



DATA WITH BARAA

# SQL COMPONENTS

Baraa Khatib Salkini  
YouTube | **DATA WITH BARAA**  
SQL Course | SELECT Query



SQL server is DBMS created by Microsoft like PostgreSQL and SSMS is GUI for it like PgAdmin for PostgreSQL

-- *Retrieve Customers Data*

**SELECT**

**name ,**

**LOWER (country)**

**FROM customers**

**WHERE country = 'Italy'**

## SQL STATEMENT

-- *Retrieve Customers Data*

**SELECT**

**name ,**

**LOWER (country)**

**FROM customers**

**WHERE country = 'Italy'**

Comment

-- Retrieve Customers Data

**SELECT**

**name ,**

**LOWER (country)**

**FROM customers**

**WHERE country = 'Italy'**

-- Retrieve Customers Data

Clauses

**SELECT**

**name ,**

**LOWER (country)**

**FROM customers**

**WHERE country = 'Italy'**

-- Retrieve Customers Data

**SELECT**

**name ,**

**LOWER (country)**

**Keywords**

**FROM** customers

**WHERE** country = 'Italy'

-- Retrieve Customers Data

**SELECT**

name ,

**LOWER** (country)

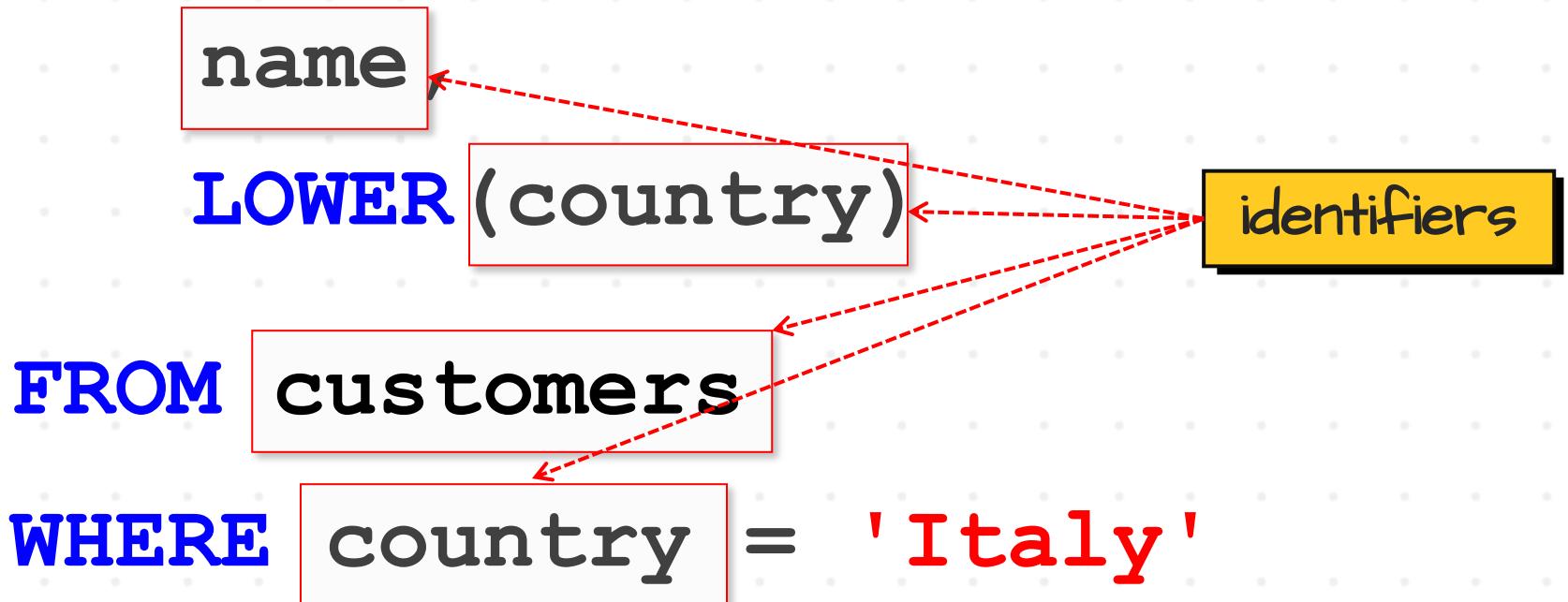
Function

**FROM** customers

**WHERE** country = 'Italy'

-- Retrieve Customers Data

**SELECT**



```
SELECT name, LOWER(country) FROM customers WHERE country = 'Italy'
```

-- Retrieve Customers Data

**SELECT**

name ,

**LOWER** (country)

Operator

**FROM** customers

**WHERE** country = 'Italy'



-- Retrieve Customers Data

**SELECT**

name ,

**LOWER**(country)

Value

**FROM** customers

**WHERE** country = 'Italy'



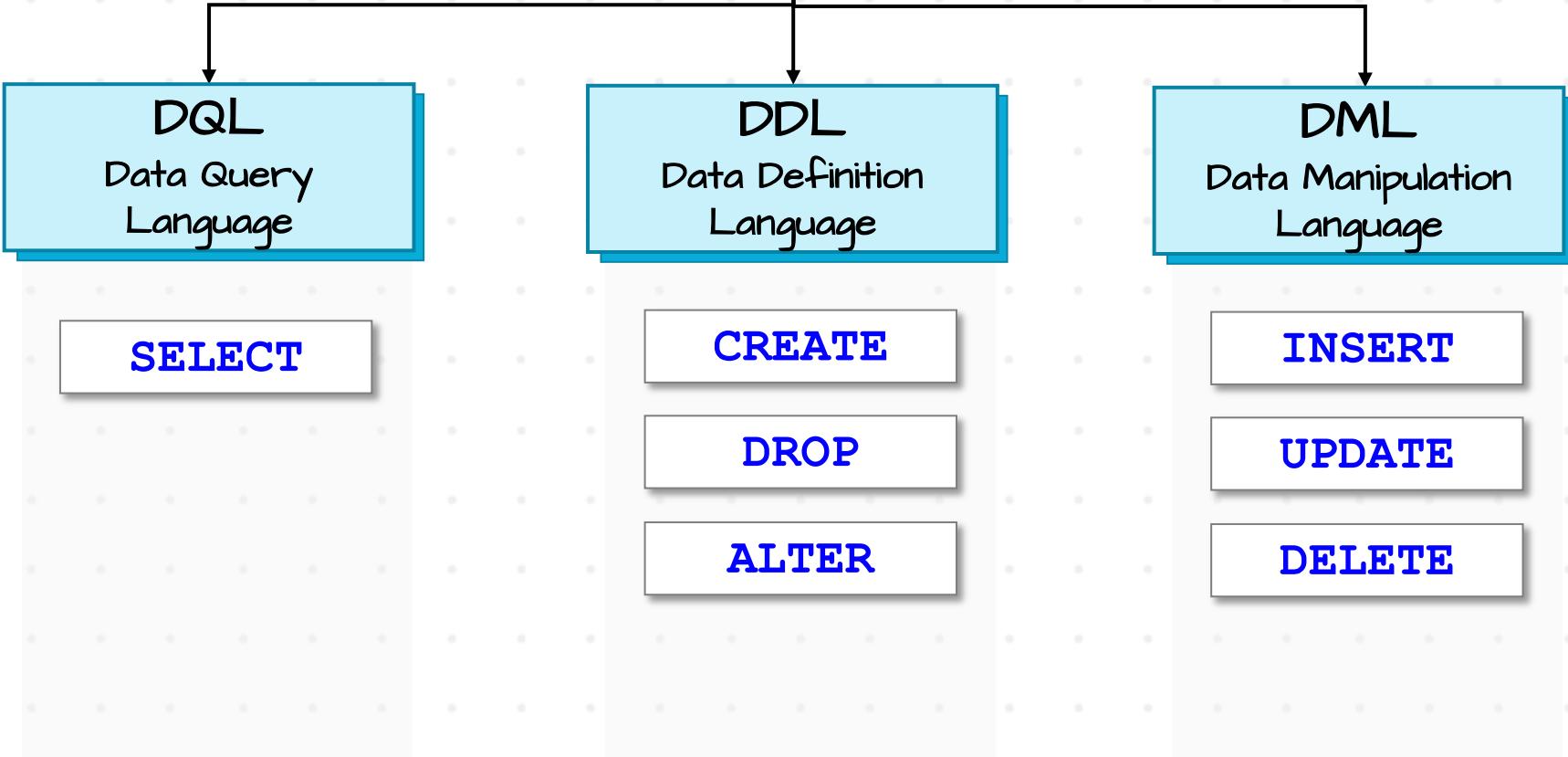
# QUERY DATA

## SELECT STATEMENT

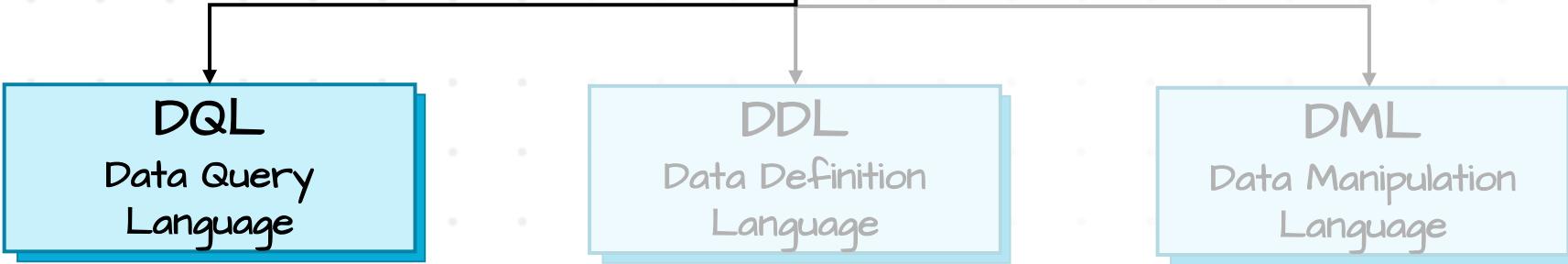
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## Types SQL Commands



## Types SQL Commands



**SELECT**

**CREATE**

**INSERT**

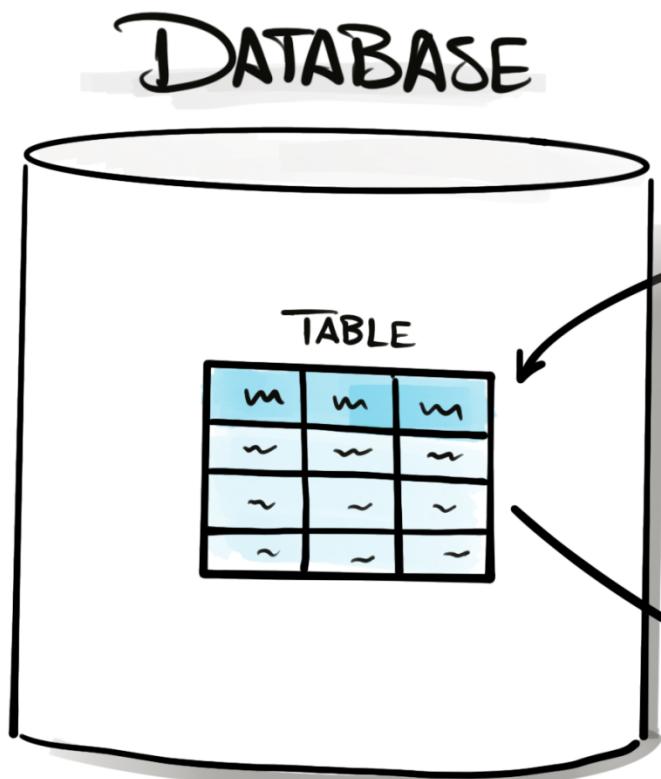
**DROP**

**UPDATE**

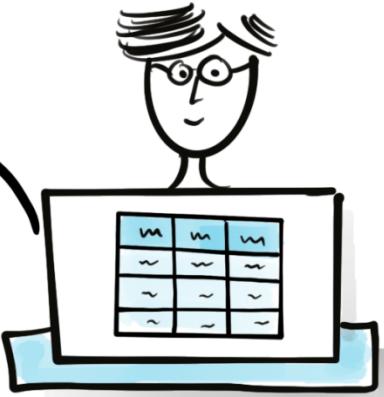
**ALTER**

**DELETE**

# ASK your Data



ASK Question  
???



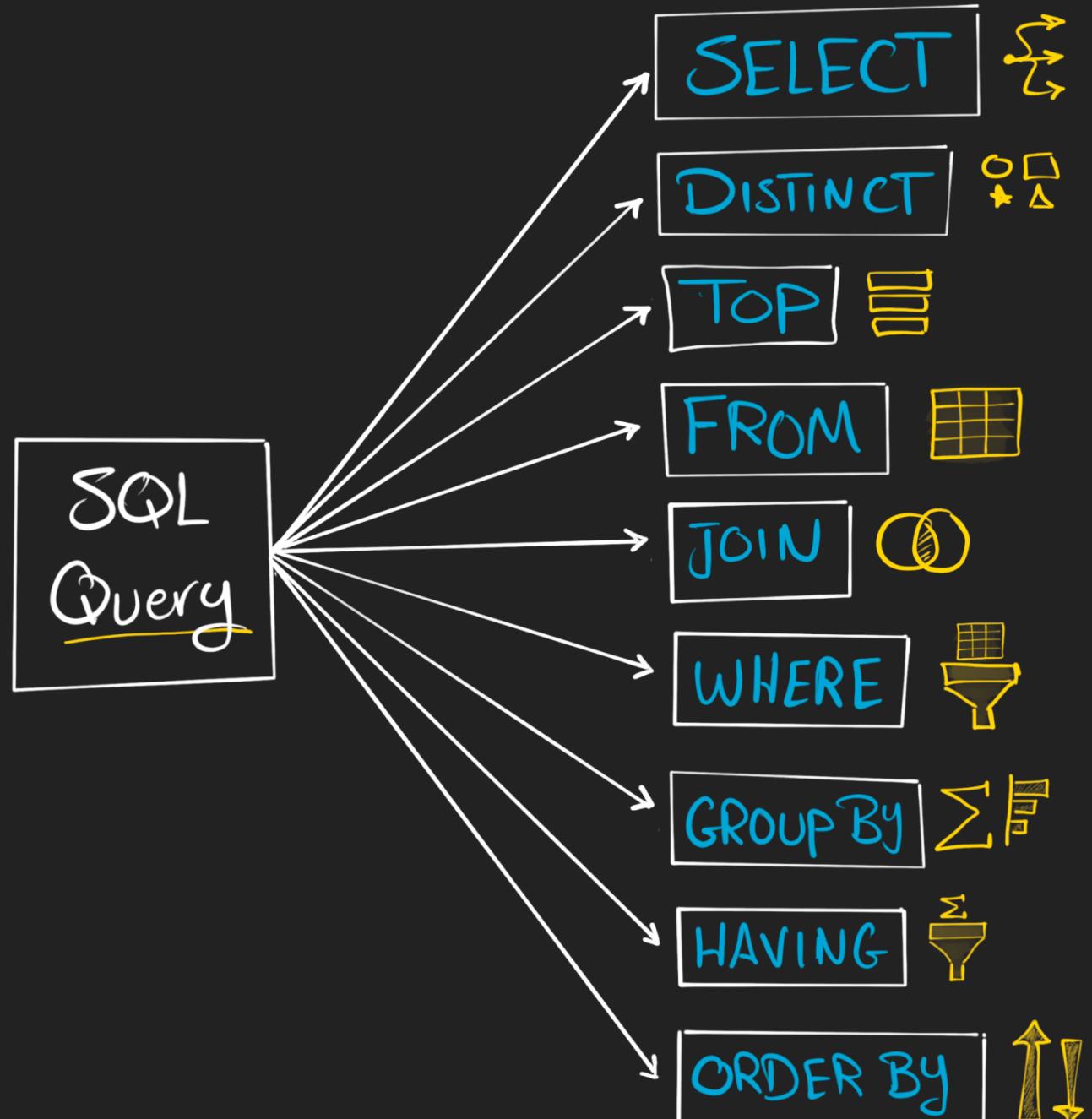
What is  
the ... ??

