How can I display the interquartile range (IQR) in PROC MEANS using SAS?

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PROC MEANS is a statistical procedure in SAS used for summarizing data and calculating various descriptive statistics. To display the interquartile range (IQR) in PROC MEANS, the following steps can be followed:

1. The data must be sorted in ascending order using the SORT procedure in SAS.
2. The IQR can then be calculated by finding the difference between the 75th and 25th percentiles of the data using the PCTLDEF option in PROC MEANS.
3. The result can be displayed in the output by using the OUTPUT statement in PROC MEANS.

This method allows for the easy and accurate display of the IQR in PROC MEANS, providing valuable information about the spread of the data.

SAS: Display IQR in PROC MEANS

You can use PROC MEANS to calculate summary statistics for variables in SAS.

By default, PROC MEANS does not display the interquartile range (IQR) as one of the summary statistics but you can use the QRANGE statement to include the IQR in the output:

```
proc meansdata=my_data N Mean QRANGE Std Min Max;
var points;
run;
```

This particular example calculates the total number of observations, mean, interquartile range, standard deviation, minimum and maximum value for a variable

called points.

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

Example: Display IQR in PROC MEANS in SAS

Suppose we have the following dataset in SAS that contains information about various basketball players:

```
/*create dataset*/
data my_data;
input team $ points assists;
datalines;
A 10 2
A 17 5
A 17 6
A 18 3
A 15 0
B 10 2
B 14 5
B 13 4
B 29 0
B 25 2
C 12 1
```

```
C 30 1
C 34 3
C 12 4
C 11 7
;
run;

/*view dataset*/
proc printdata=my_data;
```

Obs	team	points	assists
1	A	10	2
2	A	17	5
3	A	17	6
4	A	18	3
5	A	15	0
6	B	10	2
7	B	14	5
8	B	13	4
9	B	29	0
10	B	25	2
11	C	12	1
12	C	30	1
13	C	34	3
14	C	12	4
15	C	11	7

Suppose we use PROC MEANS to calculate summary statistics for the points variable in the dataset:

```
/*calculate summary statistics for points variable*/
proc meansdata=my_data;
var points;
run;
```

The MEANS Procedure

Analysis Variable : points				
N	Mean	Std Dev	Minimum	Maximum
15	17.8000000	7.8848861	10.0000000	34.0000000

By default, PROC MEANS calculates the following descriptive statistics:

N: The total number of observationsMean: The mean value of pointsStd Dev: The standard deviation of pointsMinimum: The minimum value of pointsMaximum: The maximum value of points

Notice that the IQR is not included in the output.

We can use the following syntax to include the IQR in the output:

```
/*calculate summary statistics for points and include IQR*/
```

```
proc meansdata=my_data N Mean QRANGE Std Min Max;
var points;
run;
```

The MEANS Procedure

Analysis Variable : points					
N	Mean	Quartile Range	Std Dev	Minimum	Maximum
15	17.8000000	13.0000000	7.8848861	10.0000000	34.0000000

Notice that the output now includes the interquartile range value for the points variable.

We can see that the IQR for the points variable turns out to be 13.

Recall that the IQR represents the difference between the 75th percentile and the 25th percentile for a given variable.

If you'd like to see the values for these percentiles, you can include P25 and P75 in the PROC MEANS procedure:

```
/*calculate summary statistics for points and include
```

```
IQR*/
proc meansdata=my_data N Mean P25 P75 QRANGE Std Min Max;
var points;
run;
```

The MEANS Procedure

Analysis Variable : points							
N	Mean	25th Pctl	75th Pctl	Quartile Range	Std Dev	Minimum	Maximum
15	17.8000000	12.0000000	25.0000000	13.0000000	7.8848861	10.0000000	34.0000000

The output now includes the 25th percentile, the 75th percentile, and the interquartile range for the points variable.

The following tutorials explain how to perform other common tasks in SAS: