

Snap-Calc™

The spreadsheet program is a handy tool for doing many financial calculations simultaneously. Its inherent versatility turns a computer into a super "What if..." machine. Using very simple commands, you can easily customize a spreadsheet for your own applications. These could include tracking your investments, evaluating alternative purchase options, calculating your company payroll, or tabulating accounts receivable. Snap-Calc™ is such a spreadsheet program written in BASIC.

The Snap-Calc™ spreadsheet itself is a matrix of numeric values. After you have entered values into the program, it will execute calculations that you have previously specified, and display the results through screen windows.

With Snap-Calc™ you will be able to create a formula for each row of the matrix. This same formula will then be used for all of the columns. You may also create names for each of the rows, and indicate which rows are to be included in the printed reports. (You may want to use certain rows to calculate other data.) In addition, you can specify the number of columns the spreadsheet will have, and set up a totals column which sums all columns used. The photo at the right is an example of the data entry screen.

DATA ENTRY IS A SNAP

To make an entry in any field, simply move the cursor to the field that you wish to change and type in the new value. A second set of cursor keys lets you move three columns left or right, or five rows up or down at one time. Not only is the screen updated with every key press, but the current value on the screen is stored in the spreadsheet. You can leave that entry field at any time, and the value displayed will be saved automatically.

LOGIC ENTRY MODE

When you select this mode, the screen will clear and a prompt > will appear at the bottom of the screen. At this point, you can enter logic commands. These commands will let you specify the totals column and last column in the spreadsheet. You can also assign a logic name to your model, as well as row labels. The

534.

184.

268.2

174.2

2613.5

336.12

1738.83

725.65

364.97

133.82

3.76

7.84

3.97

7.24

3.20

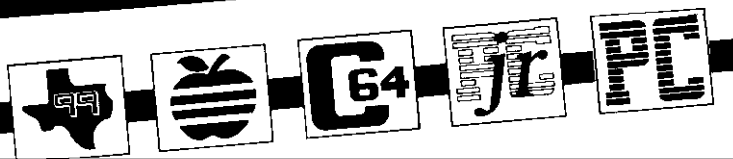
3.73

3.55

3.87

.65

.63



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most powerful aspect to this option is that it lets you define equations for any of the rows in the spreadsheet. (See **r = eq** below.)

Two types of commands are used in this option: immediate action commands, and logic function commands. The immediate action commands are as follows:

NEW When this command is used, the memory will clear and you will be prompted to enter one of four suboptions. If you select Data, then all of the data entered on the spreadsheet will be cleared. If you select Logic, your current logic model will be erased from memory. If the third suboption—Both Data And Logic—is selected, both data and the logic model will be cleared from memory. The fourth suboption, Abort New Command, is an escape which allows you to return to the normal logic entry screen without clearing any memory.

ROW NAME	1	2
1 COST 1	10.00	20.50
2 COST 2	25.00	35.75
3 COST 3	37.15	12.00
4 TOTAL COST	72.15	68.25
5 5	0.00	0.00
6 6	0.00	0.00
7 7	0.00	0.00
8 8	0.00	0.00
9 9	0.00	0.00
10 10	0.00	0.00

This command should not be confused with the BASIC command NEW, which erases the program in memory. Exercise caution when using this command. Always save your data and logic model to disk first.

LIST This command will list the logic model on the screen. The first item listed is the logic name. If no logic name has been assigned, then the message LOGIC NAME IS with no name following it will be printed.

TOTAL COLUMN IS col is always on the second line; here col is the totals column. If col is set to 0, then the totals column has been turned off. The default value for the totals column is 13.

LAST COLUMN IS col is always the next item listed and col is the last column in

which data entry can occur. This value must always be less than the total column value. The default for this value is 12.

From this point on, the information listed is determined by the logic commands that you have entered into the model. If you created a row label for a row, the message **r IS nnn** will list, where r is the row number and nnn is the name of the row. Even if you entered the row name in the data entry section of the program, it will be displayed here. Following the row name will be all equations defined for that row. The message **r = eq** will list, where r is the row number and eq is the equation for that row.

PRINT This command performs the same functions as the LIST command except that the output is directed to the system printer.

MOVE xx TO yy This command allows you to move all of the data from column xx into column yy. You would then have duplicate entries—the information in column xx is not erased after the transfer.

END This command will cause you to exit the Logic Entry mode and return to the Data Entry mode. You may at any time return to Logic Entry mode and append changes to your logic model.

The following logic function commands affect the logic model itself:

LOGIC NAME IS nnn This command lets you create or change the name of the logic model, where nnn is the name of your logic. LOGIC NAME IS SAVINGS, for example. The name you assign to your logic model will be used as the file name when you save your model to disk or tape.

TOTAL COLUMN IS col

or
TOTAL COLUMN IS OFF This command lets you create or change the column that you want to use as your totals column. If the Off option is used, then the totals column will be set to zero and will not be calculated when the logic model is calculated.

LAST COLUMN IS col This command creates or changes the last column in which you will be able to enter data.

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Logically, this should be the column just before the totals column (if the totals column is in use), because you may not move your cursor beyond the **LAST** column when entering data. If the totals column is several columns beyond that point, you may not be able to display it on the screen.

