



DATA WITH BARAA

SQL COMPONENTS

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



-- Retrieve Customers Data

SELECT

name ,

LOWER (country)

FROM customers

WHERE country = 'Italy'

```
-- 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

SELECT

name ,

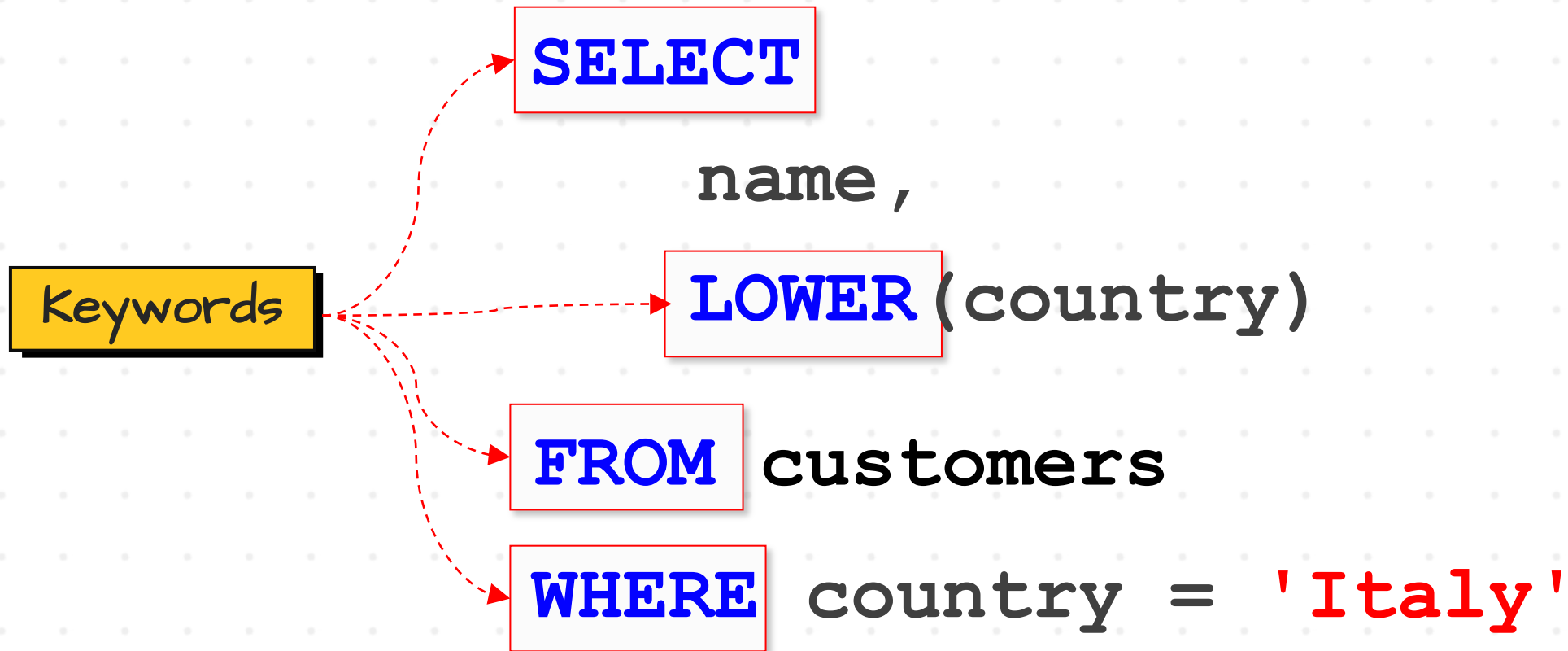
LOWER (country)

Clauses

FROM customers

WHERE country = 'Italy'

-- Retrieve Customers Data



-- Retrieve Customers Data

SELECT

name ,

Function

LOWER(country)

FROM customers

WHERE country = 'Italy'

-- Retrieve Customers Data

SELECT

name

LOWER (country)

identifiers

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'



