



One Step Ahead : from PROC GPLOT to PROC SGPLOT

Lydia Li

TransUnion Canada

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Agenda

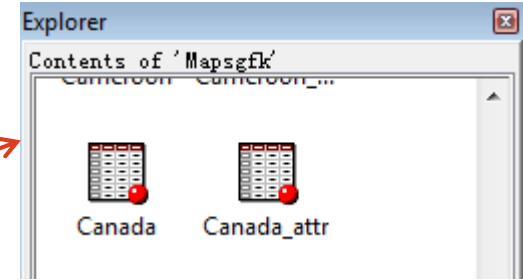
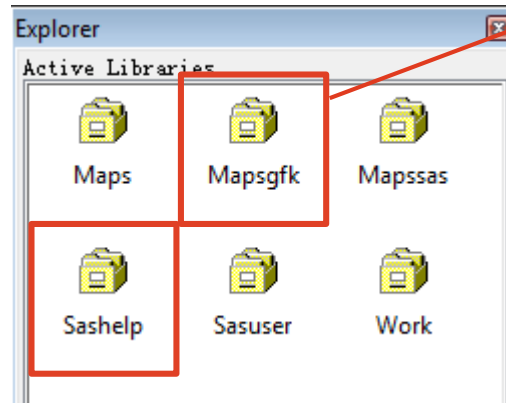
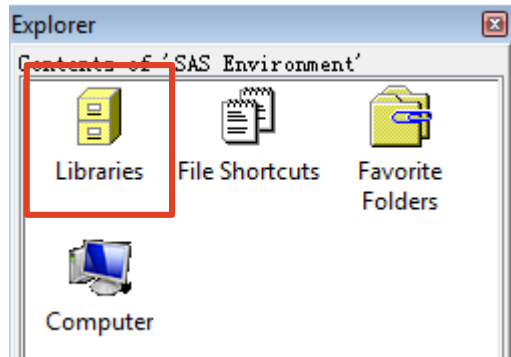
- ❖ SAS Graph Procedures
- ❖ PROC GPLOT
- ❖ PROC SGPLOT
- ❖ The advantages of SGPLOT over GPLOT
- ❖ Q&A



Data Source

New in SAS 9.3

a library of data sets consisting of GfK GeoMarketing digital, vector-based maps.

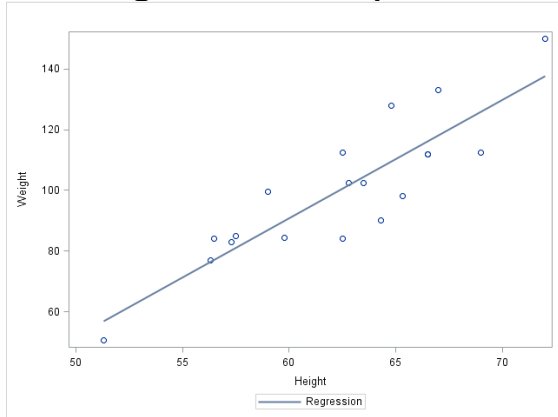




Creating graphs within the SAS environment

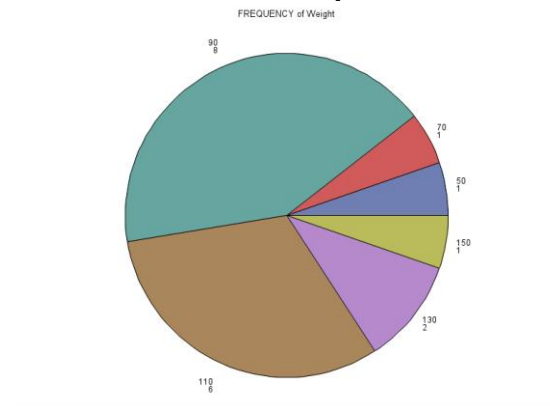
- Different types of graphs & distinct graph procedures

Regression Equation



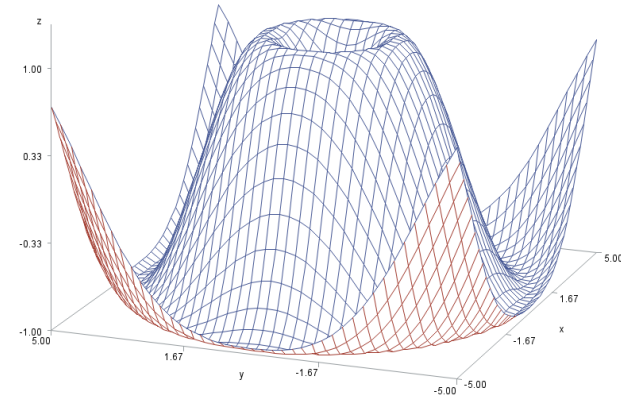
```
proc sgplot data=sashelp.class;  
reg x=height y=weight;  
run;
```

Pie Graph



```
proc gchart data=sashelp.class;  
pie weight;  
run;
```

3D Graph



```
proc g3d data=hill;  
plot y*x=z;  
run;
```



PROC GPLOT

Syntax

```
PROC GPLOT <DATA=input-data-set>  
<Option(s)=Statement(s)>;
```

```
PLOT plot-request(s) </option(s)>;
```

```
PLOT2 plot-request(s) </option(s)>;
```

```
RUN;
```

OR

```
BUBBLE plot-request(s) </option(s)>;
```

```
BUBBLE2 plot-request(s) </option(s)>;
```

Overlay:
At MOST 2 graphs



What can we do using PROC GPLOT?

- Example 1: display female students' heights and weights with PROC GPLOT

```
title1 "Students' Height and Weight";
```

```
title2 "Female Only";
```

```
footnote1 "weight=star height=dot";
```

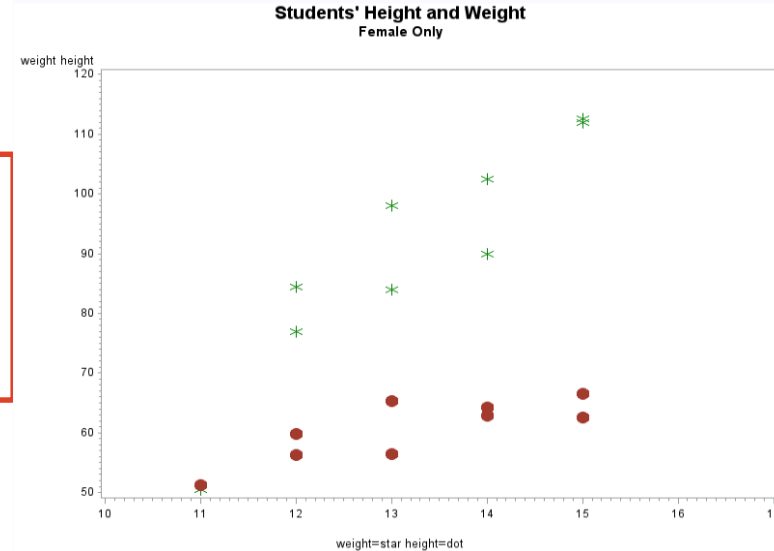
```
axis1 label=none order=(10 to 17 by 1);
```

```
axis2 label=("weight/height");
```

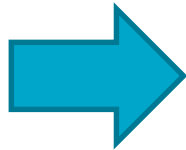
```
symbol1 interpol=none value=star c=green h=2;
```

```
symbol2 interpol=none value=dot h=2;
```

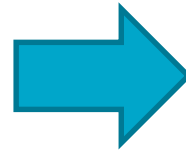
```
proc gplot data=sashelp.class;  
  plot (weight height)*age/ overlay  
      haxis=axis1  
      vaxis=axis2;  
  where sex="F";  
run;  
quit;
```



Plan Ahead



GPLOT



Outcomes



What can we do using PROC GPLOT?