Get Answer





SQL  
Query



Database



	id	name	Country	Score
1	Maria	Germany	350	
2	John	USA	900	
3	Georg	UK	750	
4	Martin	Germany	500	
5	Peter	USA	0	

SELECT \*  
FROM Table

Select \* (All)

Retrieves All Columns (Everything)

From

Tells SQL Where to find Your Data

Database



id	name	Country	Score
1	Maria	Germany	350
2	John	USA	900
3	Georg	UK	750
4	Martin	Germany	500
5	Peter	USA	0

Keep All Columns!!

id	name	Country	Score
1	Maria	Germany	350
2	John	USA	900
3	Georg	UK	750
4	Martin	Germany	500
5	Peter	USA	0

② **SELECT**   
 ① **FROM Table**



id	name	Country	Score
1	Maria	Germany	350
2	John	USA	900
3	Georg	UK	750
4	Martin	Germany	500
5	Peter	USA	0

Select Few Columns

Pick only the Columns You Need  
instead of All.

SELECT

Col 1,

Col 2

FROM Table



Database



id	name	Country	Score
1	Maria	Germany	350
2	John	USA	900
3	Georg	UK	750
4	Martin	Germany	500
5	Peter	USA	0

Keeps only  
Needed Columns

	name	Country
Maria	Germany	
John	USA	
Georg	UK	
Martin	Germany	
Peter	USA	

② SELECT

Col 1,

Col 2

① FROM Table

Database



id	name	Country	Score
1	Maria	Germany	350
2	John	USA	900
3	Georg	UK	750
4	Martin	Germany	500
5	Peter	USA	0

SELECT \*

FROM Table

WHERE Condition

Where 
Filters Your Data based on a Condition

Score Higher than 500

Database



id	name	Country	Score
1	Maria	Germany	350
2	John	USA	900
3	Georg	UK	750
4	Martin	Germany	500
5	Peter	USA	0

③ SELECT \*

① FROM Table

② WHERE Condition

id name Country Score

1	Maria	Germany	350
2	John	USA	900
3	Georg	UK	750
4	Martin	Germany	500
5	Peter	USA	0

Score &gt; 500



Database



id	name	Country	Score
1	Maria	Germany	350
2	John	USA	900
3	Georg	UK	750
4	Martin	Germany	500
5	Peter	USA	0

SELECT \*  
 FROM Table  
 ORDER BY Score DESC

Order By

Sort Your Data


 } ASC  
 } DESC

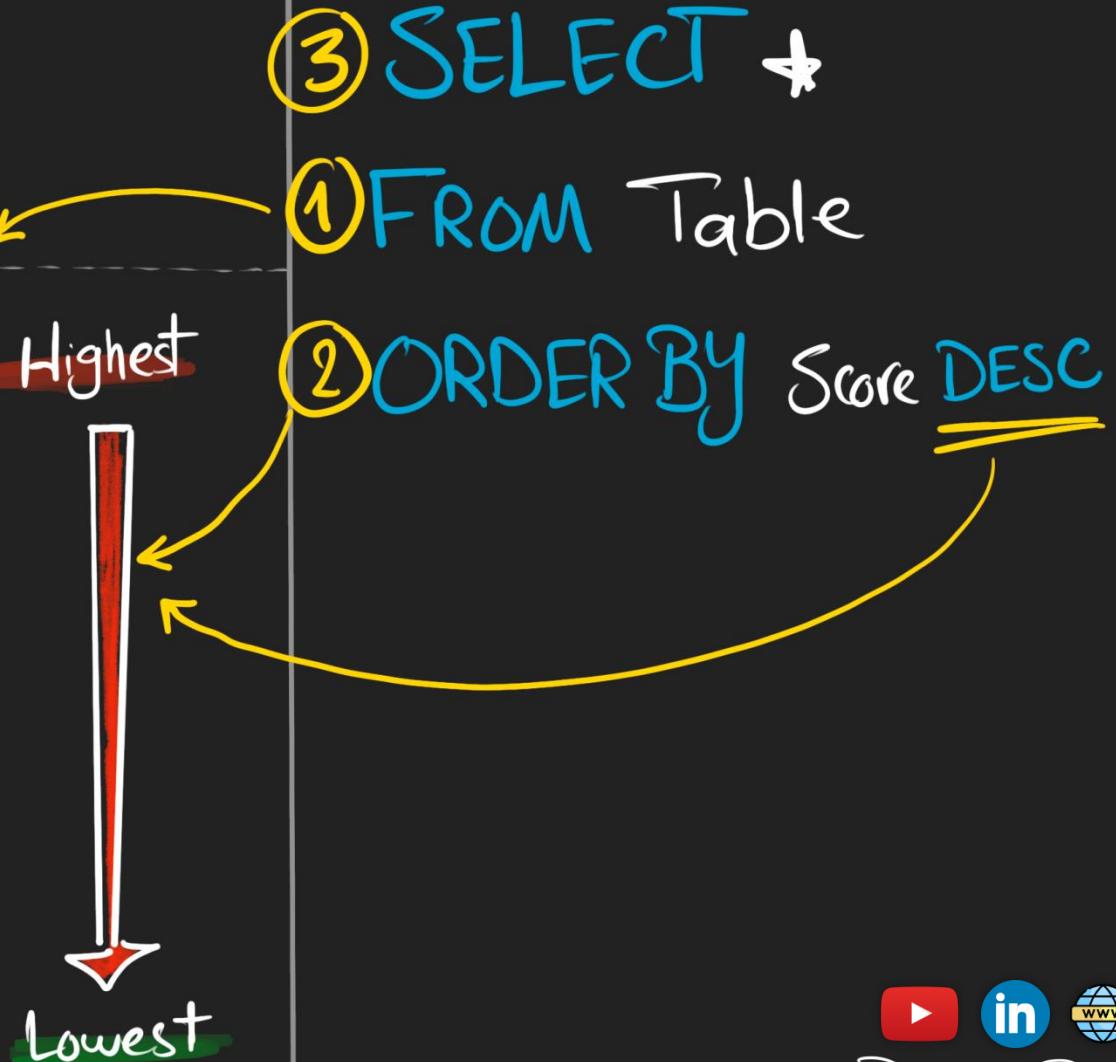
Lowest ↑  
 Highest ↑  
 Highest ↓  
 Lowest ↓

