

# New Goodies for SAS Programmers in SAS Enterprise Guide 4.3

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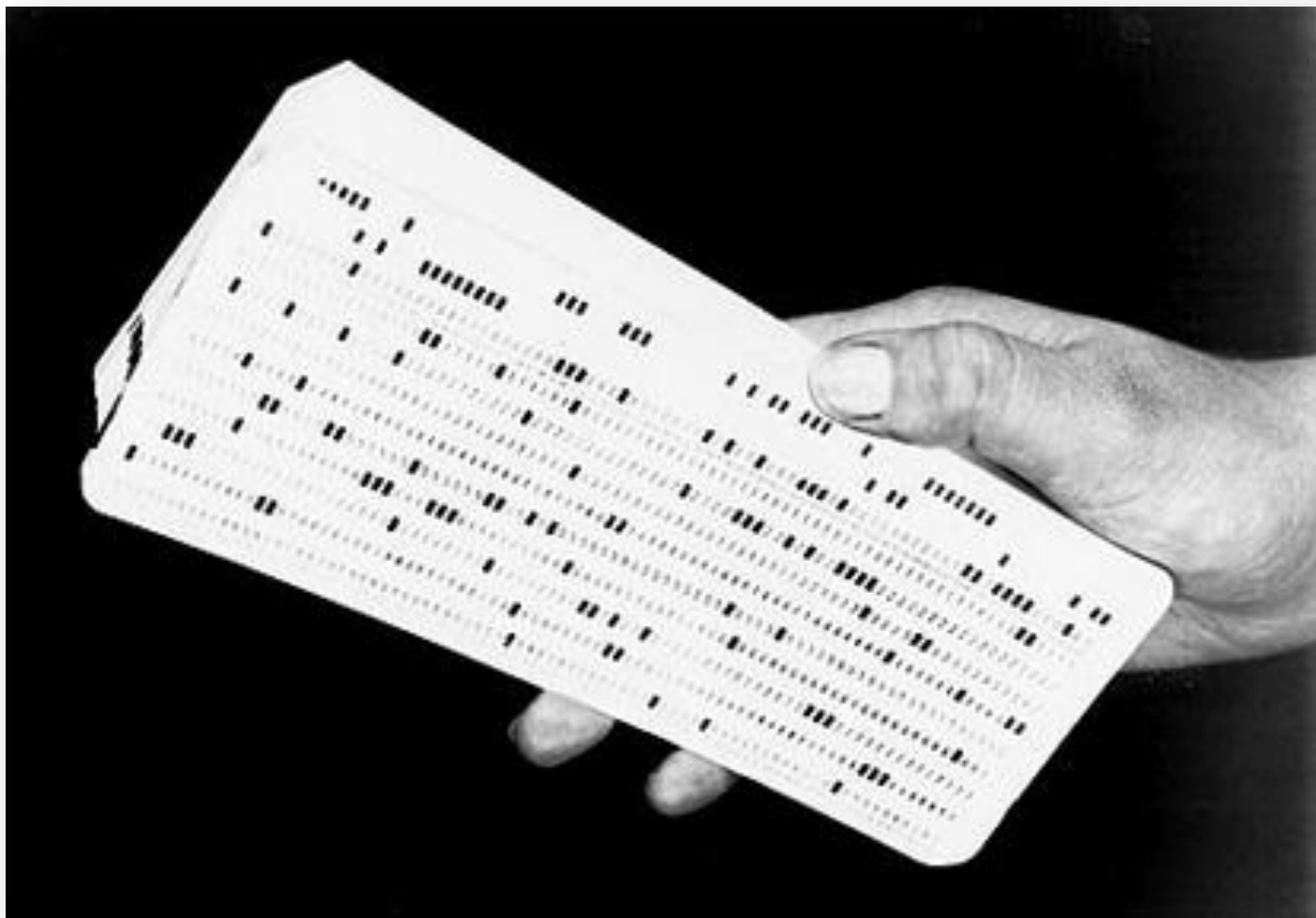
Chris Hemedinger, SAS R&D  
<http://blogs.sas.com/sasdummy>  
<http://twitter.com/cjdinger>



