

FinalCalc.hyper

Khalid Aldoseri

Copyright © Copyright 1995-1996 Khalid Aldoseri

COLLABORATORS

	<i>TITLE :</i> FinalCalc.hyper		
<i>ACTION</i>	<i>NAME</i>	<i>DATE</i>	<i>SIGNATURE</i>
WRITTEN BY	Khalid Aldoseri	January 17, 2023	

REVISION HISTORY

NUMBER	DATE	DESCRIPTION	NAME

Contents

1	FinalCalc.hyper	1
1.1	Tool Kit...	1
1.2	Text Import...	1
1.3	Text Export...	4
1.4	Search & Replace...	5
1.5	Fill Range...	8
1.6	Regression Analysis...	8
1.7	Sort Range...	10
1.8	Change String Case...	10
1.9	Converting String Cells to Numeric, Date or Time Cells...	11
1.10	Markers...	11
1.11	The About Requester...	12

Chapter 1

FinalCalc.hyper

1.1 Tool Kit...

Tool Kit:

- >
Text Import
- >
Text Export
- >
Search & Replace
- >
Fill Range
- >
Regression
- >
Sort Range
- >
Change String Case
- >
Converting String Cells to Numeric, Date or Time Cells
- >
Markers
- >
The About Requester

1.2 Text Import...

Text Import:

Import Text reads a text file and imports it into the current sheet starting with the current cell. In its basic operation mode, each line from the source file is stored as a single cell starting at the current row.

FinalCalc can also break each line from the source file into multiple fields that are stored in multiple cells across a row. This is done by defining the Field Delimiter (as described below).

If a range is highlighted before the Text Import is started, the import operation is limited to that range and any overflow beyond the range will be ignored.

To perform a text import, first define what the source file's contents look like (as described below) and then use the 'Project - Text - Import' menu. A file requester will come up asking you to select the text file to import.

During the import, FinalCalc shows a status window with the number of fields and lines imported so far.

After the import is done, if the imported file is larger than the User Movement Limits, the limits are expanded to the size of the imported file.

If you attempt to Load or Open a text file, FinalCalc recognizes that it is a text file and asks whether you like to import it. If you answer yes, the file will be imported using the current Text Import Settings.

Text Import from Clipboard:

The 'Project-Text-Import from Clipboard' menu imports the system clipboard contents using the current Text Import Settings starting at the current cell.

Text Import from Clipboard strips all ANSI/ISO escape sequences from the source text so that they don't mess up the imported text.

Text Import Settings:

The Text Import Settings requester allows you to control how the Text Import works. It is called by the 'Project - Text - Import Settings' menu and has the following settings:

Field Delimiter:

The Field Delimiter defines what character is used to break a line from the source file into separate fields. This can be one of the following:

None:

No fields are allowed. The entire line is always stored as a single cell.

Column Width:

The line is broken into fields based on the width of the columns in the sheet that they will be imported into.

New Line:

Carriage Return character or a Line Feed character separates fields.

Tab:

A single tab to separate fields.

ASCII:

A user-defined ASCII character (a number from 0 to 255).

Character:

A user-defined character. (any printable character)

Line Delimiter:

The Line Delimiter defines what constitutes a 'line' when importing. This can be set to one of the following:

Line Feed:

A Line Feed character.

Return:

A Carriage Return character.

New Line:

Either a Line Feed or a Carriage Return character.

of Fields:

No line delimiter is used. The user instead defines how many fields exist in each 'record'.

ASCII:

A user-defined ASCII character (a number from 0 to 255).

Character:

A user-defined character. (any printable character)

Parse:

When a field is being stored in a cell, it is normally stored as the exact string contents found in the source file. FinalCalc can, however, store it as a number, date or a time cell if the Parse Numbers, Dates or Times options are used:

Numbers:

If the field looks like a number, it is stored as a number, otherwise it is stored as a string.

Dates:

If the field looks like a date, it is stored as a date, otherwise it is stored as a string. The valid date format includes any direct date string (e.g. "12 jan 94") or indirect date string (e.g. "next monday").

Times:

If the field looks like a time, it is stored as a time, otherwise it is stored as a string.

If more than one of the Time, Dates and Times parse options are used, FinalCalc first tests for time, then date, then numbers.

Strip Spaces:

When a field is being stored in a cell, FinalCalc can strip the spaces in that field before storing it if you turn on any of the following options:

Leading:

Strips all leading spaces in the string.

Trailing:

Strips all trailing spaces in the string.

