

Name	Fees	Branch
1	50K	IT ✓
2	70K	CS
3	85K	CS
4	60K	IT ✓

College

Select Branch From  
GROUP BY Branch

Select Avg(Fees) From  
 Group By Branch  
 College  
 =>

Avg(Fee)
55
75

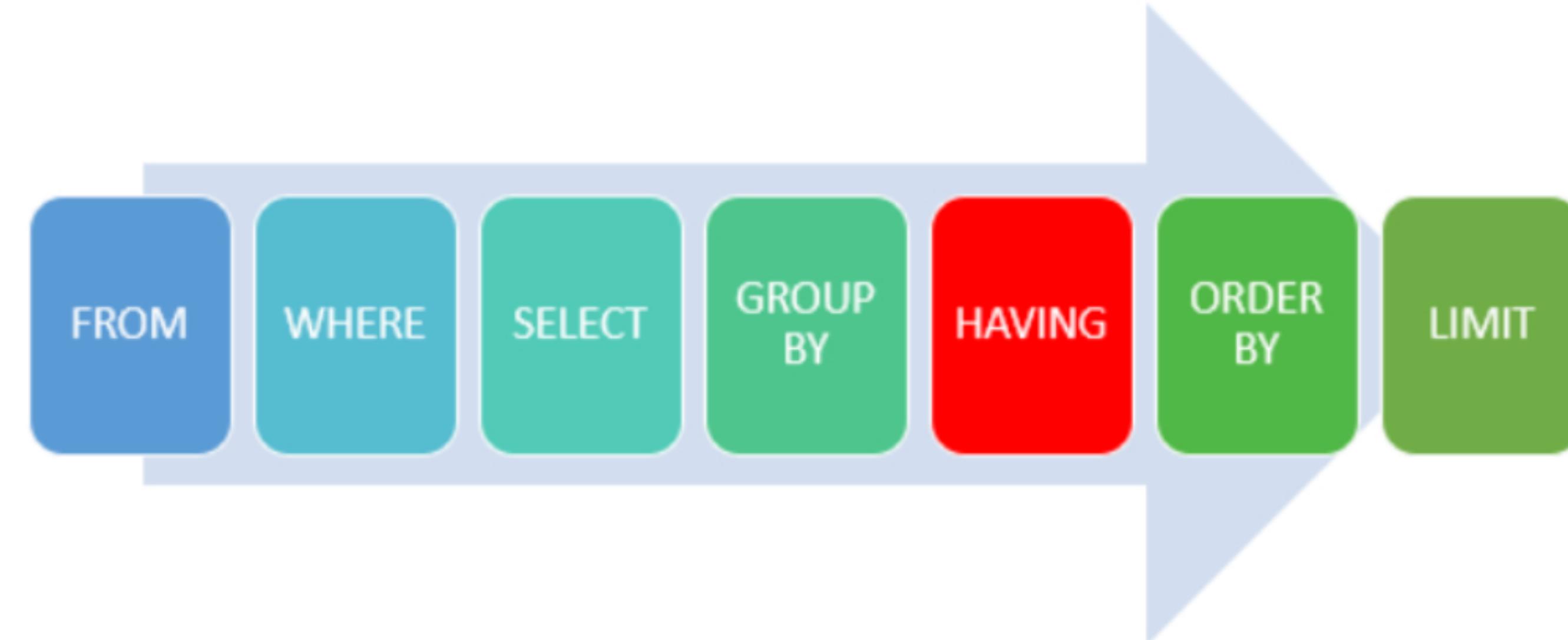
College  
 =>

Branch
IT
CS

## # HAVING Clause

- ⇒ Used with Group By for conditions on Agg fun results.
- ⇒ If Used without Group By = WHERE Clause
- ⇒ It is always utilised on groups.
- ⇒ WHERE Condition does not work on groups.
- ⇒ WHERE HAVING can be used in 1 query.

Order of Execution  
(What happens at a time?)



# Agg. fun

① Diff b/w Max & Min Salary

=) MIN/MAX → 1 col can be applied  
on Numbers, strings, dates

Count (?) → Any columns

Count (\*)

Count (Expression)

Superid + branch\_id?

~~Sum (superid, branchid)~~ X

Sum (superid) ✓

Sum (superid + branchid)

Count (DISTINCT SEX) ✓

Sum (DISTINCT SALARY)

Avg (DISTINCT SALARY)

MAX (DISTINCT SALARY)

MIN (DISTINCT SALARY)

N	S	SALARY
Y	100	X
50		
10	10	
10		
50		
70		
X	100	✓

Select MAX(DISTINCT SALARY) FROM  
Employee

VS

Select MAX (SALARY) FROM  
Employee

N	S
X	100
Y	100

10, 20, 30, 30, 50, 50, 100, ...  
Remove duplicates  
Max?

$$\text{AVG(Salary)} = \frac{\text{SUM(Salary)}}{\text{COUNT(Salary)}}$$

$$\text{AVG(DISTINCT SALARY)} = \frac{\text{SUM(DS)}}{\text{COUNT(DS)}}$$

## # Nested Queries (Non Graded)

Q1. All people in same branch  
as Michael?