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# Your panel of experts

- Audimar Bangi
- Bill Sawyer
- Casey Smith
- Jennifer Tamburro



# Showing SAS programmers the



- Automatic syntax suggestions and completion
- Integrated syntax help
- “Tidy” feature for SAS and macro programs
- Code analyzer to view your program flow

# Syntax suggestions and completion

```
/* summarize the data across a category and store */  
/* the output in an output data set */  
proc means data=&data &stat noprint;  
  var &measure;  
  class &category &report / mi|  
  output out=summary &stat=&  
run;
```

```
/* store the value of the meas  
/* the row count into a macro  
/* later in the report */  
proc sql noprint;  
  select &measure, _FREQ_ into :o  
  from summary where _TYPE_=0;  
  select count(distinct &category) into :ca  
quit;
```

- ASCEND
- ASCENDING
- DESCEND
- DESCENDING
- EXCLUSIVE
- GROUPINTERI
- MISSING
- MLF
- ORDER=

```
/* summarize the data across a category and store */  
/* the output in an output data set */  
proc means data=&data &stat noprint;  
  var &  
  class  
  output  
run;  
  
/* store  
/* the ro  
/* later  
proc sql
```

- category
- categorycount
- data
- measure
- measureformat
- n
- numobs
- overall
- report

```
&measure &category /leve  
  
sure for ALL rows and  
variable for use */
```

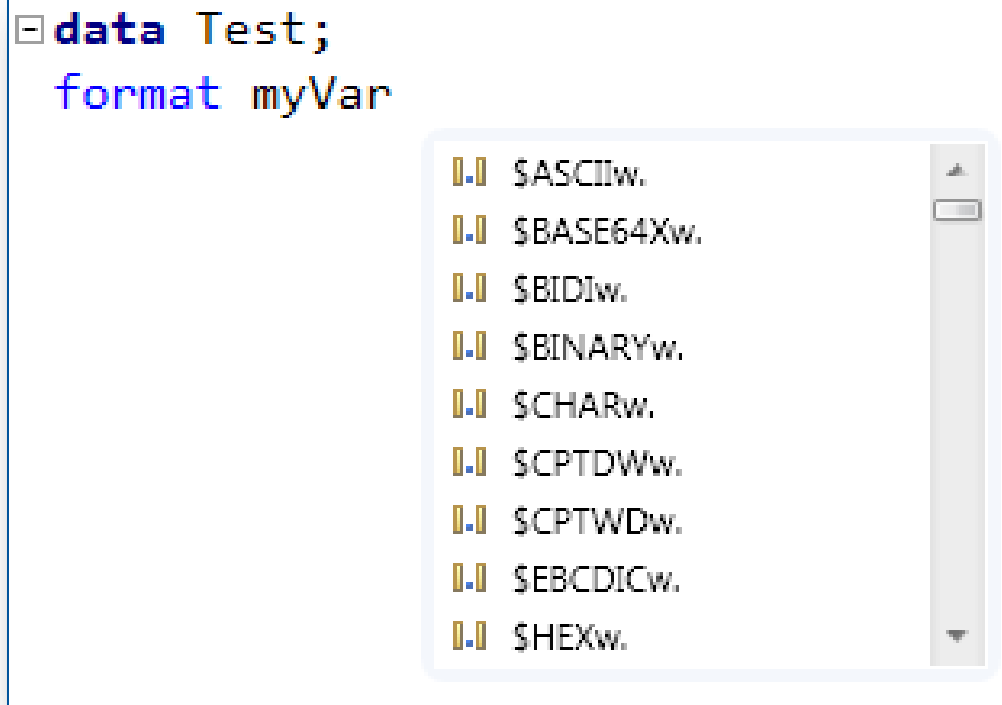


# Demo: Syntax suggest/autocomplete

# Keyboard shortcuts, built in!

Formats (Ctrl+Shift+F) and Informats (Ctrl+Shift+I)

