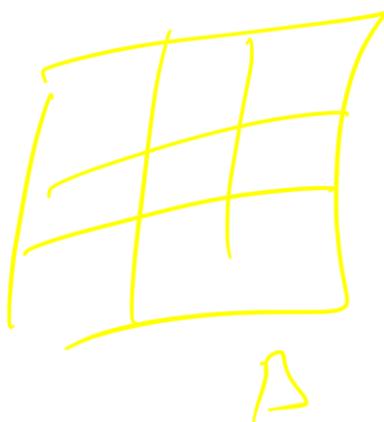


Agenda

- a. Union with example
- b. Cross Join
- c. Non equi Join
- d. Need of Window Functions
- e. Intro to window function
- f. Types of Window Functions
 - i. Analytical functions
 - ii. Aggregation Functions

① Union $\rightarrow A \cup B$



(a)	P_id	Store1	S2	S3
	0	90	105	110

	P_id	Store1	S2	S3
	0	90	105	110
	0	90	105	110

UNION

Select

P_id,

Store1 as Store1,

Store1 as Price,

From products

P_id	Store1	Price
store1	90	105
store2		

⑥ Cross Join:

Matrix Multiplication

- r - m - Row

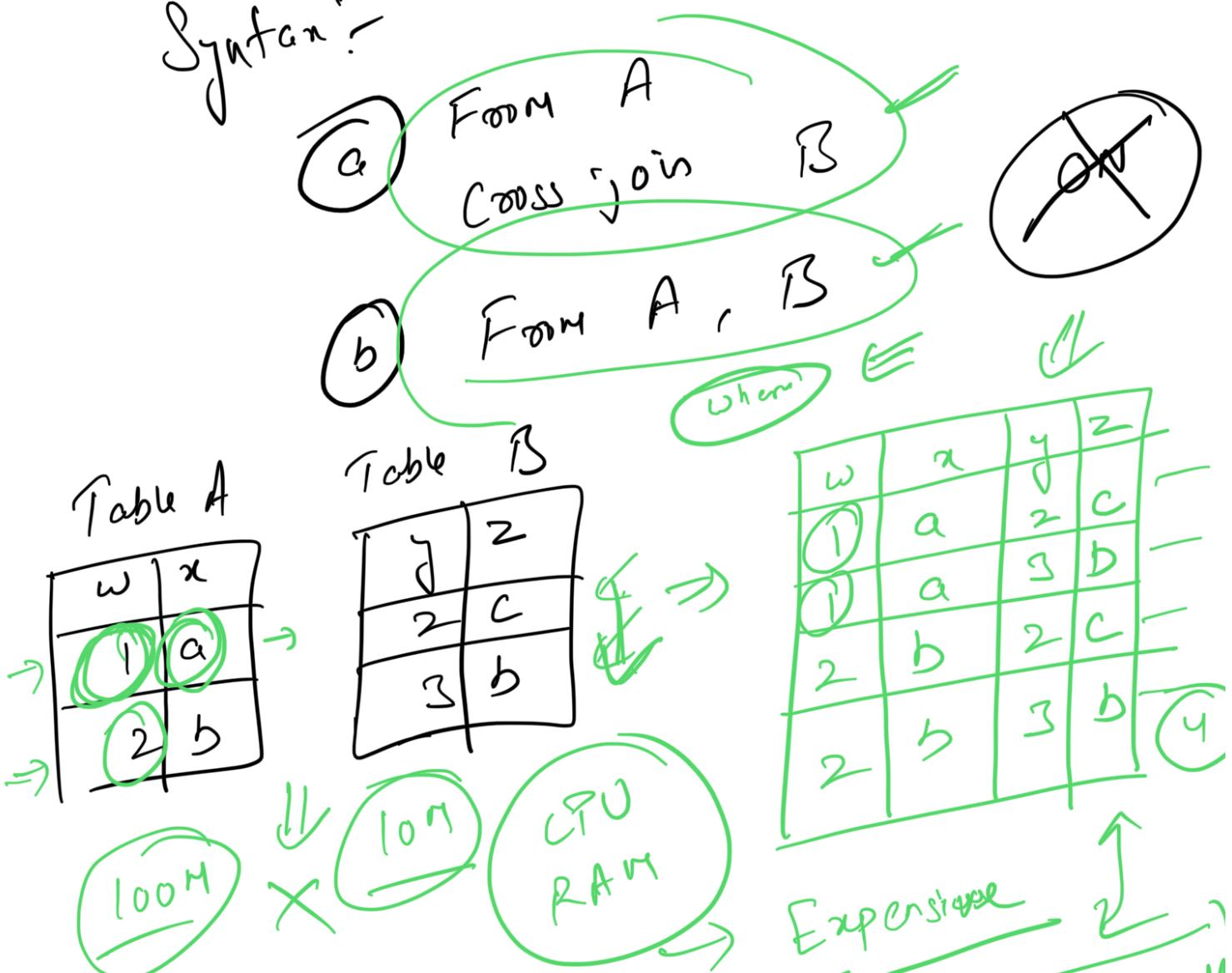
Row

$\begin{bmatrix} 4 & 5 & 6 \\ 8 & 10 & 12 \end{bmatrix}$

Cartesian Product

$$\begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix} \times \begin{bmatrix} 4 \times 6 \\ 4 \times 5 \\ 3 \times 6 \end{bmatrix} \rightarrow \begin{bmatrix} 1 \times 4 & 1 \times 5 & 1 \times 6 \\ 2 \times 4 & 2 \times 5 & 2 \times 6 \\ 3 \times 4 & 3 \times 5 & 3 \times 6 \end{bmatrix}$$

Syntax:



Example

full join
on A.w = B.y

time ↘

Result

1	a	null	null
2	b	null	c
2	b	b	d

Non - equi join
ON $a.x \neq b.y$

User	Country-visited
Aman	India
Yogita	USA
Amit	Japan

$I =$

Country

travel-to

India	X	✓
USA	✓	✓
Japan	✓	✓

Qn. Recommend new countries which they have not visited to the user?

