

# Order By, Aggregates

Databases



## FruitStore

ID	Fruit	Colour	Amt
1	Apple	Green	3
2	Apple	Red	10
3	Pepper	Green	2
4	Orange	Orange	1
5	Pepper	Orange	4



How many fields?

How many records?

What is the keyfield?

## FruitStore

ID	Fruit	Colour	Amt
1	Apple	Green	3
2	Apple	Red	10
3	Pepper	Green	2
4	Orange	Orange	1
5	Pepper	Orange	4

Select \*

From FruitStore

Where Fruit = "Apple"



## FruitStore

ID	Fruit	Colour	Amt
1	Apple	Green	3
2	Apple	Red	10
3	Pepper	Green	2
4	Orange	Orange	1
5	Pepper	Orange	4

Select \*

From FruitStore

Where Fruit = "Apple"



## FruitStore

ID	Fruit	Colour	Amt
----	-------	--------	-----

1	Apple	Green	3
---	-------	-------	---

2	Apple	Red	10
---	-------	-----	----

3	Pepper	Green	2
---	--------	-------	---

4	Orange	Orange	1
---	--------	--------	---

5	Pepper	Orange	4
---	--------	--------	---

Select \*  
From FruitStore  
Where Amt >=4



## FruitStore

ID	Fruit	Colour	Amt
1	Apple	Green	3
2	Apple	Red	10
3	Pepper	Green	2
4	Orange	Orange	1
5	Pepper	Orange	4

Select \*  
From FruitStore  
Where Amt  $\geq 4$



Order By

means **Sort** By



## FruitStore

ID	Fruit	Colour	Amt
----	-------	--------	-----

1	Apple	Green	3
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2	Apple	Red	10
---	-------	-----	----

3	Pepper	Green	2
---	--------	-------	---

4	Orange	Orange	1
---	--------	--------	---

5	Pepper	Orange	4
---	--------	--------	---

Select \*

From FruitStore

Order by Amt



## FruitStore

ID	Fruit	Colour	Amt
4	Orange	Orange	1
3	Pepper	Green	2
1	Apple	Green	3
5	Pepper	Orange	4
2	Apple	Red	10

Select \*  
From FruitStore  
Order by Amt



## FruitStore

ID	Fruit	Colour	Amt
1	Apple	Green	3
2	Apple	Red	10
3	Pepper	Green	2
4	Orange	Orange	1
5	Pepper	Orange	4

Select \*

From FruitStore

Order by Colour, Fruit



## FruitStore

ID	Fruit	Colour	Amt
1	Apple	Green	3
3	Pepper	Green	2
4	Orange	Orange	1
5	Pepper	Orange	4
2	Apple	Red	10

2

1

Select \*

From FruitStore

Order by Colour, Fruit

1

2



## FruitStore

ID	Fruit	Colour	Amt
1	Apple	Green	3
2	Apple	Red	10
3	Pepper	Green	2
4	Orange	Orange	1
5	Pepper	Orange	4

Select \*  
From FruitStore  
Order by Fruit, Amt



## FruitStore

ID	Fruit	Colour	Amt
1	Apple	Green	3
2	Apple	Red	10
4	Orange	Orange	1
3	Pepper	Green	2
5	Pepper	Orange	4

1

2

Select \*  
From FruitStore  
Order by Fruit, Amt

1 2



Aggregates allow you to summarize information.



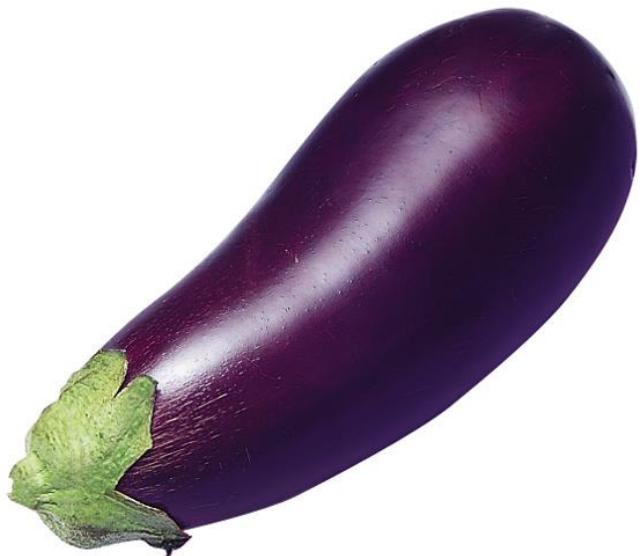
# Aggregates

- Count – How many, count (\*)
- Sum – Total
- Avg – Average, Mean
- Min – Smallest
- Max – Largest