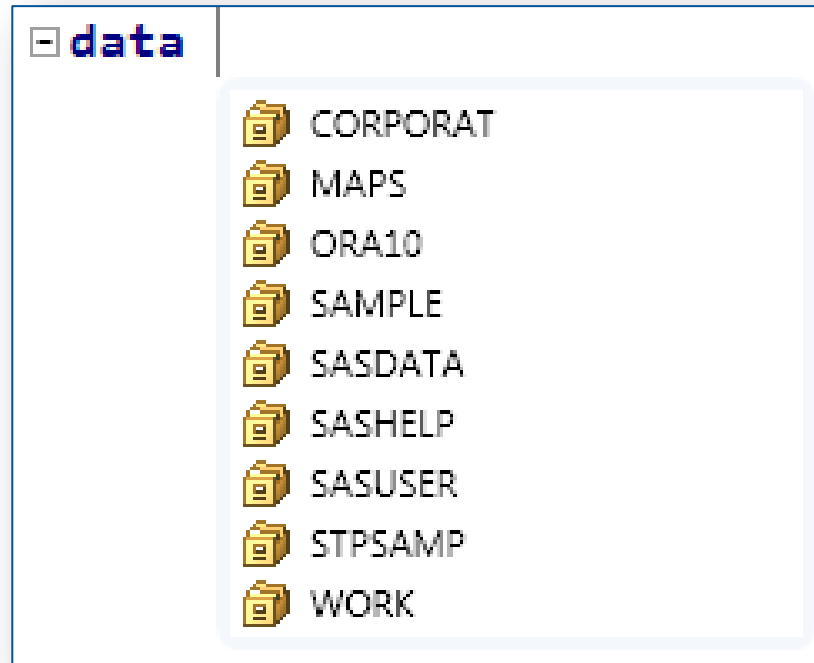
```
data Test;  
  format myVar
```



- \$ASCIIw.
- \$BASE64Xw.
- \$BIDIw.
- \$BINARYw.
- \$CHARw.
- \$CPTDWw.
- \$CPTWDw.
- \$EBCDICw.
- \$HEXw.

# Keyboard shortcuts, built in!

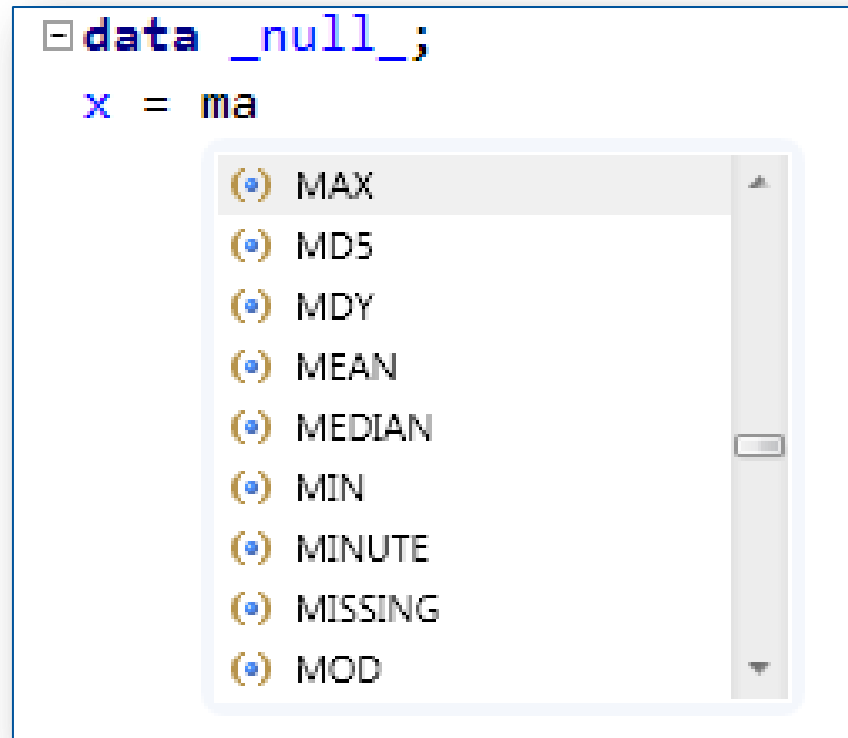
## SAS Libraries (Ctrl+L)