- Example 2: bubble chart with PROC GPLOT

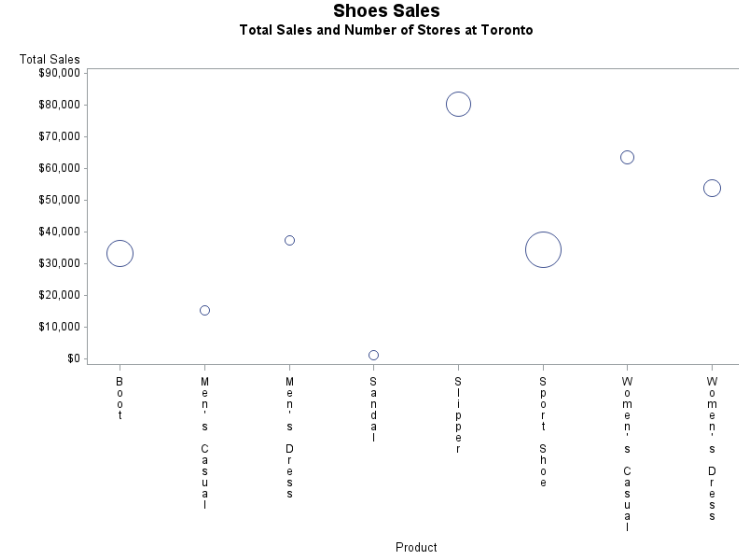
title1 "Shoes Sales";

title2 "Total Sales and Number of Stores at Toronto";

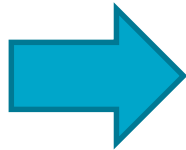
axis1 offset=(5,5);

axis2 order=(0 to 90000 by 10000) minor=none;

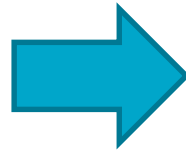
```
proc gplot data=sashelp.shoes;
  bubble Sales*Product=Stores/ haxis=axis1
                                vaxis=axis2;
  where Region="Canada"
        and Subsidiary="Toronto";
run;
quit;
```



Plan Ahead



GPLOT



Outcomes



Short Summary for PROC GPLOT

- Syntax

```
PROC GPLOT <DATA=input-data-set>  
<Option(s)=Statement(s)>;  
Bubble / Plot plot-request(s) </option(s)>;  
< Bubble2 / Plot2 plot-request(s) </option(s)>; >  
RUN;
```

Overlay:
At MOST 2 graphs

- 3-step Process



- Graph Types

- Scatter plot
- Overlay plot
- Logarithm plot
- Bubble chart



PROC SGPLOT

New procedure starts from SAS 9.2

Syntax

PROC SGPLOT <DATA=*input-data-set*>;

GraphType X=var Y=var / < option(s)>;

< Optional Statements >;

RUN;

Overlay:
>= 2 graphs

Graph Type

- Ellipse
- Hbox/Vbox
- Histogram
- Density
- Etc.

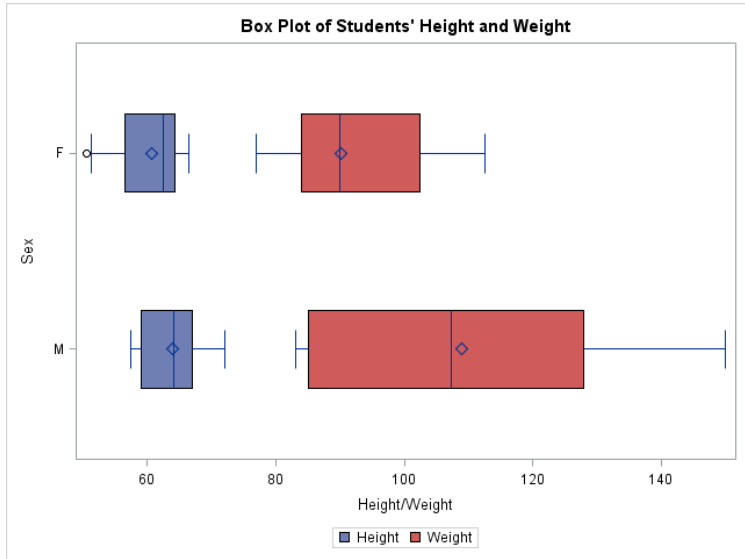
Build-in Options



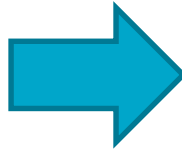
New Procedure: PROC SGPLOT

- Example 1: using Box Plot to display students' height and weight

```
proc sgplot data=sashelp.class;  
  
  hbox height/category=sex;  
  
  hbox weight/category=sex;  
  
  title "Box Plot of Students' Height and Weight";  
  
  xaxis label="Height/Weight";  
  
run;
```



