

the  
**SAS® Enterprise Guide 5.1**  
experience

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Boston Area SAS Users Group  
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the  
**SAS® Enterprise Guide 5.1**  
experience

What do **you** think of EG?



code-generator

heartbreak of psoriasis  
scary

anger

hate

nausea

yikes!

bleah

despise

meh

detest

loathe


flame

painful

two thumbs down

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THE FILM ADVERTISED HAS BEEN RATED

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SOME MATERIAL MAY BE INAPPROPRIATE FOR CHILDREN UNDER 13  
FOR SOME DISTURBING THEMATIC MATERIAL, VIOLENCE,  
SEXUALITY AND BRIEF DRUG USE.

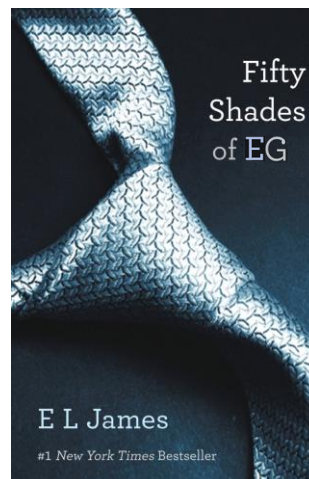
[www.filmratings.com](http://www.filmratings.com)

[www.mpa.org](http://www.mpa.org)

“You maniacs!”



Time passed and opinions changed



# WIIFRP

## What's In It For **Real Programmers?**

1. Write code
2. Run shortcuts
3. Use visuals
4. View data sets
5. Get help
6. Use autocomplete
7. Format output
8. Store everything
9. Run batch
10. Use tasks

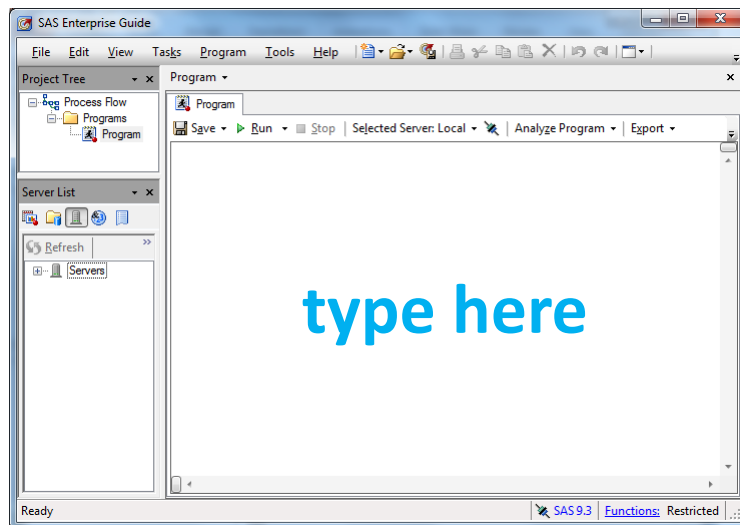
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## 1. Write code

- Open SAS® Enterprise Guide
- File > New > Program
- **Start typing**
- Have a good day

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## Program tab



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## 2. Run shortcuts [built-in]

- Ctrl + A, Ctrl + C, Ctrl + V, etc. work as usual
- Ctrl + / = comment; Ctrl + Shift + / = uncomment
- Ctrl + Shift + F = Formats
- Ctrl + Shift + I = Informats
- **Ctrl + Shift + F1 = Functions**
- Ctrl + Shift + F2 = Macro Functions
- Ctrl + L = Libraries
- Ctrl + D = Data sets

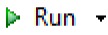

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## 2. Run shortcuts [**user-created**]

- Program > Editor Macros > Record New
  - Stop Recording; Assign keys
- Ctrl + R = repeat line
- Alt + D = delete line
- Shift + Ctrl + I = insert initials and date stamp
- F7 = go to previous step; F9 = go to next step
- Shift + F8 = highlight step
- Shift + F9 = add next step

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## Running programs

- Click the Run button  Run 
- **Press F8 or F3**
  - Runs whole program or selected lines
- Open the Run menu and click
  - Run
  - Run Selection
- Right-click program in Project Tree and select Run Program

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# Monitoring programs

- Job progress is reported at the bottom left

 (Details) Running: Program - Running DATA step...

