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A Macro that can Search and Replace String in your SAS Programs

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USERS PROGRAM



A Macro that can Search and Replace String in your SAS Programs

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ABSTRACT

- In this paper, a SAS macro is introduced that can search and replace any string in the SAS programs. To use the macro, the user only needs to pass the folder name, the search string to it. If the user wants to use the replacement function, the user also needs to pass the replacement string to the macro. The macro will check all the SAS programs in this folder and the subfolders to find out which files contain the search string. The macro will generate new SAS files for the replacement so that the old files will not be affected. An html report will be generated by the macro to include the original file locations, the line number of the SAS codes that contain the search string and the SAS codes with search string highlighted in yellow. If you use the replacement string function, the html report will also include the location information for the new SAS files. The location information in the html report is created with hyperlinks, so the user can directly open the files from the report.

INTRODUCTION

- Sometimes, we want to change some codes in the SAS programs, like a variable name has been changed and we need to update the programs. If we have a lot of SAS files and we don’t know which files contain the things we are looking for, it is time consuming to open each file, do the search and change. It will be nice if we have a tool available that can automatically do the work no matter how many SAS files we have. The macro presenting in this paper can do the search and replacement of any string in the SAS programs and create a user-friendly html report to access the information.

The SAS System		
location	sas_codes_line_no	sascodes
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp1.sas	37	%macro print_sudoku(dsn);
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp1.sas	87	%macro store_initial_values;
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp1.sas	102	%macro solve;
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp1.sas	150	%macro convert_to_dense(n);
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp1.sas	186	%macro print_piday(dsn);
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp1.sas	283	%macro cdata;
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp1.sas	297	%macro cons_row(r);
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp1.sas	304	%macro cons_col(c);
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp1.sas	313	%macro cons_region(vars);
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp1.sas	320	%macro pds(solns=allsolns,varsel=MINR,maxt=900);
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp1.sas	417	%macro pds_out;
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp1.sas	440	%macro magic(n);
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp1.sas	491	%macro convert_to_dense(n);
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp1.sas	508	%macro print_msq(dsn);
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp10.sas	237	%macro colorIndex(res_var=, proj=, palette=, out=);
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp10.sas	265	%macro fnLegend(tfact=1.75,h=10,xStart=5,rhs=100,nCol=,nRow=,
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp10.sas	310	%macro setPatterns(map);
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp11.sas	76	%macro colorIndex(res_var=, proj=, palette=, out=);
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp11.sas	103	%macro fnLegend(tfact=1.75,h=10,xStart=5,rhs=100,nCol=,nRow=,
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp11.sas	148	%macro setPatterns(map);
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp12.sas	25	%macro patterns();
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp12.sas	130	%macro pattern_sets();

The SAS System			
location	New File Location	sas_codes_line_no	sascodes
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp1.sas	C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\in_clp1.sas	37	%macro print_sudoku(dsn);
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp1.sas	C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\in_clp1.sas	87	%macro store_initial_values;
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp1.sas	C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\in_clp1.sas	102	%macro solve;
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp1.sas	C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\in_clp1.sas	150	%macro convert_to_dense(n);
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp1.sas	C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\in_clp1.sas	186	%macro print_piday(dsn);
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp1.sas	C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\in_clp1.sas	283	%macro cdata;
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp1.sas	C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\in_clp1.sas	297	%macro cons_row(r);
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp1.sas	C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\in_clp1.sas	304	%macro cons_col(c);
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp1.sas	C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\in_clp1.sas	313	%macro cons_region(vars);
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp1.sas	C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\in_clp1.sas	320	%macro pds(solns=allsolns,varsel=minr,maxt=900);
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp1.sas	C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\in_clp1.sas	417	%macro pds_out;
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp1.sas	C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\in_clp1.sas	440	%macro magic(n);
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp1.sas	C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\in_clp1.sas	491	%macro convert_to_dense(n);
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp1.sas	C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\in_clp1.sas	508	%macro print_msq(dsn);

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The SAS System

location	New File Location	sas_codes_line_no	sascodes
C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\clp1.sas	C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample\in_clp1.sas	37	%macro print_sudoku(dsn);

```
4  /*                                     */
5  /*      NAME:  clp1                                     */
6  /*      TITLE: Logic Based Puzzles  (clp1)              */
7  /* PRODUCT:  OR                                     */
8  /* SYSTEM:   ALL                                     */
9  /*      KEYS: OR                                     */
10 /*      PROCS: CLP, IML                               */
11 /*      DATA:                                     */
12 /*                                     */
13 /* SUPPORT:                                     UPDATE: */
14 /*      REF:                                     */
15 /*      MISC: Example 1 from the CLP Procedure chapter of the */
16 /*              Constraint Programming book.                */
17 /*                                     */
18 /******
19
20 /* Given a Sudoku problem */
21 data indata;
22 input C1-C9;
23 datalines;
24 . . 5 . . 7 . . 1
25 . 7 . . 9 . . 3 .
26 . . . 6 . . . .
27 . . 3 . . 1 . . 5
28 . 9 . . 8 . . 2 .
29 1 . . 2 . . 4 . .
30 . . 2 . . 6 . . 9
31 . . . . 4 . . 8 .
32 8 . . 1 . . 5 . .
33 ;
34 run;
35
36 /* Print Sudoku */
37 *this is a macro;%macro print_sudoku(dsn);
38 goptions hsize=4in vsize=4in;
39 data _null_;
```

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CALL THE MACRO

```
%macro  
SearchReplace(foldernm=,searchstring=,replacestring=%str()),htmlDir=%str(c:\result  
.html));
```

...

```
%mend;
```

(All the SAS codes are in the paper.)

❑ The “foldernm” is used to indicate the name of the search folder.

❑ The “searchstring” is used to save the search string.

❑ The “replacestring” is used to save the replacement string. If you don't want to use the replacement function, you don't need to pass the value to this macro variable.

❑ The “htmlDir” is used to indicate where you want to save the html report. If you don't pass a value to this macro variable, by default, the html report will be saved as “c:\result.html”.

- The following macro call will search the “%macro” in all the SAS programs located in the “C:\Program Files\SASHome\x86\SASFoundation\9.4\or\sample” folder and its subfolders. If the macro finds any SAS files that contain the search string, the macro will replace the search string with the replacement string “*this is a macro;%macro”. Then the macro will create new SAS files. The new SAS files are named as “n_” followed by the original file names, for e.g, if the original file name is “test. sas”, the new file name will be “n_test.sas”. The new files will be saved in the same folder as the original files. The html report will be saved as the “c:\result1.html”.

```
%SearchReplace
```

```
(
```

```
    foldernm=%str(C:\Program Files\SASHome\x86\SASFoundation\9.4\or\ sample),
```

```
    searchstring=%str('%macro'),
```

```
    replacestring=%str('*this is a macro;%macro'),
```

```
    htmlDir=%str(c:\result1.html)
```

```
);
```

- If you just want to use the search function, you don't need to pass a value to the “replacestring” macro variable, the following SAS codes show you an example, by calling the macro in this way, it will search the string “%macro” in the “C:\test” folder and its subfolders, the html report will be saved as “c:\result.html” by default:

```
%SearchReplace(foldernm=%str(C:\test),searchstring=%str('%macro'));
```


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CONCLUSION

The macro presented in this paper can be used as a helpful tool to search and replace any strings in the SAS program files. Also you can further extend the functions of the macro by searching strings with different patterns, for e.g, search for all the string that start with the same prefix, suffix or middle parts. You can check the paper reference for more details.



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