SGPLOT



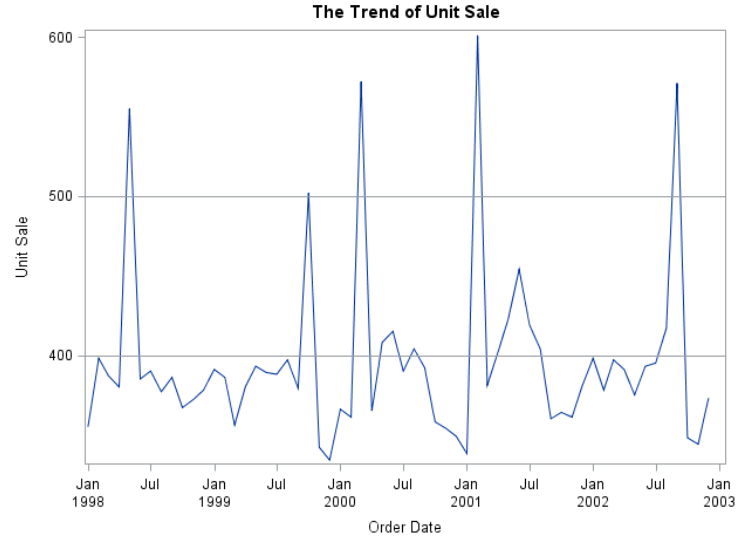
Outcomes



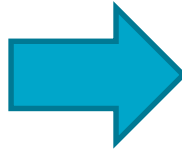
New Procedure: PROC SGPLOT

- Example 2: observe the trend of unit sale using PROC SGPLOT

```
proc sgplot data=Sashelp.Pricedata;  
  
series x=date y=sale;  
  
refline 400 500;  
  
title "The Trend of Unit Sale";  
  
where productName="Product1";  
  
run;
```



SGPLOT

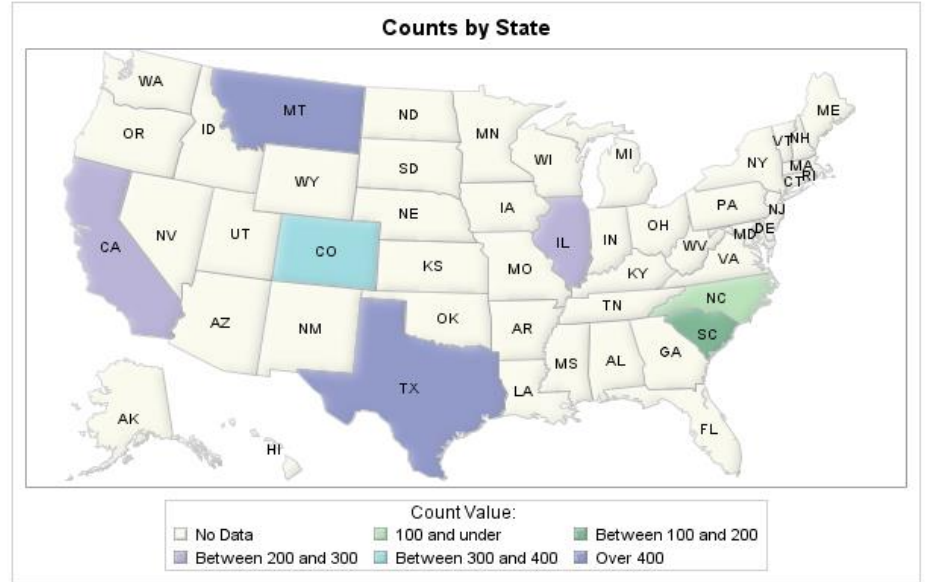
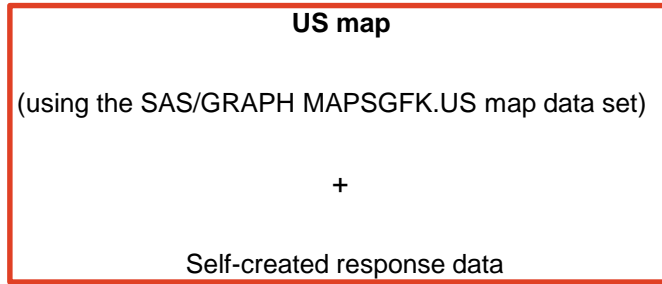


