER OF COLUMNS IN MODEL
13
IS THE ABOVE OK ?

Entering Column Headings

When entering column headings, the "cursor" will move from line to line, sequentially on the screen. The system first prompts for the first line of the heading for column 1, then the second line of column 1, and then the decimal specification for the values to be printed under that column heading.

When the column headings and decimal specifications have been entered for the required number of columns, and the user responds "Y" to "...IS THE ABOVE OK," DESKTOP/PLAN-II will proceed to entering row descriptions.

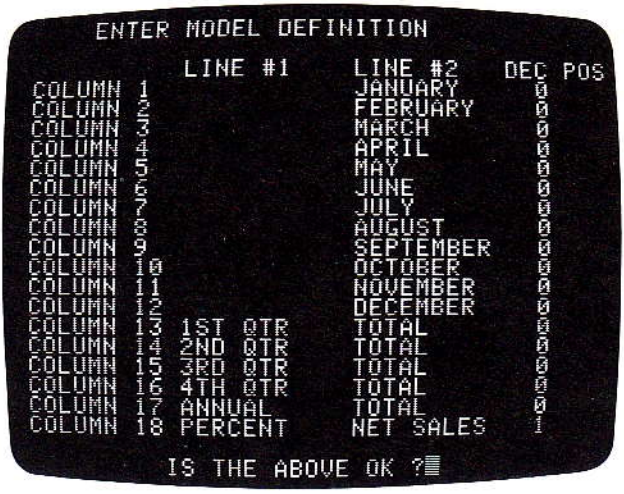
However, if the response is "N," the user is given an opportunity to selectively change as many column headings and decimal specifications as is necessary.

When all changes are complete, type "END." DESKTOP/PLAN-II will then proceed to the entry of row descriptions.

A note about the valid entries for DECIMALS. The value entered may be 0, 1, or 2.

If the value entered is other than 0, then the specification for decimals for the column will override the decimal specification for any row to be printed. This allows all the values in a column to be printed with an identical number of digits to the right of a decimal point. For instance, if the last column of a report is to be a percentage, it can be printed with one decimal place even though all other values printed are to be whole numbers.

Exhibit 5-d


ENTER MODEL DEFINITION
LINE #1
LINE #2
DEC POS
COLUMN 1
JANUARY 0
COLUMN 2
FEBRUARY 0
COLUMN 3
MARCH 0
COLUMN 4
APRIL 0
COLUMN 5
MAY 0
COLUMN 6
JUNE 0
COLUMN 7
JULY 0
COLUMN 8
AUGUST 0
COLUMN 9
SEPTEMBER 0
COLUMN 10
OCTOBER 0
COLUMN 11
NOVEMBER 0
COLUMN 12
DECEMBER 0
COLUMN 13 1ST QTR
TOTAL 0
COLUMN 14 2ND QTR
TOTAL 0
COLUMN 15 3RD QTR
TOTAL 0
COLUMN 16 4TH QTR
TOTAL 0
COLUMN 17 ANNUAL
TOTAL 0
COLUMN 18 PERCENT
NET SALES 1
IS THE ABOVE OK ?

Entering Line Descriptions

Row descriptions, and their associated decimal specifications, are entered when prompted for from a display as in Exhibit 5-e.

Descriptions are prompted for in "pages" or groups of 10 rows each.

The first page, numbered "page 0," is always presented first. Thereafter, row descriptions may be entered in any sequence desired by changing "page numbers," and randomly selecting the row number to be entered.

To change "pages," type 'END' when prompted for the row number. Then, enter the page number for the group of rows to be entered.

When all row descriptions have been entered, a response of 'END' to a prompt for a "NEW PAGE NUMBER" will cause DESKTOP/PLAN-II to proceed to its next operation.

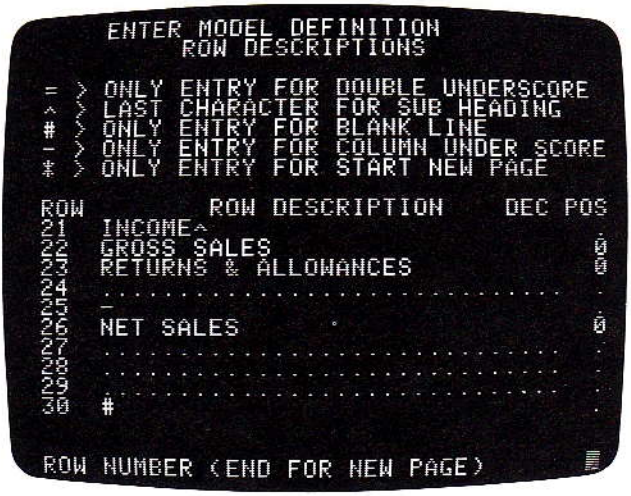
Saving the Model Definition in a File

Upon completion of entry of all Model Definition information, DESKTOP/PLAN-II will prompt the user for the name of a file in which to save the Model Definition. This is the name which the user will enter whenever prompted for the name of a Model Definition file and these specifications are to be used.

If the name 'TOPNOTCH' is entered, DESKTOP/PLAN-II will create a file on the diskette named 'TOPNOTCH.D' and record the previously entered information in that file. (The file type designator, '.D' must not be entered by the user. The '.D' is added automatically by DESKTOP/PLAN-II.)

If for some reason the user does not desire to save the description that has been entered, typing 'NONE' in lieu of a file name will cause DESKTOP/PLAN-II to return to the main menu without creating a Model Definition file.

Exhibit 5-e


ENTER MODEL DEFINITION
ROW DESCRIPTIONS
= > ONLY ENTRY FOR DOUBLE UNDERSCORE
^ > LAST CHARACTER FOR SUB HEADING
# > ONLY ENTRY FOR BLANK LINE
- > ONLY ENTRY FOR COLUMN UNDER SCORE
$ > ONLY ENTRY FOR START NEW PAGE
ROW ROW DESCRIPTION DEC POS
21 INCOME^
22 GROSS SALES 0
23 RETURNS & ALLOWANCES 0
24
25 _
26 NET SALES 0
27
28
29
30 #
ROW NUMBER (END FOR NEW PAGE)

Printing Reports

After a Model Definition has been entered, the file may be used to print a report. This is done by selecting Function 5 from the main menu.

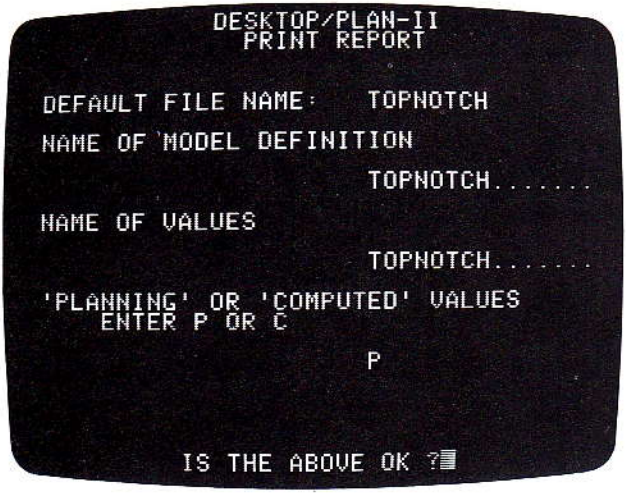
Reports are printed using a Model Definition file and either Planning Values or Computed Values from files specified as illustrated in Exhibit 5-f.

If the response 'NONE' is entered for the name of a Values file, DESKTOP/PLAN-II will cause the report to be printed with no values. (This is useful for printing "blank" reports to be used as "input worksheets.")

It is useful to print a blank report immediately after entering a new Report Description to verify that the report will look as planned, particularly when entering the first one or two models developed.

After the user responds that the information is as desired, DESKTOP/PLAN-II will read the appropriate specified files and automatically load the PRINT program.

Exhibit 5-f


DESKTOP/PLAN-II
PRINT REPORT
DEFAULT FILE NAME: TOPNOTCH
NAME OF MODEL DEFINITION
TOPNOTCH.....
NAME OF VALUES
TOPNOTCH.....
'PLANNING' OR 'COMPUTED' VALUES
ENTER P OR C
P
IS THE ABOVE OK ?

"Print Time" Options

After the files have been read and the program loaded, the screen will appear as in Exhibit 5-g.

There are a number of report format options which may be entered immediately prior to printing:

1. An option to print or not print row numbers on the report.

2. The specification of a beginning and ending row number for the values from which to print the report. This allows selectively printing only portions of the model.

3. The specification of a beginning and ending column for the values from which to print the report. Again, this allows selectively printing only portions of the model.

4. A specification for the number of model columns to be printed on each page. The maximum number of columns the user may enter is determined by the number of characters in width the printer will print and this specification in the parameters file. (With 156 characters; a 12 column report may be printed, with 132 characters, 9 columns, and with 80 characters, up to 4 columns.)

5. An option to stop at the end of each page. (This allows the user to use "single sheet" forms such as stationery.)

The specifications for the last report printed are displayed and the user is asked, "IS THE ABOVE OK?"

If these specifications are what the user desires, responding "Y" will cause DESKTOP/PLAN-II to use them. If "N," the user will then be prompted for each parameter. When the user responds that the specifications are correct, the new specifications will be recorded on the program disk and the system will proceed to the prompt for RUN DESCRIPTION.

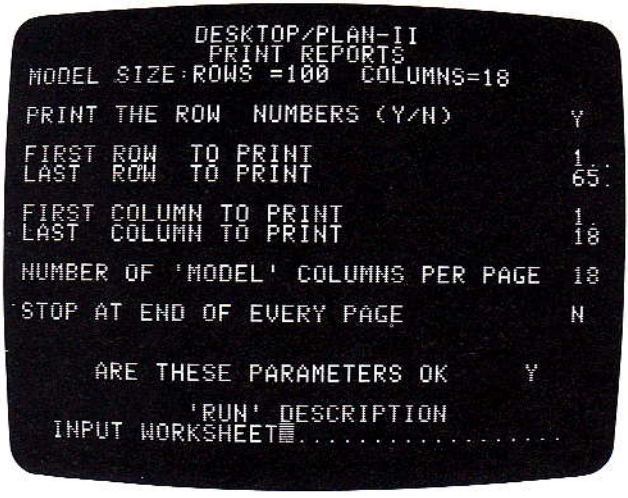
In addition, after a report has been printed, the user can specify additional reports be printed from the same values. Thus, a portion of the report may be specified to have three columns per page for one range of rows and columns and four columns per page for another range of rows and columns.

Based on the width of the paper, length of the paper, and print

span of the paper, the user has complete flexibility in the format of reports printed by DESKTOP/PLAN-II.

The last entry, 'RUN' DESCRIPTION, allows each execution of the model to be uniquely identified.

Exhibit 5-g



Before the RUN DESCRIPTION is entered, the paper should be positioned in the printer as though printing were to begin on the very first line of the paper. Pressing RETURN after typing the RUN DESCRIPTION will cause DESKTOP/PLAN-II to print the report.

When printing is complete, the user is asked if another copy is desired. If the response is 'Y', another copy will be printed.

When no more copies are desired, the user is given the opportunity to print another report with the same values but with different row and or column specifications.

If this option is not taken, DESKTOP/PLAN-II returns to the main menu.

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SECTION 6

Planning Values

Developing Planning Values

Developing values for entry into DESKTOP/PLAN-II is a relatively simple process.

By developing the Planning Values following the procedure described below, the values which must be computed by Calculation Rules will be very obvious.

First, print a report with the previously entered Model Definition but with no Planning Values. This "blank" report will be used as a "worksheet" and is illustrated as Exhibit 6-a.

To print a "blank" report, select Function 5 from the main menu. Use the previously entered Model Definition file and enter 'NONE' for the Planning Values file name.

Before entering information on your worksheet, learn and understand four functions which can be performed by Calculation Rules. Using calculations rules to generate as many values as possible will save much time in entering planning values. These four rules are:

1-EXTEND/FILL ROWS
3-INTERPOLATE ROWS
5-GROW A ROW
2-FILL A COLUMN

Essentially, these four rules can be viewed as "data generation" functions. From one or two values entered by the user, the remaining values required for the entire row or column can be automatically generated when the Calculation Rules are executed. Thus, a lot of "keying" by the user is saved.

EXTEND/FILL ROWS is an excellent illustration. Suppose that one part of a model is to compute estimated direct labor costs. Three factors are involved:

Number of direct labor employees
Average hourly labor rate
Number of work hours per month

For the calculation of work hours by number of employees by the average hourly labor rate to take place for each 12 months of the model, a value for each month for each of the three data elements must be entered.

This can be accomplished by entering a single value for each element on its appropriate row in column 1. Then the EXTEND/FILL function can be executed to duplicate the value from column 1 to each of the remaining 11 columns for each of the three

variables.

If it is known that the average hourly rate is to be increased in the 5th month, the new hourly rate can be entered into column 5. EXTEND/FILL would then duplicate the rate entered in column 1 into columns 2, 3, and 4 and duplicate the value in column 5 into columns 6, 7, 8, 9, 10, 11, and 12.

The detailed functions and use of these rules are described in detail in Section 7 of this manual.

All "initial values," "assumptions," and "constants" should be written on the "input worksheet" at the column and row location they are to appear in the model. This worksheet will be used in the next two steps of model development:

1. Entry into a Planning Values file.

2. Development of Calculation Rules.

Exhibit 6-a Sample Planning Values Worksheet

TOPNOTCH MANUFACTURING COMPANY
QUARTERLY BUDGET
THIRD QUARTER-1979

NOVEMBER 9, 1980
PAGE 1

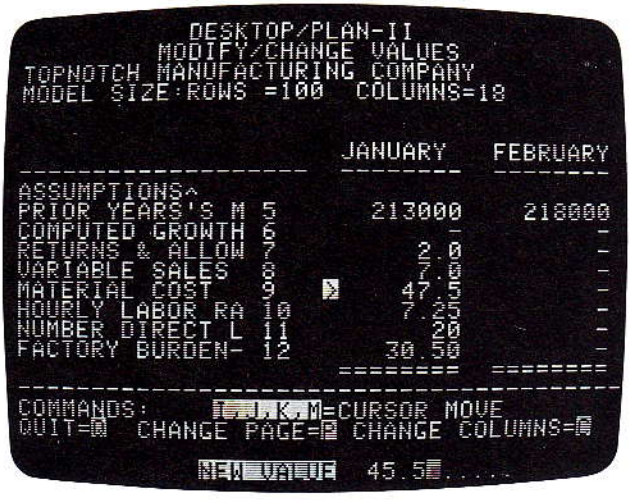
INPUT WORKSHEET (EXHIBIT 1-D)		JULY	AUGUST	SEPTEMBER	QUARTER TOTAL
ASSUMPTIONS					
PRIOR QUARTER MONTHLY SALES	(5)	213000	218000	215000	-
COMPUTED MONTHLY GROWTH RATE-%	(6)	-	-	-	-
RETURNS & ALLOWANCES -%	(7)	2.0	-	-	-
VARIABLE SELLING COST -%	(8)	7.0	-	-	-
MATERIAL COST -%	(9)	47.5	-	-	-
HOURLY LABOR RATE	(10)	7.25	-	-	-
NUMBER OF DIRECT LABOR PERS.	(11)	20	-	-	-
FACTORY BURDEN (% OF DIR LAB)	(12)	30.5	-	-	-
INCOME					
GROSS SALES	(22)	220000	-	-	-
RETURNS & ALLOWANCES	(23)	-	-	-	-
NET SALES	(26)	-	-	-	-
COST OF GOODS SOLD					
MATERIAL COST	(32)	-	-	-	-
LABOR COST	(33)	-	-	-	-
FACTORY OVERHEAD-FIXED	(34)	3100	-	-	-
FACTORY OVERHEAD-VARIABLE	(35)	-	-	-	-
TOTAL COST OF GOODS SOLD	(39)	-	-	-	-
GROSS MARGIN	(41)	-	-	-	-
OPERATING EXPENSES					
SELLING	(52)	4300	-	-	-
MARKETING	(53)	7900	-	-	-
GENERAL & ADMINISTRATIVE	(54)	12400	-	-	-
ENGINEERING & DEVELOPMENT	(55)	9650	-	-	-
RENT	(56)	3125	-	-	-
UTILITIES & COMMUNICATION	(57)	1650	-	-	-
TOTAL OPERATING EXPENSES	(59)	-	-	-	-
NET PROFIT BEFORE TAXES	(65)	-	-	-	-
CONSTANT 176	(99)	176	-	-	-
CONSTANT 100	(100)	100	-	-	-

PREPARED USING DESKTOP/PLAN-II

Entering Planning Values Into DESKTOP/PLAN-II

Exhibit 6-b illustrates the diplay when entering values for the TOPNOTCH model.