# Keyboard shortcuts, built in!

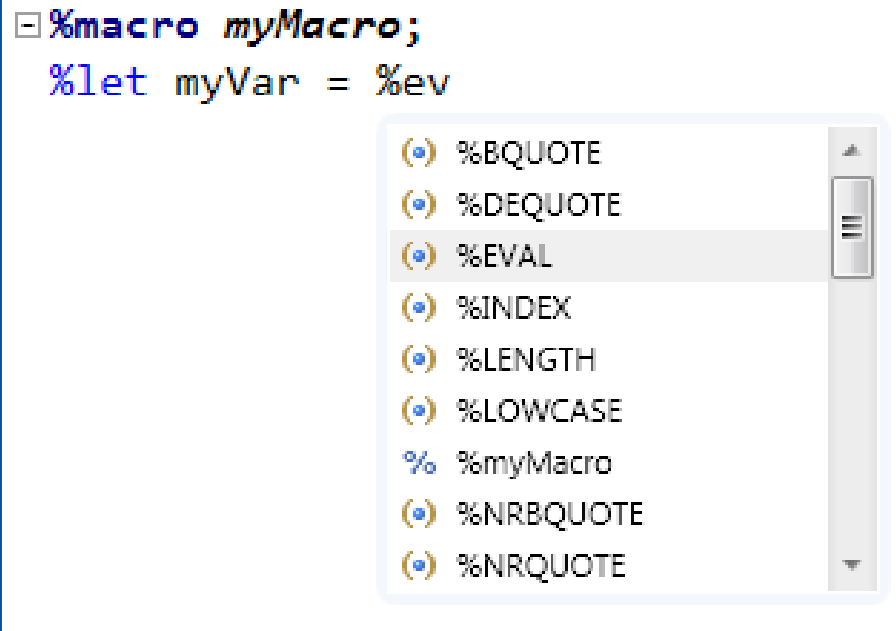
## SAS Functions (Ctrl+Shift+F1)



# Keyboard shortcuts, built in!

## SAS Macro functions (Ctrl+Shift+F2)

```
▣ %macro myMacro;  
  %let myVar = %ev
```



The screenshot shows a SAS IDE window with a macro definition. The macro is named `myMacro` and contains a single line of code: `%let myVar = %ev`. A dropdown menu is open, listing various SAS macro functions. The function `%EVAL` is currently selected and highlighted. The list of functions includes: `%BQUOTE`, `%DEQUOTE`, `%EVAL`, `%INDEX`, `%LENGTH`, `%LOWCASE`, `%myMacro`, `%NRBQUOTE`, and `%NRQUOTE`.

- (•) %BQUOTE
- (•) %DEQUOTE
- (•) %EVAL
- (•) %INDEX
- (•) %LENGTH
- (•) %LOWCASE
- % %myMacro
- (•) %NRBQUOTE
- (•) %NRQUOTE