An. Select *
from User U
join Country C

Aman	India	India
Yogita	USA	USA
Amit	Japan	Japan

on U. Country-visited = C.travel-to

$I = L$

full join

- when

Aman	India	USA
Aman	India	Japan

T1

T2

full join

id
1
1
2
2
null

id
1
2
3
Null

T1.id	T2.id
1	1
1	1
2	2
2	2
null	3
null	null
and null	

① Inner join \Rightarrow

T1.id	T2.id
1	1
1	1
2	2
2	2

② Left join \Rightarrow

T1.id	T2.id
1	1
1	1
2	2
2	2
null	null

③ Right join \Rightarrow

T1.id	T2.id
1	1
1	1
2	2
2	2
null	3
null	null

④ Full outer join \Rightarrow

1. ... in A
2. ... in B

T1.id	T2.id
1	1
1	1

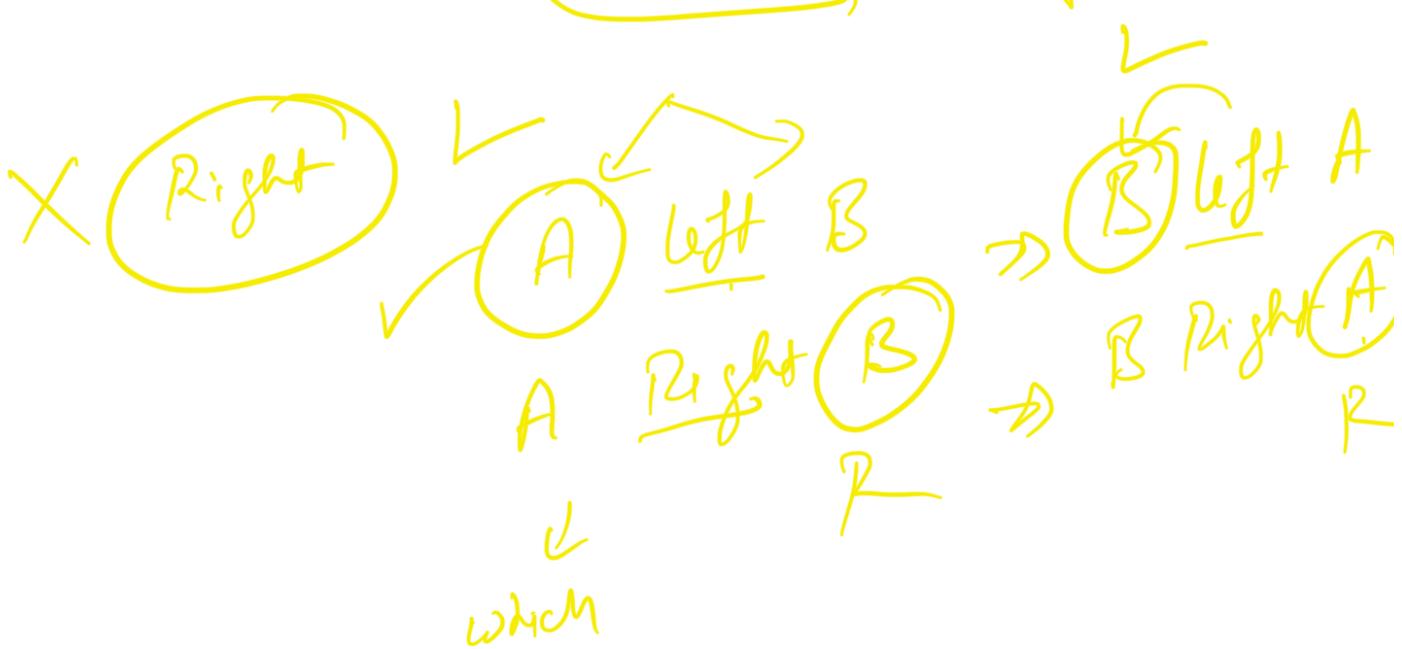
Big query = A full join
ON A.id = B.id

Mixed = LI
union
RI

2	2
2	2
null	3
null	null
null	null

99%

⇒ all, each, every = Left join ✓
↓ ↗ not → inner join -



Select *

from A left B;
on A.id != B.id
→ !=

X

$\text{Self-Join} = 1 \text{ table}$
 id → Manager
 $\Rightarrow e.\text{mgr_id} = m.\text{id}$

Window functions (level 4)

→ Why window functions?

Ques. 1 Get me the total salary paid by Company in 1 month.

$\text{sum}(\text{sal}) \rightarrow 691400$

Ans.