Database



id	name	Country	Score
1	Maria	Germany	350
2	John	USA	900
3	Georg	UK	750
4	Martin	Germany	500
5	Peter	USA	0

id	name	Country	Score
2	John	USA	900
3	Georg	UK	750
4	Martin	Germany	500
1	Maria	Germany	350
5	Peter	USA	0



Database



id	name	Country	Score
1	Maria	Germany	350
2	John	USA	900
3	Georg	UK	750
4	Martin	Germany	500
5	Peter	USA	0

Lowest

id	name	Country	Score
4	Martin	Germany	500
1	Maria	Germany	350
3	Georg	UK	750
2	John	USA	900
5	Peter	USA	0

Highest

③ SELECT \*

① FROM Table

② ORDER BY

Country ASC,

Score DESC



Database



id	name	Country	Score
1	Maria	Germany	350
2	John	USA	900
3	Georg	UK	750
4	Martin	Germany	500
5	Peter	USA	0

## Group By

Combines rows with the same value

Aggregates a Column By another Column

Total Score By Country

SELECT Country, Category  
 FROM Table  
 GROUP BY Country  
 SUM(score)

Database



	id	name	Country	Score
1	1	Maria	Germany	350
2	2	John	USA	900
3	3	Georg	UK	750
4	4	Martin	Germany	500
5	5	Peter	USA	0

### ③ SELECT

Country,

SUM(score)

① FROM Table

② GROUP BY Country

1	Germany	850
2	USA	900
3	UK	750

Database



id	name	Country	Score
1	Maria	Germany	350
2	John	USA	900
3	Georg	UK	750
4	Martin	Germany	500
5	Peter	USA	0

HAVINGFilters Data After AggregationCan be used only with Group By

SELECT

Country,SUM(score)

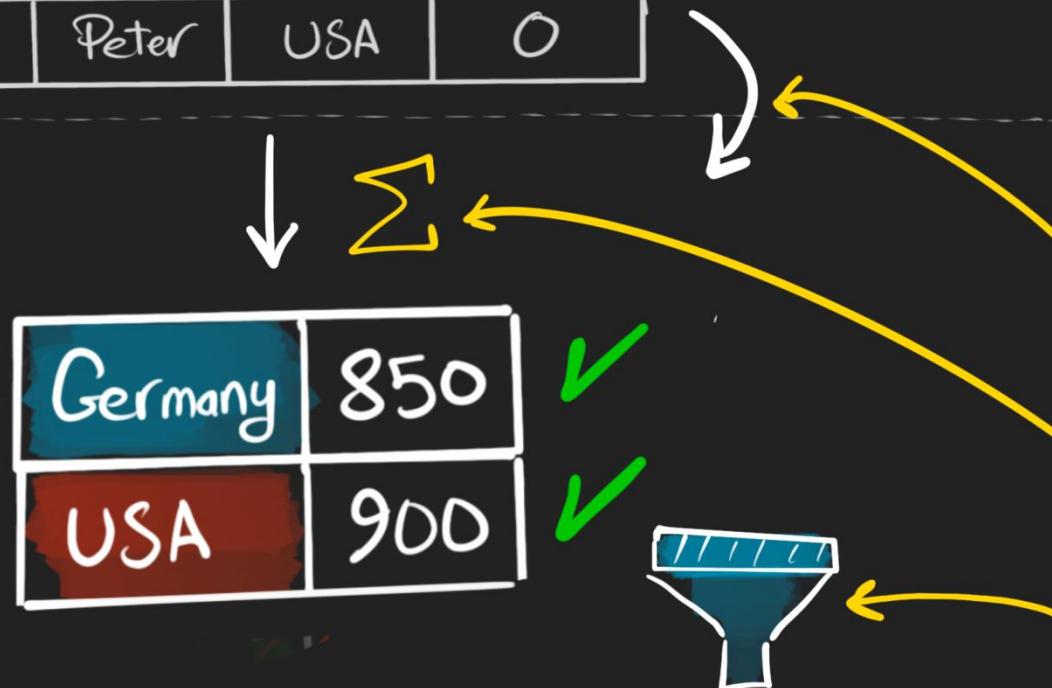
FROM Table

GROUP BY CountryHAVING SUM(score) > 800

Database



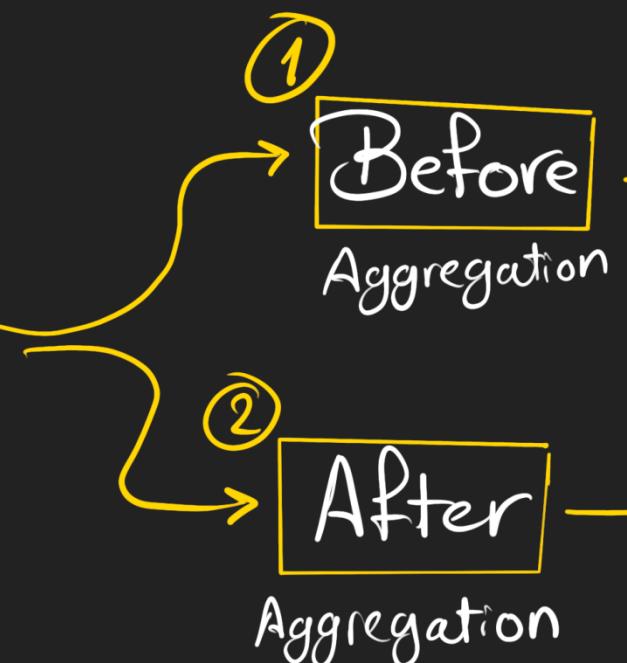
id	name	Country	Score
1	Maria	Germany	350
2	John	USA	900
3	Georg	UK	750
4	Martin	Germany	500
5	Peter	USA	0


 Total Score  $> 800$

Database



id	name	Country	Score
1	Maria	Germany	350
2	John	USA	900
3	Georg	UK	750
4	Martin	Germany	500
5	Peter	USA	0


 Filter  
Your Data


SELECT

 Country,  
SUM(score)

FROM Table

WHERE Score &gt; 400

GROUP BY Country

HAVING SUM(score) &gt; 800

Database



	id	name	Country	Score
1	Maria	Germany	350	
2	John	USA	900	
3	Georg	UK	750	
4	Martin	Germany	500	
5	Peter	USA	0	

SELECT DISTINCT

Col

FROM Table

Distinct

Removes Duplicates (Repeated Values)

each Value appears only Once



DATA WITH BARAA

Database



	id	name	Country	Score
1	Maria	Germany	350	
2	John	USA	900	
3	Georg	UK	750	
4	Martin	Germany	500	
5	Peter	USA	0	

Country

Germany
USA
UK
Germany
USA

only  
Once!