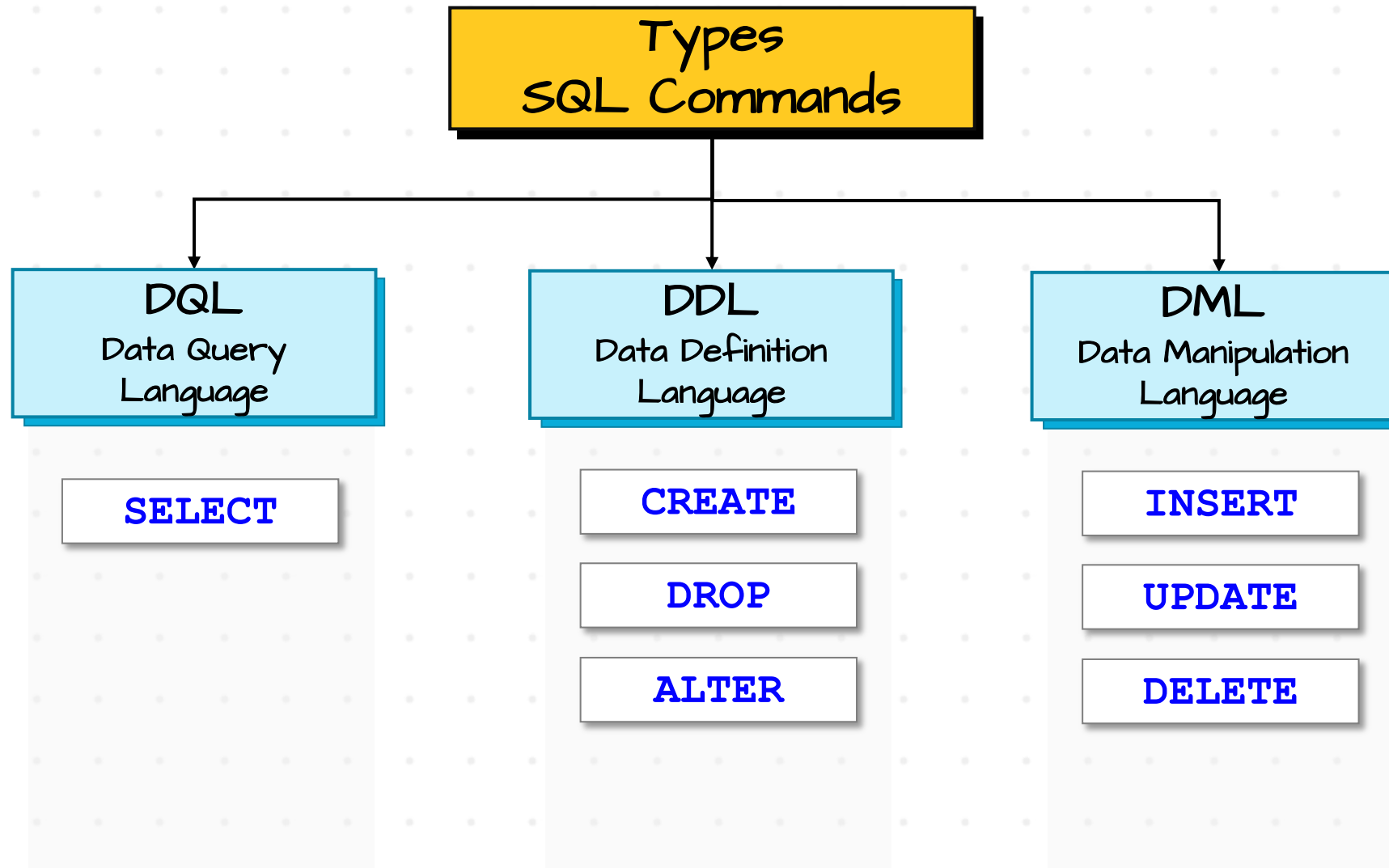
DATA WITH BARAA

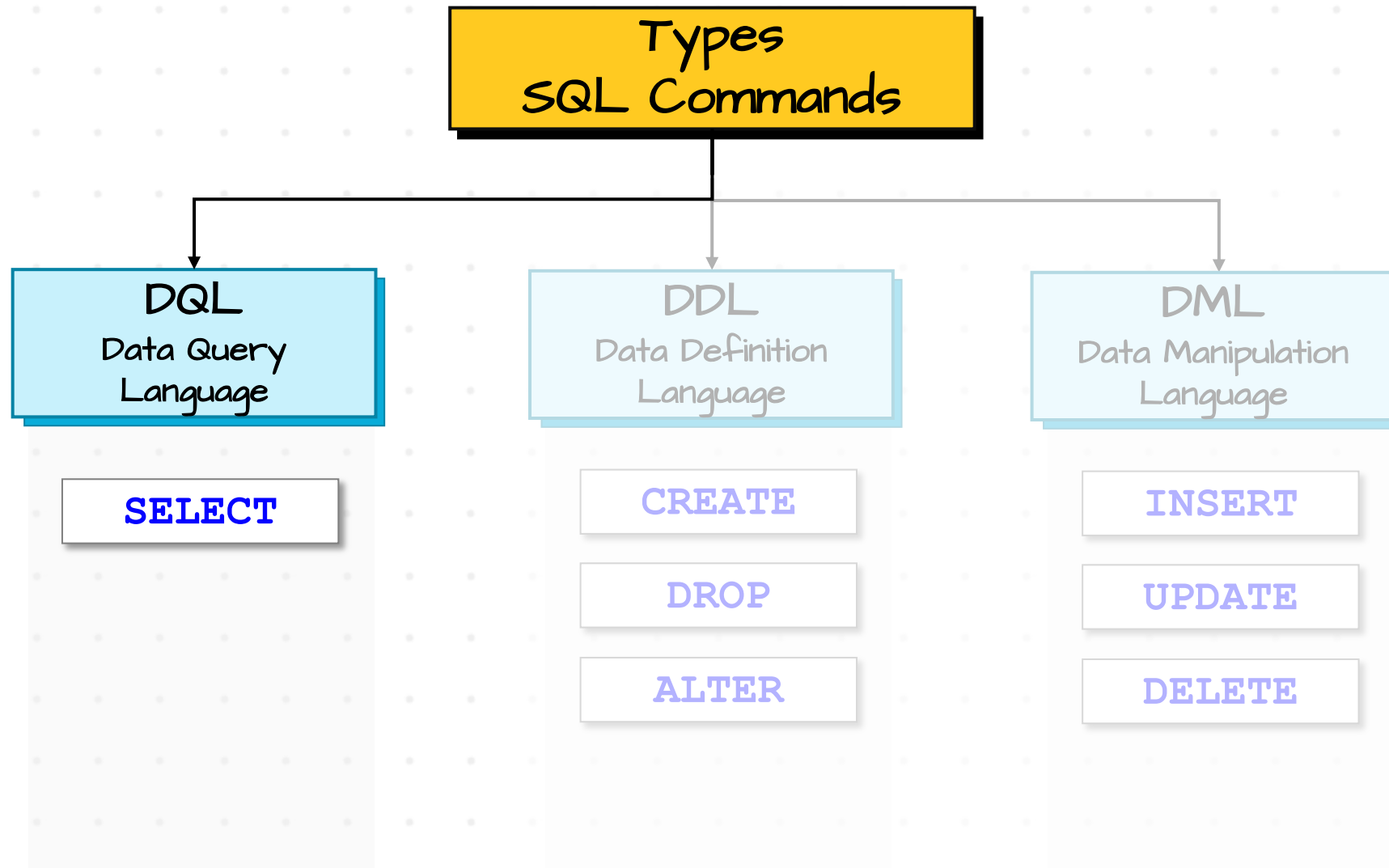
QUERY DATA

SELECT STATEMENT

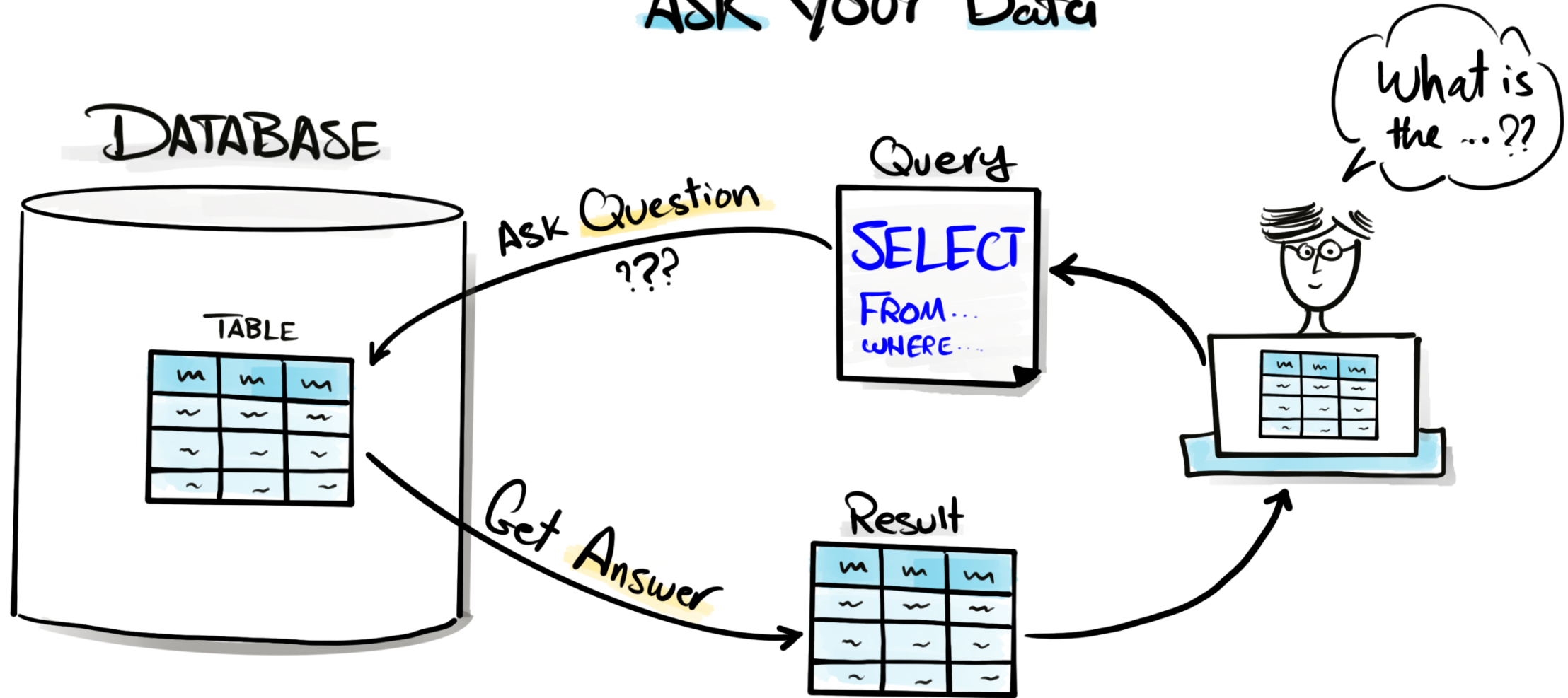
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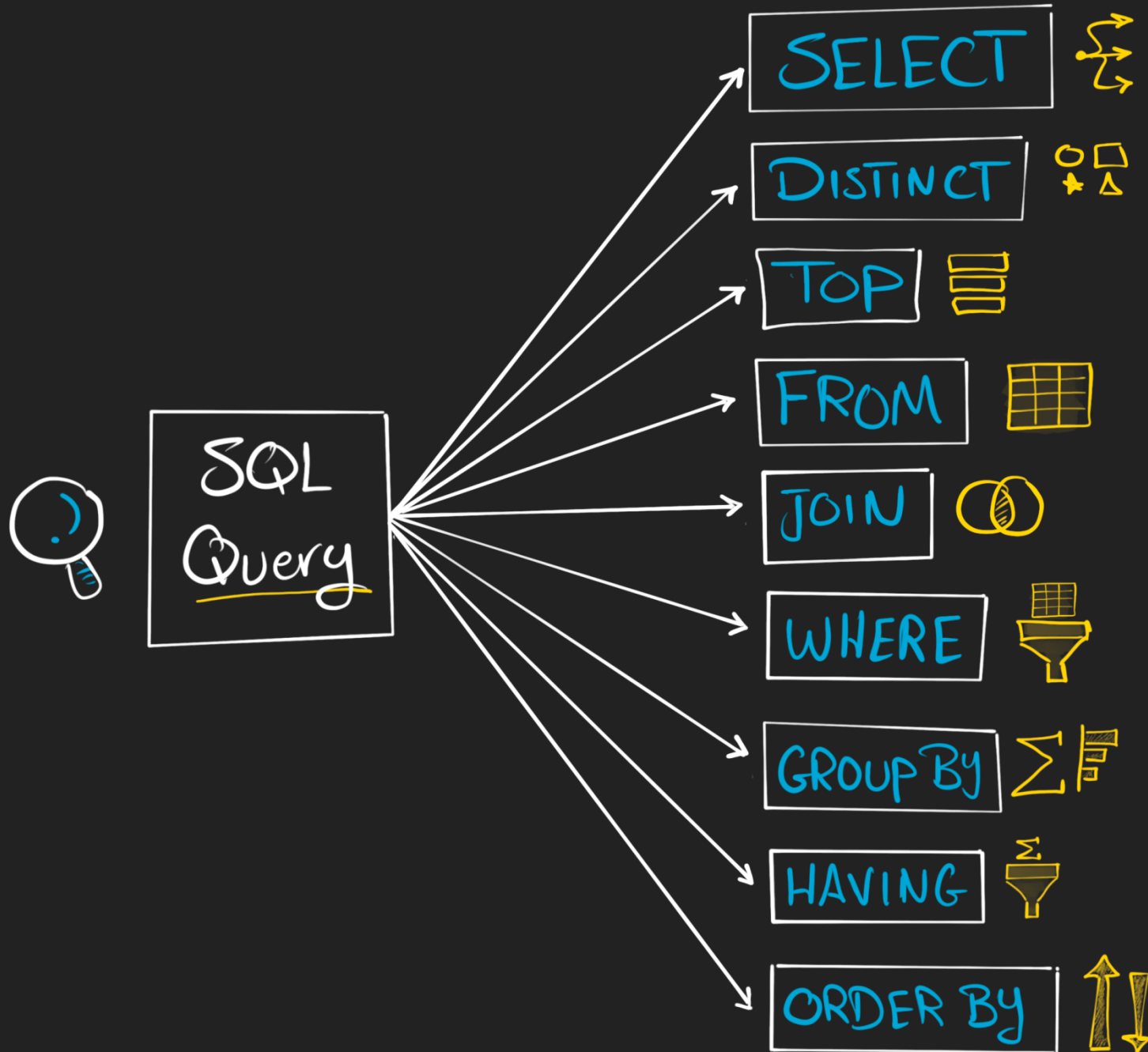






ASK your Data





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

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

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 Few Columns

Pick only the Columns You Need
instead of All.

SELECT

Col 1,

Col 2

FROM Table



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

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	X