Exhibit 6-b Illustration of Enter Values Display



To get to this point, select Function 2 from the Main Menu and Function 1 from the ENTER, MODIFY, OR DISPLAY VALUES sub-menu to enter a new Planning Values File.

After entering the file names, all files and programs are automatically read by the system.

Enter, Modify, Display Modes

When entering, modifying, or displaying Planning Values in DESKTOP/PLAN-II, the user is prompted for any of the following commands:

1. Move the data pointer.
2. Change the 1st column displayed.
3. Change the 1st row displayed.
4. Enter a value.
5. Copy a value from the previous column.
6. Quit the COMMAND mode.

Move Data Pointers

Pressing the I, J, K, or M keys causes the data pointer to change the row and column of values at which the data pointer is pointing.

Pressing the

I key causes the pointer to move up one row.

M key causes the pointer to move down one row.

J key causes the pointer to move left one column.

K key causes the pointer to move right one column.

Pressing the C key causes DESKTOP/PLAN-II to prompt for the number of the first column to be displayed.

Pressing the P key causes DESKTOP/PLAN-II to prompt for the number of the first row of a "page" of 10 rows of the model to be displayed. (The data pointer will point at approximately the mid-number of the rows displayed.)

Pressing the "right arrow" key from the COMMAND mode causes the entry in the column immediately to the left of the data pointer to be "copied" to the location of the data pointer.

Pressing the Q key from the COMMAND mode causes DESKTOP/PLAN-II to prompt the user with "ARE YOU SURE ?" If the user has completed the entry and display of values, the "Y" key followed by RETURN will exit COMMAND mode.

Entering Numberic Values

Pressing any of the keys 0 through 9, the "-" symbol, or the "." symbol key causes the prompt line to be changed to "NEW VALUE" and the symbol for the key just pressed to be displayed.

Once the user has entered the "NEW VALUE" mode, the user can be returned to the COMMAND mode only by completing the entry of a value with the RETURN key or by pressing the ESC key.

If the entry is completed by typing RETURN, the value just typed will be entered at the column and row location of the data pointer.

If the entry is aborted by pressing ESC, the user will be returned to the command mode without the value being entered at the location of the pointer.

Using the appropriate keys to position the data pointer to the column and row location for each Planning Value, the values written on the worksheet in the previous step should be entered.

When all values have been entered, the user should "quit" the COMMAND mode and save the Planning Values file.

After the file has been written to disk, the user is given an opportunity to execute Calculation Rules. If this option is not chosen, control is returned to the main menu.

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SECTION 7

Calculation Rules

Introduction to Calculation Rules

"Calculation Rules" are the description to DESKTOP/PLAN-II of the calculations and other manipulation of Planning Values and intermediate results necessary to produce the desired analysis.

"Standard" Calculation Rules are pre-written sub-programs which are used by DESKTOP/PLAN-II. The user merely specifies the rows and columns on which the function of the rule is be executed. Twenty standard rules are provided which do the type of arithmetic and manipulation of values which are common to planning.

"Custom" Calculation Rules are Applesoft BASIC sub-programs written by the user and entered into DESKTOP/PLAN-II's EXECUTE function. Provisions exist for developing and using up to 20 "custom" Calculation Rules.

After the user determines what calculations are necessary to perform the analysis, the rules describing the calculations are entered into the system in the sequence they are to be executed. The user selects each desired rule from a menu. After selection, the user is prompted for the rows and columns of the values on which the rule is to be executed.

In addition to the row and column specifications, the user may optionally enter a "comment" describing the purpose of the rule. This comment will be displayed on the screen when the rule is executed and printed on a listing of the calculations.

After entry, the rules are saved in a file on diskette.

Rules are executed on a file of Planning Values by selecting Function 4 from the "main menu" or upon the completion of "modifying values."

The remainder of Section 7 is comprised of a discussion of the following:

1. Determining the rules for a specific model or analysis.

2. Entering (or modifying) rules.

3. Executing Calculation Rules after they have been entered.

4. Detailed descriptions of available standard Calculation Rules are consolidated for easy reference on pages 84 to 123. Each description is comprised of a narrative of the function performed, an

illustration of the results of its execution, a description of its use in TOPNOTCH, an exhibit illustrating how it is entered, and a description of the six possible parameters for the rule.

Developing Rules For an Analysis or Model

After the functional capability of the available Calculation Rules have been studied, the next step is to prepare a "Calculation Rules worksheet" by printing a report using the Planning Values file on which the calculations are to be performed.

This report, illustrated in Exhibit 7-a, has printed on it only the "assumptions," "initial values," and "constants" which were entered by the user.

The remaining positions for values contain the "dash symbol" (-). The values for these spaces will be computed by executing the Calculation Rules. The report will serve as a "worksheet" for planning and entering the necessary Calculation Rules.

First, determine which rows of values on the worksheet contain one or two entries for the constants, assumptions, and initial values and on which the remaining required values can be derived by executing one of the "data generation" rules. Note these on the worksheet on the row of dashes where these values are to appear. Number each "note" in the sequence it is to be executed.

Next, determine the multiplication or division of constants or assumptions necessary to properly position the decimal points. (You may want to print an assumption as a percentage; but when it is used in a computation it must used as a decimal fraction.) Note these rules and their sequence on the "worksheet."

Next, go through the report, row by row, determining the arithmetic to be done, making notes and sequence numbers.

Then do the same thing column by column if arithmetic needs to be done to compute columns of results.

Finally, at least for the first model, write a list, in sequence, of the rules to be executed. Indicate the row and column numbers on which each rule is to be executed. A sample is illustrated in Exhibit 7-b.

(After the first one or two models, many users may not need one or the other of the two worksheets. The "worksheet" illustrated in Exhibit 7-b is useful for entering the rules, particularly when you are unsure of yourself.)

That's all there is to it.

No formulas. No codes to remember. No programs to write (unless you use "Custom Rules").

The rules may now be entered into DESKTOP/PLAN-II by selecting Function 3 from the main menu.

Exhibit 7-a
Calculation Rules Worksheet

TOPNOTCH MANUFACTURING COMPANY
QUARTERLY BUDGET
THIRD QUARTER-1979

NOVEMBER 9, 1980
PAGE 1

CALCULATION RULES WORKSHEET		JULY	AUGUST	SEPTEMBER	QUARTER TOTAL
		(2) COMPUTE GROW RATE			ROW 5, C 1-3 SAVE 6
ASSUMPTIONS					
PRIOR QUARTER MONTHLY SALES	(5)	213000	218000	215000	-
COMPUTED MONTHLY GROWTH RATE-%	(6)	-	(3) EXTEND/FILL ROWS 6-12 COLS 1-3		(6) DIVIDE R-7 by 100 RESULTS - R 77
RETURNS & ALLOWANCES -%	(7)	2.0			(7) DIVIDE R-9 by R-100 RESULTS IN 78
VARIABLE SELLING COST -%	(8)	7.0	-	-	(8) DIVIDE R-9 by R-100
MATERIAL COST -%	(9)	47.5	-	-	(9) MULT RESULTS IN R 79
HOURLY LABOR RATE	(10)	7.25	-	-	R-10 by R-99 RESULTS IN R-80
NUMBER OF DIRECT LABOR PERS.	(11)	20	-	-	(10) DIVIDE R-12 by R-100 RESULTS IN R 82
FACTORY BURDEN ($ OF DIR LAB)	(12)	30.5	-	-	
INCOME					
GROSS SALES	(22)	220000	(11) GROW BY LINE 6		
RETURNS & ALLOWANCES	(23)	-4400	(12) MULTPLY - ROW 22 x R 77		
NET SALES	(26)	215600	(13) SUBTRACT R23 from 22		
COST OF GOODS SOLD					
MATERIAL COST	(32)	102370	(14) MULTIPLY R-22 by R79		
LABOR COST	(33)	36250	(15) MULTIPLY R-U by R-33		
FACTORY OVERHEAD-FIXED	(34)	2100	(4) EXTEND $-FILL -R-34, C 1-3		
FACTORY OVERHEAD-VARIABLE	(35)	1525	(16) Mult R-33 by R 82-		
TOTAL COST OF GOODS SOLD	(39)	142245	(17) ADD LINES R32 THRU 35		
GROSS MARGIN	(41)	73355	(18) SUBTRACT R-39 from 26		
			(19) MULTIPLY R26 x R78 - RESULTS IN 78		
OPERATING EXPENSES			(20) ADD R78 + R52 — RESULTS IN 52		
SELLING	(52)	4300	(5) EXTEND FILL		
MARKETING	(53)	7900	ROWS 52-57		
GENERAL & ADMINISTRATIVE	(54)	12400	COLS 1-3		
ENGINEERING & DEVELOPMENT	(55)	9650	-	-	-
RENT	(56)	3125	-	-	-
UTILITIES & COMMUNICATION	(57)	1650	-	-	-
TOTAL OPERATING EXPENSES	(59)	39025	(21) ADD R52 thru 57		
NET PROFIT BEFORE TAXES	(65)	34330	(22) SUB R59 from R-41		
CONSTANT 176	(99)	176	(1) EXTEND/FILL		ROWS 99-100 COLS 1-3
CONSTANT 100	(100)	100	-	-	-
			(23) ADD COLS 1-3, SAVE IN 4 ROWS 22 THRU 65		

PREPARED USING DESKTOP/PLAN-II

Exhibit 7-b
List of Calculation Rules to Enter

CALCULATION RULES FOR TORNOTCH

1	EXTEND & FILL	ROWS 99 - 100	COLS 1-3	CONSTANTS
2	COMPUTE G/R	ROW 5 , SAVE IN 6	COLS 1-3	SALES GROWTH RATE
3	EXTEND/FILL	ROWS 6 - 12	COLS 1-3	ASSUMPTIONS
4	EXTEND/FILL	ROW 34	COLS 1-3	FIXED OVERHEAD
5	EXTEND/FILL	ROWS 52-57	COLS 1-3	OPERATING EXPENSES
6	DIVIDE ROW	ROW 7 BY 100, SAVE IN 77	COLS 1-3	SET DECIMAL POINTS
7	DIVIDE ROW	ROW 8 BY 100, SAVE IN 78	COLS 1-3	
8	DIVIDE ROW	ROW 9 BY 100, SAVE IN 79	COLS 1-3	
9	DIVIDE ROW	ROW 12 BY 100, SAVE IN 82	COLS 1-3	
10	MULTIPLY	ROW 22 BY 99, SAVE IN 80	COLS 1-3	MONTHLY HOURS
11	GROW	ROW 22 BY 6,	COLS 1-3	GROSS SALES
12	MULTIPLY	ROW 22 by 77, SAVE IN 23	COLS 1-3	RETURNS & ALLOWANCES
13	SUBTRACT	ROW 23 from 22, SAVE IN 26	COLS 1-3	NET SALES
14	MULTIPLY	ROW 22 by 79, SAVE IN 32	COLS 1-3	MATERIAL COST
15	MULTIPLY	ROW 11 by 80, SAVE IN 33	COLS 1-3	LABOR COST
16	MULTIPLY	ROW 33 by 82, SAVE IN 35	COLS 1-3	VARIABLE OVERHEAD
17	ADD GROUP ROWS	ROW 32 - 35, SAVE IN 39	COLS 1-3	COST OF GOODS SOLD
18	SUBTRACT	ROW 39 from 26, SAVE IN 41	COLS 1-3	GROSS MARGIN
19	MULTIPLY ROWS	ROW 26 by 78, SAVE IN 78	COLS 1-3	VARIABLE SELLING COST
20	ADD 2 ROWS	ROW 78 TO 52, SAVE IN 52	COLS 1-3	TOTAL SALES COSTS
21	ADD GRP ROWS	ROW 52 THRU 57, SAVE IN 59	COLS 1-3	TOTAL OPER EXPENSE
22	SUBTRACT ROW	ROW 59 from 41, SAVE IN 65	COLS 1-3	NET PROFIT
23	ADD GRP COLS	COLS 1-3, SAVE IN COL 4. R 22-65		QUARTERLY PROFIT

Entering Calculation Rules

When ready to enter Calculation Rules, select Function 3 from the main menu. This function is used for adding to, deleting from, or making changes to an existing Calculation Rules file.

When DESKTOP/PLAN-II has loaded the appropriate program, the video display will appear as in Exhibit 7-c (without the responses). If this is to be the first entry of a new rules file, respond "Y" to the question. If you are modifying a previously entered Calculation Rules file, respond "N." DESKTOP/PLAN-II will then load an already existing file by the name you'll be prompted for.

Then, enter the name of the Model Definition file which contains the number of rows and columns in your model. The number of rows and columns are used to insure that you don't ask DESKTOP/PLAN-II to execute calculations on rows or columns which don't exist.

Enter the name of the Calculation Rules file. This name will be used to find and load the Calculation Rules for an existing file if this is not a new rules file and to save the rules after entry or modification.

You'll then be presented with a menu of functions which can be performed while entering or modifying Calculation Rules. This menu is illustrated in Exhibit 7-d.

As can be seen from the exhibit, the ENTER, REVIEW, MODIFY RULES function is a complete "file maintenance sub-system." That is, you can enter rules, insert new rules between previously entered rules, delete rules, display for review and change a rule, print a listing of the rules, and save the rules.

Exhibit 7-c
Entering Calculation Rules File Names

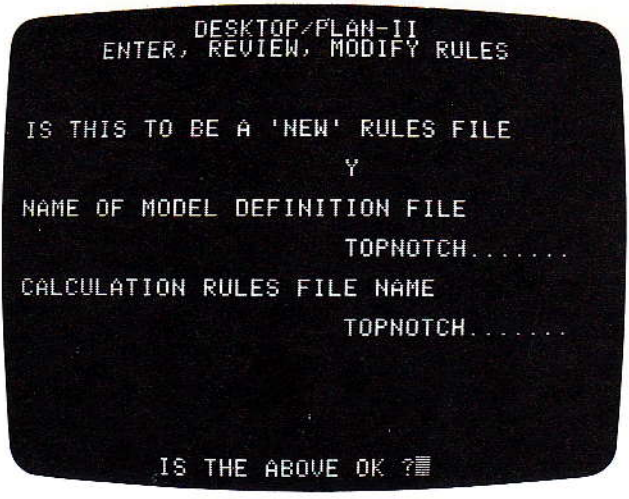
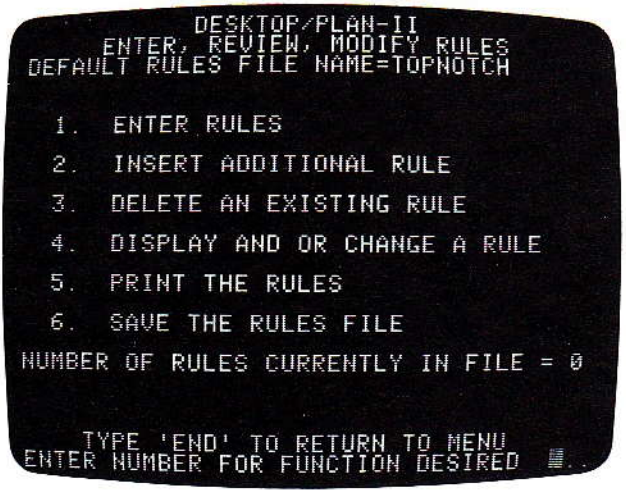


Exhibit 7-d
Menu of ENTER RULES Functions



1. Enter Rules

Select this function when entering rules for the first time. The number of the rules currently in the file will be indicated as zero. When this function is selected, the menu of available Calculation Rules is presented as in Exhibit 7-e.

This function may also be selected whenever you desire to add rules after the highest numbered rule currently in the file. This may be desirable when modifying an existing Calculation Rules file by adding additional rules or when entering a rules file for the first time and you have returned to the main ENTER RULES menu.

To enter a rule, type the number for the rule desired. You'll then be prompted for the required row and column numbers, as illustrated in the detailed description of each type of rule.

When you have entered all of your rules, type 'END' to return to the ENTER RULES menu.

When entering a new rules file it is a good idea to return to the main ENTER RULES menu after entering every 5 or 10 rules. Then, select Function 6, SAVE THE RULES FILE. This provides protection against power failure.

After the file is written to the diskette, select Function 1 again and you'll be returned to the menu of available Calculation Rules. The next rule you enter will be the next higher numbered rule.

