10 Quick Tips for Getting Tipsy with SAS



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Never Have I Ever

Been Mis"Quote"d







Adding Quotes Around Each Token in a String

- Determine how many tokens with COUNTW function
- Loop through each item adding quotations using QUOTE function
- Use CALL SYMPUTX subroutine to save temporary variable to a macro variable

```
%let fmtname = SUPPDMQNAM SUPPCMQNAM;

data _null_;
  fmtname = "&fmtname";
  length newfmtname $500;
  do i = 1 to countw(fmtname, ' ');
     newfmtname = catx(' ', newfmtname, quote(scan(fmtname, i)));
  end;
  call symputx('newfmtname', newfmtname);
run;
```

FMTNAME	NEWFMTNAME
SUPPDMQNAM SUPPCMQNAM	"SUPPDMQNAM" "SUPPCMQNAM"



Never Have I Ever

Been Turned Around





Column Headers with PROC TRANSPOSE



- Use data to determine column headers
- Create a variable that contains values that are used as labels

TRTPN	TRTP	PCNT	TRTPLBL	AVAL
1	Drug A	90	Drug A (N=90)	86
2	Drug A + Comp C	90	Drug A + Comp C (N=90)	75
3	Drug B	150	Drug B (N=150)	137
4	Drug B + Comp D	90	Drug B + Comp D (N=90)	.
5	Drug A Overall	180	Drug A Overall (N=180)	161
6	Drug B Overall	240	Drug B Overall (N=240)	137

```
proc transpose data = trt    out = t_trt (drop = _:)
              prefix = TRT_;
  var AVAL;
  id TRTPN;
  idlabel TRTPLBL;
run;
```

TRT_1	TRT_2	TRT_3	TRT_4	TRT_5	TRT_6
86	75	137	.	161	137





Column Headers with PROC TRANSPOSE



Name	Type	Length	Format	Informat	TRTPLBL
TRT_1	Numeric	8			Drug A`(N=90)
TRT_2	Numeric	8			Drug A + Comp C`(N=90)
TRT_3	Numeric	8			Drug B`(N=150)
TRT_4	Numeric	8			Drug B + Comp D`(N=90)
TRT_5	Numeric	8			Drug A Overall`(N=180)
TRT_6	Numeric	8			Drug B Overall`(N=240)

```
proc report data = t_trt split = "`"
        style(column) = [just = c cellwidth = 1.35in];
  columns _all_;
run;
```

Drug A (N=90)	Drug A + Comp C (N=90)	Drug B (N=150)	Drug B + Comp D (N=90)	Drug A Overall (N=180)	Drug B Overall (N=240)
86	75	137	.	161	137

Never Have I Ever

"Miss"ed Somthing





MISSING VALUES DEFAULT TO ZERO

- There is a column with a missing value
- For a static set of variables, this could be easily defaulted to zero with IF-THEN-ELSE, but dynamic approach is better
- Utilizing the ARRAY statement, we can loop through each variable in the transposed data set
- The COALESCEC function is used to return the first non-missing value in the list specified
- If it is null, then the 0 is returned

TRT_1	TRT_2	TRT_3	TRT_4	TRT_5	TRT_6
86	75	137	.	161	137

```
data t_trt2 (drop = i);
  set t_trt;
  array TRT_{&num_trt} 3;
  do i = 1 to dim(TRT_);
    TRT_{i} = coalesce(TRT_{i}, 0);
  end;
run;
```

TRT_1	TRT_2	TRT_3	TRT_4	TRT_5	TRT_6
86	75	137	0	161	137

Never Have I Ever

Been Shorthanded





Shorthand for Dealing with Consecutive Variables and Data Sets with Similar Names





- Need to pool several data sets with similar naming convention
- Have to identify the source of the input data set in the master data set
- Need to allow for more data sets to be added

pets_lisa.sas7bdat

pets_louise.sas7bdat

pets_richann.sas7bdat

```
data allpetsorig;
  set TIPSY.PETS_LISA (in = lisa)
      TIPSY.PETS_LOUISE (in = louise)
      TIPSY.PETS_RICHANN (in = richann);
  length OWNER $20;
  if lisa then OWNER = 'Lisa';
  else if louise then OWNER = 'Louise';
  else if richann then OWNER = 'Richann';
run;
```

```
data allpets;
  set TIPSY.PETS_:
      indsname = source;
  length OWNER $20;
  OWNER = propcase(scan(source, -1, '_'));
run;
```

```
NOTE: There were 5 observations read from the data set TIPSY.PETS_LISA.
NOTE: There were 6 observations read from the data set TIPSY.PETS_LOUISE.
NOTE: There were 5 observations read from the data set TIPSY.PETS_RICHANN.
```

