Aggregate Function & Grouping

- There are many built in function on SQL Server
- Aggregate function is different its specific to do calculation→ تعمل عمليات حسابية وتطلع لنا الناتج

✓ **Count**
✓ **Max**
✓ **Min**
✓ **Avg**
✓ **Sum**

SELECT count (Salary) → هذا بيطلع لنا كم راتب في الجدول يعني = 15 راتب

From Employee

SELECT Sum (Salary) → هذا بيطلع لنا مجموع الرواتب في الجدول يعني = شغلوا الحسابه وحسبوا 😊

From Employee

SELECT Max (Salary), Min (Salary) → هنيه بيروح للجدول وبيطلع القيم المطلوبه منه يعني

From Employee → لاحظوا هنا بعد جمعنا نوعين

→nulls وحطوا في بالكم دائما انها ما تحط في الاعتبار **قاعدة عامة:**

OUTPUT: **1000&9000**

SELECT Count(*), Count(ID), Count(Name)

From Employee → بتطلع ثلاث قيم

15	**15**	**13**

❖ **خلونا نشوف معنا هذه الحالة:**

SELECT Avg(Salary)

From Employee

السؤال هنا: هل بيجمع وبيقسم على 15 ؟؟؟!

هنا بعد احتاج مساعدتكم قليلا😊

SELECT Min(Salary),Did

From Employee

😊خلونا نأخذ الكوري ونقسمها وعليه نعرف الناتج

Did is column, Min is a result so it will lead me to error ☹

- So, if we have column with the aggregate function, we should use somethings called **GROUB BY**

SELECT Min (Salary),Did

From Employee

GROUP BY Did

- Here it will divide the table to partition

10	**5000**
20	1000
30	3000

SELECT Count (ID), Address

From Employee

GRPUB BY Address

5	**cairo**
6	Alex
4	mansoura

Note: Do not use PK in GROUB BY →we use it in something repeated!

SELECT Max(salary),Did

From Employee

Where Address like '_A%' → **WHERE:** did not affect the number of groups it affects the value that come from groups

GROUP BY Did

7000	**10**
7000	20
9000	30

فكروا قليلا هنا:😊

SELECT Count(ID), Address

From Employee

Where Did in (10,30)

GROUB BY Address

- **WHERE HERE:** remove some of the rows before running the query, it effects rows but not the result of group

3	**cairo**
3	alex
4	mansoura

- **Here we want to use WHERE ON GROUP**

SELECT Max(Salary), Did

From Employee

GROUP BY Did

HAVING Max (salary) > 8500 → condition on the group →after we did group (10,20,30) which group is the max salary is > 8500

- Here we did like ***WHERE*** to the group not for the rows

9000	**20**
9000	10

SELECT Min(salary), Address

From Employee

Group by Address

HAVING Count (ID)> 5 // employee more than 5

1000	**alex**

Note: here the aggregate of having not same the aggregate of select

- **Its okay to put WHERE and HAVING together**

  - ✓ First start from WHERE to determine the rows
  - ✓ Then GROUP BY → HAVING →SELECT

SELECT ***Sum(salary),Did***

From Employee

WHERE ***Address like '_a%'***

Group by Did

HAVING ***max(salary)> 20000***

SELECT ***Min(Salary),Address***

From Employee

WHERE ***Did in(20,30)***

Group by Address

HAVING ***Count(ID)>= 4***

Employee

ID	Name	Salary	Address	Did
1	Zubair	5000	cairo	10
2	Shahad	6000	cairo	20
3	Mohammed	7000	cairo	30
4	Alanud	8000	alex	10
5	Saleh	7000	alex	20
6	Fatma	8000	alex	30
7	Azza	9000	alex	20
8	Rashed	2000	alex	10
9	Ibrahim	1000	alex	30
10	Amani	4000	cairo	20
11	Tasnim	7000	cairo	10
12	Afra	9000	mansoura	10
13	Budoor	3000	mansoura	20
14	NULL	6000	mansoura	30
15	NULL	5000	mansoura	20