having clause is always followed by group by clause

SY)

* Group By Clause -

It arranges your data rows into groups according to column value. use specify.

Aggregate functions can be applied to group of set of tuples using group by clause. Consider following 'sp' table.

'sp'

Pno	Sno	qty
P_1	S_1	10
P_2	S_1	20
P_1	S_2	10
P_2	S_2	10
P_1	S_3	10
P_2	S_3	10
P_3	S_3	10

e.g. Find out list of suppliers and total quantity supplied by them.

SQL> select sno, sum(qty) "Total"
from sp
group by sno ;

o/p -

sno	Total
S_1	30
S_2	20
S_3	30

* Having Clause -

The having clause allows you to specify condition on the rows for each group. In other words which rows should be selected will be based on the condition you specified. The having clause follows group by clause.

82)

You use the having clause to specify which groups are to be displayed and further restrict the groups on the basis of aggregate fun'.
When you use having clause following steps are performed:

i) Rows are grouped
ii) The group function is applied to the group
iii) The group that matches the criteria in the having clause that are displayed.

The syntax for having clause is →

syntax →
```
select columnname, group function
from table
group by columnlist
having group condition;
```

Consider the follo. database
department(did, dname, salary).

Ex.- Give department no. & maximum salary for those departments whose maximum salary is greater than 10,000.

SQL> select did, ~~salary~~ max(salary)
from department
group by did ~~having~~
having max(salary) > 10000; ↵

ex. Display department name & average salary for those departments whose average salary is greater than 5000.

SQL> select dname, avg(salary)
from department group by dname
having avg(salary) > 5000; ↵

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NULL values -

SQL allows the use of NULL values to indicate absence of information about ~~an~~ the value of an attribute. We can use a special keyword "NULL" in a predicate to test for NULL value consider following 'customer' table.

cno	cname	cph_no
101	abc	12345
102	xyz	
103	pqr	15901
104	lmn	67534

e.g. Find all customers from customer relation with NULL value for cph_no.

SQL> select cname
from customer
where cph_no is NULL ; ↵ null

o/p.

cname
xyz

ex. Find all customers from customer relation where phone is not null.

SQL> select cname
from customer
where cph_no is not null ; ↵

o/p.

cname
abc
pqr
lmn