The only restriction in designating the last column is that it must be a lower column number than the totals column, unless of course the totals column is turned off. In that case you can make the last column any value your machine will allow. The computer system you use will determine the maximum number of columns available.

r IS nnn This command is used for naming any of the rows in the spreadsheet. The row number is *r* and *nnn* is the name you assign to the row. An example might be: **3 IS ROW#3**, where the name **ROW#3** is given to row number 3.

r = eq This is by far the most powerful of the logic model's commands. It lets you assign an equation *eq* to a row *r*. The equation can be made up of other row numbers; real numbers called constants; an operator called **LAG**, which lets you access a previous column; or arithmetic operators. Rules for constructing the equation are as follows:

(1) A row can be specified by simply using the row number in the equation. For example **5 = 1 + 2** means that the value from row 1 is to be added to the value in row 2 and the total is to be placed in row 5. This same equation format is then used for all of the columns in the spreadsheet. Notice that there are spaces between each item. This is a requirement of the system so that the computer can decipher it easier, and execute it more quickly.

(2) A real number can be used as a constant in the equation when placed within parentheses. Taking the example from the previous paragraph, let's try: **5 = 1 + 2 * (12.53)**. The equation will now take the sum of row 1 plus row 2 and multiply it times 12.53. There is no priority of multiplication over addition—everything is executed from left to right. Rows 1 and 2 are added together before the sum is multiplied by 12.53.

You can use data from the previous column with the **LAG** modifier. When this modifier precedes a row number, the information will come from the same row number, but from the previous column. For example: **5 = 1 + LAG 2**. Here row 1 from the current column will be added to row 2 from the previous column. If the column currently being calculated is 8, then **LAG 2** would cause the value from column 7 row 2 to be used. If you set up an equation such as: **5 = LAG 2**, then the value of the previous column, row 2 would be placed in row 5. In another example, **5 = 4 + LAG 5**, a running total for row 4 would be created in row 5.

There are four operators that you can use in your equations. They are:

- +** Add.
- Subtract.
- *** Multiply.
- /** Divide.

The length of an equation is limited only by the maximum string length for each system. There are minor differences in how the equation is to be entered on each machine, so consult the *Snap-Calc*™ section which covers your machine.

Once you have entered one of the above logic function commands, you can use the **LIST** command to check whether the command has been received and interpreted properly, or to simply check logic statements that have already been entered.

CALCULATE MODEL

When the key for the Calculate Model function is pressed, the computer will begin calculating your logic model using the data currently entered on the spreadsheet. All of the equations for each row will be executed in ascending order of row number. For example, if an equation in row 3 uses the result of an equation in row 5, you may have a problem. Because you can't enter data into a calculation field, field number 5 will probably be set to zero and will not contain the proper information when row three does its calculation. You should design your logic model with this in mind.

In addition, Calculate Model provides an automatic row total in the totals column. The totals column defaults to column 13 when the program is first run, but you may move it to a different column, or turn it off completely using logic model statements. If the totals column has been turned off with a logic statement, then the row total will not be calculated.

LOAD DATA FILE

When you select the Load Data File option, a menu of three suboptions will prompt you for the type of file to be loaded. The first suboption loads the data file only, which contains the data that has been entered into your spreadsheet. Select the second suboption if you wish to load the logic model. The third suboption lets you load both data and the logic model in one step. Once you have entered your file type, you will be prompted for the file name of the file you requested. The name you enter must reside on the data disk currently in the drive, or on a cassette tape.

SAVE DATA FILE

The primary difference between the Save Data File and the Load Data File options is in creating file names. If you choose to save the logic model in either the Load Logic Only, or Load Data and Logic modes, the file created for the logic model will use the **LOGIC NAME** as the name of the file. This is important to keep in mind so that when creating a logic name you only use characters that are legal in the file system being used. If the logic name has not been declared, then you will be prompted for the name of the file. That name will then become the logic name for that model when loaded at a later time. If you no longer want to keep a logic name, or wish to create a modified version, a logic name can be changed at any time.

CLEAR FIELD/ERASE

The Clear Field and Erase option can be used to back out of an entry and clear the field, or to simply reset a field back to zero. To use this function, place the cursor over the value that you wish to set to zero and press the key associated with this function. If the field is numeric, it will be redisplayed with a value of zero. If the field is a row label, it will be erased and left blank. Erasing a label from a row does not affect the rest of the row, or any equations set up for the row.

PRINT REPORT

The Print Report option allows you to generate a hard-copy report of your spreadsheet data on your system printer. Before the program starts printing, you will be prompted for the title of the report, the date, and the maximum number of rows to be printed in the report. The report generated here is formatted for an 80-column printer. This limitation restricts the report to printing only six columns of data across the page. Since there are more than six columns in most spreadsheets, the report will print all of the rows for the first six columns, then form feed to the top of the next sheet of paper and print the next six columns. This continues until all of the columns have been printed. The report will include every column up to the column designated as the totals column (or the column designated as the last column, if the totals column is turned off).

An asterisk (*) as the first or only character in a row name will prevent that row from being printed in the report. This allows you to "pretty up" your report by not printing rows that contain intermediate data for calculations. You may want to print only a summary report, and not a detailed report on every row in your spreadsheet.

EXIT

If you want to exit any of the programs, you can do so by pressing the exit key for your machine, as described in the text for each computer. The Exit option allows you to back out and return to the data entry screen—but you will first be prompted with a message inquiring whether you want to halt the program and lose any data currently in memory.

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