GROUP BY and HAVING

A Few More Examples ...

name	age	sex	country
Mario	34	M	BR
Tamer	49	M	TR
Anna	40	F	BR
Mary	30	F	US
John	20	M	US
Jane	30	F	US

SELECT country, AVG(age)
FROM Person
GROUP BY country

That's simple grouping

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name	age	sex	country
Mario	34	M	BR
Tamer	49	M	TR
Anna	40	F	BR
Mary	30	F	US
John	20	M	US
Jane	30	F	US

country	AVG(age)
BR	37
TR	49
US	27

name	age	sex	country
Mario	34	M	BR
Tamer	49	M	TR
Anna	40	F	BR
Mary	30	F	US
John	20	M	US
Jane	30	F	US

SELECT country, AVG(age)
FROM Person
WHERE age < 40
GROUP BY country

Here we do some filtering before the grouping ...

name	age	sex	country
Mario	34	M	BR
Mary	30	F	US
John	20	M	US
Jane	30	F	US

country	AVG(age)
BR	34
US	27

name	age	sex	country
Mario	34	M	BR
Tamer	49	M	TR
Anna	40	F	BR
Mary	30	F	US
John	20	M	US
Jane	30	F	US
name	age	sex	country
name Mario	age	sex M	country BR
Mario	34	M	BR
Mario Tamer	34 49	M M	BR TR
Mario Tamer Anna	34 49 40	M M F	BR TR BR

SELECT country, AVG(age)
FROM Person
GROUP BY country
HAVING AVG(age) < 40

country	AVG(age)
BR	37
TR	49
US	27

Here we do some filtering after the grouping ...

after the grouping		
country	AVG(age)	
BR	37	
IIS 27		

name	age	sex	country
Mario	34	M	BR
Tamer	49	M	TR
Anna	40	F	BR
Mary	30	F	US
John	20	M	US
Jane	30	F	US

SELECT MAX(age) FROM Person GROUP BY sex

The GROUP BY clause may have attributes which are not SELECTed but not vice-versa

			_
name	age	sex	country
Mario	34	M	BR
Tamer	49	M	TR
Anna	40	F	BR
Mary	30	F	US
John	20	M	US
Jane	30	F	US

MAX(age) 49 40

name	age	sex	country
Mario	34	M	BR
Tamer	49	M	TR
Anna	40	F	BR
Mary	30	F	US
John	20	M	US
Jane	30	F	US

SELECT MAX(age) FROM Person

If a GROUP BY is defined then the aggregation is done over all groups otherwise it is done over all table

MAX(age)

49

name	age	sex	country
Mario	34	M	BR
Tamer	49	M	TR
Anna	40	F	BR
Mary	30	F	US
John	20	M	US
Jane	30	F	US

SELECT country FROM Person GROUP BY sex

name	age	sex	country
Mario	34	M	BR
Tamer	49	M	TR
Anna	40	F	BR
Mary	30	F	US
John	20	M	US
Jane	30	F	US

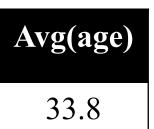
ILLEGAL!!!

The attribute SELECTed is not unique per GROUP, 'country' must have been in the GROUP BY clause

name	age	sex	country
Mario	34	M	BR
Tamer	49	M	TR
Anna	40	F	BR
Mary	30	F	US
John	20	M	US
Jane	30	F	US

SELECT country, avg(age) FROM Person

BR TR BR US US US





name	age	sex	country
Mario	34	M	BR
Tamer	49	M	TR
Anna	40	F	BR
Mary	30	F	US
John	20	M	US
Jane	30	F	US

SELECT sex, country
FROM Person
WHERE age <= 40
AND age > 20
GROUP BY sex, country
HAVING AVG(age) <= 30

name	age	sex	country
Mario	34	M	BR
Anna	40	F	BR
Mary	30	F	US
Jane	30	F	US

sex	country
F	US

GROUP BY and HAVING

Congratulations, you've graduated!