# Keyboard shortcuts, built in!

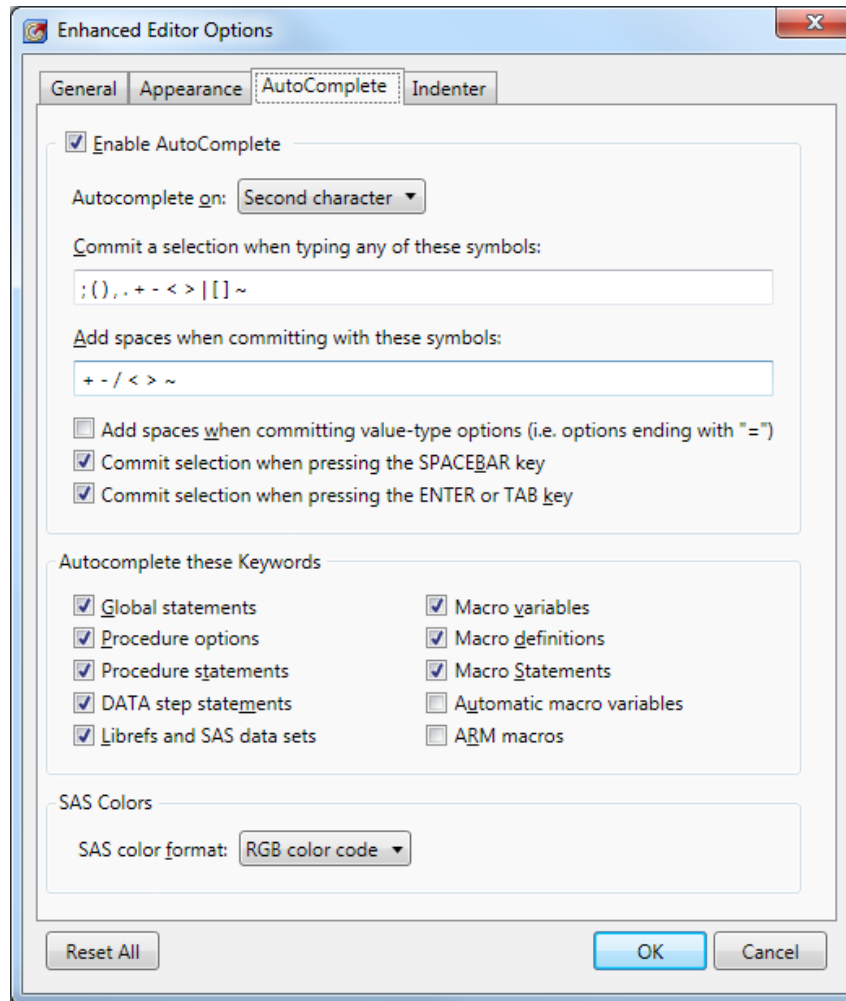
## SAS Graph colors (Ctrl+Shift+C)

```
goptions colors=(
```