Never Have I Ever

Had "Abs"olut
(IYKYK)





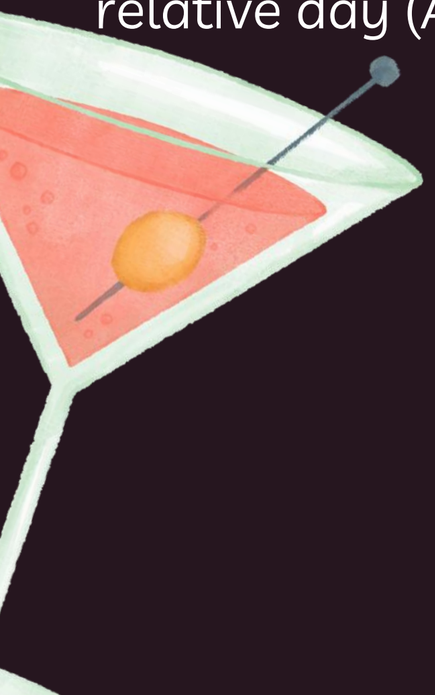




ABSOLUTE DIFFERENCE BETWEEN STUDY DAY AND TARGET DAY



- Within CDISC ADaM standards variables ending in DY represent the relative days and therefore there is no Day 0
- AWTDIFF represents the absolute difference between the target day (AWTARGET) and the relative day (ADY)



```
data dt_dy;
  set dts;
  if nmiss(ADT, TRTSDT) = 0 then ADY = ADT - TRTSDT + (ADT >= TRTSDT);
  if nmiss(ADY, AWTARGET) = 0 then
    AWTDIFF = abs(ADY - AWTARGET) - ((ADY*AWTARGET) < 0);
run;
```

AWTARGET	ADY	AWTDIFF	AWTDIFF*
1	-2	2	3
1	1	0	0
42	44	2	2

* Not adjusted for no Day 0

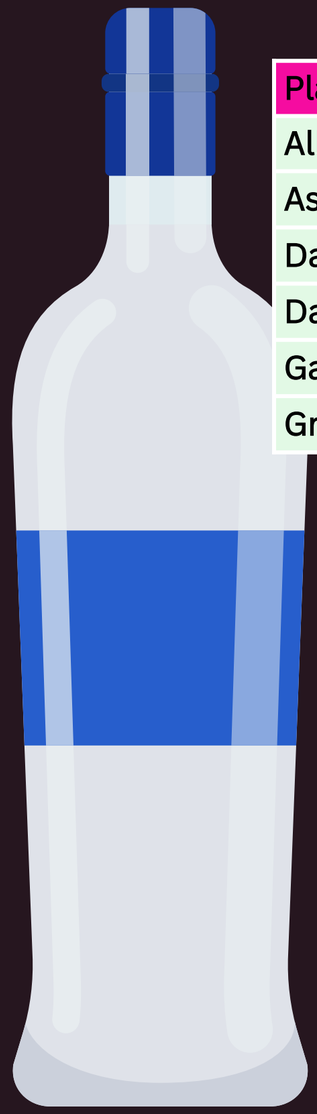
Never Have I Ever

Been in a SeQueL





Macro Variable List Using PROC SQL



Player's Name	Team at the End of 1986	Position(s) in 1986
Allanson, Andy	Cleveland	C
Ashby, Alan	Houston	C
Davis, Alan	Seattle	1B
Dawson, Andre	Montreal	RF
Galarraga, Andres	Montreal	1B
Griffin, Alfredo	Oakland	SS

```
proc sql noprint;
        select distinct Position
        into :Position_List separated by '*'
        from sashelp.baseball;
        %let n_vars = &SQLOBS;
quit;

%put &=n_vars &=position_list ;  /* print variable list in the log */
```



(log output)

```
N_VARS=25
POSTION_LIST=13*1B*1O*23*2B*2S*32*3B*3O*3S*C*CD*CF*CS*DH*DO*LF*O1*OD*OF*OS*RF*S3*SS*UT
```

Never Have I Ever

"Multi"plied





USING THE XLSX ENGINE TO READ IN MULTIPLE EXCEL WORKSHEETS

- SAS XLSX engine allows you to read and write Microsoft Excel files as if they were data sets in a library
- In the libname statement, you point to where the Excel workbook is located
- Creates structure (library and data set) only, need to populate data

```
Options validvarname=any;
```



Never Have I Ever

Failed to "Exist"







CHECK FOR FILE EXISTENCE OR SUCCESSFUL ASSIGNMENT OF A LIBNAME

- FILEEXIST:
  - checks for the existence of a file
  - Returns a value of 1 if found and a value of 0 if not found
- LIBREF:
  - Checks for the successful assignment of a LIBNAME
  - Returns a value of 0 if successful and a non-zero if not successful
- Both functions are invoked using %SYSFUNC

```
%sysfunc(libref(&libfile))
%sysfunc(fileexist(&libfile))
```



CHECK FOR FILE EXISTENCE OR SUCCESSFUL ASSIGNMENT OF A LIBNAME



```
42      %lfexist(libfile = C:\Users\gonza\Desktop\Conferences\Drafts\Tipsy\Pet Data.xlsx, lfcheck = file)
C:\Users\gonza\Desktop\Conferences\Drafts\Tipsy\Pet Data.xlsx WAS FOUND!
ADDITIONAL SAS CODE WOULD BE ENTERED HERE TO CONTINUE PROCESSING
43      %lfexist(libfile = C:\Users\gonza\Desktop\Conferences\Drafts\Tipsy\Pet_Data.xlsx, lfcheck = file)
ERROR: C:\Users\gonza\Desktop\Conferences\Drafts\Tipsy\Pet_Data.xlsx WAS NOT FOUND!!!
ERROR: Execution terminated by an %ABORT statement.
44      %lfexist(libfile = tipsy)
tipsy WAS FOUND!
ADDITIONAL SAS CODE WOULD BE ENTERED HERE TO CONTINUE PROCESSING
45      %lfexist(libfile = tips2)
ERROR: tips2 WAS NOT FOUND!!!
ERROR: Execution terminated by an %ABORT statement.
```

SAS Log



Never Have I Ever

Been "DIVIDE"d





Dividing Numbers Using the DIVIDE Function

```
data div;
  set num_den;
  DIV = NUM / DEN;
run;
```

```
data div;
  set num_den;
  DIV = divide(NUM, DEN);
run;
```

NOTE: Division by zero detected at line 31 column 14.
NUM=39 DEN=0 DIV=. _ERROR_=1 _N_=3
NOTE: Mathematical operations could not be performed at the following places. The results of the operations have been set to missing values.

NUM	DEN	DIV	DIV*
34	3	11.33333	11.33333
125	10	12.5	12.5
39	0	.	.
0	-3	0	0
-44	-4	11	11

* Uses the DIVIDE function



Never Have I Ever

Been "Anebriated"...