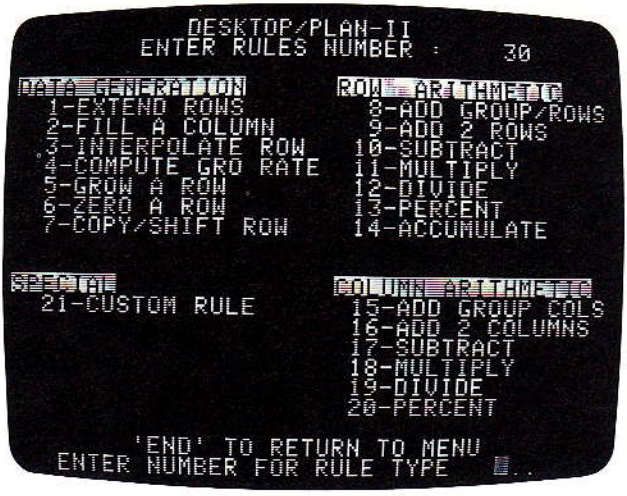
2. Insert Additional Rules

The INSERT ADDITIONAL RULE function is provided because we as humans tend to make mistakes and/or don't understand the inter-relationships between the elements of our businesses as well as we thought we did. Seldom are we able to perfectly describe these relationships correctly the first time.

(You'll find as you "get into modeling," one of the major benefits to many model builders is the learning experience about unknown or misunderstood relationships between the elements of a business. This occurs while trying to express the relationships between the elements. There is a good chance you'll experience this while trying to "build a model" the first time, or, as you refine it to more correctly reflect your business.

But, please, don't give up if you think it isn't working. You've just begun to learn.)

Exhibit 7-e
Menu of Available Calculation Rules



INSERT ADDITIONAL RULE allows you to add a new rule between two previously entered rules. Select Function 2 from the main ENTER RULES menu. You'll then be prompted for the rule number of this newly inserted rule. This number should be the number for the sequence in which this new rule is to be executed. (The rule which previously had this number, and all successively higher numbered rules will automatically be incremented by one after a rule is inserted.)

After entering the number of the rule to be inserted, the menu of available rules will be displayed. Proceed as though entering an additional rule by selecting the rule type and entering the row and column numbers.

When you have completed inserting the rule, you'll be returned to the main ENTER RULES menu.

3. Delete an Existing Rule

This function is also provided because we are imperfect.

You may delete a rule currently in the file. When the function is completed, all rules which had been numbered higher than the rule just deleted are renumbered by one less than their previous number.

If, after selecting this function, but before pressing 'RETURN' after typing the rule number, you change your mind, you can "back out" of executing the function by entering zero ('0') as the rule number.

4. Display and or Change a Rule

When this function is selected, the function and current parameters of the rule are displayed in the same format as when entered and you'll be asked "IS THE ABOVE OK ?"

If you respond "Y," you'll be returned to the main ENTER RULES menu.

If you respond "N," you'll be prompted to re-enter each of the row and column parameters for the rule.

You cannot change the function of a rule. You must DELETE AN EXISTING RULE and then INSERT ADDITIONAL RULE.

5. Print the Rules

This function is provided so that you can make a listing of the rules currently in the Calculation Rules file. Exhibit 7-f is a listing of the TOPNOTCH model Calculation Rules.

The six rightmost columns of the report contain the row and column specifications as described in the detailed Calculation Rules descriptions.

If the report is printed with a printer of less than 80 columns, the row and column number specifications will be printed immediately below each rule description.

This function may be selected at any time and as frequently as the user desires while entering Calculation Rules.

After printing the listing, you will be returned to the main

ENTER RULES menu.

A word of caution, MAKE SURE THE PRINTER IS TURNED ON ! !

6. Save the Rules File

SAVE THE RULES FILE writes whatever Calculation Rules are currently in memory to a file with a name entered by the user. If a name different than the default Calculation Rules file is entered, the default name will be changed to the name entered.

Before writing the file, any Calculation Rules file on the diskette with an identical name is deleted prior to writing the new file.

It is strongly recommended that SAVE THE RULES FILE be used frequently when entering a Calculation Rules file. If something is wrong, find it out early, before you have spent an hour entering rules.

You'll also find that you get phone calls right in the middle of entering a file. When the phone rings, save the file immediately. (It's too easy to talk for 10 minutes, turn off the Apple, -- and lose a half hour's work.)

HOWEVER, if you have forgotten to save the rules you have one last chance.

When you type 'END' to return to the main DESKTOP/PLAN-II menu, you'll be prompted for a file name to save the Calculation Rules file. Pressing RETURN will save the rules under the default file name.

Exhibit 7-f
Listing of TOPNOTCH Calculation Rules

CALCULATION RULES NAMED TOPNOTCH.R NOVEMBER 8, 1980

NUMBER	DESCRIPTION	ROW 1	ROW 2	ROW 3	COL 1	COL 2	COL 3
	COMMENT: EXTEND CONSTANTS						
1	1-EXTEND & FILL ROWS	99	100	0	1	3	0
	COMMENT: SALES GROWTH RATE						
2	4-COMPUTE A GROWTH RATE	5	0	6	1	3	0
	COMMENT: ASSUMPTIONS						
3	1-EXTEND & FILL ROWS	6	12	0	1	3	0
	COMMENT: FIXED OVERHEAD						
4	1-EXTEND & FILL ROWS	34	34	0	1	3	0
	COMMENT: OPERATING EXPENSES						
5	1-EXTEND & FILL ROWS	52	57	0	1	3	0
	COMMENT: SET DECIMAL POINTS						
6	12-DIVIDE ONE ROW BY ANOTHER	7	100	77	1	3	0
7	12-DIVIDE ONE ROW BY ANOTHER	8	100	78	1	3	0
8	12-DIVIDE ONE ROW BY ANOTHER	9	100	79	1	3	0
	COMMENT:						
9	12-DIVIDE ONE ROW BY ANOTHER	12	100	82	1	3	0
	COMMENT: MONTHLY HOURS						
10	11-MULTIPLY TWO ROWS TOGETHER	10	99	80	1	3	0
	COMMENT: GROSS SALES						
11	5-GROW A ROW	22	6	0	1	3	0
	COMMENT: RETURNS & ALLOWANCES						
12	11-MULTIPLY TWO ROWS TOGETHER	22	77	23	1	3	0
	COMMENT: NET SALES						
13	10-SUBTRACT A ROW FROM ANOTHER	23	22	26	1	3	0.
	COMMENT: MATERIAL COST						
14	11-MULTIPLY TWO ROWS TOGETHER	22	79	32	1	3	0
	COMMENT: LABOR COST						
15	11-MULTIPLY TWO ROWS TOGETHER	11	80	33	1	3	0
	COMMENT: VARIABLE OVERHEAD						
16	11-MULTIPLY TWO ROWS TOGETHER	33	82	35	1	3	0
	COMMENT: COST OF GOODS SOLD						
17	8-ADD A GROUP OF ROWS	32	35	39	1	3	0
	COMMENT: GROSS MARGIN						
18	10-SUBTRACT A ROW FROM ANOTHER	39	26	41	1	3	0
	COMMENT: VARIABLE SELLING COST						
19	11-MULTIPLY TWO ROWS TOGETHER	26	78	78	1	3	0
	COMMENT: TOTAL SALES COSTS						
20	9-ADD TWO ROWS	78	52	52	1	3	0
	COMMENT: TOTAL OPERATING EXPENSE						
21	8-ADD A GROUP OF ROWS	52	57	59	1	3	0
	COMMENT: NET PROFITS						
22	10-SUBTRACT A ROW FROM ANOTHER	59	41	65	1	3	0
	COMMENT: QUARTERLY TOTALS						
23	15-ADD GROUP COLS/CROSSFOOT	22	65	0	1	3	4

Executing Calculation Rules

When you have entered all your rules, printed a listing, and saved the rules to diskette, you're ready for the first test.

From the Main Menu select Function 4, EXECUTE CALCULATIONS.

The video display will appear as in Exhibit 7-g.

After the file names are entered, DESKTOP/PLAN-II will automatically load and execute the rules in the file. While the Calculation Rules are being executed, the sequence number of the rule currently being executed will be displayed at the bottom of the screen. (This will give you some idea of the progress the Apple II is making.)

Upon completion of execution of the rules, the Computed Values will be displayed in the identical format used to Enter or Modify Planning Values. Exhibit 7-h illustrates the display of Computed Values. The data pointer may be moved throughout your computed values.

When you have completed reviewing the displayed values, you'll then be asked if you want to save the Computed Values.

Unless you are planning to print reports at a later time, or have another use for the Computed Values file, there is no need to save the Computed Values because you'll next be asked if you want to print reports. If you do, DESKTOP/PLAN-II will proceed directly to the printing of the reports, using the just Computed Values for printing.

Exhibit 7-g
Execute Calculations - Enter File Names

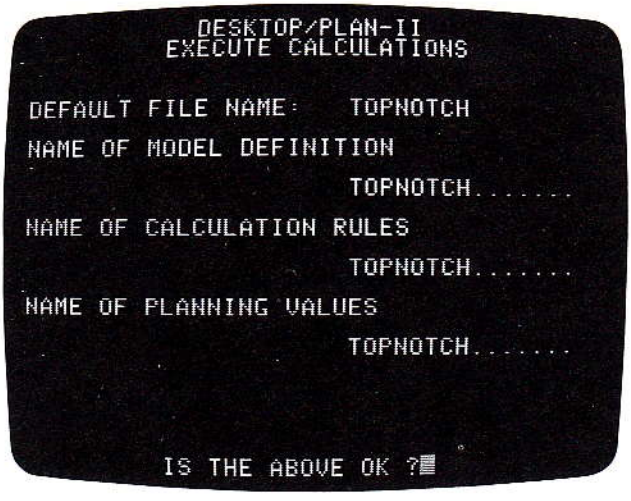
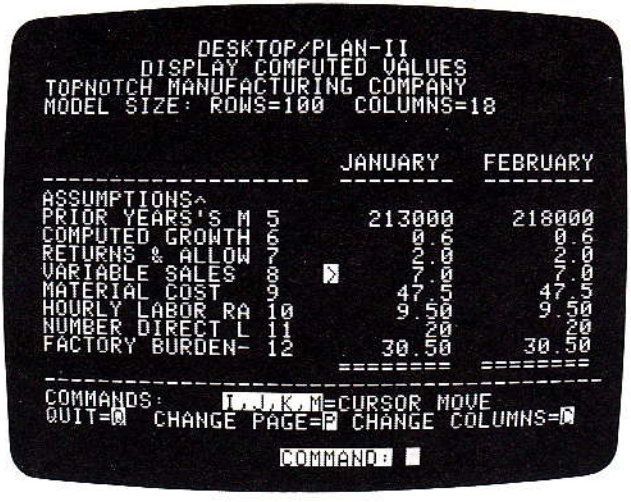


Exhibit 7-h
Execute Calculations - Display Computed Values



Description of Calculation Rules

Before developing, entering, and executing rules, it is necessary to understand the function performed by each of the available "standard" Calculation Rules. These "standard" rules can be categorized into several types. They are:

A. Rules which perform "data generation" functions.
   1-EXTEND & FILL ROWS
   2-FILL A COLUMN
   3-INTERPOLATE A ROW
   4-COMPUTE A GROWTH RATE
   5-GROW A ROW
   6-ZERO ROWS
   7-COPY ROW/SHIFT

B. Rules which perform arithmetic on rows of values.
   8-ADD A GROUP OF ROWS
   9-ADD TWO ROWS
   10-SUBTRACT A ROW FROM ANOTHER
   11-MULTIPLY TWO ROWS TOGETHER
   12-DIVIDE ONE ROW BY ANOTHER
   13-PERCENT/ROW OF A VALUE
   14-ACCUMULATE A ROW

C. Rules which perform arithmetic on columns of values.
   15-ADD GROUP COLUMNS/CROSSFOOT
   16-ADD TWO COLUMNS
   17-SUBTRACT COLUMNS
   18-MULTIPLY COLUMNS
   19-DIVIDE ONE COLUMN BY ANOTHER
   20-PERCENT/COLUMN OF A VALUE

D. Special Rules.
   21-EXECUTE A 'USER WRITTEN' RULE

The following pages contain detailed descriptions of each available "standard" Calculation Rule.

1. EXTEND & FILL ROWS

TYPE OF RULE: Data Generation

DESCRIPTION:

The value from the "prior" column is placed into the "current" column unless there is a "non-zero value" already in the "current" column.

This rule may be specified to be executed on a group of sequentially (but not necessarily consecutive) numbered rows.

ILLUSTRATION:

Extend/Fill rows 1 through 2, column 1 through 6.

	COLUMNS 1	2	3	4	5	6	
Row 1.	50	"	"	55	"	"	(Before Execution)
Row 2.	2	"	"	"	"	"	(Before Execution)
Row 1.	50	50	50	55	55	55	(After Execution)
Row 2.	2	2	2	2	2	2	(After Execution)

USE IN TOPNOTCH:

EXTEND/FILL was used extensively in TOPNOTCH.

The "constants" in rows 99 and 100 were "extended."

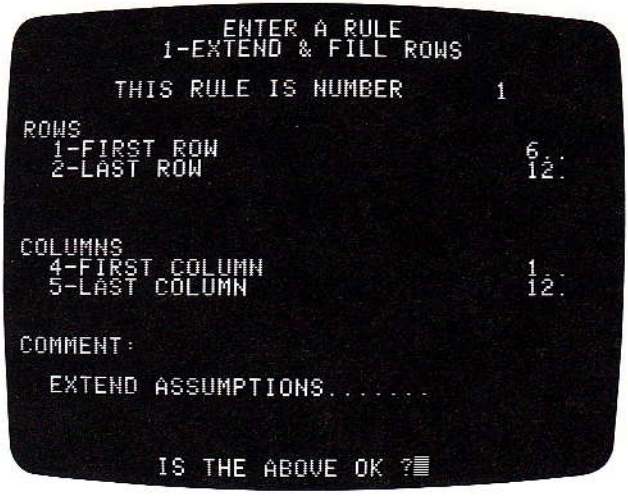
The "growth rate" of the historical date in row 5 was computed. This "growth rate" was saved in column 1, row 6 and then propogated into column 2 through 3 with EXTEND/FILL.

EXTEND/FILL was used to generate the "assumption" values in columns 2 through 3 for rows 7 through 12 (in addition to row 6.)

The Factory Overhead-Fixed in row 34 was generated for columns 2 and 3 from this rule from a single entry of an "assumption" in column 1.

The fixed portion of the Selling Expense in row 52 was generated for columns 2 and 3 from a single "initial value" in column 1, row 52.

Exhibit 7-i



Description of Fields in Rule

1.	Row 1	: 1st Row to Extend/Fill
2.	Row 2	: Last Row to Extend/Fill
3.	Row 3	: Not Used
4.	Column 1	: Extend/Fill from this Column
5.	Column 2	: Extend/Fill thru this Column
6.	Column 3	: Not Used

2. FILL A COLUMN

TYPE OF RULE: Data Generation

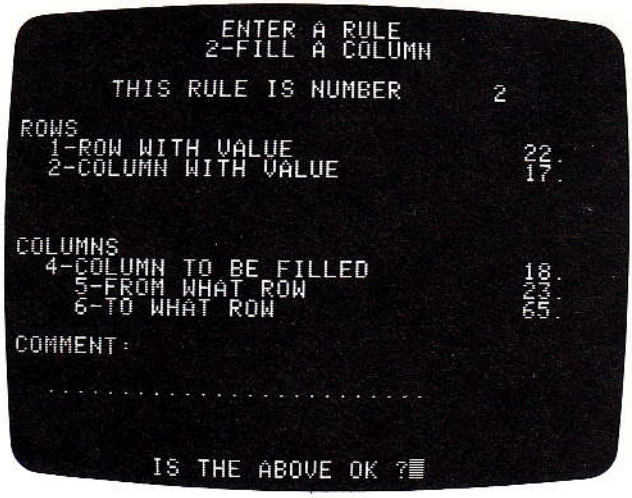
DESCRIPTION:

This rule places a single value, specified by row and column, into all of the specified rows of a single column.

USE IN TOPNOTCH:

This rule was not used in the TOPNOTCH model.

Exhibit 7-j



Description of Fields in Rule

1.	Row 1	: Row containing value
2.	Row 2	: Column containing value
3.	Row 3	: Not used
4.	Column 1	: Column that is to be "filled"
5.	Column 2	: Row to start "filling"
6.	Column 3	: Fill thru this row

3. INTERPOLATE A ROW

TYPE OF RULE: Data Generation

DESCRIPTION:

The function performed by this rule is best described by studying the results of the illustration.

As with the EXTEND/FILL rule, it may be specified to execute on a group of sequentially numbered rows of values.

ILLUSTRATION:

INTERPOLATE rows 1 through 7, column 1 through 6.