## FruitStore

ID	Fruit	Colour	Amt
1	Apple	Green	3
2	Apple	Red	10
3	Pepper	Green	2
4	Orange	Orange	1
5	Pepper	Orange	4

Select count(\*)  
From FruitStore



## FruitStore

ID	Fruit	Colour	Amt
1	Apple	Green	3
2	Apple	Red	10
3	Pepper	Green	2
4	Orange	Orange	1
5	Pepper	Orange	4

Select count(\*)  
From FruitStore

Answer: 5



## FruitStore

ID	Fruit	Colour	Amt
1	Apple	Green	3
2	Apple	Red	10
3	Pepper	Green	2
4	Orange	Orange	1
5	Pepper	Orange	4

Select min(Amount)  
From FruitStore



## FruitStore

ID	Fruit	Colour	Amt
1	Apple	Green	3
2	Apple	Red	10
3	Pepper	Green	2
4	Orange	Orange	1
5	Pepper	Orange	4

Select min(Amt)  
From FruitStore

Answer: 1



## FruitStore

ID	Fruit	Colour	Amt
1	Apple	Green	3
2	Apple	Red	10
3	Pepper	Green	2
4	Orange	Orange	1
5	Pepper	Orange	4

Select max(Amt)  
From FruitStore



## FruitStore

ID	Fruit	Colour	Amt
1	Apple	Green	3
2	Apple	Red	10
3	Pepper	Green	2
4	Orange	Orange	1
5	Pepper	Orange	4

Select max(Amt)

From FruitStore

Answer: 10



## FruitStore

ID	Fruit	Colour	Amt
1	Apple	Green	3
2	Apple	Red	10
3	Pepper	Green	2
4	Orange	Orange	1
5	Pepper	Orange	4

Select avg(ID)  
From FruitStore

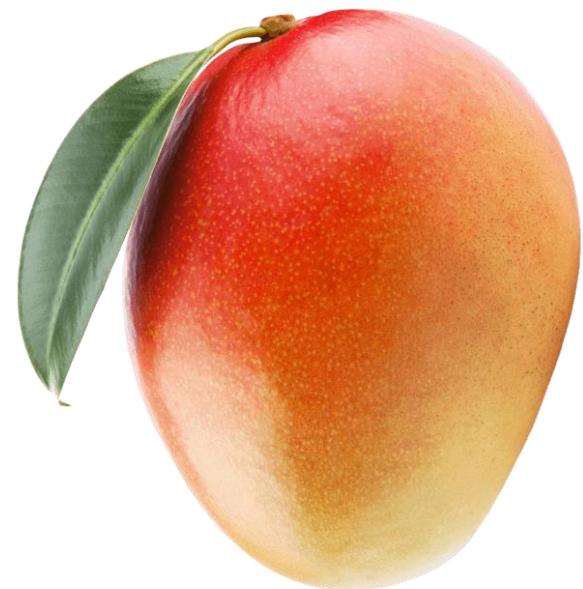


## FruitStore

ID	Fruit	Colour	Amt
1	Apple	Green	3
2	Apple	Red	10
3	Pepper	Green	2
4	Orange	Orange	1
5	Pepper	Orange	4

Select avg(ID)  
From FruitStore

Answer: 3



## FruitStore

ID	Fruit	Colour	Amt
1	Apple	Green	3
2	Apple	Red	10
3	Pepper	Green	2
4	Orange	Orange	1
5	Pepper	Orange	4

Select max(Amt)

From FruitStore

Where Fruit = “Pepper”



## FruitStore

ID	Fruit	Colour	Amt
1	Apple	Green	3
2	Apple	Red	10
3	Pepper	Green	2
4	Orange	Orange	1
5	Pepper	Orange	4

Select max(Amt)

From FruitStore

Where Fruit = “Pepper”



## FruitStore

ID	Fruit	Colour	Amt
1	Apple	Green	3
2	Apple	Red	10
3	Pepper	Green	2
4	Orange	Orange	1
5	Pepper	Orange	4

Select max(Amt)

From FruitStore

Where Fruit = “Pepper”

Answer: 4



## FruitStore

ID	Fruit	Colour	Amt
1	Apple	Green	3
2	Apple	Red	10
3	Pepper	Green	2
4	Orange	Orange	1
5	Pepper	Orange	4

Select min(Amt)

From FruitStore

Where Colour = "Green"



## FruitStore

ID	Fruit	Colour	Amt
1	Apple	Green	3
2	Apple	Red	10
3	Pepper	Green	2
4	Orange	Orange	1
5	Pepper	Orange	4