Germany
USA
UK

③ SELECT DISTINCT  
② Country  
① FROM Table

Database



id	name	Country	Score
1	Maria	Germany	350
2	John	USA	900
3	Georg	UK	750
4	Martin	Germany	500
5	Peter	USA	0

TOP (Limit)

Restrict the Number of Rows Returned

 SELECT TOP 3


FROM Table

Database



id	name	Country	Score
1	Maria	Germany	350
2	John	USA	900
3	Georg	UK	750
4	Martin	Germany	500
5	Peter	USA	0

id	name	Country	Score
1	Maria	Germany	350
2	John	USA	900
3	Georg	UK	750

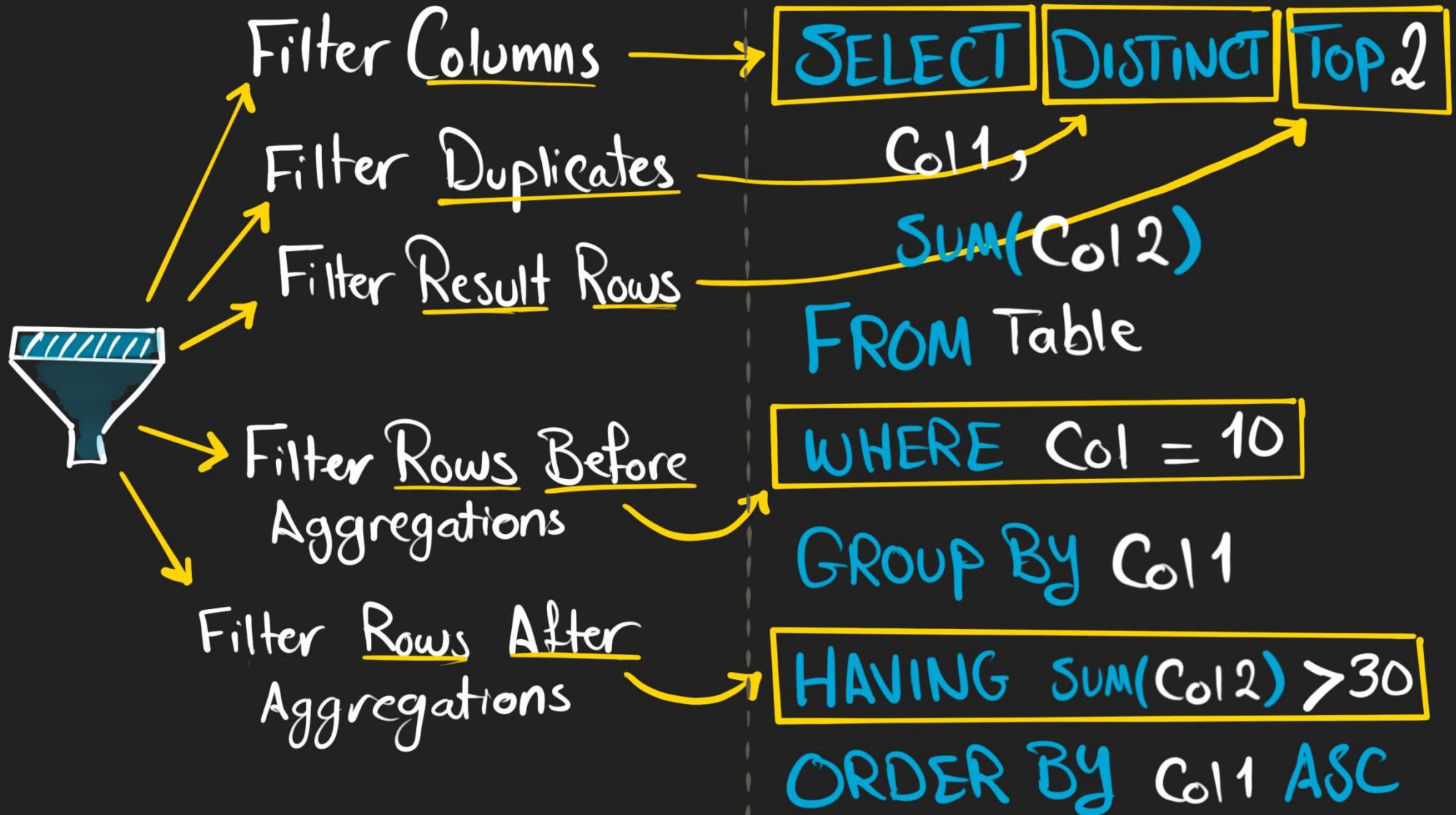
Row 1 →

Row 2 →

Row 3 →

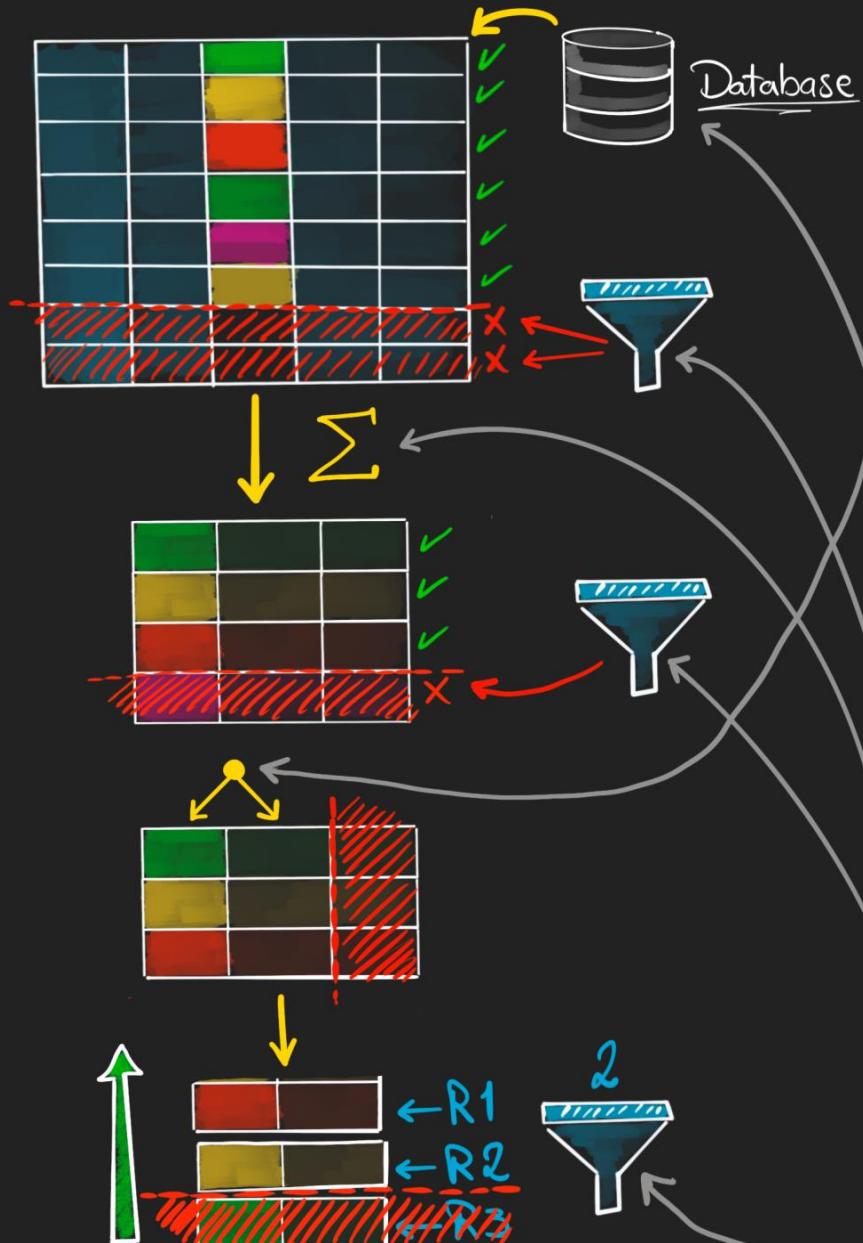
③ **② SELECT TOP 3**  
 \*  
 ① FROM Table