	COLUMNS						
	1	2	3	4	5	6	
Row 1.	100	"	"	"	"	600	(Before Execution)
Row 7.	300	"	"	"	"	800	(Before Execution)
Row 1.	100	200	300	400	500	600	(After Execution)
Row 7.	300	400	500	600	700	800	(After Execution)

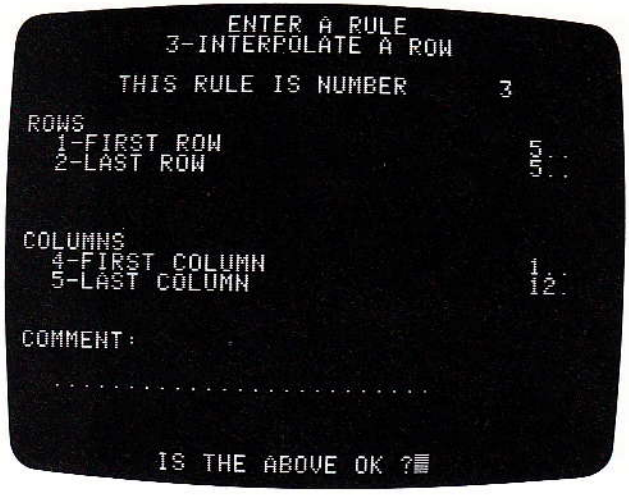
USE IN TOPNOTCH:

This rule was not used in TOPNOTCH.

LIKELY USE:

The most likely use of INTERPOLATE will be to compute the values between a known beginning figure and a known (or desired) ending value. For instance, when sales are estimated for the first time period and an objective is established for the last time period, INTERPOLATE could be used to compute the intervening values.

Exhibit 7-k



Description of Fields in Rule

1.	Row 1	:	First row to interpolate
2.	Row 2	:	Last row to interpolate
3.	Row 3	:	Not used
4.	Column 1	:	Column with beginning value
5.	Column 2	:	Column with ending value
6.	Column 3	:	Not used

4. COMPUTE A GROWTH RATE

TYPE OF RULE: Data Generation

DESCRIPTION:

This function computes the "average growth rate" for the specified row of values and saves the resultant percentage growth rate in the first column of the second specified row.

ILLUSTRATION:

Compute the growth rate of the values in row 5, columns 1 through 3 and save the computed growth rate in row 6.

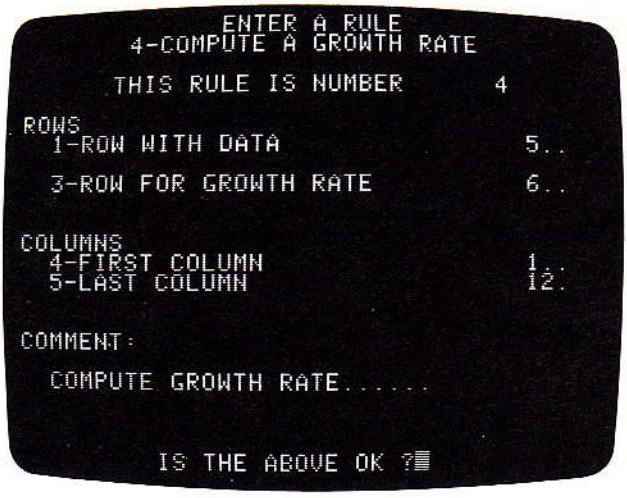
	COLUMNS 1	2	3	
Row 5.	213000	218000	215000	(Row of Values)
Row 6.	.47	"	"	(Computed Growth Rate (%)

USE IN TOPNOTCH:

This rule was used in TOPNOTCH to compute the growth rate of .47% appearing in column 1 of row 6. (The .47 appearing in columns 2 and 3 of the computed values of the report are the result of using EXTEND/FILL ROWS on row 6.)

The value represented above, ".47," is 47/100 of 1%. Thus "10%" would be expressed as "10.00."

Exhibit 7-1



Description of Fields in Rule

1.	Row 1	:	Row of values
2.	Row 2	:	Not used
3.	Row 3	:	Computed Growth Rate
4.	Column 1	:	First column of values
5.	Column 2	:	Last column of values
6.	Column 3	:	Not used

5. GROW A ROW

TYPE OF RULE: Data Generation

DESCRIPTION:

The value in the first column of the row specified is "grown" by the percentage growth rate PLUS 100 in the immediately next higher numbered column. The process is repeated until all specified columns have a value computed.

ILLUSTRATION:

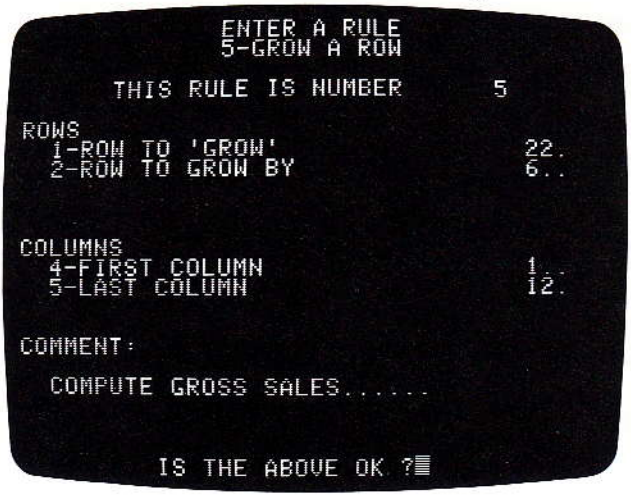
Grow row 22 by the growth rate in row 6, columns 1 through 3.

	COLUMNS			
	1	2	3	
Row 6	.47	.47	.47	(Before Execution)
Row 22	220000	*	*	(Before Execution)
Row 22	220000	221034	222073	(After Execution)

USE IN TOPNOTCH:

The above illustration was used in TOPNOTCH to compute the GROSS SALES in row 22. The .47% growth rate was automatically added to 100 before the multiplication by the "Gross Sales" for the prior month. Thus, each column of the Gross Sales is 100.47% of the Gross Sales in the prior column.

Exhibit 7-m



Description of Fields in Rule

1.	Row 1	:	The Row to be "grown"
2.	Row 2	:	The Row to "grow by"
3.	Row 3	:	Not used
4.	Column 1	:	Column to start "growing"
5.	Column 2	:	Grow row through this column
6.	Column 3	:	Not used

6. ZERO ROWS

TYPE OF RULE: Data Generation

DESCRIPTION:

Sets the values in the specified rows to zero ('0'). The operation is performed on all columns in the model.

ILLUSTRATION:

Zero row one.

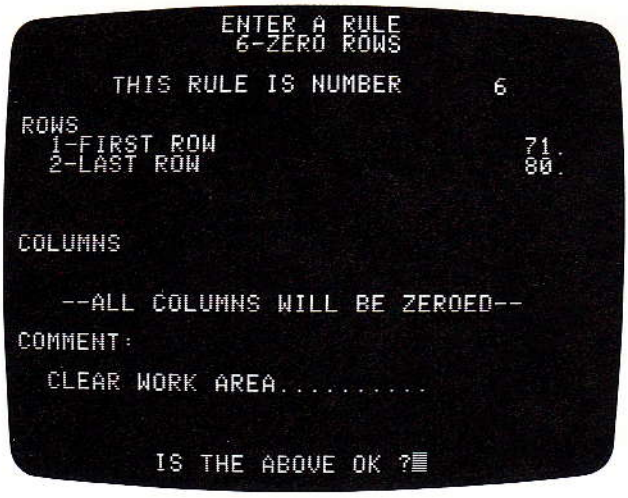
Row 1	123	456	999	(Before Execution)
Row 1	-	-	-	(After Execution)

USE IN TOPNOTCH:

This rule was not used in TOPNOTCH.

DEPARTMENT OF COMPUTER STUDIES

Exhibit 7-n



Description of Fields in Rule

1.	Row 1	:	First row to zero
2.	Row 2	:	Last row to zero
3.	Row 3	:	Not used
4.	Column 1	:	Not used
5.	Column 2	:	Not used
6.	Column 3	:	Not used

7. COPY ROW/SHIFT

TYPE OF RULE: Data Generation

DESCRIPTION:

Copies the values in the specified columns from one row to another. The values are shifted to the right or left by a specified number of columns. To shift left, precede the number of columns with a minus symbol (-).

ILLUSTRATION:

Copy Row 1 to Row 2, Columns 1 through 3, shift right one column.

	COLUMNS 1	2	3	4	
Row 1	4300	4400	4500	4600	(Before Execution)
Row 2	-	-	-	-	(Before Execution)
Row 2	-	4300	4400	4500	(After Execution)

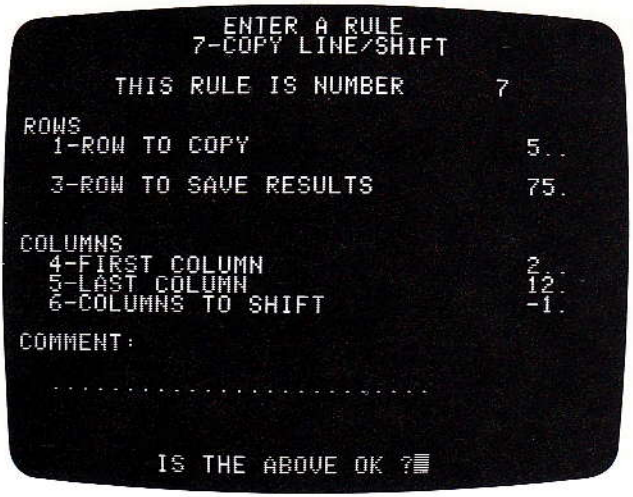
USE IN TOPNOTCH:

This rule was not used in TOPNOTCH.

LIKELY USE.

The most likely use of this rule will be in an model where the quantity of an activity, such as cash receipts, is dependent upon the quantity of a related activity in a prior time period, such as sales.

Exhibit 7-o



Description of Fields in Rule

1.	Row 1	:	Row to copy
2.	Row 2	:	Not used
3.	Row 3	:	Row to copy to
4.	Column 1	:	First column to copy
5.	Column 2	:	Last column to copy
6.	Column 3	:	Number of columns to shift

8. ADD A GROUP OF ROWS

TYPE OF RULE: Row Arithmetic

DESCRIPTION:

Adds the values in the specified columns for a group of sequentially numbered rows (not necessarily consecutive.) The results are saved in a third specified row.

ILLUSTRATION:

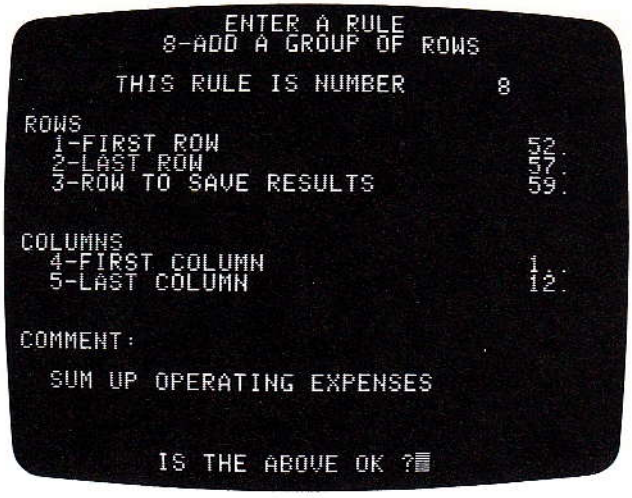
Add the rows 32 through 35, save the results in row 39, for columns 1 through 3.

	COLUMNS 1	2	3	
Row 32	104500	104991	105485	
Row 33	25520	25520	25520	
Row 34	3100	3100	3100	
Row 35	7784	7784	7784	
Row 39	140904	141395	141888	(After Execution)

USE IN TOPNOTCH:

ADD GROUP OF ROWS was used to compute Total Cost of Goods Sold in row 39.

Exhibit 7-p



Description of Fields in Rule

1.	Row 1	:	First row of group to be added
2.	Row 2	:	Last row of group to be added
3.	Row 3	:	Row in which to save results
4.	Column 1	:	First column to be added
5.	Column 2	:	Last column to be added
6.	Column 3	:	Not used

9. ADD TWO ROWS

TYPE OF RULE: Row arithmetic

DESCRIPTION:

Adds the values in first row to the values in the second row. The results are saved in the 3rd row.

ILLUSTRATION:

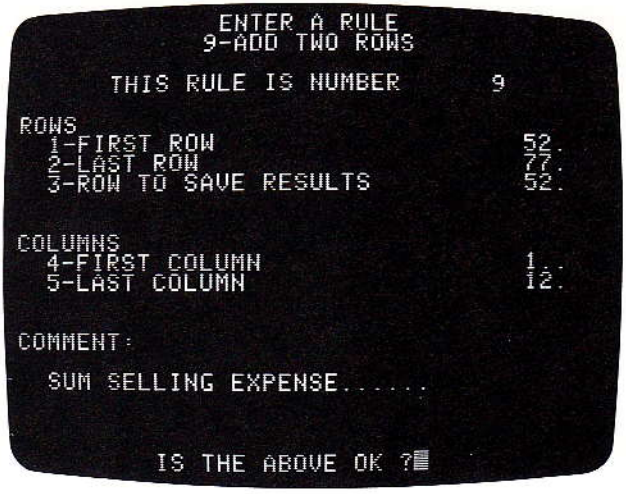
Add row 52 to row 78 and save in row 52 for columns 1 through 3

	COLUMNS 1	2	3	
Row 52	4300	4300	4300	
Row 78	15400	15472	15545	
Row 52	19780	19772	19845	(After Execution)

USE IN TOPNOTCH:

This rule was used in TOPNOTCH to add the previously calculated "variable sales cost," temporarily saved in row 78, to the Fixed Selling Cost in row 52. Fixed Selling Cost was an "initial" value and had been extended and filled in a previously executed rule.

Exhibit 7-q



Description of Fields in Rule

1.	Row 1	:	First row to be added
2.	Row 2	:	Second row to be added
3.	Row 3	:	Row in which to save result
4.	Column 1	:	First column to be added
5.	Column 2	:	Last column to be added
6.	Column 3	:	Not used

10. SUBTRACT A ROW FROM ANOTHER

TYPE OF RULE: Row Arithmetic

DESCRIPTION:

Subtracts the values in one row from the values in another row and saves the results in a third row. The arithmetic is done from the first specified column to the last specified column.

ILLUSTRATION:

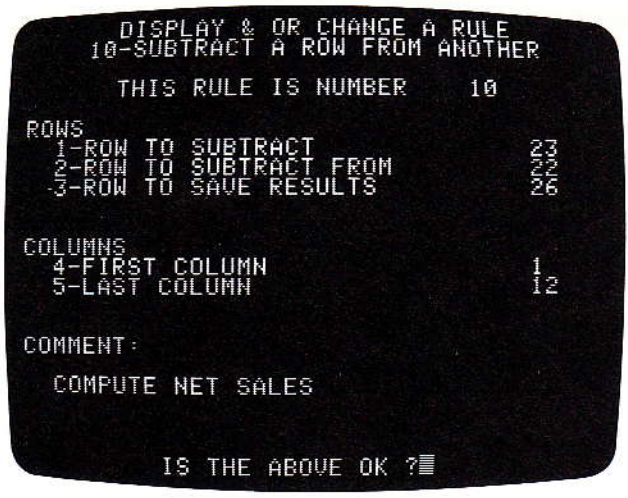
Subtract row 23 from row 22, save the results in row 26 for columns 1 through 3.

	COLUMNS			
	1	2	3	
Row 22	220000	221034	222073	
Row 23	4400	4421	4441	
Row 26	215600	216613	217631	(After Execution)

USE IN TOPNOTCH:

Returns & Allowances (row 23) are subtracted from Gross Sales (row 22) to compute Net Sales (row 26).

Exhibit 7-r



Description of Fields in Rule

1.	Row 1	:	Row to subtract
2.	Row 2	:	Row to subtract from
3.	Row 3	:	Row to save the results
4.	Column 1	:	First column with values
5.	Column 2	:	Last column with values
6.	Column 3	:	Not used

11. MULTIPLY TWO ROWS TOGETHER

TYPE OF RULE: Row Arithmetic

DESCRIPTION:

Multiplies the values in one row by the values in another row and saves the results in a specified 3rd row (could be either of the first two rows.)

ILLUSTRATION:

Multiply row 10 by row 99 and save the results in row 80.

	COLUMNS		
	1	2	3
Row 10	7.25	7.25	7.25
Row 99	176.00	176.00	176.00
Row 80	1276.00	1276.00	1276.00

USE IN TOPNOTCH:

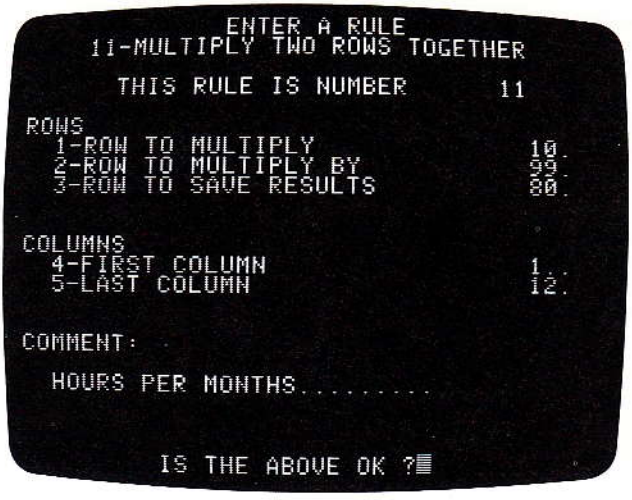
Row 10, Average Hourly Labor Rate, was multiplied by the "average" number of hours worked per month in a 40 hour week to arrive at monthly cost per direct labor employee. Hours worked per month is the "constant" 176 in Row 99. The result is saved in Row 80. (Because Row 80 has no row description, it will not be printed. This illustrates how rows which will not be printed may be used to save "intermediate results.")