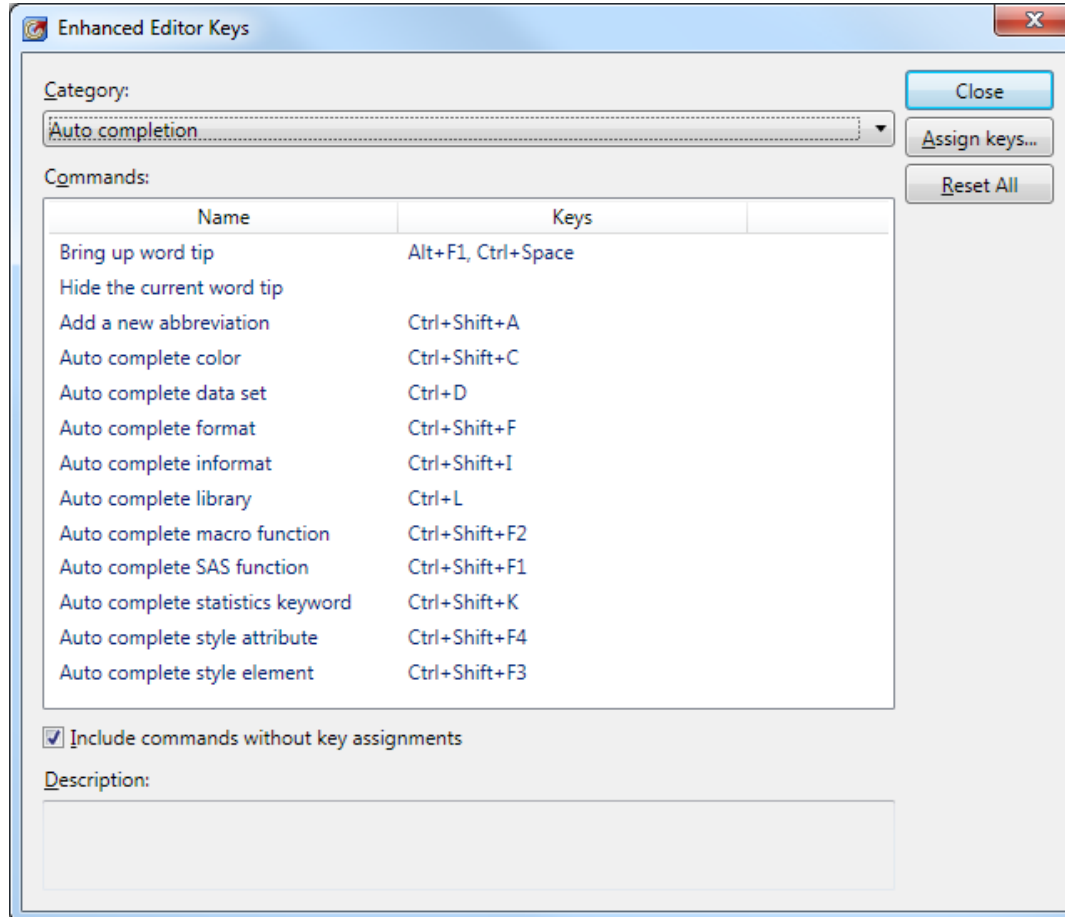


<>	AliceBlue=CXF0F8FF
<>	AntiqueWhite=CXFAEBD7
<>	Aqua=CX00FFFF
<>	Aquamarine=CX7FFDD4
<>	Azure=CXF0FFFF
<>	Beige=CXF5F5DC
<>	Bisque=CXFFE4C4
<>	Black=CX000000
<>	BlanchedAlmond=CXFFEBCD

