

How can I use the SAS software to plot means with standard error bars?

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The SAS software is a powerful statistical tool that can be used to plot means with standard error bars. This feature allows users to visually represent the central tendency and variability of a dataset, making it easier to interpret and compare data. To use this feature, users must first import their data into the SAS software and then use the appropriate commands or procedures to generate the plot. The software also provides options for customizing the appearance of the plot, such as changing the color or style of the bars. By utilizing the SAS software, users can efficiently and accurately create informative plots that aid in data analysis and reporting.

SAS: Plot Means with Standard Error Bars

You can use the following syntax in SAS to create a plot of mean values with standard error bars by group:

```
/*calculate mean and standard error of points for each team*/  
proc sql;  
create table groupPlot asselect  
team,  
mean(points) as meanPoints,  
mean(points) - stderr(points) as lowStdPoints,  
mean(points) + stderr(points) as highStdPoints  
from my_data  
group by team;  
quit;  
  
/*create plot with mean and standard error bars of points for each team*/
```

```
proc sgplot data=groupPlot;  
scatterx=team y=meanPoints /  
yerrorlower=lowStdPoints yerrorupper=highStdPoints  
group=team;  
seriesx=team y=meanPoints / group=team;  
run;
```

This particular example uses PROC SQL to calculate the mean value of the points variable, grouped by the team variable in some dataset.

We then use PROC SGPLOT to create a plot that shows the mean value of the points variable along with standard error bars, grouped by the team variable.

The following example shows how to use this syntax in practice.

Example: Plotting Means with Standard Error Bars in SAS

Suppose we have the following dataset that contains information about the points scored by basketball players on various teams:

```
/*create dataset*/  
data my_data;
```

```
input team $ points;
```

```
datalines;
```

```
A 29
```

```
A 23
```

```
A 20
```

```
A 21
```

```
A 33
```

```
B 14
```

```
B 13
```

```
B 17
```

```
B 14
```

```
B 15
```

```
C 21
```

```
C 22
```

```
C 20
```

```
C 25
```

```
C 24
```

```
;
```

```
run;
```

```
/*view dataset*/
```

```
proc printdata=my_data;
```

Obs	team	points
1	A	29
2	A	23
3	A	20
4	A	21
5	A	33
6	B	14
7	B	13
8	B	17
9	B	14
10	B	15
11	C	21
12	C	22
13	C	20
14	C	25
15	C	24

Suppose we would like to create a plot that shows the mean value of points along with standard error bars for each team.

We can use the following syntax to do so:

```
/*calculate mean and standard error of points for each team*/
```

```
proc sql;
```

```
create table groupPlot asselect
```

```
team,
```

```
mean(points) as meanPoints,
```

```
mean(points) - stderr(points) as lowStdPoints,
```

mean(points) + stderr(points) as highStdPoints

from my_data

group by team;

quit;

**/*create plot with mean and standard error bars of
points for each team*/**

proc sgplotdata=groupPlot;

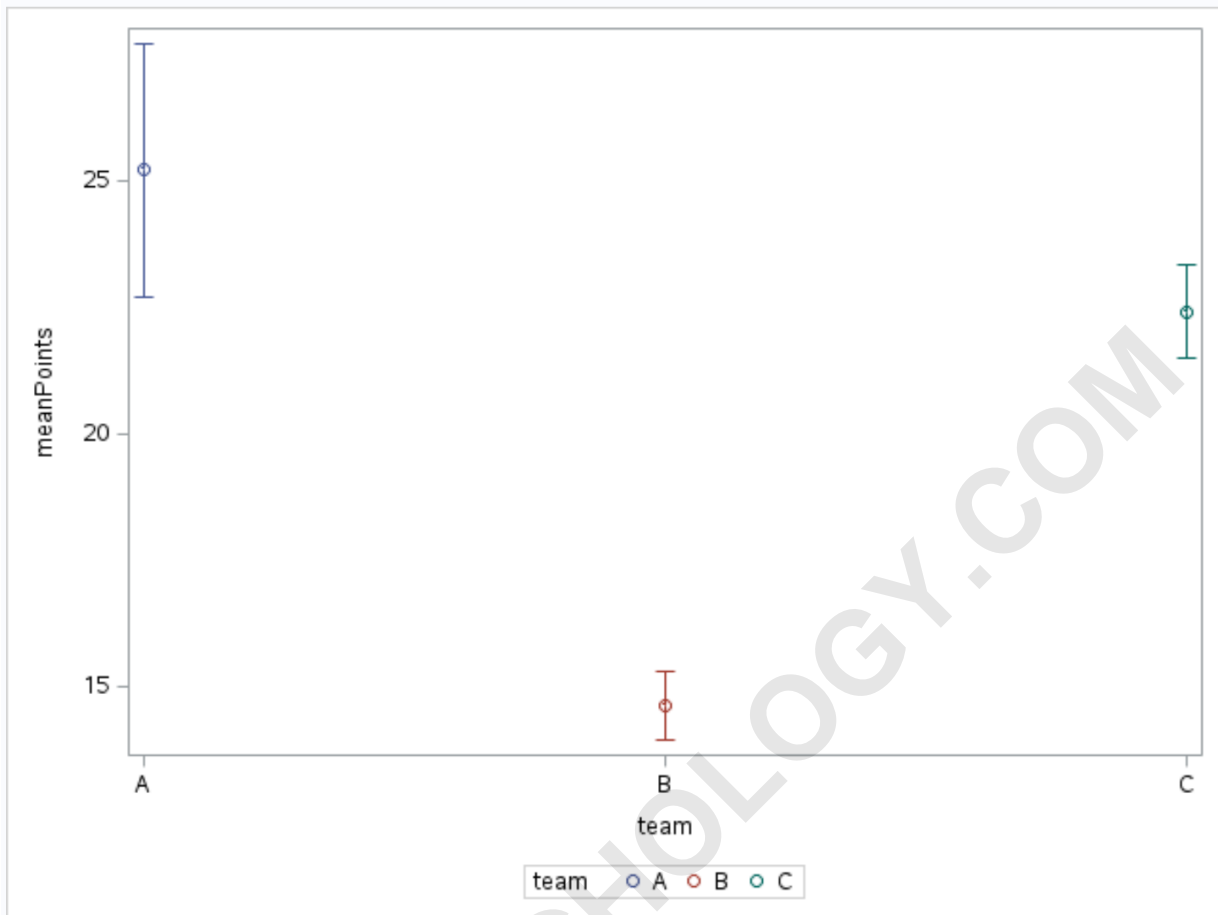
scatterx=team y=meanPoints /

yerrorlower=lowStdPoints yerrorupper=highStdPoints

group=team;

seriesx=team y=meanPoints / group=team;

run;



The tiny circles show the mean points value for each team and the bars extending from the circles show the standard error of points for each team.

We can also print the table we created using PROC SQL to see the actual mean and standard error values:

```
/*print mean and standard error of points for each team*/
```

```
proc printdata=groupPlot;
```

Obs	team	meanPoints	lowStdPoints	highStdPoints
1	A	25.2	22.7020	27.6980
2	B	14.6	13.9218	15.2782
3	C	22.4	21.4726	23.3274

The following tutorials explain how to create other charts in SAS:

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