The result in row 80 was multiplied, in a later rule, by the number of employees to develop total direct labor costs in row 33.

Entering each of the factors in the calculation as initial Planning Values, and using Calculation Rules to generate intermediate and final Computed Values allows the user to very simply test the effect of increasing the number of employees in any given future month. Or, the effect of changing labor rates in future months may be easily tested.

All that is necessary to make these tests is to enter a single value for the new labor rate in the months that it is to take effect or enter the new number of employees in the month that this change is to take effect. The Calculation Rules can then be simply and quickly (less than 40 seconds) re-executed.

Exhibit 7-s



Description of Fields in Rule

1.	Row 1	:	Row to multiply
2.	Row 2	:	Row to multiply by
3.	Row 3	:	Row to save product
4.	Column 1	:	First column to multiply
5.	Column 2	:	Last column to multiply
6.	Column 3	:	Not used

12. DIVIDE ONE ROW BY ANOTHER

TYPE OF RULE: Row Arithmetic

DESCRIPTION:

The values in the row specified to divide into are divided by the values in the row specified to divide by. The results are saved in the third specified row.

ILLUSTRATION:

Divide row 7 by row 100 and save the results in row 77 for columns 1 through 3.

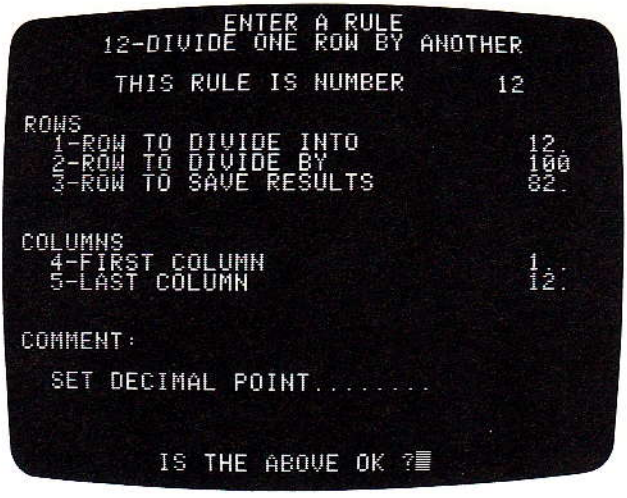
	COLUMNS 1	2	3	
Row 7	2.00	2.00	2.00	
Row 100	100.00	100.00	100.00	
Row 77	.02	.02	.02	(After Execution)

USE IN TOPNOTCH:

Row 7 is a "percentage of sales" for Returns & Allowances. It is divided by the constant 100 in row 100 and the result saved in row 77. (Row 77 is a row with no "row description." Therefore, it will not be printed.)

The 2% could have been entered as ".02" and the division step illustrated not performed. However, many people think in terms of percentages being expressed as they appear in row 7. So that the value will appear on the report in that format, it must be divided by 100 for proper positioning of the decimal point prior to multiplying by Gross Sales to arrive at the Returns & Allowances dollar value.

Exhibit 7-t



Description of Fields in Rule

1.	Row 1	:	Row to divide into
2.	Row 2	:	Row to divide by
3.	Row 3	:	Row to save results
4.	Column 1	:	First column to divide
5.	Column 2	:	Last column to divide
6.	Column 3	:	Not used

13. PERCENT/ROW OF A VALUE

TYPE OF RULE: Row arithmetic

DESCRIPTION:

Computes the percentage that each value in a row, from a beginning through an ending column, represents of a single value specified by its row and column number.

ILLUSTRATION:

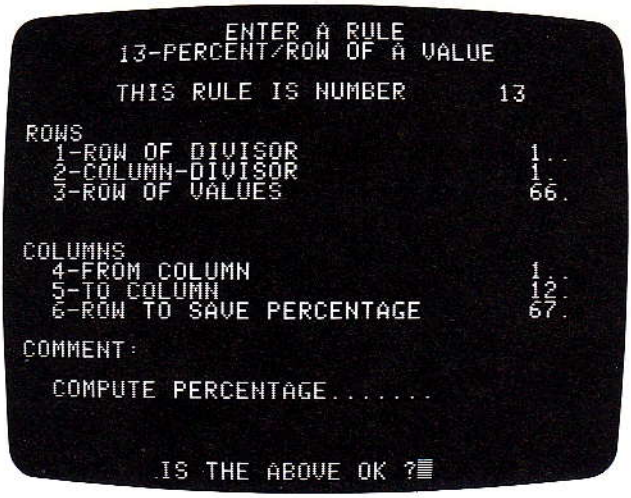
Compute the percentage that the values in row 2, columns 1 through 3 represent of the value in row 1, column 3.

	COLUMNS			
	1	2	3	
Row 1	←	←	1000	
Row 2	100	200	300	
Row 3	10	20	30	(After Execution)

USE IN TOPNOTCH:

Not used in TOPNOTCH.

Exhibit 7-u



Description of Fields in Rule

1.	Row 1	:	Row of value of divisor
2.	Row 2	:	Column of value of divisor
3.	Row 3	:	Row of values to take percent of
4.	Column 1	:	Percent from column
5.	Column 2	:	Percent to column
6.	Column 3	:	Row to save percentages

14. ACCUMULATE A ROW

TYPE OF RULE: Row arithmetic

DESCRIPTION:

ACCUMULATE A ROW computes the "cumulative" value for each column. This cumulative value is the sum of the all lower numbered and the "current" column.

The results are saved in a separately specified row.

ILLUSTRATION:

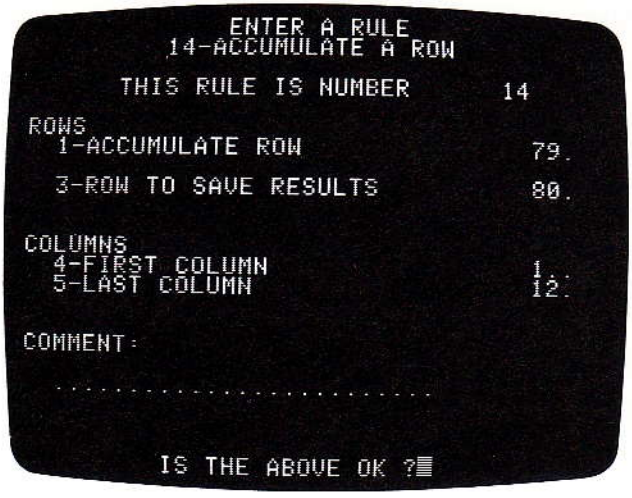
Accumulate the values in row one, save in row 2, for column 1 through 3.

	COLUMNS 1	2	3	4	
Row 1	100	200	300	400	(Row to accumulate)
Row 2	100	300	600	1000	(Row with results)

USE IN TOPNOTCH:

Not used in TOPNOTCH.

Exhibit 7-v



Description of Fields in Rule

1.	Row 1	:	Row to be accumulated
2.	Row 2	:	Not used
3.	Row 3	:	Row to save results
4.	Column 1	:	First column to accumulate
5.	Column 2	:	Last column to accumulate
6.	Column 3	:	Not used

15. ADD GROUP OF COLUMNS (CROSSFOOT)

TYPE OF RULE: Column arithmetic

DESCRIPTION:

Adds the values in each of the columns from the first specified column through the last specified column for each row specified and places the results in the third specified column.

This is commonly called "crossfooting."

This rule may be executed on a group of sequentially numbered rows.

ILLUSTRATION:

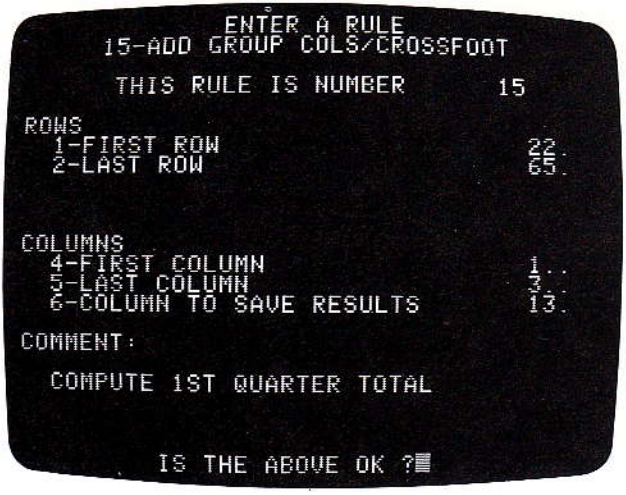
Crossfoot columns 1 through 3 and save in column 4 for rows 32 through 35.

	COLUMNS				
	1	2	3	4	
Row 32	104500	104991	105485	←	(Before Execution)
Row 33	25520	25520	25520	←	
Row 34	3100	3100	3100	←	
Row 35	7784	7784	7784	←	
Row 32	104500	104991	105485	314976	(After Execution)
Row 33	25520	25520	25520	76560	
Row 34	3100	3100	3100	9300	
Row 35	7784	7784	7784	23352	

USE IN TOPNOTCH:

This is the final Calculation Rule executed in the TOPNOTCH model. All rows, from row 21 through row 65, are crossfooted to sum up the values for each month and save them in column 4, the Quarterly Total.

Exhibit 7-w



Description of Fields in Rule

1.	Row 1	:	First row to crossfoot
2.	Row 2	:	Last row to crossfoot
3.	Row 3	:	Not used
4.	Column 1	:	First column to crossfoot
5.	Column 2	:	Last column to crossfoot
6.	Column 3	:	Column to save the results

16. ADD TWO COLUMNS

TYPE OF RULE: Column arithmetic

DESCRIPTION:

Adds the values in 1st specified column to the values in the 2nd specified column and save the results in a 3rd specified column.

The column in which the results are saved may be either of the first two columns. The rule may be specified to be executed on a range of sequentially numbered rows.

ILLUSTRATION:

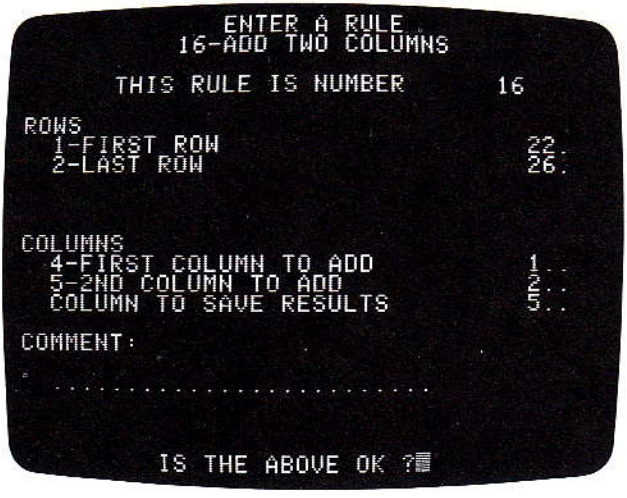
Add column 1 to column 2 and save the results in column 3 for rows 1 through 2.

	COLUMNS 1	2	3	
Row 1	500	400	-	(Before Execution)
Row 2	750	150	-	
Row 1	500	400	900	(After Execution)
Row 2	750	150	900	

USE IN TOPNOTCH:

Not used in TOPNOTCH.

Exhibit 7-x



Description of Fields in Rule

1.	Row 1	:	First row to be added
2.	Row 2	:	Last row to be added
3.	Row 3	:	Not used
4.	Column 1	:	First column to add
5.	Column 2	:	Second column to add
6.	Column 3	:	Column to save results

17. SUBTRACT COLUMNS

TYPE OF RULE: Column arithmetic

DESCRIPTION:

The values in one column are subtracted from the values in another column and the results are saved in a third column for a range of sequentially numbered rows.

ILLUSTRATION:

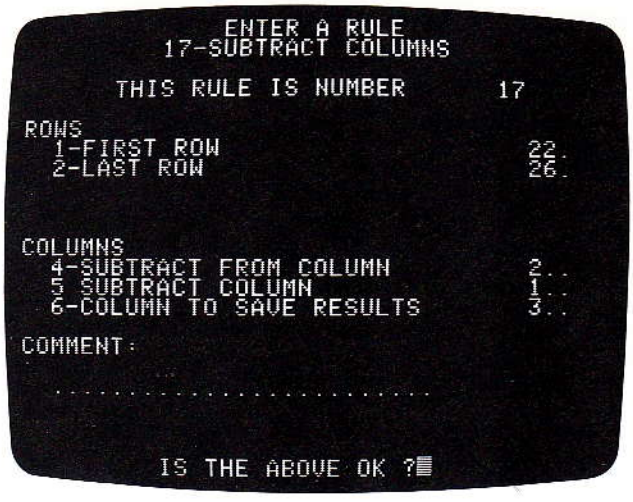
Subtract the values in column 2 from the values in column 1 and save the results in column 3 for rows 1 through 3.

	COLUMNS 1	2	3	
Row 1	500	300		(Before Execution)
Row 3	1000	700		
Row 1	500	300	200	(After execution)
Row 3	1000	700	300	

USE IN TOPNOTCH:

Not used in TOPNOTCH.

Exhibit 7-y



Description of Fields in Rule

1.	Row 1	:	First row to subtract
2.	Row 2	:	Last row to subtract
3.	Row 3	:	Not used
4.	Column 1	:	Column to subtract from
5.	Column 2	:	Column to subtract
6.	Column 3	:	Column to save results

18. MULTIPLY COLUMNS

TYPE OF RULE: Column arithmetic

DESCRIPTION:

The values in one column are multiplied by the values in a second column and the results are saved in a third specified column.

The rule may be executed on a group of sequentially numbered rows.

ILLUSTRATION:

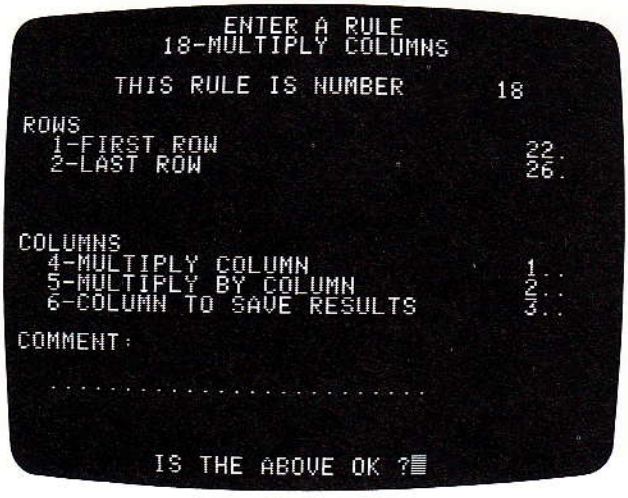
Multiply the values in column 1 by the values in column 2 and save the results in column 3.

	COLUMNS			
	1	2	3	
Row 20	25	30	*	(Before execution)
Row 25	300	15	*	
Row 20	25	30	750	(After execution)
Row 25	300	15	4500	

USE IN TOPNOTCH:

Not used in TOPNOTCH.

Exhibit 7-z



Description of Fields in Rule

1.	Row 1	:	First row to multiply
2.	Row 2	:	Last row to multiply
3.	Row 3	:	Not used
4.	Column 1	:	Column to be multiplied
5.	Column 2	:	Column to multiply by
6.	Column 3	:	Column to save results

19. DIVIDE ONE COLUMN BY ANOTHER

TYPE OF RULE: Column arithmetic

DESCRIPTION:

The values in one column are divided by the values in another column and the results are saved in a third specified column.

The rule may be specified to execute on a range of sequentially numbered rows.

ILLUSTRATION:

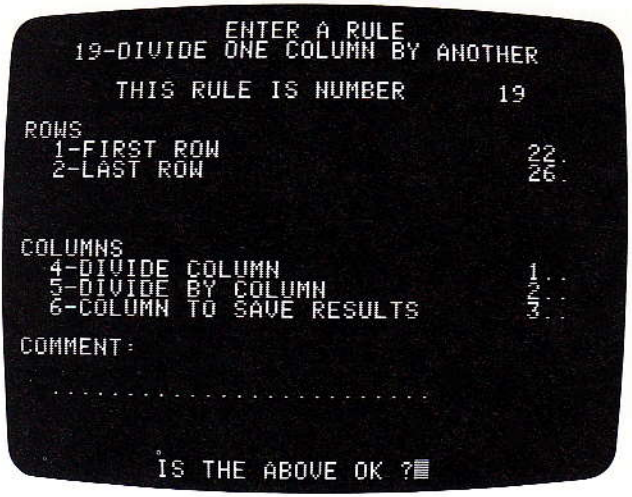
Divide column 1 by column 2 and save in column 3 for rows 1 through 3.