2	John	USA	900	✓
3	Georg	UK	750	✓
4	Martin	Germany	500	X
5	Peter	USA	0	X

Score > 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

Lowest
Highest



DESC

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

Highest



Lowest

③ SELECT *

① FROM Table

② ORDER BY Score DESC



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

Lowest



Highest

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



Lowest

Highest



Lowest

③ SELECT *

① FROM Table

② ORDER BY

Country ASC,

Score DESC



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

Group By

Combines rows with the same value

Aggregates a column By another column

Total Score By Country

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

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

↓ Σ

1	Germany	850
2	USA	900
3	UK	750

③ SELECT

Country,
SUM(score)

① FROM Table

② GROUP BY Country

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

Having

Filters Data After Aggregation

Can be used only with Group By

SELECT

Country,

SUM(score)

FROM Table

GROUP BY Country

HAVING 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



Germany	850
USA	900



Total score > 800

④ SELECT

Country,
SUM(score)

① FROM Table

② GROUP BY Country

③ HAVING 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

SELECT

Country,

SUM(score)

FROM Table

WHERE Score > 400

GROUP BY Country

HAVING SUM(score) > 800



Filter
Your Data

①

Before
Aggregation

②

After
Aggregation

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

Distinct

Removes Duplicates (Repeated values)

each Value appears only Once

SELECT DISTINCT

Col

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

Country
Germany
USA
UK
Germany
USA

only
Once!



Germany
USA
UK

② SELECT DISTINCT

① FROM Table

Country

③

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



Row 1 →

Row 2 →

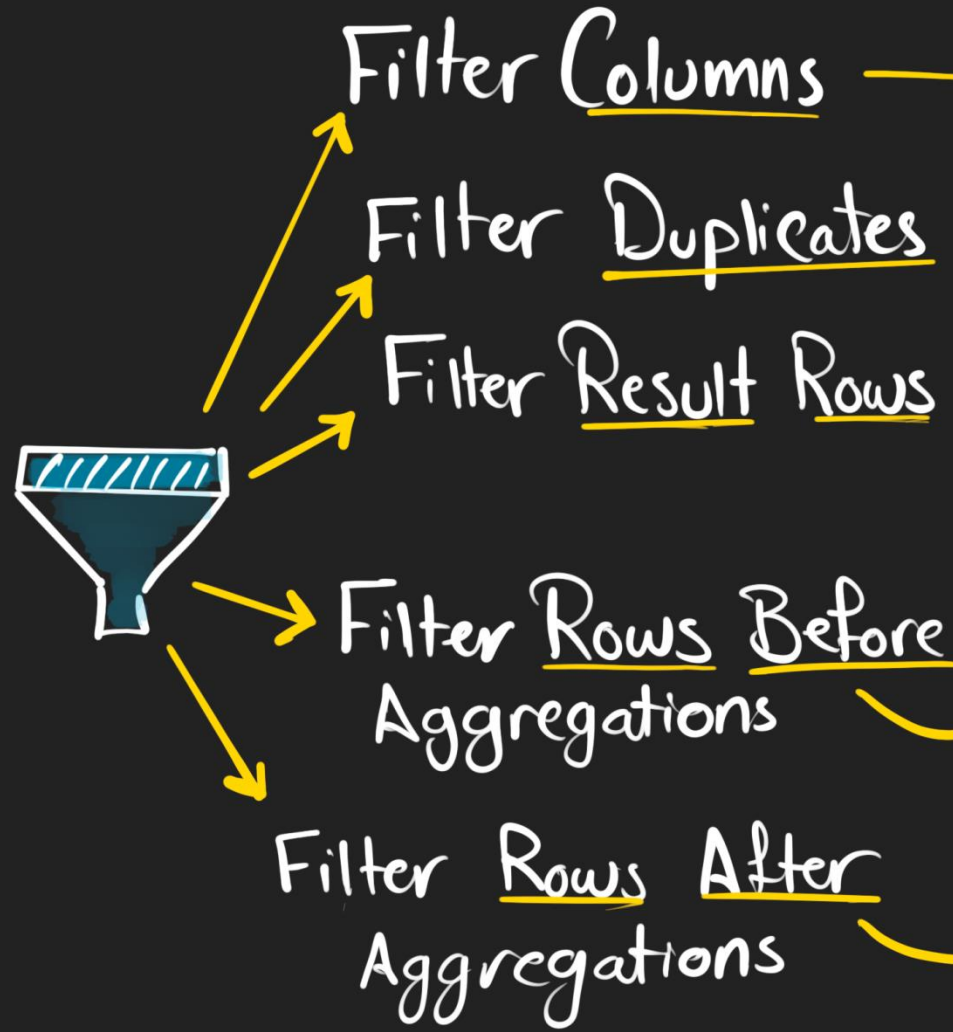
Row 3 →

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

③