I mean Abbreviated

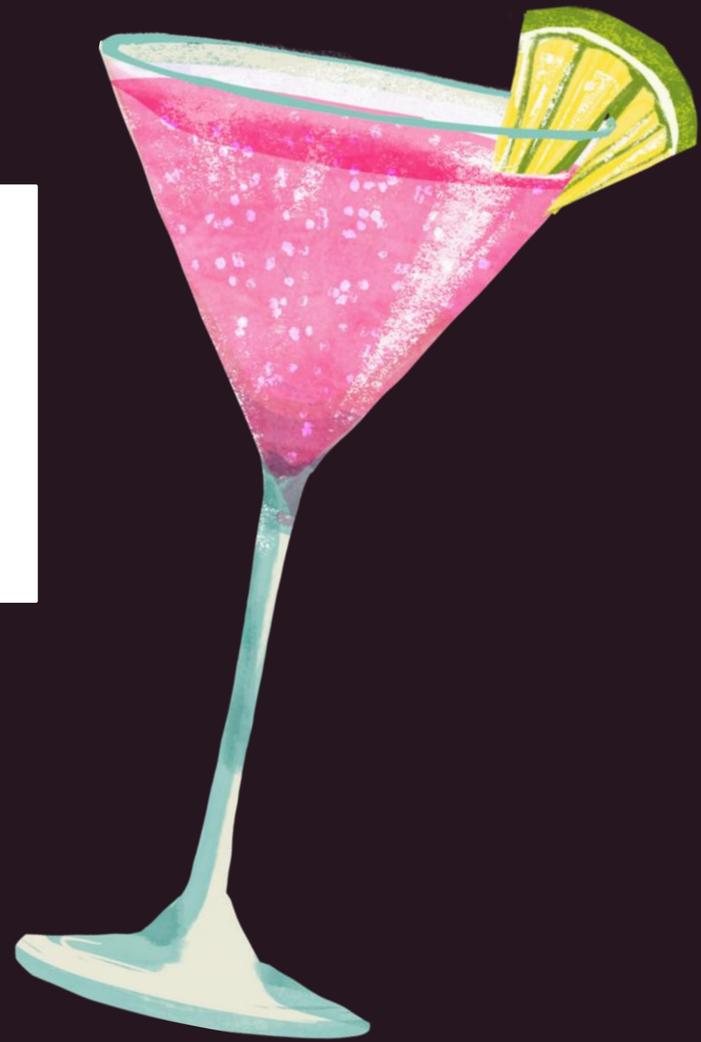






Abbreviations For Frequently Used SAS Code

```
ods output chisq = chi_oall;
ods output fishersexact = fis_oall;
proc freq data = INDSN noprint order = data;
     tables VAR1 * VAR2 / out = OUTDSN
                          chisq cmh fisher expected
                          plots = freqplot (twoway = stacked);
run;
```