	COLUMNS 1	2	3	
Row 1	750.00	1500.00	*	(Before Execution)
Row 3	375.00	1500.00	*	
Row 1	750.00	1500.00	.50	(After Execution)
Row 3	375.00	1500.00	.25	

USE IN TOPNOTCH:

Not used in TOPNOTCH.

Exhibit 7-aa



Description of Fields in Rule

1.	Row 1	:	First row to divide
2.	Row 2	:	Last row to divide
3.	Row 3	:	Not used
4.	Column 1	:	Column to divide (dividend)
5.	Column 2	:	Column to divide by (divisor)
6.	Column 3	:	Column to save results (quotient)

20. PERCENT/COLUMN OF A VALUE

TYPE OF RULE: Column arithmetic

DESCRIPTION:

The percentage that each value in a column, from a beginning row through an ending row, represents of a single value specified by its row and column number. The results are saved in a specified column.

ILLUSTRATION:

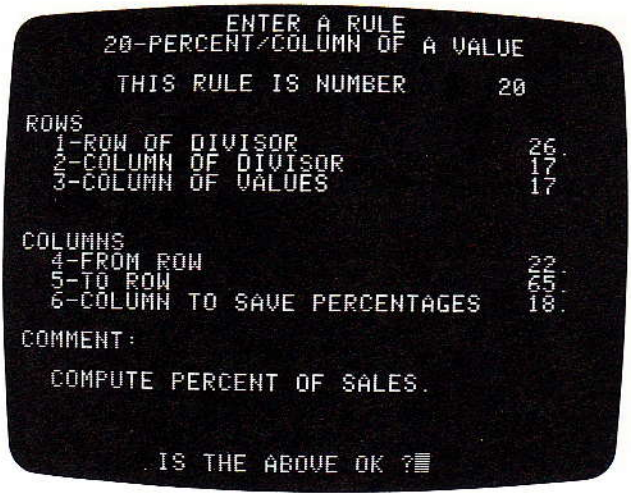
Compute the percentage that each value in column 13, row 32 through row 35 represent of the value in row 26, column 13. Save the percentage in column 14.

	COLUMN 13 (Before Execution)	COLUMN 13 (After Execution)
Row 26	4807663	4807663
Row 32	2330245	48.5
Row 33	535920	11.1
Row 34	67900	1.4
Row 35	163456	3.4

USE IN TOPNOTCH:

Not used in TOPNOTCH.

Exhibit 7-ab



Description of Fields in Rule

1.	Row 1	:	Row of value of divisor
2.	Row 2	:	Column of value of divisor
3.	Row 3	:	Column of values
4.	Column 1	:	From row
5.	Column 2	:	To row
6.	Column 3	:	Column to save percentages

21. EXECUTE CUSTOM RULE

EXECUTE CUSTOM RULE causes the execution of a "user written" Applesoft BASIC sub-program inserted by the user into the EXECUTE function of DESKTOP/PLAN.

This ability to execute a "Custom Rule" is one of the most powerful features of DESKTOP/PLAN. It allows any computations or any logic that can be programmed in Applesoft BASIC to be incorporated into a model.

The following discussion assumes the reader is knowledgeable about Applesoft BASIC.

Up to 20 "Custom Rules" may be incorporated into the EXECUTE function. (A limitation may be the availability of RAM memory.

The BASIC statements of the "Custom Rules" must be numbered from 11000 to 11999 for "Custom Rule Number 1", 12000 to 12999 for "Custom Rule Number 2", etc., through 30000 to 30999 for "Custom Rule Number 20."

The EXECUTE Applesoft BASIC program on the program disk has REM statements indicating where to place each "Custom Rule" by number beginning at statement number 11000. Each rule must end with a RETURN statement, as in statement number 11999.

"Custom Rules" may be executed anywhere in the user's sequence of Calculation Rules by specifying the desired "Custom Rule Number" when entering Calculation Rules.

To place a "Custom Rule" into EXECUTE, perform the following procedure:

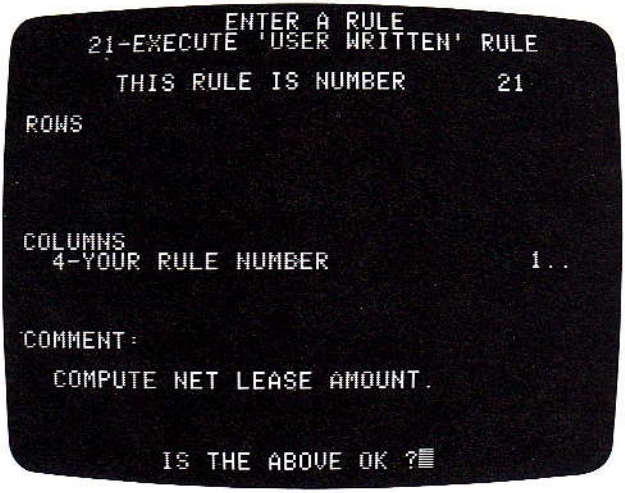
"Boot" the system using a DOS 3.3 System Master.

Replace the System Master Diskette with the DESKTOP/PLAN-II program diskette in drive #1.

User types:

```
]LOAD EXECUTE
]UNLOCK EXECUTE
]RENAME EXECUTE,ORIGINAL EXECUTE
]LOCK ORIGINAL EXECUTE
]LIST 11000,11999
11000 REM RULE #1
11999 RETURN
```

Exhibit 7-ac -- Enter Custom Rule



] "User types his sub-program beginning with 11010"

]SAVE EXECUTE
]LOCK EXECUTE

"Custom Rule #1" will then have been added to the EXECUTE function. Thereafter,when EXECUTE encounters EXECUTE 'USER WRITTEN' RULE and the rule number to be executed is "Custom Rule #1", the user's sub-program will be executed.

It will be necessary to "re-boot" the system with the DESKTOP/PLAN-II diskette to execute and test such a newly written and inserted Custom Rule.

Guidelines To Writing Custom Rules:

DESKTOP/PLAN values are stored in the "V array," dimensioned to the number of columns and rows of the model being executed. A "Custom Rule" may address any element of the array as V(K,L) where:

K is the column in the V array in which the data element is located.

L is the row in the V array in which the data element is located.

Thus, the names K and V should be used as the "loop control

variable" in FOR/NEXT statements.

Be extremely cautious if using ANY other variable names.

Needless to say, writing and inserting a "Custom Rule" is not a task to be lightly undertaken by the beginning programmer.

An illustration of a simple custom rule follows. The rule adds the values in Rows 10, 20, and 30 into Row 100 for columns 1 through 12. The result is divided by 5000 is the result is greater than 5000.

```
11000 REM CUSTOM RULE #1
11010 FOR K=1 TO 12
11020 V(K,100) = V(K,100) + V(K,10) + V(K,20) +
V(K,30)
11030 IF V(K,100) > 5000 THEN V(K,100) =
V(K,100)/5000
11040 NEXT K
11999 RETURN
```

SECTION 8

Executing Calculation Rules

Executing Calculation Rules

From Function 4-Execute Calculation Rules

Calculation Rules may be executed by selecting Function 4 from the Main Menu. After the user selects the function, DESKTOP/PLAN+II will prompt for the Model Definition, Calculation Rules, and Planning Values file names.

Thereafter, nothing need be done by the user until execution is complete.

From Function 2-Enter, Modify, or Display Values

Calculation Rules may be executed after executing Function 2 and modifying values. After the user "quits" modifying values the user will be given the option of executing Calculation Rules. If the option is chosen, the user is prompted for the name of the Calculation Rules file.

Thereafter, Calculation Rules are executed automatically.

During Execution

During execution, the Calculation Rule number and any associated comment will be displayed on the bottom line of the video display.

When Execution is Complete

When execution is complete, the Computed Values will be automatically displayed in a format identical to that of the Enter, Modify, or Display Values. The user may use move the data pointer using the I, J, K, M, P, and C Commands. However, the system will not allow changing a value from the keyboard.

When "Viewing" is Complete

When the user is done viewing Computed Values, he can "quit" by pressing "Q," "Y," and "RETURN."

Thereafter, the user is prompted to save a Computed Values file. If reports are to be printed at a later time or graphs are to be prepared using the plot function, the Computed Values must be saved in file.

After saving the Computed Values if specified, the user is given the option of printing a report.

If the user chooses to print a report, DESKTOP/PLAN-II proceeds directly to the print function.

If printing is not chosen, control is returned to the Main Menu.

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SECTION 9

Printing Reports

Printing Reports

Reports may be printed from a Computed Values file by selecting Function 5 from the Main Menu.

Reports may also be printed after executing Calculation Rules without saving the Computed Values to a file.

Before executing the print function, make sure that you have correctly specified the characteristics of the printer, using Function 1 from the Utilities Sub-Menu.

When the print function has been loaded, the video display will appear as in Exhibit 9-a.

The "parameters" specifying the report to be printed are displayed.

If these are satisfactory, merely respond "Y" to the prompt.

If these parameters are not satisfactory for this report, respond "N." You'll then be prompted for each parameter.

After the parameters have been entered and the user responds "Y," these newly entered are saved to a "print parameters" file.

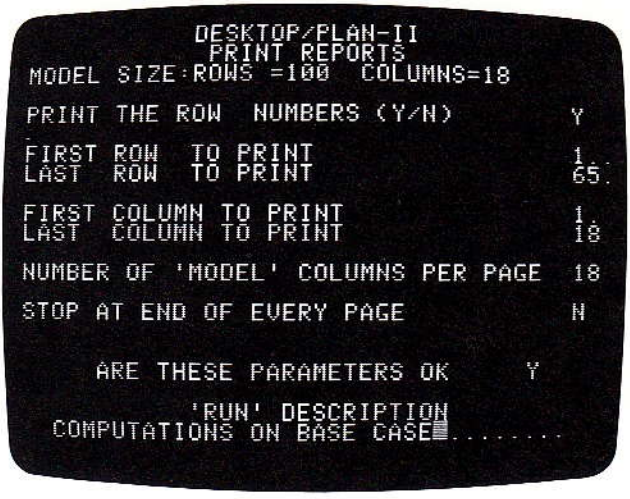
The next time the print function is executed, the parameters last used will be automatically retrieved from disk and displayed. The user can then proceed merely by responding "Y" to the prompt "ARE THESE PARAMETERS OK."

After the report has been printed, the user is given an opportunity of printing an additional copy.

After all copies have been printed, the user is given an opportunity of printing an additional report using different row and column specifications.

This featureis particularly useful if it is desired to print "assumptions" from one specification of columns but "results" from another specification of columns. For instance, the TOPNOTCH printed report might be printed in two parts. The first portion from rows 1 through 19, columns 1 through 12. The second portion printed from row 21 through 65, columns 1 through 18.

Exhibit 9-a "Print" Video Display



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SECTION 10

Plotting Graphs

Introduction

DESKTOP/PLAN*II has the capability of preparing two types of graphs. These are:

1. "Line Charts" as in Exhibit 10*a
2. "Bar Charts" as in Exhibit 10*b

These graphs may be produced on any, or all, of three media:

1. On the Apple's "Hi*Resolution" video display.
2. After display, the graph can be printed, dot for dot, on the Apple Silentype printer.
3. After display, the graph can be saved as a picture on the diskette.

These graphs can only be produced from files of Computed Values.

Plotting is done by selecting Function 6 from the Main Menu.

Exhibit 10-a - Line Chart

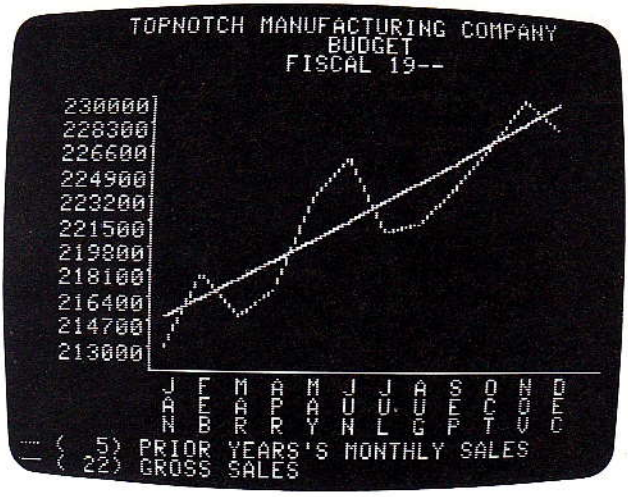
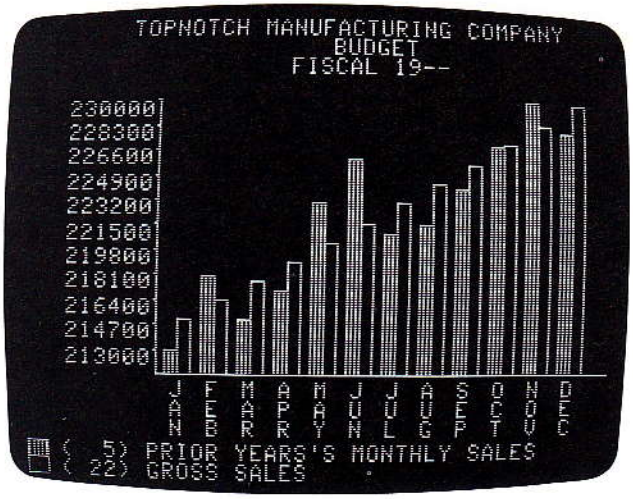


Exhibit 10-b - Bar Chart



Specifying the Graph

After identifying the Model Definition and Computed Values files to be used, the user is presented with a menu of available options, as illustrated in Exhibit 10-c.

After the type of graph is selected, the user is prompted for the row and column numbers of the values to be plotted, as in Exhibit 10-d.

If it is desired to plot only one row of values, enter "0" for the second row to be plotted.

The graphs are prepared using the values from the rows and columns specified.

Scaling the X & Y Axis

"Scaling" of the vertical (Y) axis is done automatically based upon the minimum and maximum of the values in the rows and columns specified. Label values are computed and displayed automatically.

"Scaling" of the horizontal (Y) axis is done automatically based on the column range specified. Labels are displayed from the first line of each column heading.

Exhibit 10-c - Plot Menu

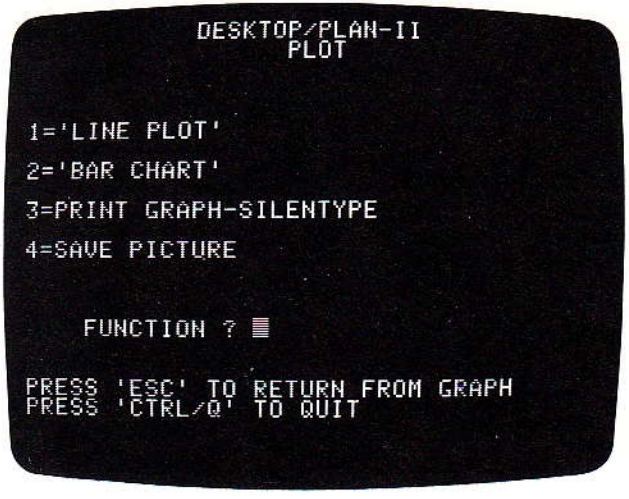
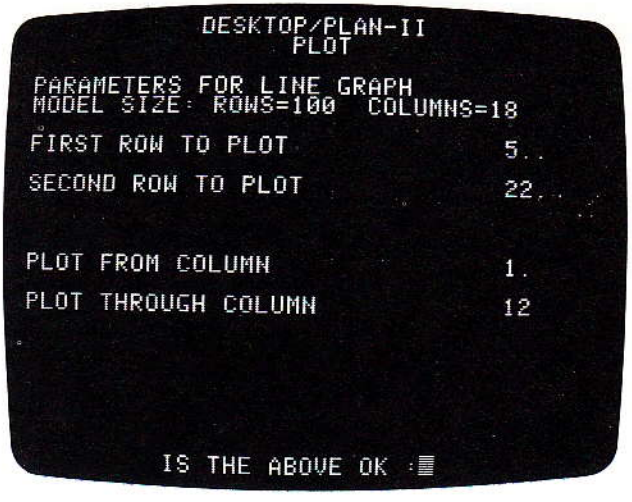


Exhibit 10-d - Row & Column Prompts



Returning to the Plot Menu

After the graph is displayed, the user can return to the Plot Menu by pressing the ESC key.