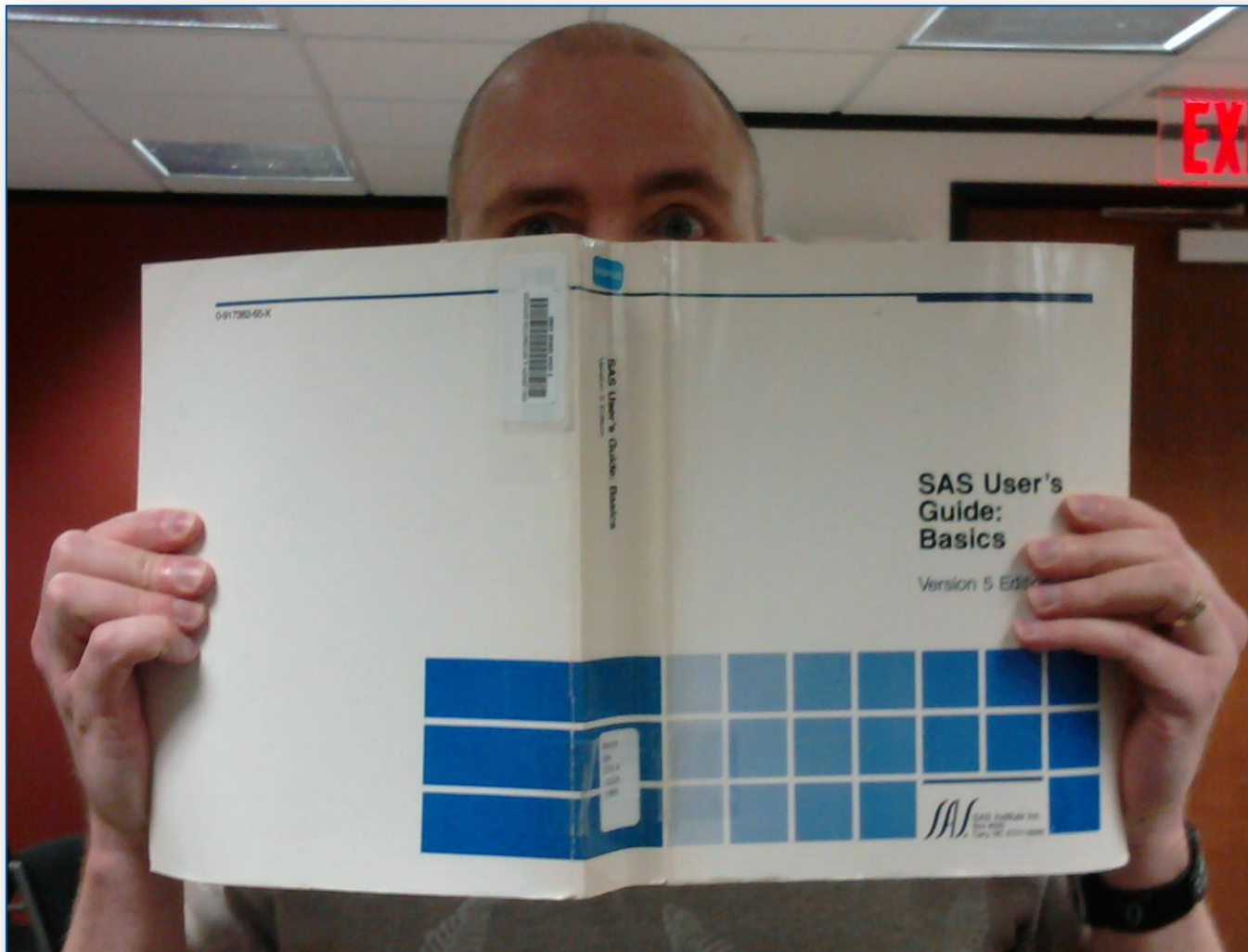
# Options galore – autocomplete



# Options galore – keyboard commands



# What's covered?



# Partial list of syntax covered

- Over 240 SAS procedures
- Base, SAS/GRAPH, SAS/STAT (9.22), SAS/OR, SAS/ETS, SAS/QC
- Even complex procedures like TEMPLATE, Graphics Template Language (GTL), and IML
- SQL Procedure
- And more!

# Integrated syntax help

```
/* summarize the data across a category and store */  
/* the output in an output data set */
```

```
proc means data=&data &stat noprint;
```

```
var MEANS
```

```
context: [PROCEDURE DEFINITION] PROC MEANS
```

```
o Syntax: PROC MEANS <option(s)> <statistic-keyword(s)>;  
  BY <DESCENDING> variable-1 <...> <DESCENDING> variable-n <NOTSORTED>;  
  CLASS variable(s) </ option(s)>;  
  FREQ variable;  
  ID variable(s);  
  OUTPUT <OUT=SAS-data-set> <output-statistic-specification(s)> <id-group-specification(s)> <maximum-id-specification(s)>  
  <minimum-id-specification(s)> </ option(s)> ;  
  TYPES request(s);  
  VAR variable(s) </ WEIGHT=weight-variable>;  
  WAYS list;  
  WEIGHT variable;
```

```
run;
```

```
/* st
```

```
/* th
```

```
/* la
```

```
proc
```

```
select
```

```
from
```

```
select
```

```
quit;
```

The MEANS procedure provides data summarization tools to compute descriptive statistics for variables across all observations and within groups of observations.

```
/* sort the results so that we get the TOP values */  
/* rising to the top of the data set */
```

Shortcut key: F1



# “Tidy” up your programs

```
/* Pass through the data and output the first N */  
/* values for each category */  
data topn;  
  length rank 8; label rank="Rank"; set topn;  
  by &category descending &measure; if first.&category then rank=0;  
  rank+1; if rank le &n then output;  
run;
```

```
/* Pass through the data and output the first N */  
/* values for each category */  
data topn;  
  length rank 8;  
  label rank="Rank";  
  
  set topn;  
  by &category descending &measure;  
  
  if first.&category then  
    rank=0;  
  rank+1;  
  
  if rank le &n then  
    output;  
run;
```

