

Order By, Aggregates

Databases



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



How many
fields?

How many
records?

What is the
keyfield?

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 *

From FruitStore

Where Fruit = "Apple"



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 *

From FruitStore

Where Fruit = "Apple"



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 *

From FruitStore

Where Amt >=4



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 *

From FruitStore

Where Amt >=4



Order By

means **Sort** By



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 *

From FruitStore

Order by Amt



FruitStore

<u>ID</u>	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

<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 *

From FruitStore

Order by Colour, Fruit



FruitStore

<u>ID</u>	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

<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 *

From FruitStore

Order by Fruit, Amt



FruitStore

<u>ID</u>	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

<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(*)
From FruitStore



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(*)

From FruitStore

Answer: 5



FruitStore

<u>ID</u>	Fruit	Colour	Amt
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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 min(Amount)
From FruitStore



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 min(Amt)
From FruitStore

Answer: 1



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 max(Amt)

From FruitStore



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 max(Amt)

From FruitStore

Answer: 10



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 avg(ID)
From FruitStore



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 avg(ID)
From FruitStore

Answer: 3



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 max(Amt)

From FruitStore

Where Fruit = "Pepper"



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 max(Amt)

From FruitStore

Where Fruit = "Pepper"



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 max(Amt)

From FruitStore

Where Fruit = "Pepper"

Answer: 4



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 min(Amt)

From FruitStore

Where Colour = "Green"



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 min(Amt)

From FruitStore

Where Colour = "Green"



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 min(Amt)

From FruitStore

Where Colour = "Green"

Answer: 2



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(*)
From FruitStore
Where Amt > 2



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(*)
From FruitStore
Where Amt > 2

Answer: 3

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(*)

From FruitStore

Where Fruit < "Orange"

Use
Alphabetical
order!

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(*)

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

<u>ID</u>	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

<u>ID</u>	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
---	-------	-----	----

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. Display

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 max (amt), fruit

From FruitStore

Group by fruit

FruitStore

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

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

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

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

<u>ID</u>	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. Display

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