Select min(Amt)  
From FruitStore  
Where Colour = “Green”



## FruitStore

ID	Fruit	Colour	Amt
1	Apple	Green	3
2	Apple	Red	10
3	Pepper	Green	2
4	Orange	Orange	1
5	Pepper	Orange	4

Select min(Amt)

From FruitStore

Where Colour = "Green"

Answer: 2



## FruitStore

ID	Fruit	Colour	Amt
1	Apple	Green	3
2	Apple	Red	10
3	Pepper	Green	2
4	Orange	Orange	1
5	Pepper	Orange	4

Select count(\*)  
From FruitStore  
Where Amt > 2



## FruitStore

ID	Fruit	Colour	Amt
1	Apple	Green	3
2	Apple	Red	10
3	Pepper	Green	2
4	Orange	Orange	1
5	Pepper	Orange	4

Select count(\*)  
From FruitStore  
Where Amt > 2

Answer: 3

## FruitStore

ID	Fruit	Colour	Amt
1	Apple	Green	3
2	Apple	Red	10
3	Pepper	Green	2
4	Orange	Orange	1
5	Pepper	Orange	4

Select count(\*)

From FruitStore

Where Fruit < “Orange”

Use  
Alphabetical  
order!

## FruitStore

ID	Fruit	Colour	Amt
1	Apple	Green	3
2	Apple	Red	10
3	Pepper	Green	2
4	Orange	Orange	1
5	Pepper	Orange	4

Select count(\*)  
From FruitStore  
Where Fruit < “Orange”

Answer: 2

# SQL clauses:

select <fields> or aggregate ()

from <table>

where <field> = <value>

and <field> = <value>



**Group by puts things into categories.**



## FruitStore

<u>ID</u>	Fruit	Colour	Amt
-----------	-------	--------	-----

1	Apple	Green	3
---	-------	-------	---

2	Apple	Red	10
---	-------	-----	----

3	Pepper	Green	2
---	--------	-------	---

4	Orange	Orange	1
---	--------	--------	---

5	Pepper	Orange	4
---	--------	--------	---

Select count (\*), colour

From FruitStore

Group by colour

## FruitStore

ID	Fruit	Colour	Amt
----	-------	--------	-----

1	Apple	Green	3
---	-------	-------	---

3	Pepper	Green	2
---	--------	-------	---

4	Orange	Orange	1
---	--------	--------	---

5	Pepper	Orange	4
---	--------	--------	---

2	Apple	Red	10
---	-------	-----	----

Select count (\*), colour

From FruitStore

Group by colour

1. Group by colour

## FruitStore

ID	Fruit	Colour	Amt
----	-------	--------	-----

1	Apple	Green	3
3	Pepper	Green	2

Green: 2

4	Orange	Orange	1
5	Pepper	Orange	4

Orange: 2

2	Apple	Red	10
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Red: 1

Select count (\*), colour

From FruitStore

Group by colour

2. Count in each group

Count(*)	Colour
2	Green
2	Orange
1	Red

Select count (\*),colour  
 From FruitStore  
 Group by colour

3. Dsiply

## FruitStore

ID	Fruit	Colour	Amt
1	Apple	Green	3
2	Apple	Red	10
3	Pepper	Green	2
4	Orange	Orange	1
5	Pepper	Orange	4

Select max (amt), fruit  
From FruitStore  
Group by fruit

## FruitStore

ID	Fruit	Colour	Amt
----	-------	--------	-----

1	Apple	Green	3
2	Apple	Red	10

2	Apple	Red	10
4	Orange	Orange	1

4	Orange	Orange	1
5	Pepper	Orange	4

3	Pepper	Green	2
---	--------	-------	---

Select max (amt), fruit

From FruitStore

Group by fruit

1. Group by fruit

## FruitStore

ID	Fruit	Colour	Amt
----	-------	--------	-----

1	Apple	Green	3
2	Apple	Red	10

Apple: 10

4	Orange	Orange	1
---	--------	--------	---

Orange: 1

5	Pepper	Orange	4
3	Pepper	Green	2

Pepper: 4

Select max (amt), fruit

From FruitStore

Group by fruit

2. Count in  
each group

Max (Amt)	Fruit
10	Apple
1	Orange
4	Pepper

Select max (amt), fruit  
From FruitStore  
Group by fruit

3. Dsiply

# Group By Notes

- Group By is useful to find subtotals, or the max in each category, etc.
- Whatever field you group by is the ONLY field in the select line. (Only A can be in the select line)

Select count (\*), A

From Table

Group by A