Outcomes



New Procedure: PROC SGPLOT

- Example 3: create map for US using PROC SGPLOT



SAS Support---Sample 53367: Create a map with the SGPLOT procedure



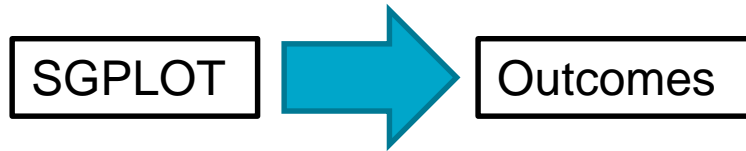
Short Summary for PROC SGPLOT

- Syntax

```
PROC SGPLOT < option(s)>;  
GraphType X=var Y=var / < option(s)>;  
< Optional Statements>;  
RUN;
```

Overlay:
As many as you want

- 2-step Process



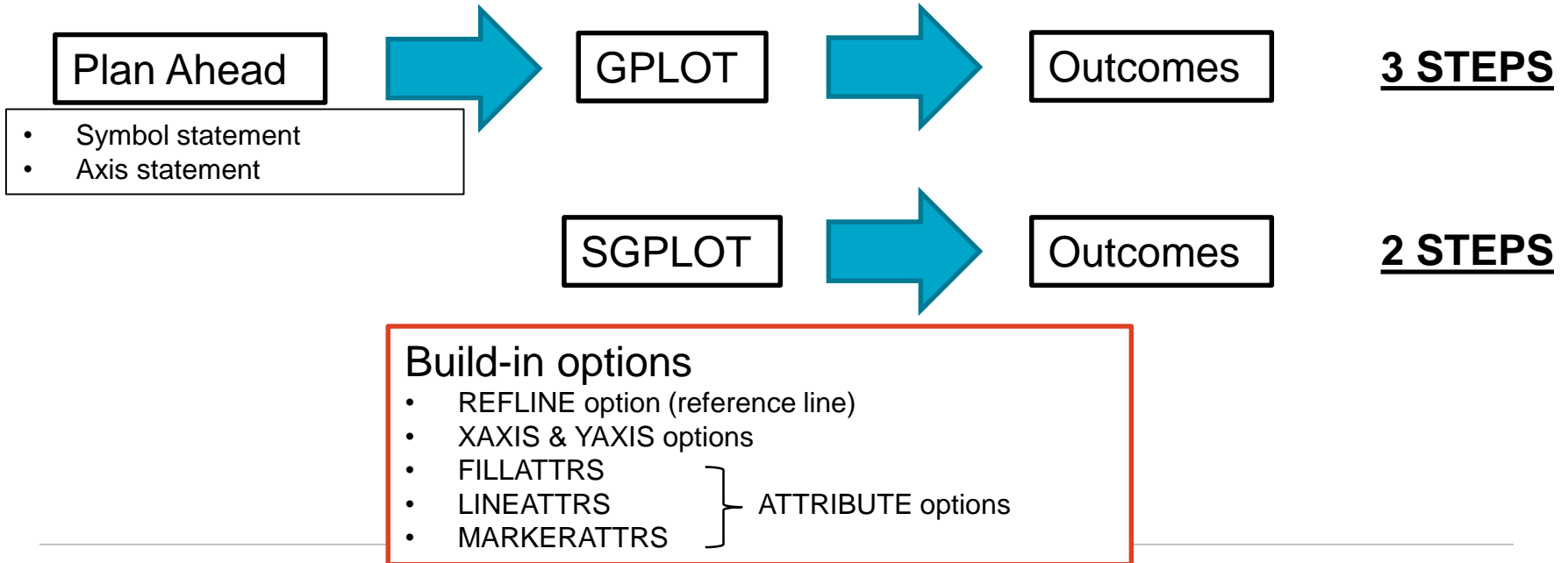
- Graph Types

• Scatter plot	• Bar chart
• Overlay plot	• Box plot
• Logarithm plot	• Time series
• Bubble chart	• Map etc.