Multiple:

Converts multiple spaces in the string to one space.

(e.g. "this is a test" is stored as "this is a test")

Fields To Import:

FinalCalc can selectively import fields from the source file. For example, you can import only the third, 7th and 9th fields from the file by entering "3,7,9" in the Fields To Import string gadget. You can use the '-' character to define a range of numbers. (e.g. 1,3-7,11)

Field Order:

FinalCalc can modify the order of the fields as it imports the file. For example, if you enter "1,3,2" in the Field Order gadget, the first field will be stored in the first column, the second field will be stored in the third column and the third field will be stored in the second column. You can use a 0 to skip an entry, e.g. "1,0,2," will import fields 1 and 2 into columns 1 and 3. You can also use the '-' character to define a range of numbers. (e.g. 1-3,4,7-10)

1.3 Text Export...

Text Export:

Text Export allows you to export the current sheet's cells or a range from the current sheet as a text file with (or without) delimited fields and lines.

To export range of cells, define how you want to export the data (as described below), then highlight the cells as the current range (if no range is selected all of the current sheet is exported) and then use the 'Project - Text - Export' menu. You will get a file requester asking you the name of the file to export to.

Text Export to Clipboard:

The 'Project-Text-Export to Clipboard' menu exports the current cell or range as text using the current Text Export Settings to the system clipboard.

Text Export Settings:

The Text Export Settings requester allows you to control how the Text Export works. It is called by the 'Project - Text - Export Settings' menu and controls the following settings:

Field Delimiter:

The Field Delimiter defines what character is used to separate cells from a single line as they are saved to the output file. This can be one of the following:

None:

No field delimiter is used. All cells are simply concatenated into one line with no separators.

Tab:

A single tab is used to separate fields.

ASCII:

A user-defined ASCII character (a number from 0 to 255).

Character:

A user-defined character. (any printable character)

Line Delimiter:

The Line Delimiter defines what character is used to separate lines as they are saved to the output file. This can be one of the following:

None:

No lines delimiters are generated.

Line Feed:

A Line Feed character is used to separate lines (default mode).

ASCII:

A user-defined ASCII character (a number from 0 to 255).

Character:

A user-defined character. (any printable character)

1.4 Search & Replace...

Search & Replace:

The Search tool allows you to search for a specific string or number in the current project, and optionally replace a string with another string.

The main access point to the Search tool is the 'Set Search Paramters' requester, which is called by the 'Actions - Search - Set Search' menu (or the Amiga-G hotkey).

Search Modes:

The Search tool has three basic modes:

String Search:

Does a string search for a specific string in the search area (as defined below). Also allows for a string search and replace in strings cells and formulas.

Numbers Search:

Searches for a specific number (exact match, more than number, less than number or between two numbers) in numeric and formula cells in the search area.

Dates Search:

Searches for a specific date or any date that is after a date, before a date or between two dates in date format cells and formulas in the search area.

Search Type:

The Search Type setting defines how the search works:

Use Wildcards:

This only affects String searches. By default, the search looks for the Locate string anywhere in the cell's text. If you turn on the 'Use Wildcards' option, this has two effects:

- The match has to be exact. The cell text must be identical in length to the Locate string for a match to be made.
- You can use wildcards to define the Locate string.

Wildcard searches are not available during Search & Replace.

Case-sensitive:

This only affects String searches. By default, the search does not care about the case of the letters in the strings when comparing them. If you turn this option on, the letters must match in case for a match to be successful.

Backwards:

If this option is turned on, the search will start from the end of the project and go backwards.

Search & Replace:

Turns on the Search & Replace mode as described below.

Search Area:

The Search Area is the area the search is performed in. It defaults to all cells in the current sheet, but can be modified as follows:

All Sheets:

If this is turned on, FinalCalc scans all the sheets in the current project, otherwise it is limited to the current sheet only.

Search Limits Range:

Limits the search to a specific range. (It can be a 3D range across multiple sheets)

Search Commands:

Once the Search Parameters have been set, the following commands are used to perform the search:

Start Search:

Commence the search at top left cell in the first sheet in the current Search Area. This can be done from the 'Set Search' requester by clicking on the 'Search' button, or via the 'Actions - Search - Start' menu.

Find Next:

Finds the next matching cell from the current cell. This is done by the 'Actions - Search - Find Next' menu (or the Amiga-N hotkey).

Find Previous:

Finds the previous matching cell from the current cell. This is done by the 'Actions - Search - Find Previous' menu (or the Amiga-< hotkey).