Shortcut key: Ctrl+I

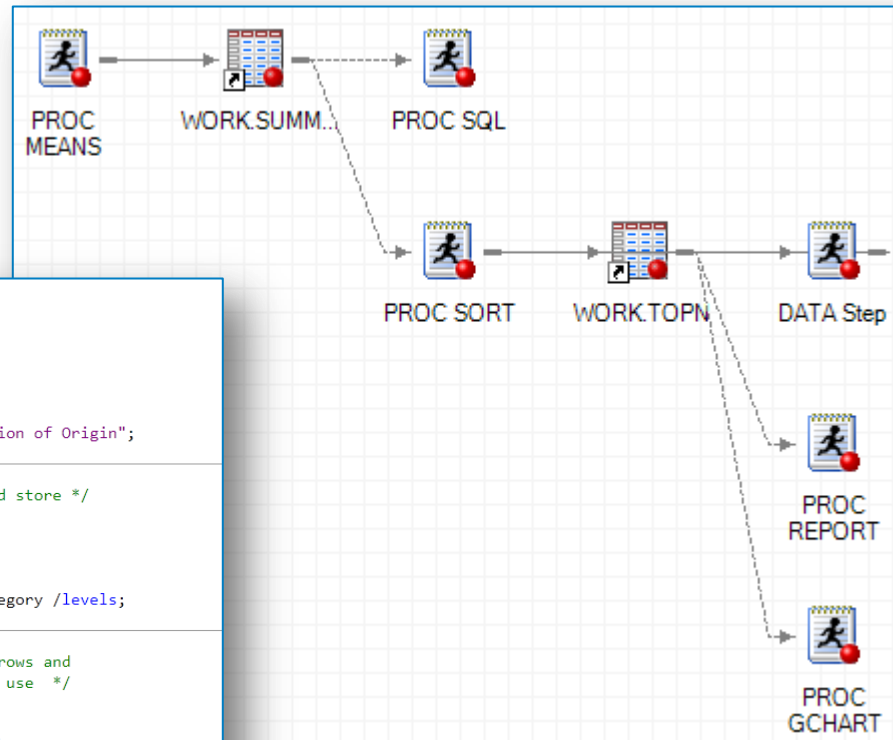
# Analyze your SAS program flow

```
%let data=SASHELP.CARS;
%let report=Model;
%let measure=MPG_City;
%let measureformat=%str(format=BEST6.);
%let stat=MEAN;
%let n=10;
%let category=Origin;
title "Top Models by MPG_City for each region of Origin";
footnote;

/* summarize the data across a category and store */
/* the output in an output data set */
proc means data=&data &stat noprint;
  var &measure;
  class &category &report;
  output out=summary &stat=&measure &category /levels;
run;

/* store the value of the measure for ALL rows and
/* the row count into a macro variable for use */
/* later in the report */
proc sql noprint;
  select &measure, _FREQ_ into :overall, :numobs
  from summary where _TYPE_=0;
  select count(distinct &category) into :categorycount from summary;
quit;

/* sort the results so that we get the TOP values */
/* rising to the top of the data set */
proc sort data=work.summary out=work.topn;
  where _type_>2;
  by &category descending &measure;
run;
```



# What's Next?

- The SAS language is always growing
  - Expect the program editor to keep up
- Programmer productivity is a big focus
- Your feedback is important

# More resources

- SAS Enterprise Guide support:  
<http://support.sas.com/eguide>
- SAS Global Forum proceedings:  
<http://support.sas.com/resources/papers/proceedings10/137-2010.pdf>  
SAS Programmer's Paradise: New Goodies in SAS Enterprise Guide 4.3
- Blog: <http://blogs.sas.com/sasdummys>
- SAS Talks (<http://support.sas.com>)
- Discussion forums:  
<http://support.sas.com/forums>



**QUESTIONS?**

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