The advantages of PROC SGPLOT comparing with PROC GPLOT

1. Shorter process: Don't need to plan ahead



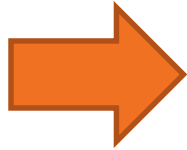


The advantages of PROC SGPLOT comparing with PROC GPLOT

2. More graph types

LIMITED graph options

GPLOT



SGPLOT

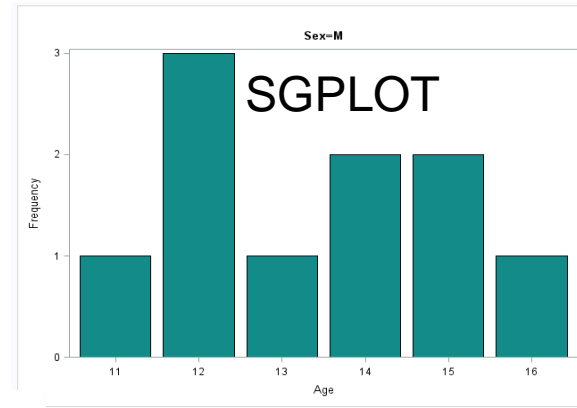
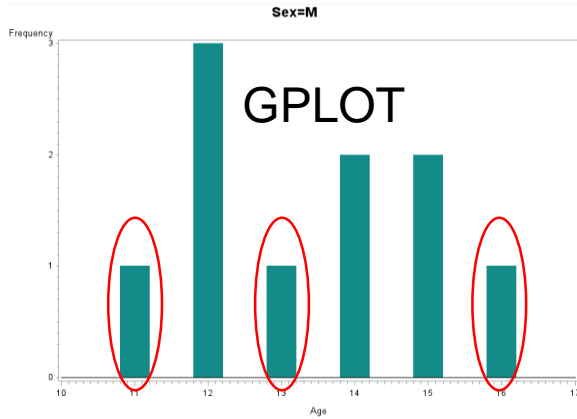
- Scatter plot
- Overlay plot
- Logarithm plot
- Bubble chart

- Scatter plot
- Overlay plot
- Logarithm plot
- Bubble chart

- Bar chart
- Map
- Box plot
- Etc.



Bar Chart



```
proc sort data=sashelp.class out=class; by sex;run;
```

```
proc freq data=class noprint;
table age / out=gplot_class;
by sex;
run;
```

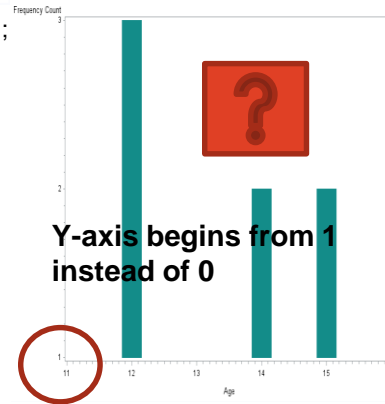
```
symbol c=vibg i=needle v=none w=40;
```

```
axis1 order=(0 to 3 by 1) label=("Frequency");
axis2 order=(10 to 17 by 1);
```

```
title "Sex=M";
```

```
proc gplot data=gplot_class;
plot count*age / vaxis=axis1 haxis=axis2;
where sex='M';
```

```
run;
quit;
```



```
proc sort data=sashelp.class out=class; by sex; run;
```

```
proc sgplot data=class;
vbar age / FILLATTRS=(color=vibg);
by sex;
where sex='M';
```

```
run;
quit;
```

1. Automatically create frequency variable
2. Simple and clear attribute options
3. Set up the perfect suitable range



Conclusion: the Advantages of PROC SGPLOT

1. Shorter process: Don't need to plan ahead

SGPLOT



Outcomes

2. More graph options

- Scatter plot
- Overlay plot
- Logarithm plot
- Bubble chart

- Bar chart
- Map
- Box plot
- Etc.

3. Better appearance axes automatically create

4. Overlay \geq 2 plots



Q&A

References

- Shruthi Amruthnath, Experis Business Analytics, Portage, MI : [PROC SGPLOT over PROC GPLOT](#)
- Philip Mason, Wood Street Consulting, Wallingford, Oxfordshire, England: [Introduction to SAS®/Graph](#)
- Susan J. Slaughter, Avocet Solutions, Davis, CA Lora D. Delwiche, University of California, Davis, CA : [Using PROC SGPLOT for Quick High-Quality Graphs](#)



Thank you

- **Contact Information**

Co-op student

@TransUnion



From Jan. - End of Aug.

Email: cyli@transunion.com

Phone: 905-340-1000 ext. 2181

Undergraduate student

@McMaster University



Graduation date: Apr, 2017

Email: lic66@mcmaster.ca

Phone: 289-921-0680

- **Appreciate the helpful suggestions and advises from Justin and Peter**