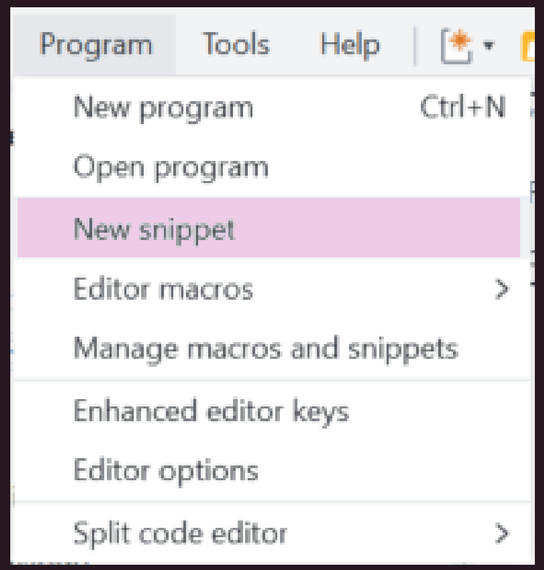


Abbreviations For Frequently Used SAS Code

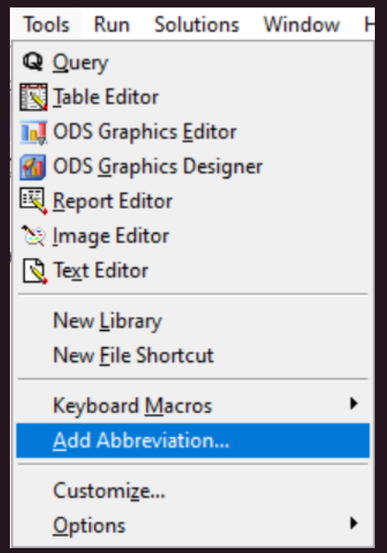


STEP 1

SAS Enterprise Guide



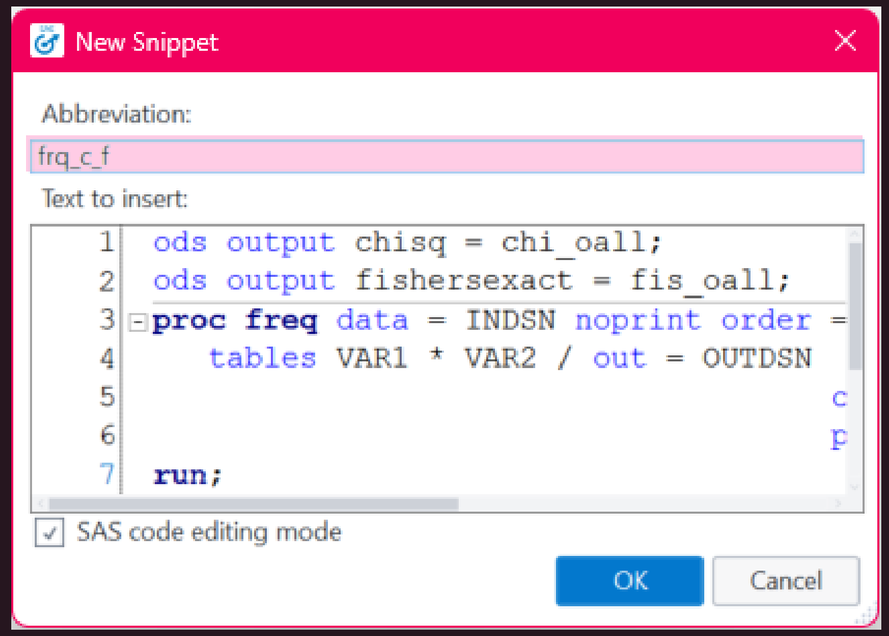
SAS Display Manager





Abbreviations For Frequently Used SAS Code

STEP 2



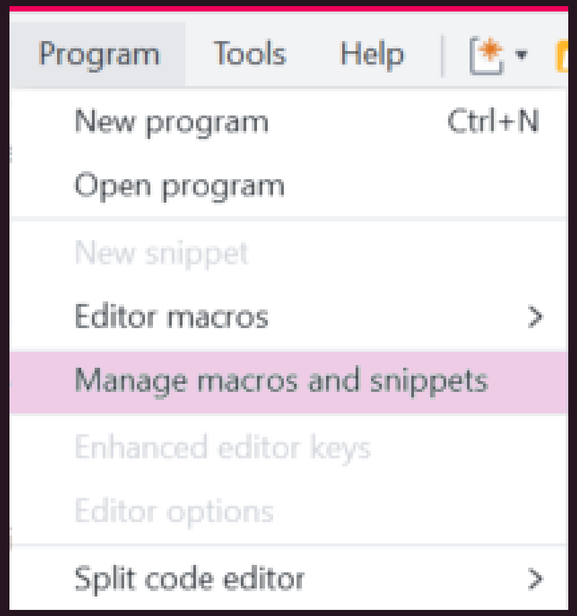




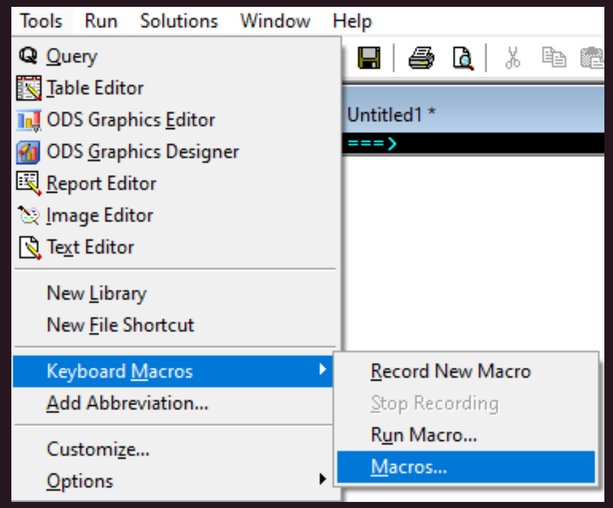
Abbreviations For Frequently Used SAS Code