Printing the Graph on a Silentype Printer

The graph may be printed, dot for dot, on the Silentype printer by selecting Function 3 from the Plot Menu.

Do not select Function 3 until after either a line chart or bar graph has been displayed as "garbage" will be printed.

Printing may be terminated while printing the graph by pressing the "C" key while simultaneously holding down the "CTRL" key.

Saving the Graph as a Picture

The last graph displayed may be "saved" as a "picture" by selecting Function 4.

The purpose of providing this capability is to give the user a facility for printing a graph if a printer with graphics capability is available with software. Such printers as the IDS Paper Tiger or Qume Sprint 5 may be used with commercially available software.

In addition, the user may desire to produce a series of "pictures" to be used as part of a "slideshow."

When this function is specified, the user will be prompted for a file name to save the "picture." The picture will be saved with this name with ".P" automatically added to the name entered by the user.

SECTION 11

Consolidating Sub-Models

Introduction

The capability of consolidating the results from Computed Values files into a resultant new Planning Values file gives the user of DESKTOP/PLAN-II the ability to develop financial models of literally unlimited size and complexity.

Two options are provided, SUMMARIZE and TRANSFER ROWS.

Summarize

The first, SUMMARIZE, summarizes multiple Computed Values files and creates a new Planning Values file containing the totals of each row and column of each Computed Values file.

SUMMARIZE is normally used when each of the Computed Values files represents one of several identical operating entities and it is desired to total these individual entities.

Execution of the SUMMARIZE option causes the values in each column, of each row, from each of the specified Computed Values files to be added to each other. The results are recorded in a Planning Values file created by SUMMARIZE.

Exhibit 11-a illustrates the display presented to execute the SUMMARIZE option.

The user will be prompted for the names of three types of files, as illustrated.

1. A Model Definition file. This will be used to define the number of rows and columns of all of the Computed Values files to be summarized.

2. A Planning Values file in which to save the resultant summarized values.

3. Two or more Computed Values files to be summarized. Up to 100 files may be summarized. They need not be stored on the same diskette. The user is given an opportunity to change diskettes immediately before reading each specified Computed Values file.

When the names of all Computed Values files to be summarized have been entered, the user enters "END" when prompted for a file name.

DESKTOP/PLAN-II then automatically reads each Computed Values file specified and sums the values from each of the Computed Values file to the resultant Planning Values file.

DESKTOP/PLAN-II then writes the Planning Values file to disk. The Planning Values file designator, ".I," is automatically added to the file name. This allows additional calculation rules to be executed on the summarized values.

A WORD OF CAUTION.

When planning a model, consider that each Computed Values file to be summarized must have an identical number of rows and columns. The resultant Planning Values file will have this number of rows and columns of values.

Transfer Rows

The second option of CONSOLIDATE, TRANSFER ROWS, provides the capability of transfering individual selected rows from Computed Values files to selected rows, with identical or different row numbers, in a resultant new Planning Values file.

For instance, suppose three Computed Values files:

```
DEPT-1.C
DEPT-2.C
DEPT-3.C
```

contained the budgets for departments 1, 2, and 3.

Each model contains the following rows, along with many others.

```
LABOR COST          (10)
OPERATING EXPENSE   (30)
OVERHEAD            (60)
```

TRANSFER ROWS allows the creation of a new Planning Values file with:

```
LABOR COST DEPT-1           (1)
LABOR COST DEPT-2           (2)
LABOR COST DEPT-3           (3)
TOTAL LABOR COST            (10)
OPERATING EXPENSE DEPT-1    (21)
OPERATING EXPENSE DEPT-2    (22)
OPERATING EXPENSE DEPT-3    (23)
TOTAL OPERATING EXPENSE     (30)
OVERHEAD DEPT-1             (51)
OVERHEAD DEPT-2             (52)
OVERHEAD DEPT-3             (53)
TOTAL OVERHEAD              (60)
```

Using the TRANSFER ROWS function, the values from each of the departmental budget Computed Values files could be transferred to the appropriate row in the Planning Values file.

The user is first prompted for the name of a Model Definition file which contains the number of rows and columns of all of the Computed Values files from which rows are to be transferred.

Next the user is prompted for the name of a new file in which to save the resultant "transferred" values. This will become a Planning Values file on which Calculation Rules may be executed.

Exhibit 11-b illustrates the operation of TRANSFER ROWS.

After the user enters a Computed Values file name from which rows are to be transfered the file is immediately read.

DESKTOP/PLAN-II then prompts for a row number to be transfered. The values from the specified row are transfered to the specified row in the resultant Planning Values file.

After each prompt, the transfer takes place immediately. (The "transfer" happens so quickly that often user think nothing has happened.) The user is then prompted for another row to be transfered.

When the user completes the transfer from all the rows from one Computed Values file, entering the word "END" when prompted for row number will cause DESKTOP/PLAN- II to stop transfering rows from that file.

Thereafter, the user is prompted for the name of the next Computed Values file from which values are to be transferred.

Typing the word "END" when prompted for the file name causes DESKTOP/PLAN-II to terminate the transfer function and write the Planning Values file of transfered values to disk.

The file name of the "transfered to" file has the file type designator ".I" automatically added by DESKTOP/PLAN-II.

A WORD OF CAUTION.

Each Computed Values file from which rows are to be transferred must have the same dimensions of columns and rows as defined by the specified Model Definition file.

The resultant Planning Values file will have the number of rows and columns defined by the Model Definition file.

Exhibit 11-a -- Illustration of Executing SUMMARIZE

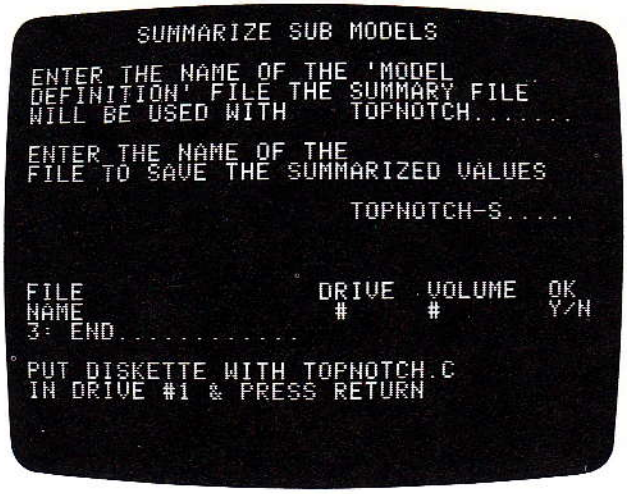
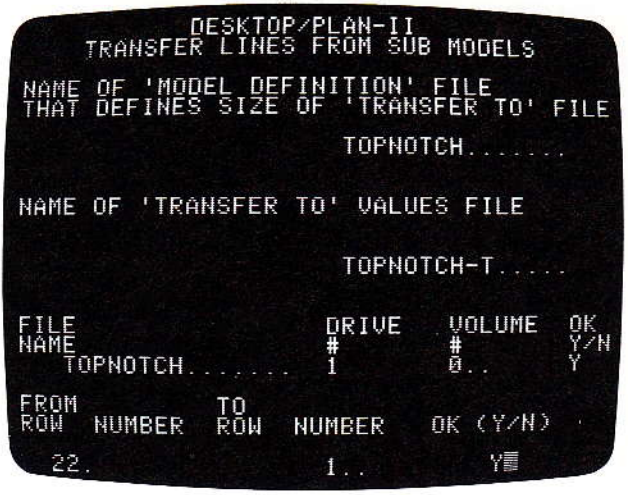


Exhibit 11-b -- Illustration of Executing TRANSFER ROWS



SECTION 12

System Utilities

Change System Configuration

Change System Configuration provides the capability of configuring the system to each user environment. The following elements of the environment may be changed:

1. The characteristics of a printer and the slot in the Apple II in which its controller has been placed.

2. The disk drive and diskette volume number for the files used by DESKTOP/PLAN-II.

3. A "Default File Name."

4. A "page footer message" to be printed on the last printed line of all printed reports.

It is suggested that the first time the system is used, after the "quick tour" of Section 1, that Change System Configuration be executed by selecting Function 8 on the Main Menu and Function 1 of the Utilities Sub-Menu.

Exhibit 12-a -- Change System Configuration Display

Configuring for a Printer

Five different methods of printer attachment are supported. The appropriate one should be selected by making the appropriate entry when executing Change System Configuration.

These are:

1. Apple High Speed Serial Interface.

2. Apple Communications Interface card for an "RS-232" printer with "automatic line feed."

3. Apple Communications Interface card for an "RS-232" printer that DOES NOT have an "automatic line feed."

4. Apple Parallel Interface.

5. Apple Silentype Printer

6. Qume Sprint 5 Printer attached through a High Speed Serial Interface with P8A proms. This uses a "compressed print" capability to print 216 characters per line. When using this feature, the user may specify up to 18 DESKTOP/PLAN- II columns be printed on a single sheet.

   It is suggested a "15 Pitch Type Wheel" be used with this mode.

These six types of "printer support" are listed on the Change System Configuration display.

When the user enters a 1 for the parameter to change, a number corresponding to one of these six types of printer attachment should be entered.

Thereafter, whenever DESKTOP/PLAN-II is printing reports, the appropriate programs to support that type of printer will automatically be used.

Parameter 2 "tells" DESKTOP/PLAN-II in which slot the "printer interface card" is located.

Parameter 3 describes the print width of the printer and the paper being used. This may be set from 40 to 216.

Parameter 4 describes the length of the paper being used in the printer in number of lines. The "normal" entry is 66.

However, there are some "odd" sized forms available. In addition, the user may choose, if using DESKTOP/PLAN+II with a printer that can use "cut forms," such as stationery, to print on the paper with the "length" being 8 1/2" and the width being 11" or 14". If so, the paper length should be specified as 51.

Configuring for a Disk Drive

DESKTOP/PLAN-II will operate on an Apple with a single drive.

However, because the programs of DESKTOP/PLAN-II occupy over 70% of the available space on a diskette, more than a single medium sized model will require the use of a second disk drive.

Additionally, good operating practice may require a second drive. Diskettes on which DESKTOP/PLAN-II files are stored may be easily duplicated for "backup."

Thus, the user can specify which drive, 1 or 2, on which the files are to be kept by DESKTOP/PLAN-II. Both drives MUST be attached through the same disk controller card.

The user may also specify the volume numbers on which the DESKTOP/PLAN-II data files and programs files are to be stored. These have been included so that the system may be used on a Corvus disk drive.

The volume number should be ignored by users of the Apple Disk II drives. At all other points during operation of the system, when the user is prompted for volume number, the user should enter "0."

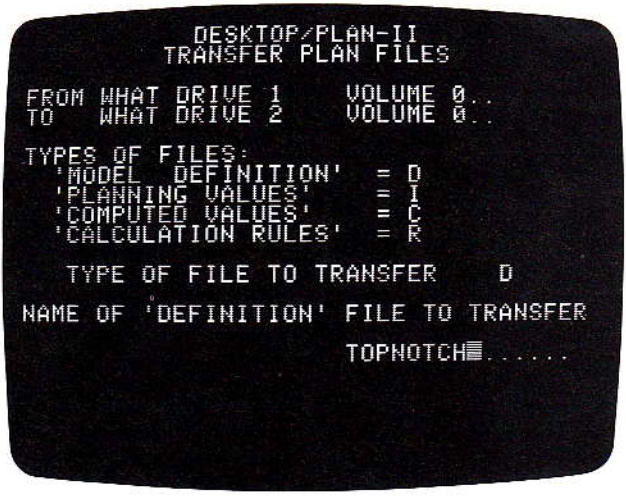
Default File Name

The Default File Name may be changed when using this function.

Report Footer Message

The message printed as the last line on each page of printed reports may be changed using this function.

Exhibit 12-b
Illustration of File Transfer Display



Copy DESKTOP/PLAN-II Files

The second utility, Function 2 on the Utilities Sub-Menu allows the user to transfer DESKTOP/PLAN-II files from one diskette to another. This function is specifically included for users of single drive Apple II's.

The system provides that this may be done either from disk drive to disk drive or between diskettes exchanged in the same disk drive on either a one or two disk drive system.

The diskette that the files are copied TO must have been initialized prior to executing the TRANSFER function. Use Function 5 from the Utilities Sub-Menu to initialize the diskette prior to executing the COPY function.

The difference between copying from diskette to diskette on the same disk drive and copying from one drive to another is that the after the file being copied has been read, the user is prompted to change diskettes before the file is written to diskette.

While this utility is included as a part of the DESKTOP/PLAN-II system, most users will find it simpler and quicker to use the FID utility provided on the Apple DOS 3.3 System Master diskette.

Convert VisiCalc File to PLAN

This utility is provided so that users of VisiCalc can use some of the features of DESKTOP/PLAN-II when operating on a two disk drive Apple. (This utility should only be executed on a two drive system.)

Among the features of DESKTOP/PLAN-II that may be useful to VisiCalc users are the printed report formatting capability, the CONSOLIDATE function, and the plotting capabilities.

DESKTOP/PLAN-II automatically converts Visicalc "/PD" files to Model Definition and Computed Values files. These "/PD" files are created by "printing to disk."

Some of the characteristics of this conversion capability are listed below:

1. Up to three contiguous columns of labels may be converted to row descriptions.

2. Up to eighteen contiguous columns of values may be converted to a Computed Values file.

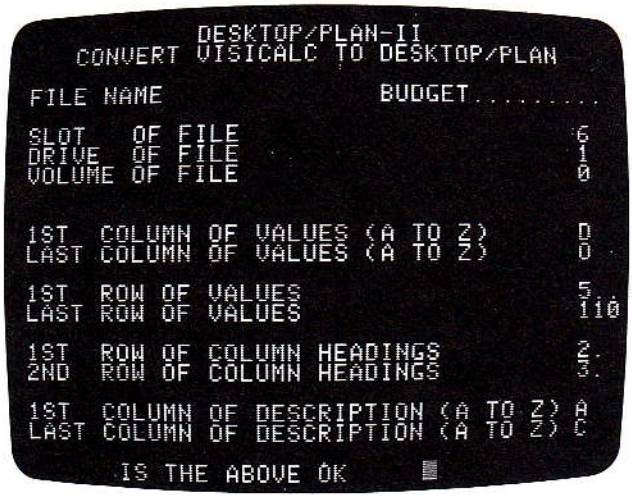
3. Up to two rows of labels, corresponding to columns of values may be converted to column headings.

The "/PD" file to be converted must be in the "16 sector" format of Apple DOS 3.3. This can be accomplished by using a "16 sector" version of Visicalc or by converting the "/PD" file to "16 sector" format using the MUFFIN utility provided the DOS 3.3 System Master.

Prior to creating the "/PD" file from VisiCalc, the user should make notes regarding row and column designations of the VisiCalc values, labels used as column headings, and labels used as row descriptions.

Exhibit 12-c illustrates the screen to prompt the user for the information about the file to convert.

Exhibit 12-c
Convert VisiCalc File to PLAN



Prior to responding "Y" to the prompt "IS THE ABOVE OK", the diskette containing the VisiCalc "/PD" file should be placed in disk drive 2.

Thereafter, DESKTOP/PLAN-II will read and convert the file.

When this has been completed, the user will be advised to put a DESKTOP/PLAN-II data diskette into drive 2 and press RETURN when this is done. Thereafter, the Model Definition and Computed Values files will be recorded on the diskette and the user will be returned to the Main Menu.

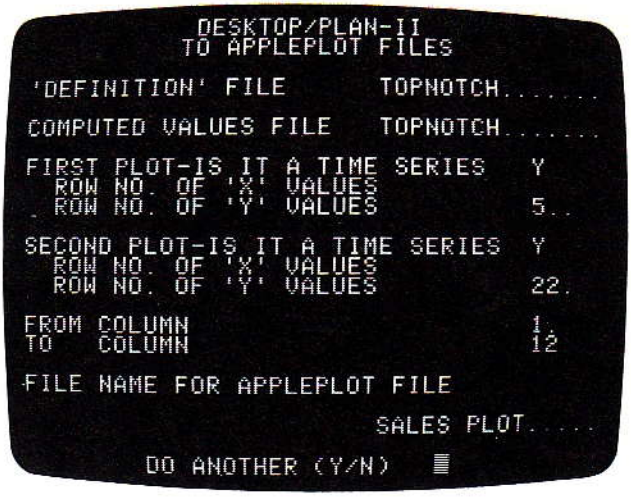
There are several minor constraints on the VisiCalc file to be converted.

All column widths must be 9 characters.

The first column to be converted to row descriptions MUST NOT be indented.

The first column of numerical values should be contiguous to the last column of row descriptions.