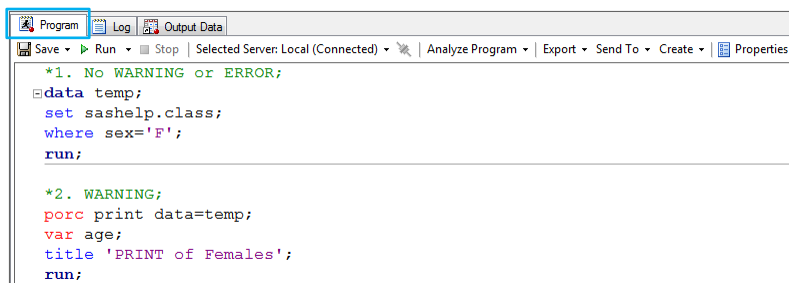
- Click the red Stop button to cancel a program

 Stop

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demo 3


## 3. Use visuals





```
*1. No WARNING or ERROR;
data temp;
set sashelp.class;
where sex='F';
run;

*2. WARNING;
proc print data=temp;
var age;
title 'PRINT of Females';
run;
```

 Program\* = not saved

 Program = ran without WARNING or ERROR

 Program = has at least one WARNING

 Program = has at least one ERROR

**Tip:** Use Ctrl + Tab (or Ctrl + Shift + Tab) to move between tabs.

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## 4. View data sets

	Name	Sex	Age	Height	Weight	DOB
1	Alfred	M		69	112.5	06/28/2013
2	Alice	F		56.5	84	06/28/2013
3	Barbara	F		65.3	98	06/28/2013
4	Carol	F		62.8	102.5	06/28/2013
5	Henry	M	14	63.5	102.5	06/28/2013
6	James	M	12	57.3	83	06/28/2013
7	Jane	F	12	59.8	84.5	06/28/2013
8	Janet	F	15	62.5	112.5	06/28/2013
9	Jeffrey	M	13	62.5	84	06/28/2013
10	John	M	12	59	99.5	06/28/2013
11	Joyce	F	11	51.3	50.5	06/28/2013
12	Judy	F	14	64.3	90	06/28/2013
13	Louise	F	12	56.3	77	06/28/2013
14	Mary	F	15	66.5	112	06/28/2013
15	Philip	M	16	72	150	06/28/2013
16	Robert	M	12	64.8	128	06/28/2013
17	Ronald	M	15	67	133	06/28/2013
18	Thomas	M	11	57.5	85	06/28/2013
19	William	M	15	66.5	112	06/28/2013

Click the **Properties** button to view PROC CONTENTS-type info.

= character

= numeric

= date

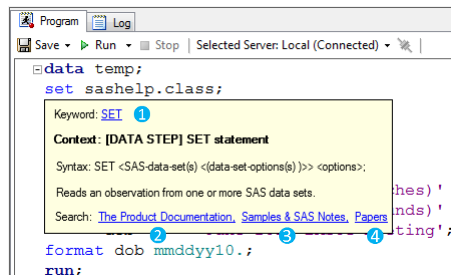
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## Properties button > Columns

Name	Type	Length	Format	Informat	Label
Name	Character	8			Student name
Sex	Character	1			Student gender
Age	Numeric	8			Student age
Height	Numeric	8			Student height (inches)
Weight	Numeric	8			Student weight (pounds)
DOB	Date	8	MMDDYY10		June 2013 BASUG meeting

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## 5. Get help



Roll over a word for context-sensitive help and links to:

- 1 support.sas.com
- 2 Online documentation
- 3 Sample code and Usage Notes
- 4 Technical papers and SAS Global Forum proceedings

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## 6. Use autocomplete



- SAS suggests ways to complete word
- Commands, keywords, and options
- Libref, data set name, and variables
- **Accept suggestion**
  - <Spacebar>, <Enter>, or <Tab>
  - Punctuation ; , . ( ) [ ] { } <> / ~ + -
- **Keep typing**
  - Ignore suggestions

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# Autocomplete suggestions

The screenshot shows three lines of SAS code with autocomplete suggestions:

- Line 1: `data temp;` - A dropdown menu shows suggestions: MAPS, MAPSGFK, MAPSSAS, SASHELP, SASUSER, temp, and WORK. An arrow points from 'temp' in the code to the 'temp' suggestion in the dropdown.
- Line 2: `set libref.filename;` - A dropdown menu shows suggestions: AACOMP, ADOMSG, ADMSG, AFMSG, AIR, APPLIANCE SERIES, ASSCINGR, BMT, and BUY. An arrow points from 'libref.filename' in the code to the 'libref.filename' suggestion in the dropdown.
- Line 3: `var variable[s];` - A dropdown menu shows suggestions: Age, Height, and Weight. An arrow points from 'variable[s]' in the code to the 'variable[s]' suggestion in the dropdown.