② SELECT TOP 3
*
① FROM Table



Execute Order



Coding Order

SELECT **DISTINCT** **TOP 2**

Col1,

SUM(Col2)

FROM Table

WHERE Col = 10

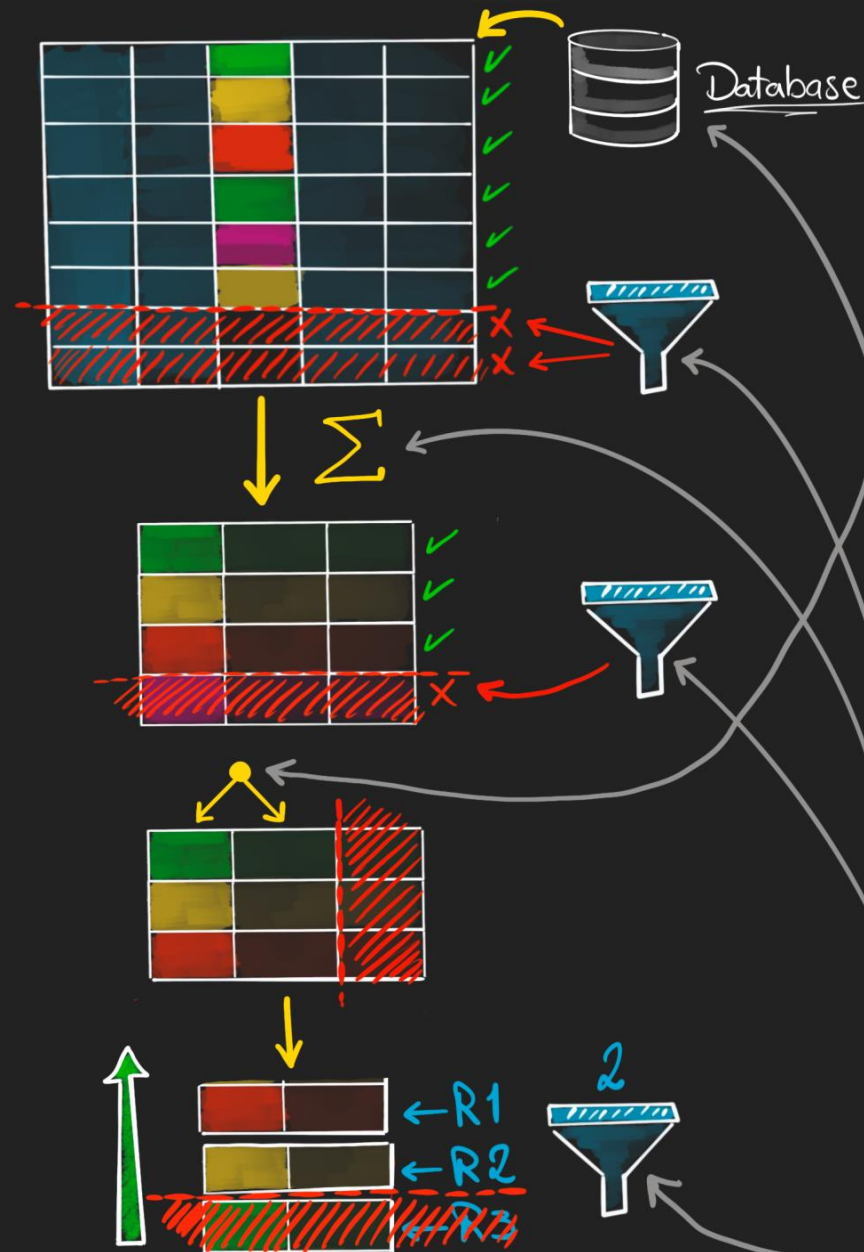
GROUP BY Col1

HAVING **SUM(Col2)** > 30

ORDER BY Col1 **ASC**

Execute Order

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



Coding Order

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



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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

① FROM



Result

② SELECT *

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

② SELECT

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 SELECT



Database