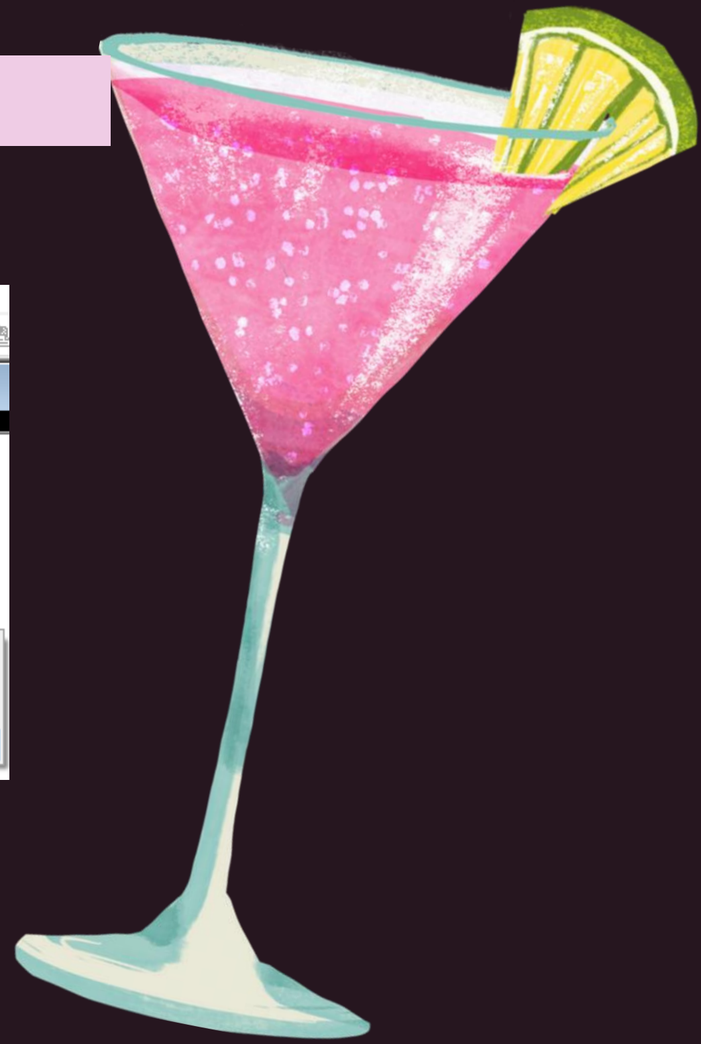
STEP 3

SAS Enterprise Guide



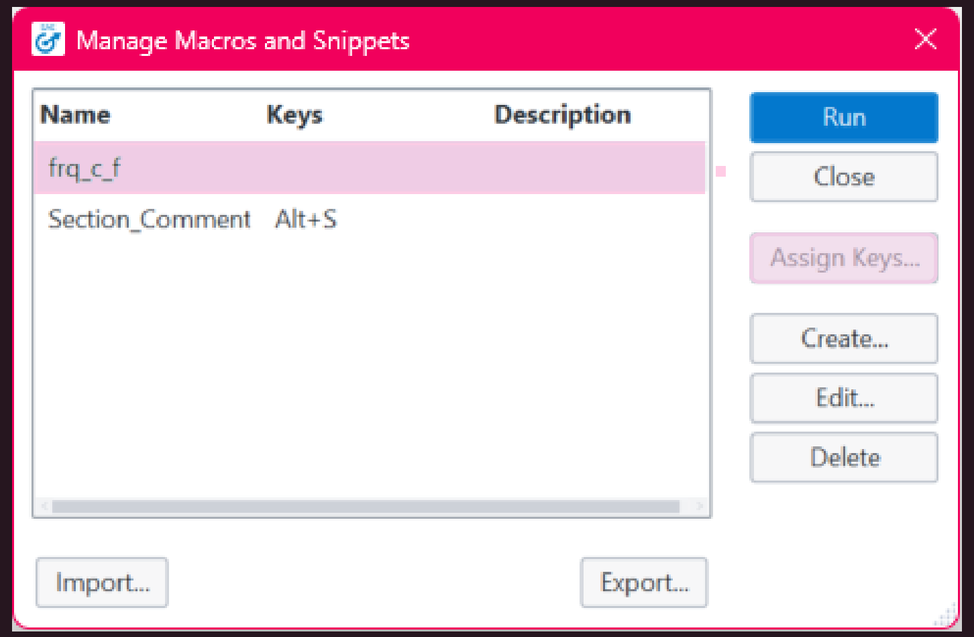
SAS Display Manager





Abbreviations For Frequently Used SAS Code

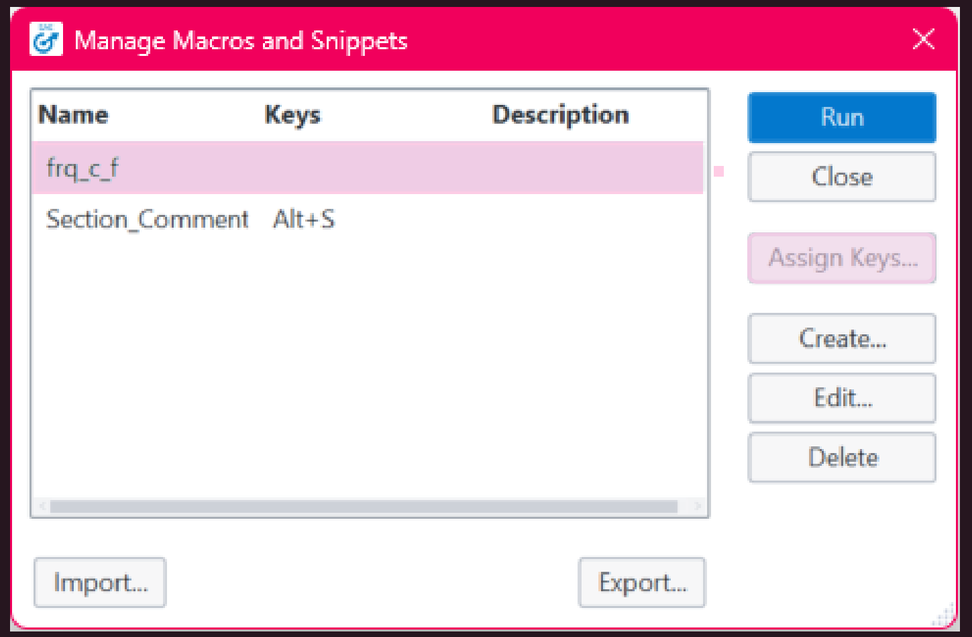
STEP 4





Abbreviations For Frequently Used SAS Code

STEP 5







Abbreviations For Frequently Used SAS Code

STEP 6

Press new shortcut key:

Ctrl+Shift+F

Currently assigned to:

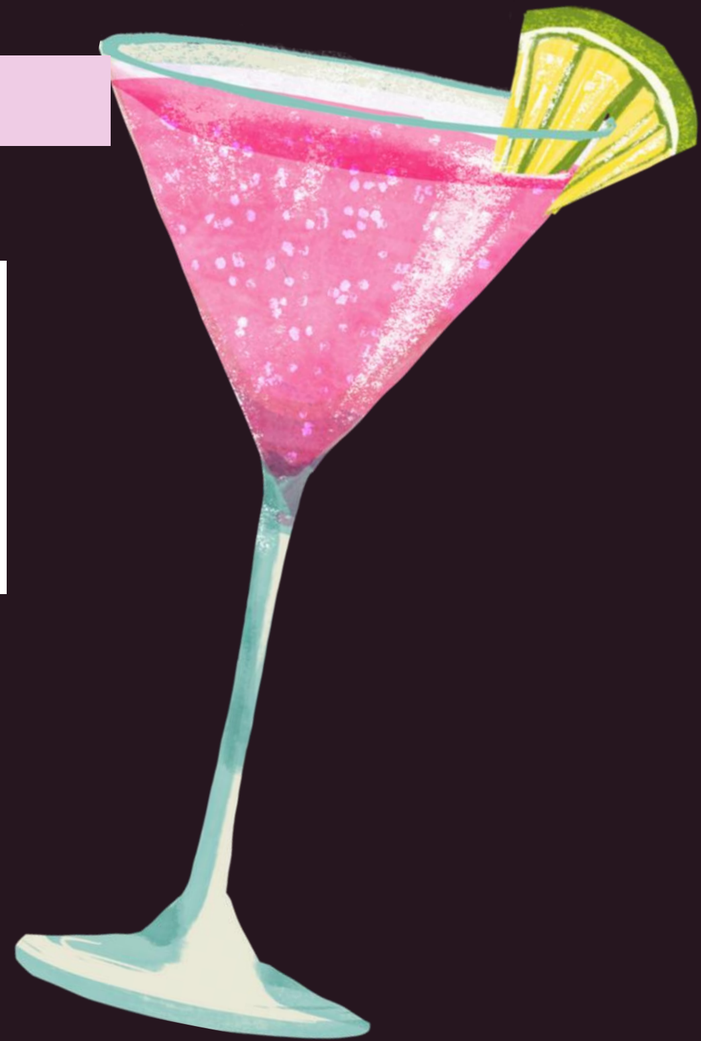
Autocomplete format

Press new shortcut key:

Alt+Shift+F

Currently assigned to:

None





Abbreviations For Frequently Used SAS Code

```
frq_c_f
ods output chisq = chi_oall; od...(Abbrev)
```

```
ods output chisq = chi_oall;
ods output fishersexact = fis_oall;
proc freq data = INDSN noprint order = data;
   tables VAR1 * VAR2 / out = OUTDSN
                                chisq cmh fisher expected
                                plots = freqplot (twoway = stacked);
run;
```