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# Functions and PROCs

```
data temp2;
set sashelp.class;
first_initial=substr(
```

1 of 2 SUBSTR(string, position<, length>)  
**string:**  
 Specifies a character constant, variable, or expression.

```
proc freq data=temp
tables age*sex/
```

COMPRESS  
 FORMCHAR(1,2,7)=  
 FORMCHAR=  
 NLEVELS  
 NOPRINT  
 ORDER=  
 PAGE

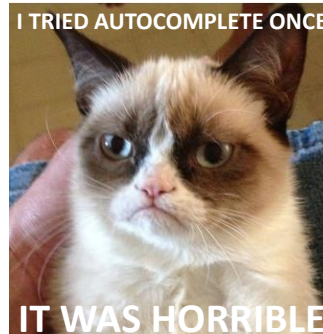
PROC FREQ statement options

AGREE  
 ALL  
 ALPHA=  
 BDT  
 BINOMIAL  
 BINOMIALC  
 CELLCHI2  
 CHISQ  
 CL

TABLES statement options

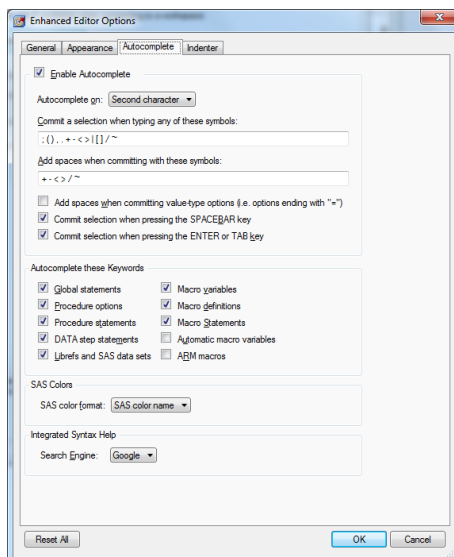
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People **love it** or **hate it**



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## Adjust settings



Tools > Options... > SAS Programs >  
Editor Options... > Autocomplete tab

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## Recommendation: Try it

- You might like it

- Prompts for PROC and statement options
  - Roll over suggestions for Help
- Try using Autocomplete on Third character
- Turn off autocomplete of certain keywords



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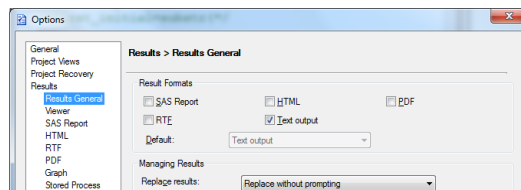
demo 7

## 7. Format output

- Multiple choices

- SAS Report
- HTML
- PDF
- RTF
- Text output

Tools > Options... > Results General



- Check one or more boxes

- Results “published” to each destination
- Text output is fastest

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# Multiple output formats

```

Program Log Output Data Results - SAS Report Results - HTML Results - PDF Results - RTF Results - Listing
Save Run Stop Selected Server: Local (Connected) Analyze Program Export Send To Create Properties

data temp;
set sashelp.class;
where sex='F';
run;

*Turn on SAS Report, HTML, PDF, RTF, and Text output;
proc print data=temp;
title 'PRINT of Females';
run;

```

PRINT of Females				PRINT of Females				PRINT of Females						emales				f Females	
Obs	Name	Sex	Age	Obs	Name	Sex	Age	Obs	Name	Sex	Age	Height	Weight	Sex	Age	Height	Weight	Name	
1	Alice	F	1	1	Alice	F	1	1	Alice	F	13	56.5	84.0	F	13	56.5	84.0	Alice	
2	Barbara	F	1	2	Barbara	F	1	2	Barbara	F	13	65.3	98.0	F	13	65.3	98.0	Barbara	
3	Carol	F	1	3	Carol	F	1	3	Carol	F	14	62.8	102.5	F	14	62.8	102.5	Carol	
4	Jane	F	1	4	Jane	F	1	4	Jane	F	12	59.8	84.5	F	12	59.8	84.5	Jane	
5	Janet	F	1	5	Janet	F	1	5	Janet	F	15	62.5	112.5	F	15	62.5	112.5	Janet	
6	Joyce	F	1	6	Joyce	F	1	6	Joyce	F	11	51.3	50.5	F	11	51.3	50.5	Joyce	
7	Judy	F	1	7	Judy	F	1	7	Judy	F	14	64.3	90.0	F	14	64.3	90.0	Judy	
8	Louise	F	1	8	Louise	F	1	8	Louise	F	12	56.3	77.0	F	12	56.3	77.0	Louise	
9	Mary	F	1	9	Mary	F	1	9	Mary	F	15	66.5	112.0	F	15	66.5	112.0	Mary	

