

How to Use HAVING Clause Within PROC SQL in SAS?

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The HAVING clause within PROC SQL in SAS can be used to specify a condition for a group or an aggregate function. It can be used to filter the output of a query and used in combination with the GROUP BY clause to filter groups of data. HAVING is applied after the GROUP BY and all aggregate functions are computed before the HAVING clause is applied. This means that any variable used in the HAVING clause should be included in the SELECT and GROUP BY clauses.

You can use the **HAVING** clause within **PROC SQL** in SAS to filter for rows that meet a certain condition.

Note the subtle difference between the **WHERE** and **HAVING** clause:

WHERE filters rows before any grouping occurs.

HAVING filters rows after any grouping occurs.

The following example shows how to use the **HAVING** clause in practice.

Example: How to Use HAVING Clause in PROC SQL

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

```
/*create dataset*/
```

```
data my_data;
```

```
input team $ position $ points;
```

```
datalines;
```

```
A Guard 22
```

```
A Guard 20
```

```
A Guard 30
```

```
A Forward 14
```

```
A Forward 11
```

```
B Guard 12
```

```
B Guard 22
```

```
B Forward 30
```

```
B Forward 9
```

```
B Forward 12
```

```
B Forward 25
```

```
C Guard 22
```

```
C Guard 19
```

```
C Guard 10
```

```
;
```

```
run;
```

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

```
proc print data=my_data;
```

Obs	team	position	points
1	A	Guard	22
2	A	Guard	20
3	A	Guard	30
4	A	Forward	14
5	A	Forward	11
6	B	Guard	12
7	B	Guard	22
8	B	Forward	30
9	B	Forward	9
10	B	Forward	12
11	B	Forward	25
12	C	Guard	22
13	C	Guard	19
14	C	Guard	10

We can use the following code to calculate the sum of points scored by players on each team **WHERE** the players are Guards and then filter the results to only show teams **HAVING** a sum greater than 50:

```
proc sql;  
select team, sum(points) as sum_points  
from my_data  
where position='Guard'  
group by team  
having sum_points>50;  
quit;
```

team	sum_points
A	72
C	51

Here is exactly how this code worked:

First, we used **SELECT** to select team and the sum of points
Then, we used **WHERE** to filter for rows where position was 'Guard'
Then, we used **GROUP** to group the results by team
Then we used **HAVING** to filter for teams with sum of points > 50

Here is what the results of this query would have looked like if we didn't include the **HAVING** statement:

```
proc sql;  
select team, sum(points) as sum_points  
from my_data  
where position='Guard'  
group by team;  
quit;
```

team	sum_points
A	72
B	34
C	51

Notice that the sum of points for team B was not greater than 50.

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