Can I use the NWAY option in PROC SUMMARY to implement the SAS principle of summarizing data using the SUM statement, grouping data with the BY statement, and calculating statistics with the VAR statement?

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June 23, 2024

The NWAY option in PROC SUMMARY allows for the implementation of the SAS principle of summarizing data using the SUM statement, grouping data with the BY statement, and calculating statistics with the VAR statement. This option allows for the creation of a single observation for each unique combination of BY variables, with the SUM statement calculating the total for each variable and the VAR statement calculating the desired statistics. This approach ensures efficient and accurate summary of data, making it a valuable tool for data analysis and reporting.

SAS: Use NWAY in PROC SUMMARY

You can use the NWAY statement in PROC SUMMARY in SAS to only calculate summary statistics at a group level rather than calculating them for an entire dataset.

The following example shows how to use the NWAY statement in practice.

Example: How to Use NWAY in PROC SUMMARY

For this example, we'll use the SAS built-in dataset called , which contains various measurements for 159 different fish caught in a lake in Finland.

We can use PROC PRINT to view the first 10 from this dataset:

```
/*view first 10 observations from Fish dataset*/
proc printdata=sashelp.Fish (obs=10);

run;
```

Obs	Species	Weight	Length1	Length2	Length3	Height	Width
1	Bream	242	23.2	25.4	30.0	11.5200	4.0200
2	Bream	290	24.0	26.3	31.2	12.4800	4.3056
3	Bream	340	23.9	26.5	31.1	12.3778	4.6961
4	Bream	363	26.3	29.0	33.5	12.7300	4.4555
5	Bream	430	26.5	29.0	34.0	12.4440	5.1340
6	Bream	450	26.8	29.7	34.7	13.6024	4.9274
7	Bream	500	26.8	29.7	34.5	14.1795	5.2785
8	Bream	390	27.6	30.0	35.0	12.6700	4.6900
9	Bream	450	27.6	30.0	35.1	14.0049	4.8438
10	Bream	500	28.5	30.7	36.2	14.2266	4.9594

We can use the following code with PROC SUMMARY to calculate descriptive statistics for the variable Weight, grouped by the variable Species:

```
/*calculate descriptive statistics for Weight, grouped by Species*/
proc summarydata=sashelp.Fish;
var Weight;class Species;
output out=summaryWeight;
run;

/*print output dataset*/
proc printdata=summaryWeight;
```

Obs	Species	_TYPE_	_FREQ_	_STAT_	Weight
1		0	159	N	158.00
2		0	159	MIN	0.00
3		0	159	MAX	1650.00
4		0	159	MEAN	398.70
5		0	159	STD	359.09
6	Bream	1	35	N	34.00
7	Bream	1	35	MIN	242.00
8	Bream	1	35	MAX	1000.00
9	Bream	1	35	MEAN	626.00
10	Bream	1	35	STD	206.60
11	Parkki	1	11	N	11.00
12	Parkki	1	11	MIN	55.00
13	Parkki	1	11	MAX	300.00
14	Parkki	1	11	MEAN	154.82
15	Parkki	1	11	STD	78.76
16	Perch	1	56	N	56.00
17	Perch	1	56	MIN	5.90
18	Perch	1	56	MAX	1100.00
19	Perch	1	56	MEAN	382.24
20	Perch	1	56	STD	347.62

Note: There are a total of 40 rows in the output but we've only taken a screenshot of the first 20 rows.

Here's how to interpret the output table:

TYPE: This column shows whether or not every row in the dataset was used to calculate the descriptive statistics. 0 = Every row was used._FREQ_: The number of rows used to calculate each descriptive statistic._STAT_: The name of the descriptive

statistic.Weight: The numerical value for the corresponding descriptive statistic.

The first five rows show summary statistics for the entire dataset.

For example:

The total number of observations was 158.The minimum weight value was 0.The maximum weight value was 1,650.The mean weight value was 398.70.The standard deviation of weight values was 359.09.

The next five rows show these summary statistics only for the rows in the dataset where the Species is equal to Bream.

And so on.

If we use the NWAY statement in PROC SUMMARY, we specify that we only want to display the rows with the highest value in the _TYPE_ column of the output.

This means that only rows with a value of 1 in the _TYPE_ column will be shown. In other words, the first five rows that show summary statistics for the entire

dataset will no longer be shown.

The following code shows how to use the NWAY statement in practice:

```
/*calculate descriptive statistics for Weight, grouped by Species*/
proc summarydata=sashelp.Fish nway;
var Weight;class Species;
output out=summaryWeight;
run;

/*print output dataset*/
proc printdata=summaryWeight;
```

Obs	Species	_TYPE_	_FREQ_	_STAT_	Weight
1	Bream	1	35	N	34.00
2	Bream	1	35	MIN	242.00
3	Bream	1	35	MAX	1000.00
4	Bream	1	35	MEAN	626.00
5	Bream	1	35	STD	206.60
6	Parkki	1	11	N	11.00
7	Parkki	1	11	MIN	55.00
8	Parkki	1	11	MAX	300.00
9	Parkki	1	11	MEAN	154.82
10	Parkki	1	11	STD	78.76
11	Perch	1	56	N	56.00
12	Perch	1	56	MIN	5.90
13	Perch	1	56	MAX	1100.00
14	Perch	1	56	MEAN	382.24
15	Perch	1	56	STD	347.62

Notice that the summary statistics for the entire dataset are no longer shown.

Only the summary statistics for the individual Species are shown.

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