## Store output externally

- ODS *destination* FILE='path:\filename.ext';
  - SAS code
  - **RUN;**
- ODS *destination* CLOSE;
- HTML, PDF, and RTF

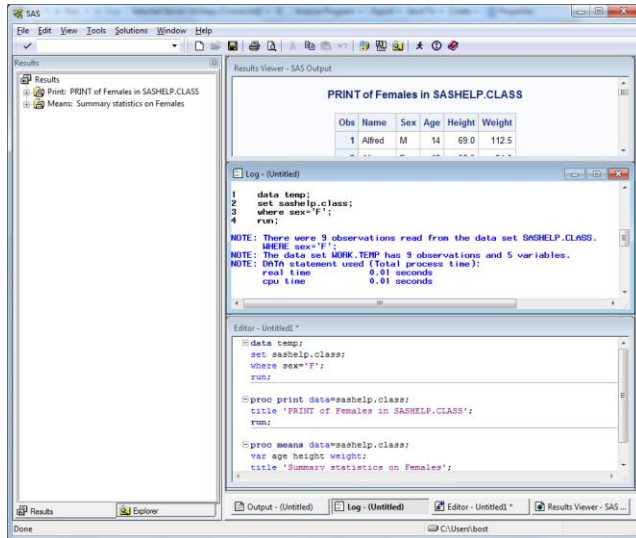
NOTE: ODS PDF printed no output.  
(This sometimes results from failing to place a RUN statement before the ODS PDF CLOSE statement.)

```

ods pdf file='c:\files\BASUG\print.pdf';
proc print data=temp;
title 'PRINT of Females';
run;
ods pdf close;

```

## 8. Store everything

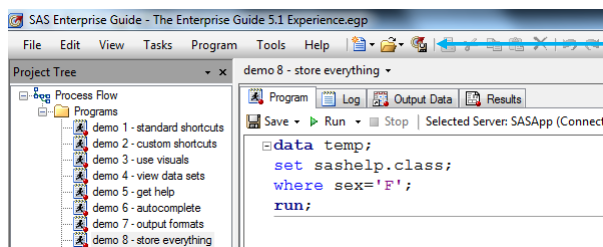


In PC SAS, the Program, Log, and Results **must** be saved individually.

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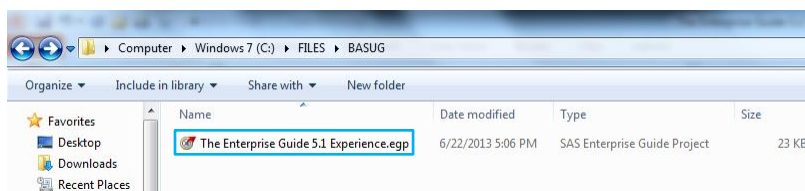
demo 8

## Enterprise Guide Project



Click the [Save Project](#) button or **File > Save Project As...**

In Enterprise Guide, the Program, Log, and Results are **stored in a single .EGP file**.



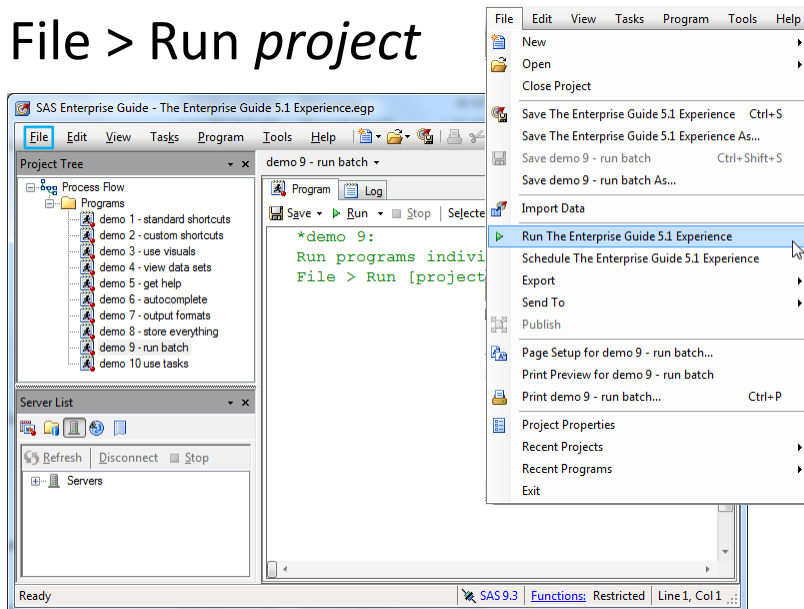
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## 9. Run batch

- **Multiple programs stored in one project**
  - Series of related programs
  - Programs to run in sequence
- Each Program has its own Log and Results

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File > Run *project*

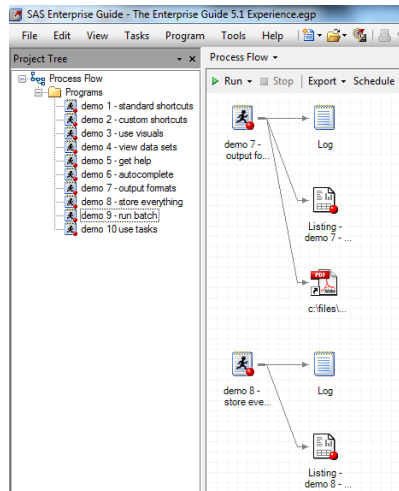


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# Process Flow

- View > Process Flow
- **F4 toggle**
- Visual summary of
  - Programs
  - Logs
  - Listings
    - Other output types
  - Data sets
  - And more...



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## 10. Use tasks

- Tasks are wizards
  - SAS generates code for you
- You are real programmers
  - You do not know everything
- Use tasks to generate code
  - Copy/edit what is generated
- **Good for unfamiliar PROCs**

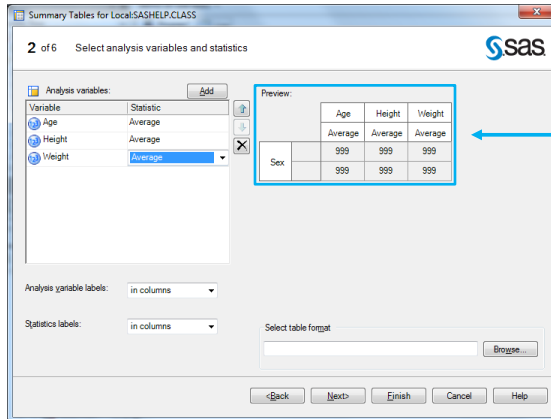
"Danger, Will Robinson!"



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# Summary Tables Wizard...

- Tasks > Describe > Summary Tables Wizard...

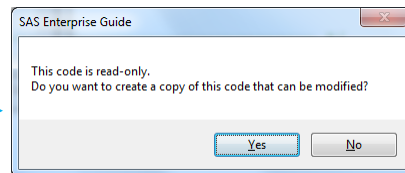


Check out the preview of the table to be produced.

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## Work with generated code

- Open task
- Click on **Code** tab
- Double-click inside
  - Click **Yes** button
- SAS adds program to current project**
- Code For Summary Tables
- Edit as needed



```

/* -----
Run the tabulate procedure
----- */
%PROC TABULATE
DATA=SASHELP.CLASS
;
VAR Age Height Weight;
CLASS Sex / ORDER=UNFORMATTED MISSING;
TABLE
;
/* ROW Statement */
/* COLUMN Statement */
(Age * Mean=(LABEL="Average") Height * Mean=(LABEL="Average")
Weight * Mean=(LABEL="Average") )
;
RUN;
/* -----
End of task code.
----- */

```

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## Summary

**Real programmers** use SAS Enterprise Guide to

- |                   |                     |
|-------------------|---------------------|
| 1. Write code     | 6. Use autocomplete |
| 2. Run shortcuts  | 7. Format output    |
| 3. Use visuals    | 8. Store everything |
| 4. View data sets | 9. Run batch        |
| 5. Get help       | 10. Use tasks       |

There are many additional features to **explore!**

## Contact info



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[christopher.bost@mdrc.org](mailto:christopher.bost@mdrc.org)

[illegible]

## **Selected Publications by Christopher Bost**

2006. Identifying duplicate values

2006. Subsetting observations from large SAS<sup>®</sup> data sets

2007. Automatically renaming common variables before merging

2007. Transposing data without PROC TRANSPOSE

2008. Effective presentations for SAS<sup>®</sup> training and more

2010. Automatically converting character variables that store numbers to numeric variables

2011. Making SAS<sup>®</sup> training stick<sup>1</sup>

2011. To FREQ, perchance to MEANS

2012. Magic spells with SAS<sup>®</sup>

2012. Selecting all observations when any observation is of interest<sup>2</sup>

2013. Checking out your dates with SAS<sup>®</sup>

2013. Dealing with duplicates

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<sup>1</sup> Awarded best contributed paper for *Planning and Support* at SAS Global Forum.

<sup>2</sup> Awarded best contributed paper for *Programming: Foundations and Fundamentals* at SAS Global Forum.