## Execute Order



## Execute Order

- ① **FROM**
- ② **WHERE**
- ③ **GROUP By**
- ④ **HAVING**
- ⑤ **SELECT DISTINCT**
- ⑥ **ORDER By**
- ⑦ **Top**



## Coding Order

- ① **FROM Table**
- ② **WHERE Col1 = 10**
- ③ **GROUP By Col1**
- ④ **HAVING SUM(Col2) > 30**
- ⑤ **SELECT DISTINCT Col1, SUM(Col2)**
- ⑥ **ORDER By Col1 ASC**
- ⑦ **Top 2**



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# BONUS Sketches

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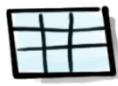




## Database

### Customers

id	name	Country	Score
1	Maria	Germany	350
2	John	USA	900
3	Georg	UK	750
4	Martin	Germany	500
5	Peter	USA	0



## Result

② SELECT \*

① FROM

id	name	Country	Score
1	Maria	Germany	350
2	John	USA	900
3	Georg	UK	750
4	Martin	Germany	500
5	Peter	USA	0



Execute Order

① FROM

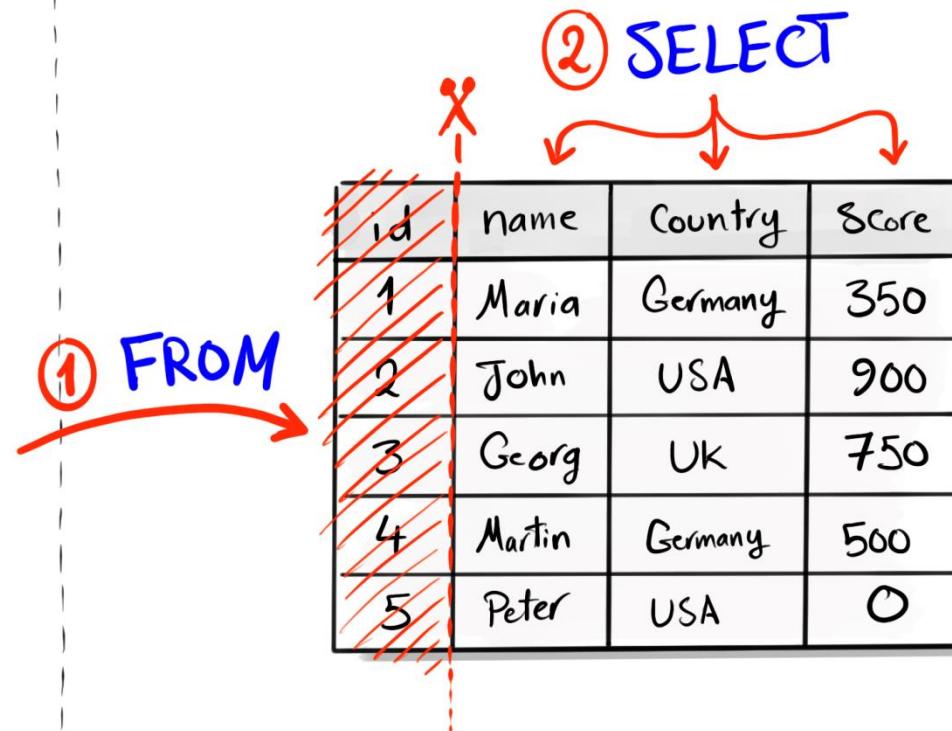


Database

Customers

id	name	Country	Score
1	Maria	Germany	350
2	John	USA	900
3	Georg	UK	750
4	Martin	Germany	500
5	Peter	USA	0

Result



Execute Order

① FROM  
② SELECT

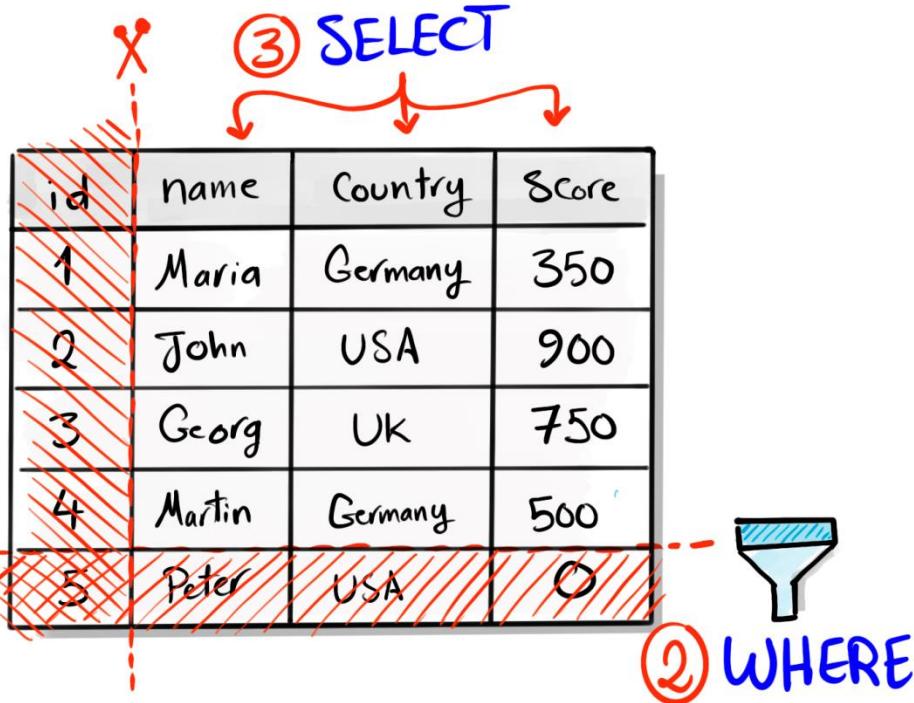


## Database

### Customers

id	name	Country	Score
1	Maria	Germany	350
2	John	USA	900
3	Georg	UK	750
4	Martin	Germany	500
5	Peter	USA	0