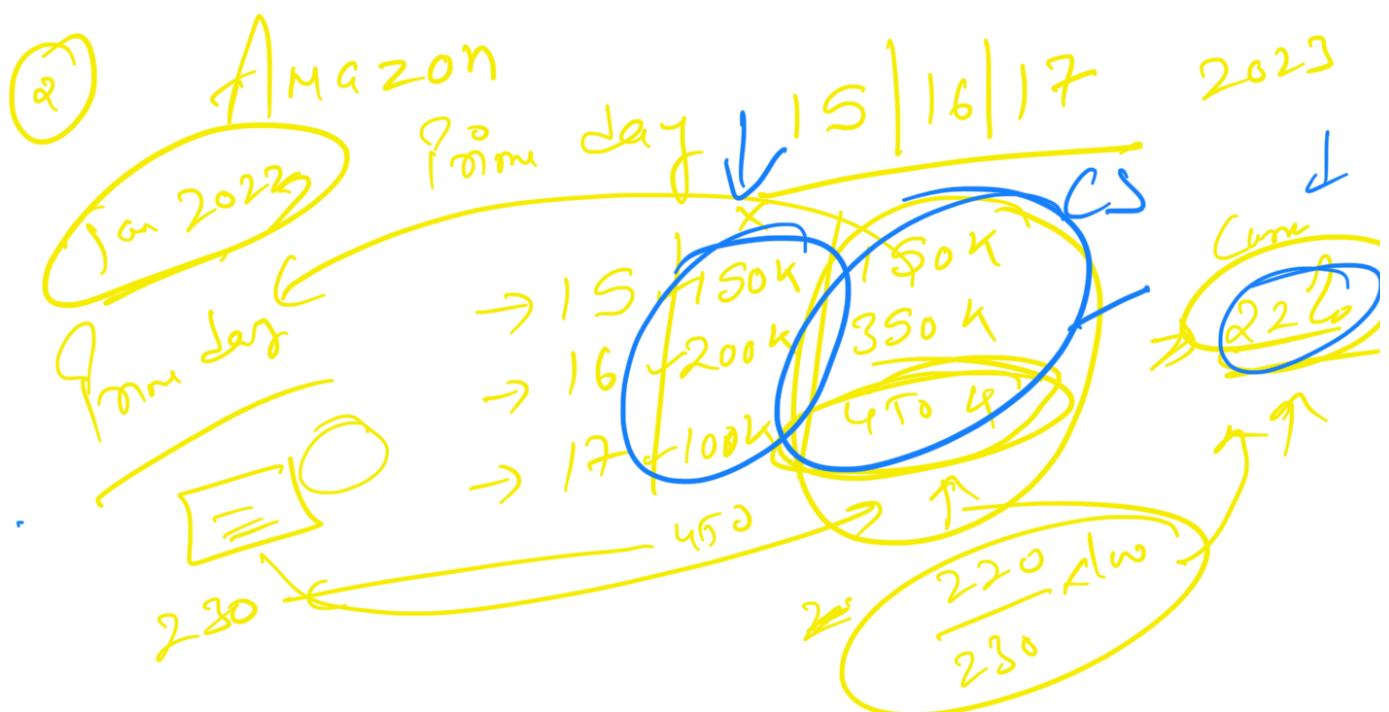
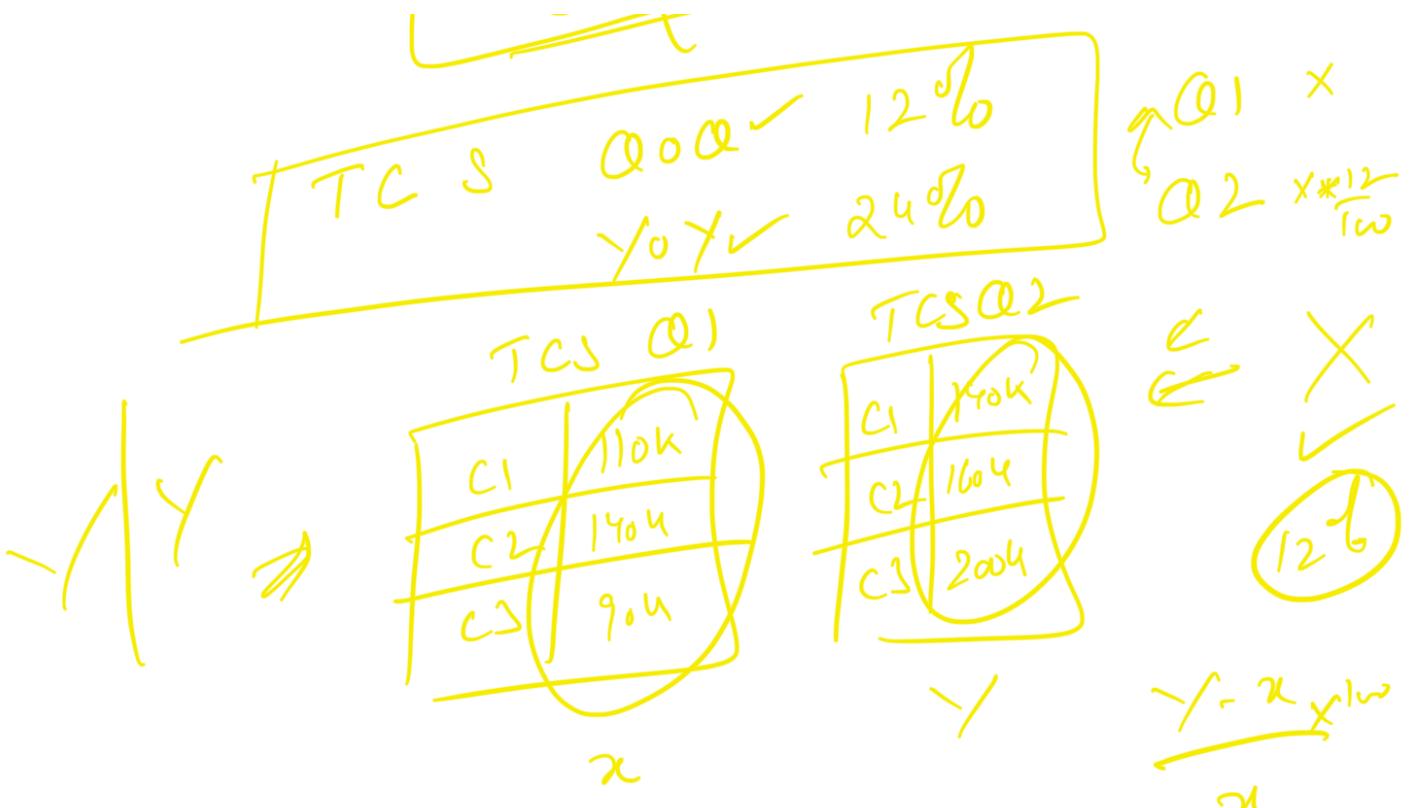
Ques. 2 Dept wise

10	— 4400	→ 10 rows
20	— 19000	
30	— 24900	
:		

Ans.

Ques. 3

A	20	100	800
B	20	200	800
C	20	500	800



Windows

100	100
200	300
400	700

Compound²

Element

1	Na	metal
2	K	metal
3	He	non metal
4	H	non metal
5	Mg	metal

1	Cl	Non metal
2	Ca	non metal
3	ON	non metal

NaCl	KCl	HeCl
NaBr	KBr	HeBr
NaOH	KOH	HeOH

metal Can combine
with non metal.
Show me all
combinations.

employee

tmp

eid	sal	dpt_id
114	11000	30
116	2900	30
118	2600	30
134	2900	50
178	7000	Null

dpt_id	Salarr
30	24900
50	156400
10	4400
40	10000

left join