Exhibit 12-d -- Converting to Apple Plot Files



Convert PLAN to Apple Plot Files

DESKTOP/PLAN-II provides the capability of converting rows of values contained in Computed Values files to the format required by Apple Plot.

Thereafter, the user can use these files with the Apple Plot RECALL DATA FROM DISK function.

During a single execution of this utility on a single Computed Values file, an unlimited number of Apple Plot files can be created.

After a file has been written with two "plots," the system prompts, "DO ANOTHER (Y/N)," as illustrated in Exhibit 12-d.

Operation of this utility is very simple. Merely respond to the questions.

The question, "IS IT A TIME SERIES" will normally be answered "Y" when converting DESKTOP/PLAN-II Computed Values. Apple Plot provides a capability of plotting X and Y coordinates. For each "data point" this requires two values.

If Computed Values to be plotted are monthly values, then the column number (month) will automatically be used if the plot is specified as a "time series."

Initialize a Data Diskette

Diskettes on which DESKTOP/PLAN•II files are to be recorded must be "initialized" before files can be recorded.

The initialization process creates space for a catalog of the files recorded on the diskette. All other space is set to "zero."

Initialization on a Two Drive System

If DESKTOP/PLAN•II is being operated on a 2 drive system, Function 5 of the Utilities Sub•Menu will cause this to be done automatically.

The user will be instructed to put a "blank" diskette into drive two. Thereafter, the user must verify that the diskette in drive two is to be initialized by typing "Y" followed by RETURN.

If any other response is made, the user is returned to the Main Menu.

When the initialization process is complete, the user is returned to the Main Menu.

Initialization on a One Drive System

If DESKTOP/PLAN• II is being operated on a 1 drive system, follow the following procedure:

1. Boot the system with a DOS 3.3 System Master.

2. When the "]" prompt appears on the display type:

```
NEW
10 REM
INIT DESKTOP/PLAN•II DATA FILES
```

3. When the "]" prompt reappears, the process has been completed.

4. Remove the diskette, reinsert it, and type

```
CATALOG
```

5. A catalog of the newly created directory with one file, DESKTOP/PLAN•II DATA FILES, should be displayed.

A Suggestion

It is suggested that at lease one initialized diskette more than is currently being used for model files be readily available.

If the system detects a "disk full" condition while trying to write files to a diskette, the user will be given one opportunity to put an initialized diskette in the disk drive and record the file on the replacement diskette.

Catalog of Data Diskette

Selecting Function 6 from the Utilities Sub-Menu causes a catalog of the file names of all files stored the disk drive currently specified for DESKTOP/PLAN- II data files to be displayed on the video display.

If there are more files on the disk than can be listed on the screen, the system will stop when the screen is full. The user may see a listing of the remaining file names by pressing the "space bar."

Return to the Main Menu

The user may return to the Main Menu from the Utilities Sub-Menu by selecting Function 7 or by pressing CTRL/Q.

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SECTION 13

Errors

Types of Errors

Ideally, no one would ever make errors either in operating a system or in writing programs that make up a system.

However, seldom is the world ideal. DESKTOP/PLAN*II has built into it a error testing and processing to assist the user in recovery.

Several types of errors are tested for:

1. Errors in entering information into DESKTOP/PLAN*II.

2. A file specified by the user is not present on the specified diskette.

3. The diskette specified to receive a new file does not have enough space to hold the file.

4. Program Errors in a program that is being executed by DESKTOP/PLAN*II.

The remainder of this section discusses how each of these errors is processed and the corrective action to be taken by the user.

(The execution of Function 6, Plot Graphs, is an exception. Except for input errors, any error causes the system to immediately return to the Main Menu.)

Input Errors

Errors found by the system as the result of the user typing too many characters or numerical values outside of an allowable range are found by the system.

When this occurs several things happen:

1. The Apple "beeps" at the user.
2. A flashing message describing the error is displayed on the bottom line of the video display.
3. The invalid entry is erased from the prompt line.
4. The user is prompted to re-enter the information.

No File Present

A "no file present" error is generated when DESKTOP/PLAN-II is unable to find a file specified by the user on the specified disk drive.

This error could be caused for any one of several reasons:

1. A file name has been incorrectly specified.

2. The disk drive on which the files are located has been incorrectly specified.

3. The user has put the wrong data diskette into the the specified drive.

4. The data diskette has a "write protect tab" on it. This must be removed before the system can use files on the diskette.

When a NO FILE PRESENT error is encountered, DESKTOP/PLAN-II automatically displays the screen illustrated in Exhibit 13-a.

After noting the information displayed regarding file names and specified disk drive, pressing the RETURN key will automatically cause a catalog of the file names on the disk in the specified drive to be displayed.

Thereafter, the user will be returned to the Main Menu.

Exhibit 13-a
Illustration of FILE NOT FOUND Display

Exhibit 13-b -- DISK FULL Display

Disk Full

Any time that DESKTOP/PLAN-II tries to write one of the four types of model files and there is not enough space on the diskette in the specified disk drive, a DISK FULL error is generated. Exhibit 13-b illustrates the screen displayed when this occurs.

The user is given one opportunity to save the file to a different diskette.

Because the user gets only one chance to recover, it is strongly recommended that at least one "initialized" diskette with no files on it be kept available for such an emergency. The facility to automatically initialize diskettes is provided for a 2 drive system as Function 6 on the Utilities Sub-Menu. These should be initialized before entering Model Definition, Planning Values, or Calculation Rules files.

After the file is written to the new diskette, the user will be prompted to put a standard DOS 3.3 diskette in drive one. Thereafter the system will be re-booted.

Before proceeding with any further execution of DESKTOP/PLAN-II, the user should take whatever actions are necessary to get the newly saved file onto the proper diskette for further DESKTOP/PLAN-II execution.

This will include deleting "old" files from the "full" data diskette before transferring the new file back to it or moving Model Definition, Planning Values, and or Calculation Rules files to the new diskette.

The required file movements can be accomplished with Function 2 of the Utilities Sub-Men or with the DOS 3.3 FID utility.

Program Errors

Program Errors are errors in the programs of DESKTOP/PLAN-II of such a catastrophic nature that the system cannot proceed.

They can come from one of two sources:

1. Errors in the program code supplied on the DESKTOP/PLAN-II program diskette.

2. Errors in the program code written as a Custom Rules and inserted by a user into the EXECUTE function.

If the error occurs in the EXECUTE function and is between program line numbers 11000 through 30000, it was caused by a Custom Rule. The cause of the error is indicated by ERROR TYPE code. ERROR TYPE codes may be determined by reference to the Applesoft and DOS 3.3 manuals.

The information displayed should be noted.

When the user presses RETURN, the system will be re-booted.

If the error occured during execution of a Custom Rule, the user will have to correct the error while operating under control of DOS 3.3.

Before re-booting, put the DOS 3.3 System Master into drive one.

DESKTOP/PLAN-II has been extensively tested and has "no known" errors. However, we have no illusions that there are absolutely no program errors in the system.

Thus, if the error is in other than a user entered Custom Rule, please advise Personal Software Inc. as soon as possible with the information which is displayed on the video display.

SECTION 14

Appendices

Quick Reference
Model Development/Execution Cycle

The following is a list of the normal events from the development of a new model through the second iteration of execution of the model using DESKTOP/PLAN-II.

1. Layout the desired report format on blank sheet of paper.

2. Enter the 'Model Definition' using Function 1.

3. Print a 'blank' report using Function 5. Specify NONE as the name of Planning Values file.

4. Write the initial values, assumptions, & constants on the blank report as "Planning Values."

5. Enter the Planning Values into DESKTOP/PLAN-II using Function 2.

6. Print a report with Planning Values using Function 5.

7. Write a narrative of the calculations required on the printed report of Planning Values.

8. Enter the Calculation Rules using Function 3. Print a list of Calculation Rules using Function 5 of "Enter Calculation Rules" sub-menu. Save these rules using Function 6 of the sub-menu.

9. Execute Calculations using Function 4. When Calculation Rules have been executed choose the option of printing a report.

10. Check out the results on the printed report.

11. After checking out the results on the printed report, if changes are necessary, make the changes by selecting Function 1, 2, or 3.

12. Re-execute the model with either Function 2 or Function 4.

Quick Reference
Planning Values Entry

When entering Planning Values and the prompt is "COMMAND" the following keys cause the action described below:

I key moves the data pointer up one line.

M key moves the data pointer down one line.

J key moves the data pointer left one column.

K key moves the data pointer right one column.

P key prompts for the first row of a new "page" to display.

C key prompts for the first column to display.

The "RIGHT ARROW" key "copies" the value in the column immediately to the left of the data pointer to the column of the data pointer.

Any NUMERICAL DIGIT, the MINUS SYMBOL (-), or the DECIMAL POINT (.) causes the key pressed to be displayed and a prompt for "NEW VALUE."

ESC key erases any value currently being entered and displayed on the prompt line and immediately returns the user to the COMMAND prompt.

Q key causes the prompt "ARE YOU SURE?" If the user responds "Y" and RETURN, the user has exited the data entry mode. Any other response returns the user to the data entry mode with the prompt "COMMAND."

Quick Reference
System Operations Summary

MENU FUNCTION SELECTION:

Functions are selected from the various menus used by the system by typing the numerical digit representing the users selection and pressing RETURN.

DEFAULT FILE NAME:

The user may save a significant amount of typing by setting a "Default File Name" using the Change System Configuration function of the Utilities Sub-Menu. Thereafter, when prompted for a file name, pressing the RETURN key automatically types the Default File Name.

If the user types a file name in response to a prompt rather than using the Default File Name, the default is changed to the newly typed name until the user returns to the Main Menu.

PROMPTS FOR YES OR NO RESPONSES:

Any time the user is prompted for a "Yes" or "No" response, the user responds by pressing "Y" or "N" followed by the RETURN key.

Alternatively, if the user desires a "Yes" response the RETURN key may be pressed for a "Yes" response in all but two cases.

ESC KEY:

Pressing the ESC key has an effect while operating only two parts of the system.

When a graph is displayed on the video display, the user will be returned to the Plot Menu.

When entering a Planning Value, the user may "back out" the entry by pressing ESC.

CTRL/Q:

Pressing the "Q" key while simultaneously holding down the "CTRL" key whenever the user is being prompted for an entry will cause the system to return to the Main Menu.

CTRL/Q, when entered from the Main Menu, will cause the system to exit from DESKTOP/PLAN and prompt the user to insert a standard DOS 3.3 diskette. Thereafter, when the user presses RETURN, the system will be re-booted.

CTRL/C:

CTRL/C, pressing the "C" key while holding down the "CTRL" key, should only be used to interrupt printing of reports, Calculation Rules, or graphs.

DESKTOP/PLAN-II will ignore CTRL/C if typed while prompting for input.

If typed at any other time, DESKTOP/PLAN-II will treat CTRL/C as an error, returning the user to the "error handling" process.

Contents of Program Diskettes

The following discussion is useful primarily for Apple II and Apple II Plus users with only ONE Disk II drive.

Exhibit 14-a is a "catalog" of the files recorded on the DESKTOP/PLAN-II program diskette.

The diskette contains several types of files. They are:

1. Program files of DESKTOP/PLAN-II.

2. A sample model, TOPNOTCH. There are four files for TOPNOTCH.

3. Two files contain information regarding the configuration of the Apple II and report printing specifications.

4. "System Software" which may be necessary to operate DESKTOP/PLAN-II depending on the equipment configuration.

Of the available 560 sectors on a "16 sector" diskette provided for by Apple DOS 3.3, the space is used in the following manner:

1. 433 Sectors are used by DESKTOP/PLAN-II programs and required configuration files.

2. 90 Sectors are used for the TOPNOTCH model.

3. 2 Sectors are used for a file named DRIVER. This file is used only if the user has a printer attached through an Apple Communications Interface card.

4. 50 Sectors are used for a file named FPBASIC. This file is used only if the user has an Apple II (not an Apple II Plus), an Apple Language System, and Integer BASIC in ROM.

5. 37 Sectors are unused and available for DESKTOP/PLAN-II file storage.

If the user has a single drive system and is storing DESKTOP/PLAN-II files on Drive 1, the following files may be removed for model storage spaces:

1. If a printer is not attached through an Apple Communications Interface Card, the file named DRIVER may be removed.

2. If the user has an Apple II Plus or an Apple II with an Applesoft card, the file FPBASIC may be removed. If the user has an Apple II with a Language System, Applesoft BASIC must be executed from the Language System. The file FPBASIC must not be removed.

3. The four TOPNOTCH model files.

To remove a file, first "boot" the system using a DOS 3.3 System Master diskette. When this is completed the user will have a "]" prompt on the left margin of the video display.

Replace the "System Master" with the DESKTOP/PLAN-II program diskette.

Then type:

UNLOCK "filename"

DELETE "filename"

for each file to be deleted.

If FPBASIC, DRIVER, and the four TOPNOTCH files are removed there are 179 sectors, approximately 32%, available for DESKTOP/PLAN-II model files.

Exhibit 14-a
Catalog of DESKTOP/PLAN-II Program Diskette

```
 CATALOG

DISK VOLUME 254

*A 008 DESKTOP/PLAN-II
*A 002 COPYRIGHT 1980 DON WILLIAMS
*A 002 HELLO
*I 005 APPLESOFT
*B 050 FPBASIC
*B 003 CHAIN
*B 002 DRIVER
*B 011 CHSET
*A 037 MENU
*A 020 DEFINE
*A 021 VALUES
*A 052 RULES
*A 026 EXECUTE
*A 022 PRINT
*A 022 PLOT
*A 015 CONSOLIDATE
*A 010 SETPARM
*A 015 BACKUP
*A 009 AP CONVERTER
*A 016 VC CONVERTER
*A 003 INITIALIZE DRIVE#2
*A 012 ERHNDLR
 T 002 PARAMETERS
 T 002 PPARMS
 T 006 TOPNOTCH.D
 B 039 TOPNOTCH.I
 T 006 TOPNOTCH.R
 B 039 TOPNOTCH.C

]
```

Equipment Configuration Required

DESKTOP/PLAN-II has been designed to operate with the following minimal configuration:

1. An Apple II Plus
   or
   An Apple II with Applesoft Card and Auto Start ROM
   or
   An Apple II with Language System

2. A minimum of 32k of RAM memory

3. A minimum of one Disk II disk drive

4. A video display device

Optionally, DESKTOP/PLAN-II will use an additional 16K of RAM, a second Disk II drive, and a printer.

Thus, an optimal system will include 48K of RAM, two Disk II disk drives, and a Qume Sprint 5 letter quality printer.

DESKTOP/PLAN-II has been tested with a wide variety of printers and printer interfaces. However, it is physically impossible to test the system with all possible configurations of printers and interfaces. Thus, we strongly recommend the use of one of the following interfaces as we have tested the system extensively with each:

1. Apple High Speed Serial Interface

2. Apple High Speed Serial Interface with P8A proms

3. Apple Communications Interface

4. Apple Parallel Interface

Executing DESKTOP/PLAN-II on a Corvus Disk Drive

DESKTOP/PLAN-II has been designed to be operated on an Apple equiped with a Corvus disk drive.

The Corvus provides up to 10 million characters of storage, approximately 82 times the capacity of a 5 1/4" floppy diskette. Additionally, program loading and data file access and reading is significantly faster when using the Corvus.

Because the DESKTOP/PLAN-II program diskette cannot be copied, it will be necessary to conclude a special license agreement, at an additional cost, for a version which can be loaded onto the Corvus drive.

Information concerning these arrangements can be obtained by contacting:

Personal Software Inc.
1330 Bordeaux
Sunnyvale, CA 94086

List of Exhibits

Maximum Model Sizes

The following is a list of the maximum number of rows and columns that DESKTOP/PLAN-II will accept for a model:

COLUMNS	ROWS
1	300
2	300
3	300
4	300
5	300
6	300
7	300
8	300
9	300
10	270
11	240
12	220
13	200
14	190
15	180
16	160
17	150
18	140

AA11T

REPLACEMENT POLICY

DESKTOP/PLAN-II is supplied on a diskette which cannot be copied with commercially available COPY programs.

An additional copy is included to be used as a backup in case the original diskette is destroyed.

If during the first (1st) year after the date of purchase, a defect in the diskette should occur, the diskette may be returned to Personal Software Inc. and Personal Software Inc. will replace the diskette for $20.00, provided you have previously sent in your Registration/Warranty Card to Personal Software Inc. or send proof of purchase with the diskette. Your sole and exclusive remedy in the event of a defect is expressly limited to the replacement of the diskette as provided above. To provide proof that you are the original purchaser, please complete and mail the attached Registration/Warranty Card to Personal Software Inc., 1330 Bordeaux Dr., Sunnyvale, CA 94086 within ten (10) days of the date of purchase.

PERSONAL SOFTWARE INC.
1330 Bordeaux Drive, Sunnyvale, CA 94086