① FROM



Execute Order

① FROM

② WHERE

③ SELECT

Name	Score
Alex	90
Maria	50
Alex	30
Maria	80

DESC

Highest

Lowest

Name	Score
Alex	90
Maria	80
Maria	50
Alex	30



ASC

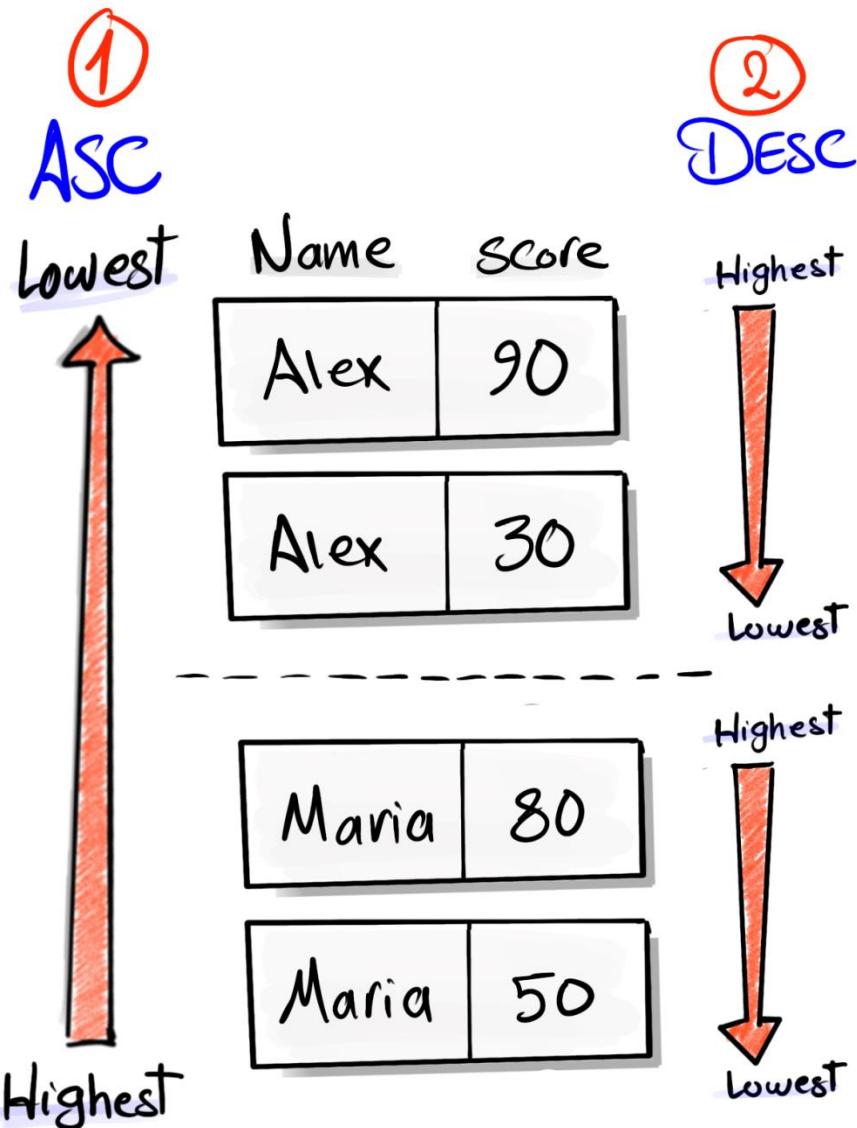
Lowest

Highest

Name	Score
Alex	30
Maria	50
Maria	80
Alex	90



Name	Score
Alex	90
Maria	50
Alex	30
Maria	80





## Database

### Customers

id	name	Country	Score
1	Maria	Germany	350
2	John	USA	900
3	Georg	UK	750
4	Martin	Germany	500
5	Peter	USA	0

① FROM

## Result

id	name	Country	Score
1	Maria	Germany	350
2	John	USA	900
3	Georg	UK	750
4	Martin	Germany	500
5	Peter	USA	0