Q2. All employee who earn  
more than Kelly Kapoor

Q3. Print f-name of employee  
who earns more than  
everybody  
in branch = 2. → Max

→ In NON CORRELATED NESTED QUERIES

Selected ✓  
col1

FROM tab1

WHERE Sal ~~op~~ ( NES

75k

10

Query

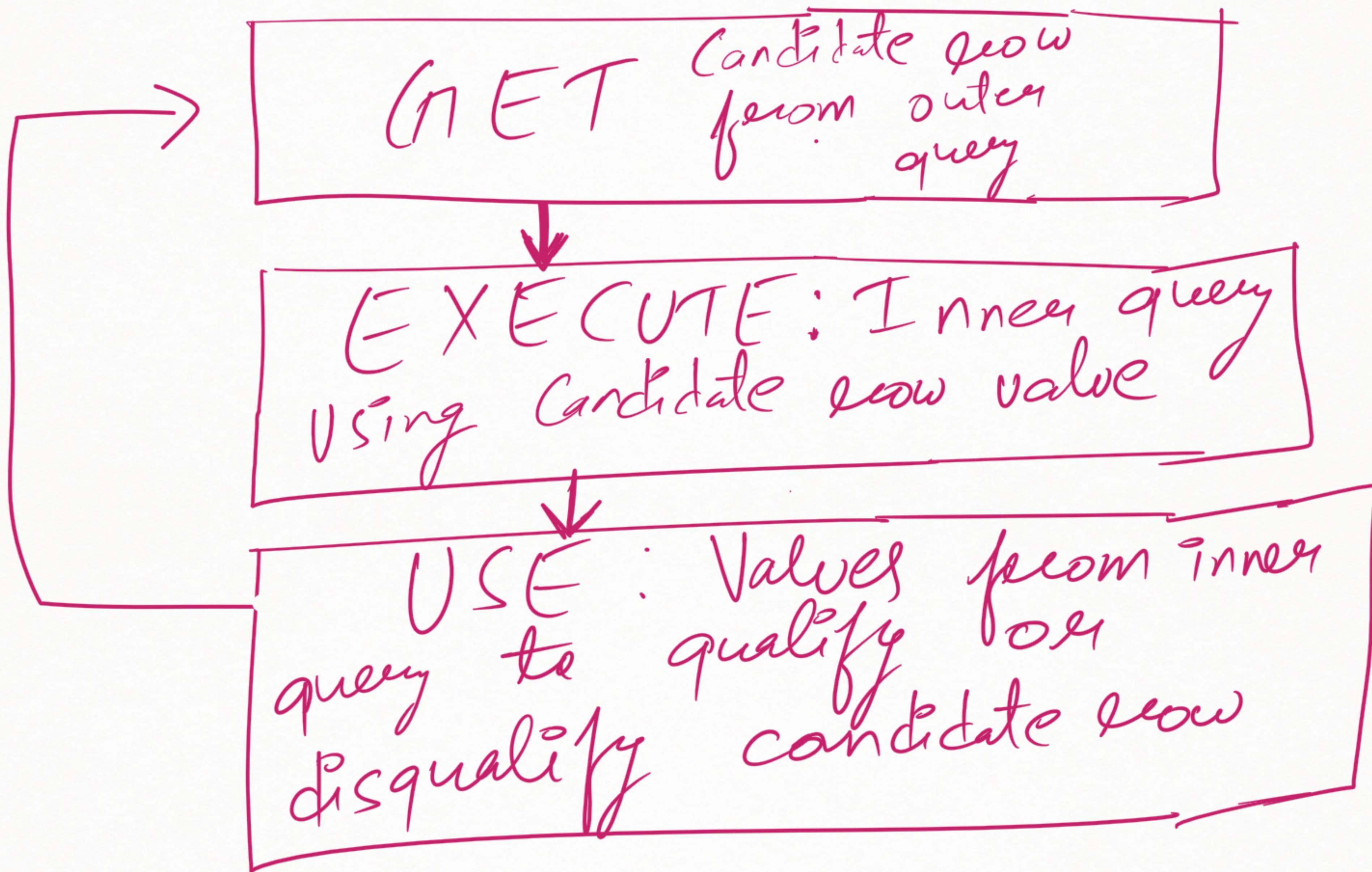
Runs first

⇒ Selected Sal from + where Sal > 75k

# All, SOME, ANY  
EXIST, NOT EXIST

Q1 Paint all the caps who  
are not greater than anybody  
in height  $\leq 2$  

- # Correlated Nested Queries
  - => It uses data from outer query.
  - => A correlated Nested Query is evaluated once for each row in outer query.



## # SYNTAX

Select col1, col2  
FROM table1 outer  
WHERE col1 operator

Outer Query

Does Not Run Completely  
in 1 (no  
Nested (correlated))  
(SELECT col1, col2  
FROM table2 WHERE  
exp1 = outer.exp2)

Nested Query-

Q1. Print all the emp  
more than the Aug salary in  
their Branch.

Q2. 2nd Highest Salary

Ans  $\rightarrow$  emp

Count (Distinct Salary)

EMP. Salary

110,000

( $\exists$ ) Salary

( $\exists$ )

salary
250000
110000
75000
63000
55000
69000
78000
65000
71000

salary
250000
110000
75000
63000
55000
69000
78000
65000
71000

```
mysql> SELECT salary FROM employee e
   -> WHERE 3 = (SELECT COUNT(DISTINCT salary) FROM employee p WHERE e.salary <= p.salary);
+-----+
| salary |
+-----+
| 78000 |
+-----+
1 row in set (0.00 sec)
```

e. Salary = 250,000 Count = 1

$$250,000 \leq p. salary$$

Get C.R ✓ e. salary = 110K

N<sup>th</sup> largest

110K  $\leq p. salary$

✓ 250K  
✓ 110K  
✓ 75K - - 71,000

Count = 2