Show All Matches:

Scans the entire Search Area and then generates a report that shows all matching cells and some information about them. The report shows different information depending on the defined search parameters. Search & Replace is disabled during the search, so this does not affect the cells.

The report is kept in temporary storage as long as FinalCalc is still running. You can access previous reports by using the 'Tools - View Previous Reports' menu. This brings up a list of all stored reports allowing you to select the report to view.

Show All Matches is called from the 'Show All' button in the Set Search requester, or the 'Actions - Search - Show All Matches' menu.

Search & Replace:

Search & Replace is only available in String Search mode. When a match is found during any search command (except Show All Matches), the cursor is moved to that cell (so that its contents show up in the cell contents line) and then a requester will come up telling you it has found a match, asking you what to do. You can answer by one of the following:

Yes

Replaces all occurrences of the Locate string with the Replace string in the current cell and looks for the next match.

All

Continues Search/Replace for all cells from the current one without asking for confirmation.

Skip

Skips the current matching cell and looks for the next one.

Abort

Aborts the Search/Replace operation.

If you answered Yes or Skip, FinalCalc will continue searching and bring up the requester again when it finds a match.

Note that when doing search & replace on formulas, each formula is re-evaluated as it is replaced. It may be necessary, however, to do a full recalc after major search & replace operations with formulas in complex sheets

to make sure all 'damage' gets repaired. In all cases, you should know what you are doing before you do major search & replace on formulas.

Quick Search:

The Quick Search feature is called by the 'Actions-Search-Quick Search' menu or Alt-Q. It asks for something to search for. If you enter a string, it searches the current sheet for the string. If you enter a number, it will search the current sheet for that number. After that, you can use the normal Find Next and Find Previous to continue searching.

1.5 Fill Range...

Fill Range:

The Fill Range feature is called by the 'Edit-Fill-Range' menu item. It fills the current range with one or more cells that exist in the range.

Fill Range can fill a range with the contents of a row in the range, a column in the range, or a single cell in the range.

If the range selected is only one column wide, the range will be filled up/down with the first cell found in the range.

If the range selected is only one row high, the range will be filled left/right with the first cell found in the range.

If the range selected contains multiple rows and multiple columns, a requester will come up asking you to decide if you want to fill up/down, right/left or both directions. If you select up/down, the row with the most active cells is selected as the base row to duplicate into all other rows in the range. If you select left/right, the column with the most active cells is selected as the base row to duplicate into all other columns in the range. If you select both directions, the first cell found will be duplicated into the entire range.

1.6 Regression Analysis...

Regression Analysis:

You can do Multivariate Regression Analysis from within FinalCalc. This allows you to analyze a dependant variable compared to a set of independant variables to find the relationship between them.

To use this feature you need the following data:

1. A set of observations from the dependant variable. These should be set up as a single column of data in the sheet.
 2. One or more sets of observations from the independant variables. These should be set up as one or more columns of data in the sheet, preferably right next to the dependant variable.
-

Next, highlight set #2 above with the range (not required, but makes things much easier to enter), and use the 'Tools - Regression' menu to call up the 'Multivariate Regression Analysis' requester.

If you had a range highlighted, the requester will be filled in with the following details:

Independant Variables Range:

The current range

Dependant Variable Range:

Column to left of current range

Coeffecients Output Range:

Row below the current range

Estimated Y Output Range:

Column to left of Independant Variables range

Analyses Output Range:

2 columns to the right of the current range

You can change the above as you like. If the sizes or positions are invalid you will get a requester informing of that when you start the regression.

When you're done just hit the 'Analyze' button and the regression will be performed.

Basically the result you will get in the Coeffecients Output Range is a description of the relationship between Y (dependant variable) and X_k (independant variables) in the form of a set of coeffecients (b):

$$Y = b_0 + b_1 X_1 + b_2 X_2 + b_3 X_3 + \dots + b_k X_k$$

(where k is the number of independant variables X)

The Estimated Y Output range will contain estimates of what Y should be based on the the independant variables for each observation.

The Analyses Output Range contains a large set of detailed statistical analyses that are done on the data. The analyses performed are selected by the analyses selected for generating in the requester. These are:

a. Regression Analysis:

Calculates the value of R, R-squared, the F Value and F Significance, as well as the Y Mean value.

b. Variance Analysis:

Shows the Sum of Squares, Degrees of Freedom, Mean Square and Standard Error of Estaimes for the Regression and Residual.

c. Coeffecients Analysis:

Shows a detailed report of the result of the regression by showing the Intercept (shown above as b_0), and all intercepts (shown as b_1 to b_k above)

and their estimates, their standard error, the test for the hypothesis that the parameter is zero, and the significance of that test.