Result



Execute Order

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

③ SELECT

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



② WHERE

① FROM

② WHERE


③ SELECT

Name	score
Alex	90
Maria	50
Alex	30
Maria	80

DESC
Highest

Name	score
Alex	90
Maria	80
Maria	50
Alex	30


Lowest



ASC
Lowest

Alex	30
Maria	50
Maria	80
Alex	90

Highest




Name	score
Alex	90
Maria	50
Alex	30
Maria	80

①
ASC
Lowest
Highest



Name	score
Alex	90
Alex	30
Maria	80
Maria	50

②
DESC
Highest
Lowest





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

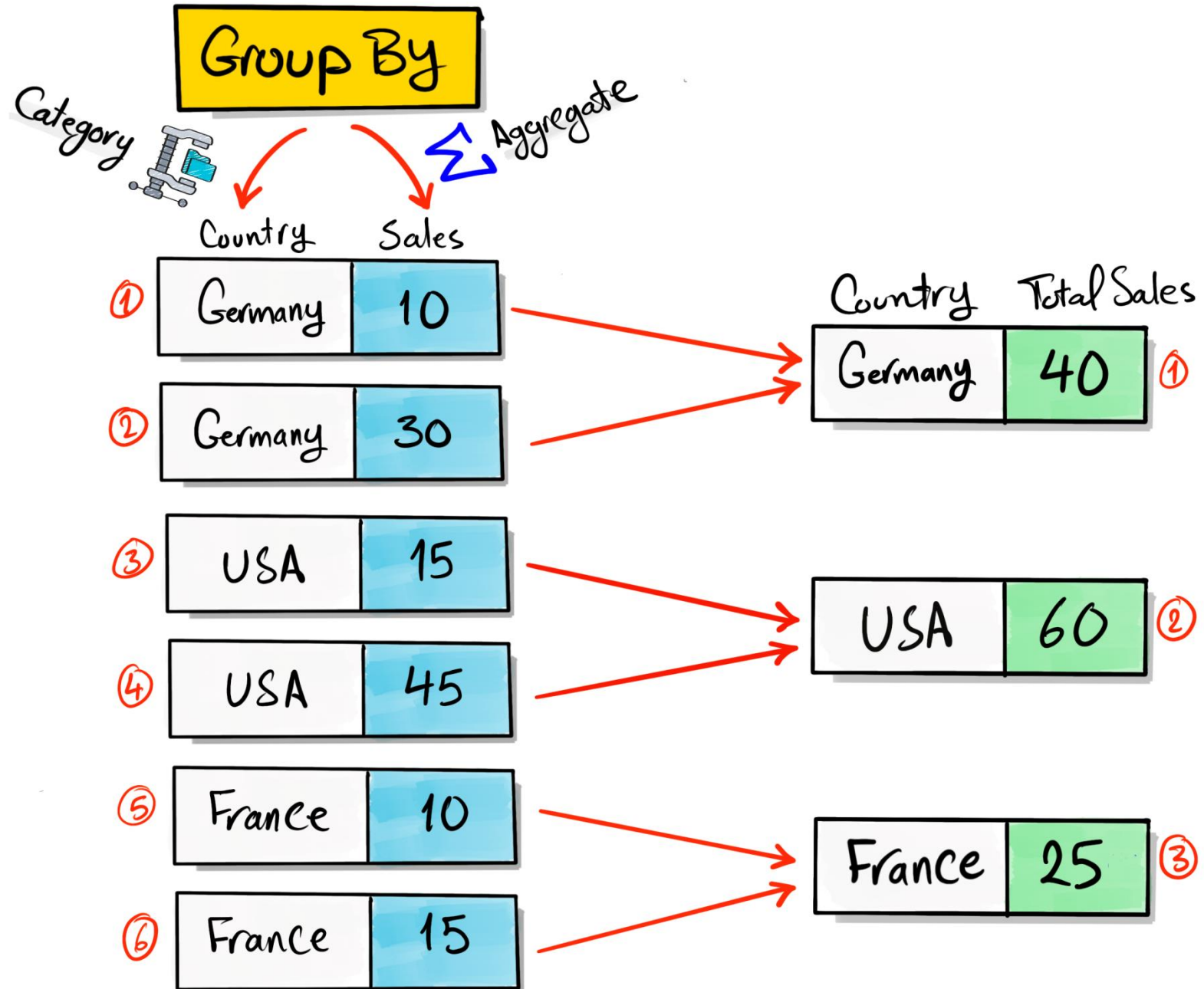
Execute Order

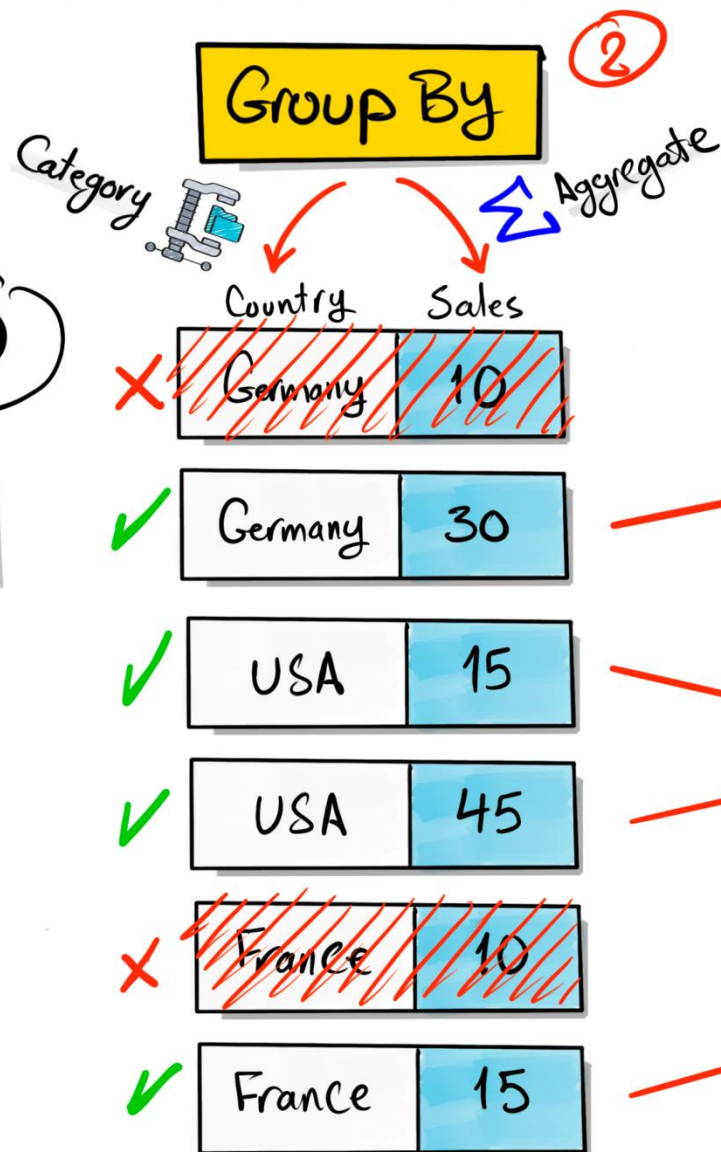