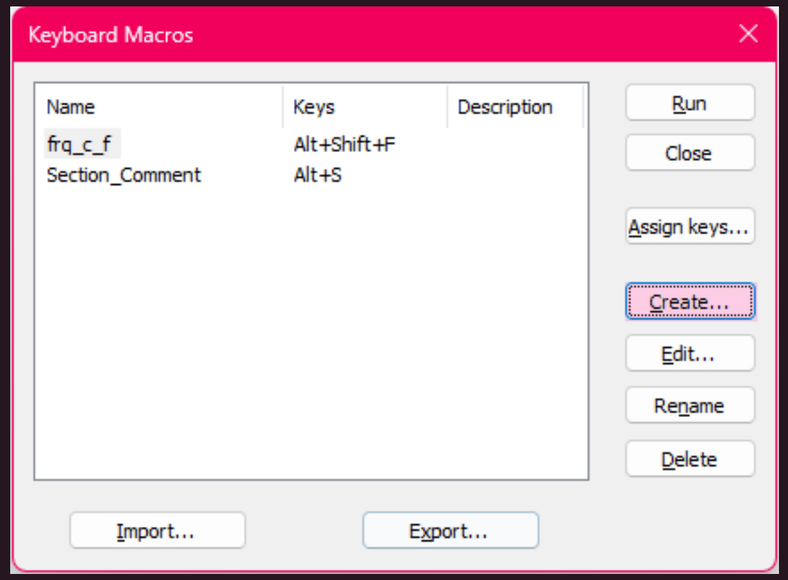




Keyboard Macros For Frequently Used SAS Code



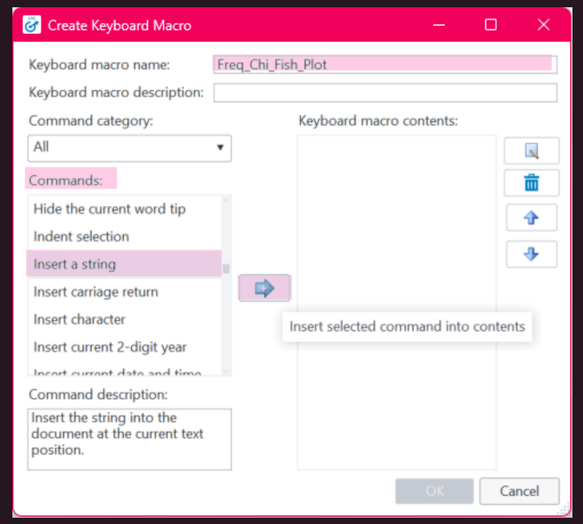
STEP 1

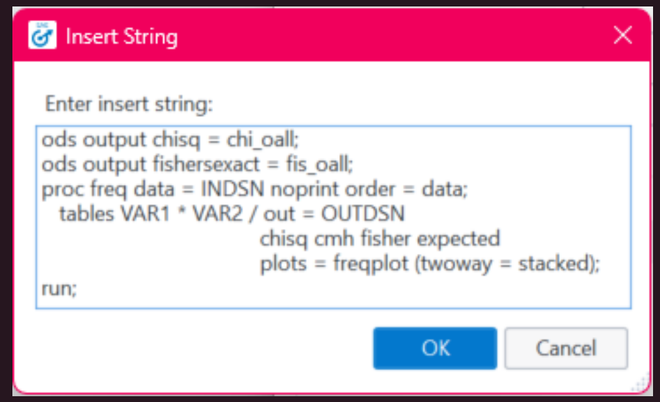


Keyboard Macros For Frequently Used SAS Code



STEP 2



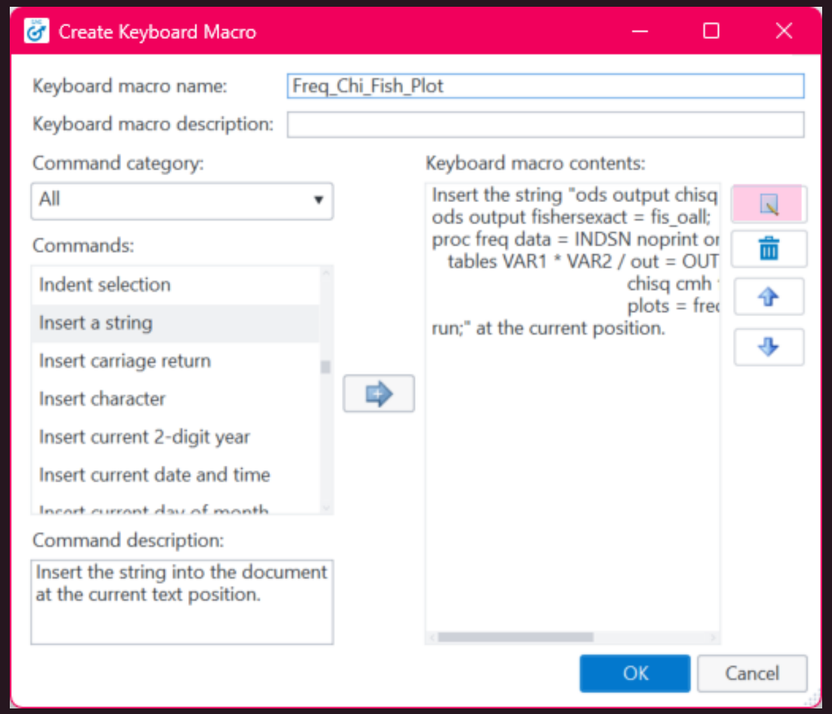






Keyboard Macros For Frequently Used SAS Code

STEP 3





MORE TASTY LIBATIONS IN THE BAR (OR PAPER)

- Column Headers with PROC TRANSPOSE
- Shorthand for Dealing with Consecutive variables and Data Sets with Similar Names
- Macro Variable List Using PROC SQL
- Dividing Numbers Using the DIV Function
- Abbreviations For Frequently Used SAS Code



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