A full discussion is out of the scope of this document. You should be able to get a detailed discussion of Multivariate Regression in any good Statistics book.

You can also directly use Multivariate Regression in formulas via the REGRES() math function. See its entry in Appendix 1 for details.

1.7 Sort Range...

Sort Range:

The Sort Range tool takes a range of cells and sorts them into a specific order. The sort looks at the range as a number of records, each record being the cells in a single row in the range. Each record is treated as a single object, and is moved as one during the sort.

To use the Sort Range tool, highlight the range to sort and use the 'Tools - Sort Range' menu to bring up the 'Sort Range' requester.

When a sort is performed, the column (field) marked as the 1st sort key will be used to sort the data. If two entries are identical in the 1st sort key, the 2nd sort key is used to decide their order. If the 2nd key cannot do that, the 3rd key is used and so on. At worst, if they are identical in all 5 sort keys, their original order is preserved.

By default, keys are sorted in ascending order, (i.e. 'A' is before 'B'), but if you turn off this setting for a specific key, that key is sorted backwards.

The exact way two cells are compared uses the following logic:

- Comparing two string cells:
Sort order is ASCII based, non case-sensitive.
- Comparing two numeric cells:
Sort order is actual value of cells.
- Comparing a string to a numeric cell:
Numeric cell goes after string cell.
- Comparing an empty cell to a string cell:
Empty cell goes after string cell.
- Comparing an empty cell to a numeric cell:
Numeric cell goes before empty cell.

1.8 Change String Case...

Change String Case:

The 'Change String Case' tool changes the case of string cells to all uppercase, all lowercase, or to proper case.

To change a string's case, select the cell to change (or a range of cells) and then use the 'Actions - Change Case To' menu.

Proper case converts all the string to lower case, but capitalizes the first letter of each word. When changing to proper case, FinalCalc looks at each word carefully to decide where it should capitalize. It can handle strings of the following types:

10th
21st
I'm
He's
They've
Dr.
II
III
You
C.A.T.

1.9 Converting String Cells to Numeric, Date or Time Cells...

Converting String Cells to Numeric, Date or Time Cells:

This tool converts string cells to numeric, date, or time cells. Simply select the cell or range to convert, and use the 'Actions - Convert Strings to' menu.

a. Convert to Numeric:

If a string cell's contents look like a number, scientific number, currency or a percentage, it will be converted to a number otherwise nothing will be done to that cell.

b. Convert To Date:

If a string cell's contents look like a date, either a direct date string (e.g. "12 jan 1995") or an indirect date string (e.g. "next sunday") it will be converted to a date cell.

c. Convert To Time:

If a string cell's contents look like a time string, it will be converted to a time cell.

1.10 Markers...

Markers:

You can store the position of a cell or a range in a Marker. This allows you

to instantly recall that cell or range.

Each project can have up to 10 markers. To set a marker, simply select the cell or range and hit Shift-Alt-1. This will store the current cell or range into Marker 1. To recall Marker 1 at any time, hit the Alt-1 key. You can use the keys Alt-0 to Alt-9 for recalling markers and keys Shift-Alt-0 to Shift-Alt-9 for storing them.

(Note: use the actual keyboard keys and not the numeric pad keys)

To see the markers defined, use the 'Edit - Names - Edit' menu, which brings up the 'Edit Range Names' requester. This shows defined marker names as 'MARKER_x', which is how FinalCalc stores the markers. You can edit the definition of a marker like you would edit any range name.

1.11 The About Requester...

The About Requester:

The About requester is called by the 'Project - About' menu. It shows information about the program and the current project:

a. Program release number and version:

The FinalCalc release number, and the version (normal or FPU version).

b. ARexx Port:

The address of the ARexx port for the program. This is normally FCALC.1, but can be different if more than one copy of FinalCalc is running at the same time.

c. Memory usage:

This shows the total memory currently used by FinalCalc, and the total free memory in the system.

d. File:

The file name of the current project.

e. Active Sheets:

Lists the sheets in the current project.

f. Cells in use:

The total number of cells allocated in the current project.

g. Project memory usage:

The total memory allocated for use by the current project, and how much of that is actually in use.