① FROM

② WHERE

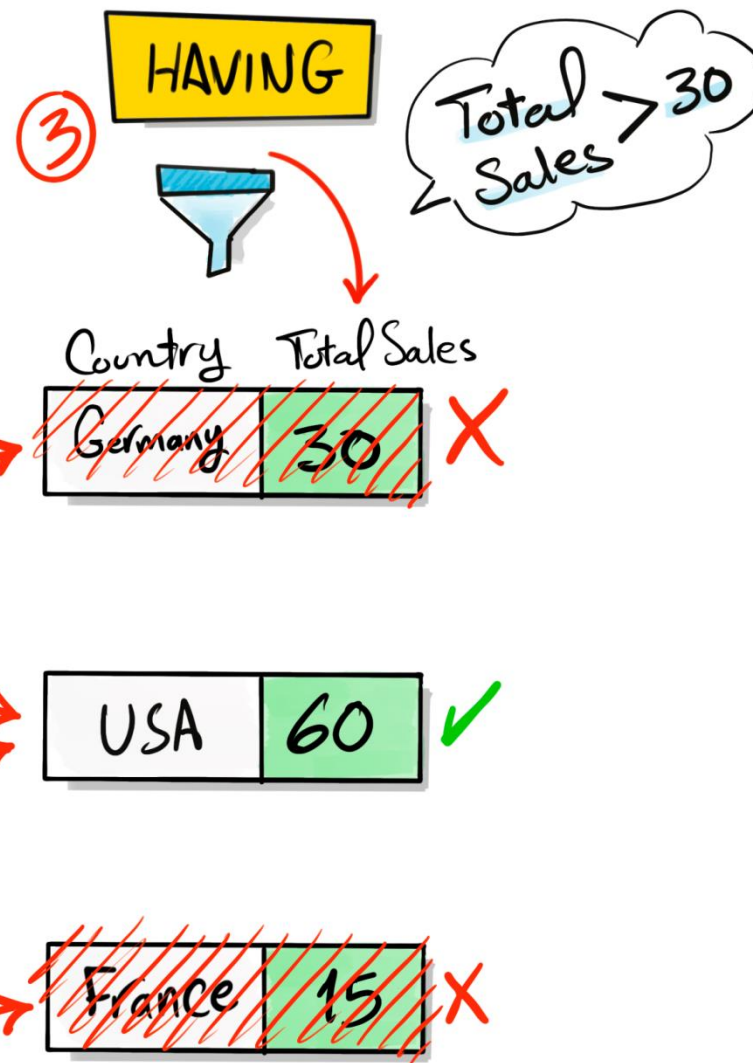
③ GROUP BY

④ SELECT

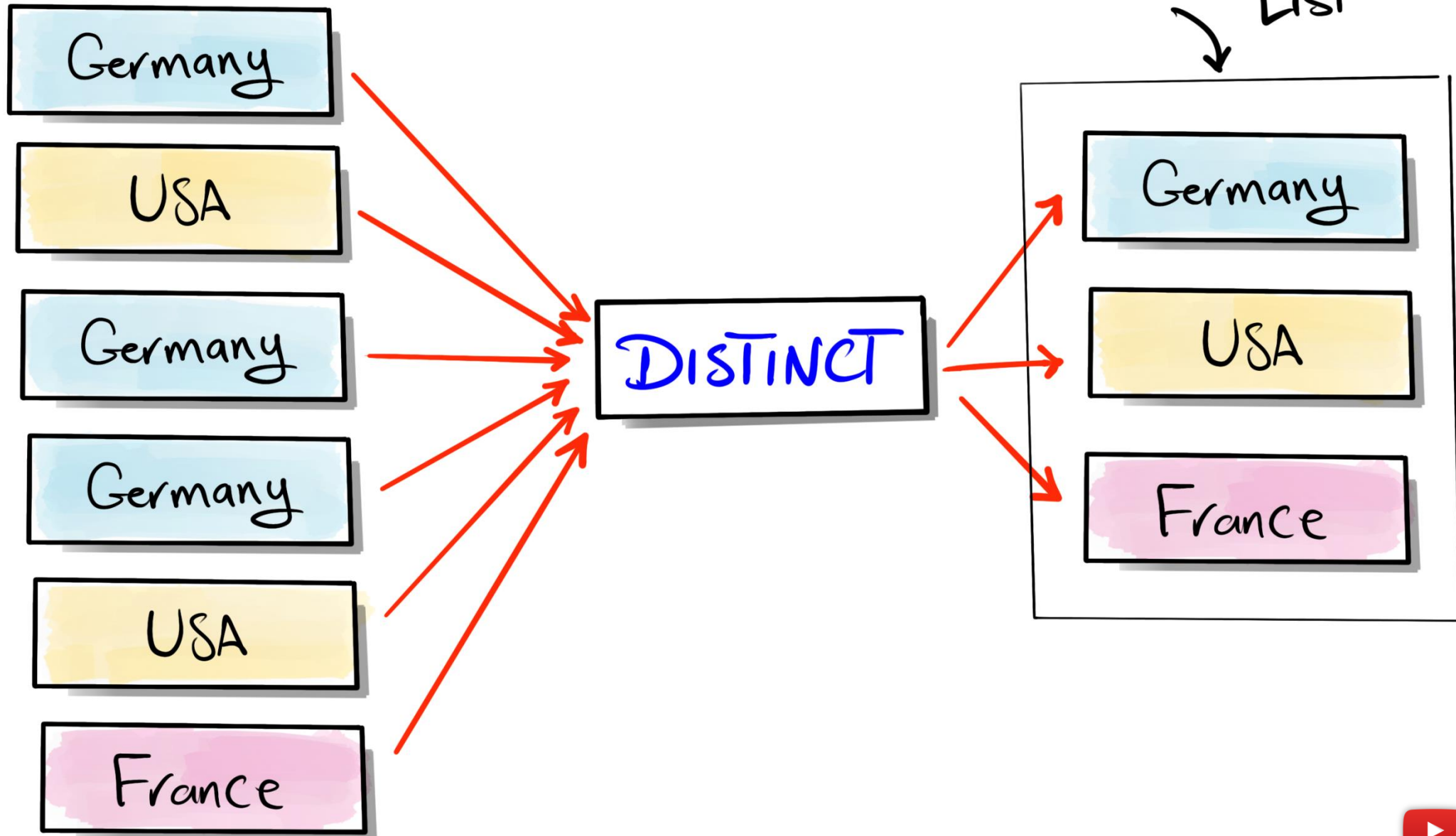




Non-Aggregated



Aggregated



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 HAVING



Country	Avg
UK	500
USA	900

⑤ ORDER BY
ASC

⑥ SELECT

Execute Order

① FROM

② WHERE

③ GROUP BY

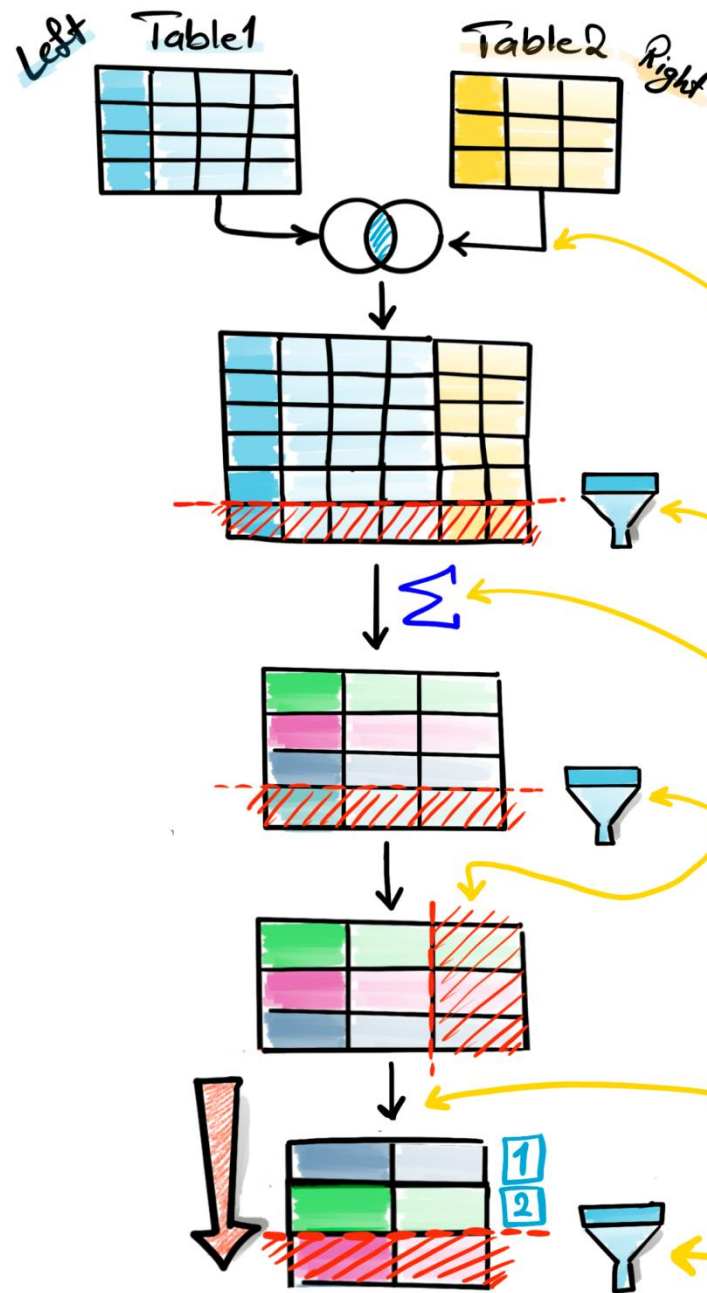
④ HAVING

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



Coding Order

```
SELECT DISTINCT  
  a.col,  
  SUM(b.col)
```

Top 2

```
FROM Table1 AS a  
JOIN Table2 AS b  
ON a.id = b.id
```

```
WHERE a.col = 10
```

```
GROUP BY a.col
```

```
HAVING SUM(b.col)
```

```
ORDER BY a.col
```