② WHERE

Σ  
③ GROUP By

Country	Avg
Germany	425
USA	900
UK	500

④ SELECT

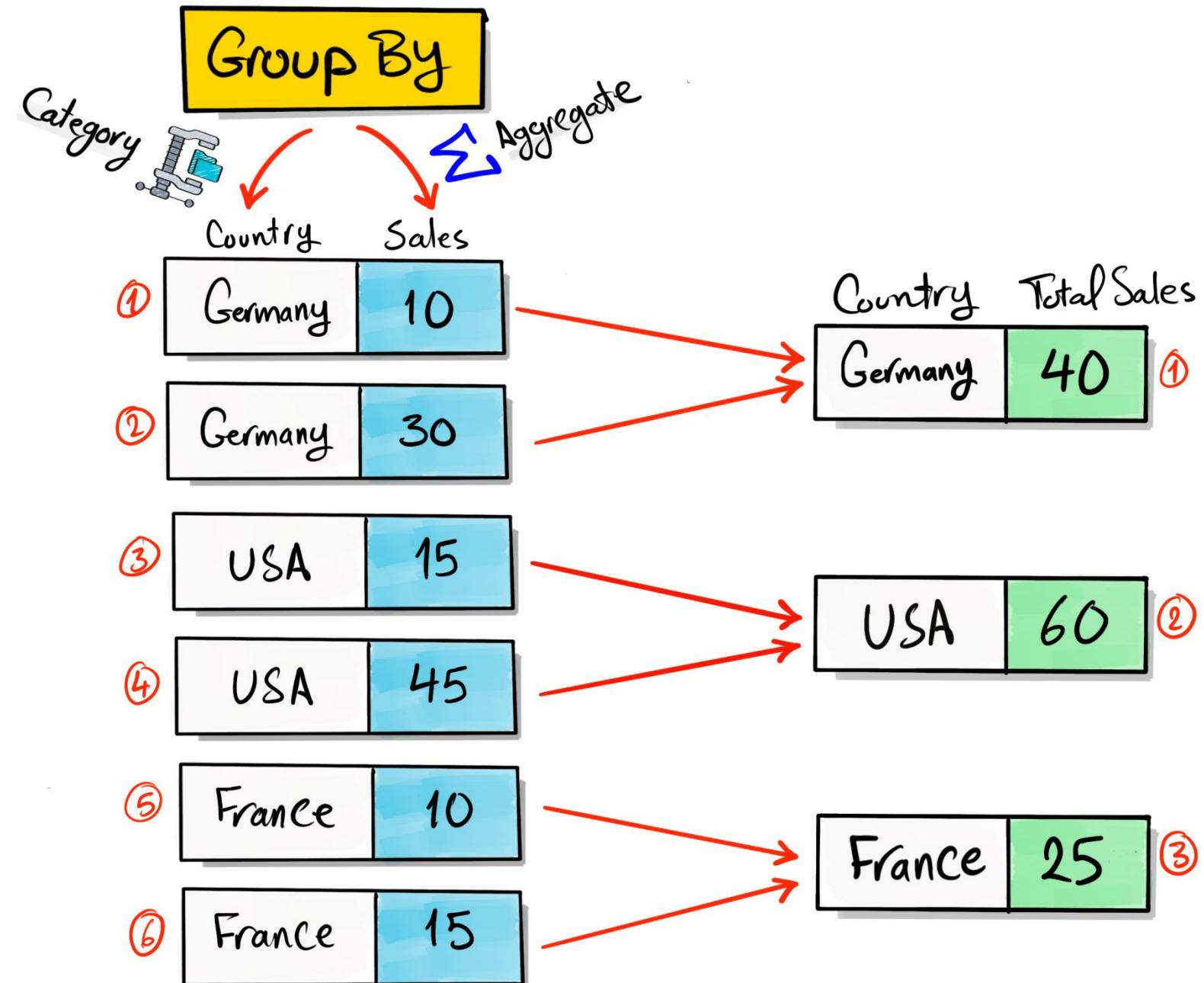
Execute Order

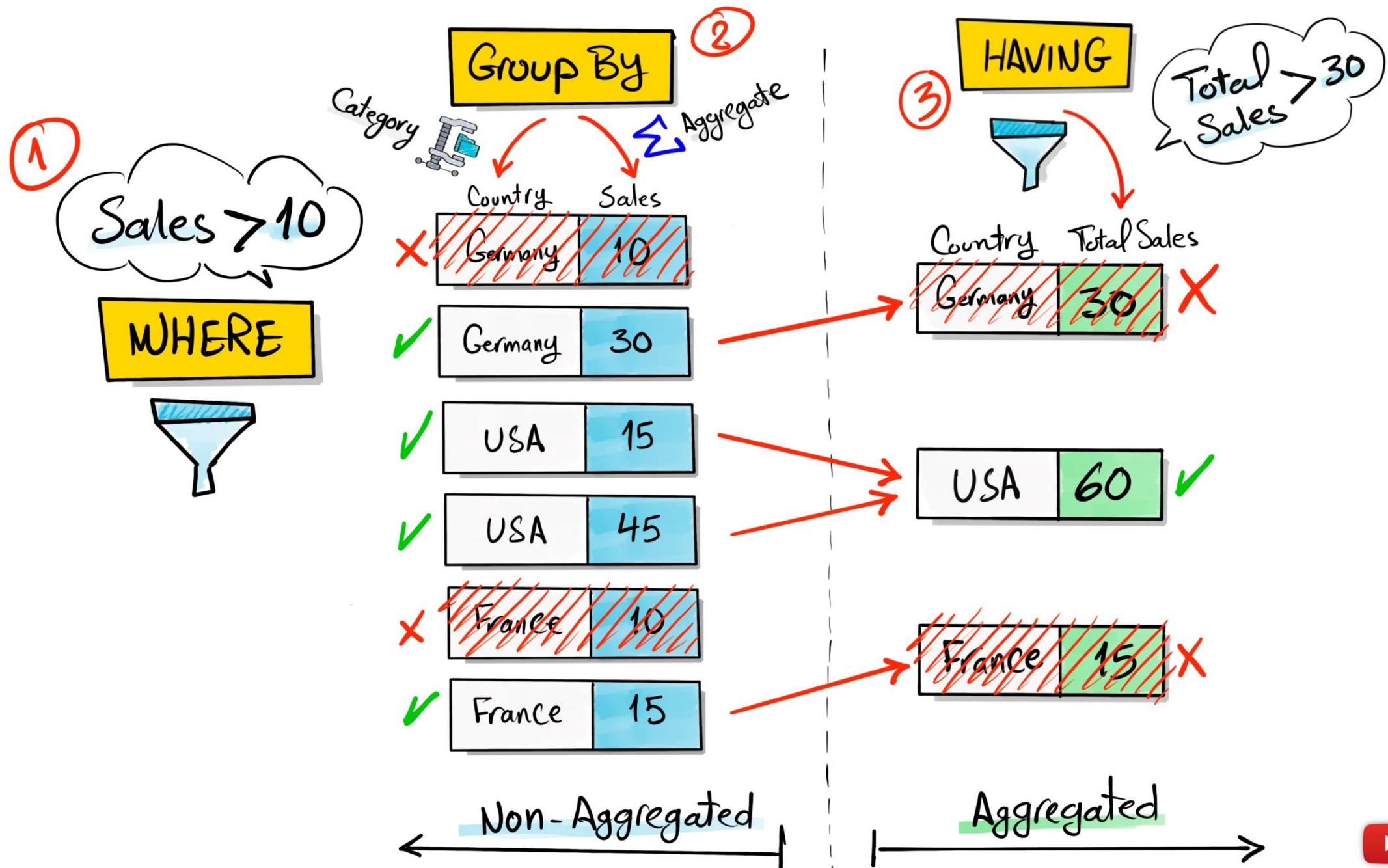
① FROM

② WHERE

③ GROUP By

④ SELECT





Germany

USA

Germany

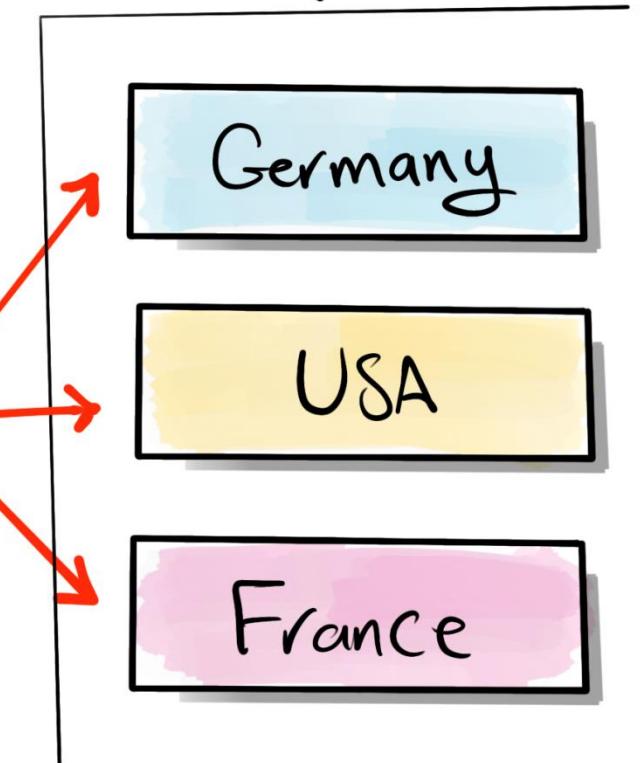
Germany

USA

France

DISTINCT

Unique  
List





## Database

### Customers

id	name	Country	Score
1	Maria	Germany	350
2	John	USA	900
3	Georg	UK	750
4	Martin	Germany	500
5	Peter	USA	0

① FROM

## Result

id	name	Country	Score
1	Maria	Germany	350
2	John	USA	900
3	Georg	UK	750
4	Martin	Germany	500
5	Peter	USA	0



② WHERE

Σ ③ GROUP BY



④ HAVING

Country	Avg
Germany	425
USA	900
UK	500



Country	Avg
UK	500
USA	900

⑤ ORDER BY  
ASC

⑥ SELECT

Execute Order

① FROM

② WHERE

③ GROUP BY

④ HAVING

⑤ ORDER BY

⑥ SELECT



## Execution Order

- ① **FROM JOIN**
- ② **WHERE**
- ③ **GROUP BY**
- ④ **HAVING**
- ⑤ **SELECT DISTINCT**
- ⑥ **ORDER BY**
- ⑦ **TOP**

