{CRUD + Joins}

Agenda

- → compound Joins
- → Joining multiple Tables
- → Types of Join →
- → Cross Join
- → USING & NATURAL JOIN
- → IMPLICIT JOIN
- → WHERE v/s ON
- → UNION

Concept → for multi-table joins ?

Join fundamental

=

Table 1 and Table 2,

↳ Pseudocode ?

$12 * 2 = 24$

$12 * 2 * 4 = ?$

$(12 * 2) * 4$

((T1 T2) T3)

ON

ON

=

film

film_id	name
1	ABC
2	DEF
3	EFG

film_actors

film_id	actor_id
→ 1	1
→ 1	4
→ 1	5
2	3
3	3
3	4
3	5

actors

actor_id	name
1	SRK
2	S.K
3	A.K
4	AD
5	H.R

film

JOIN
film_actors
ON film.ifilm_id
= fa.film_id

film_name	Actor_name

f.film_id	f.name	fa.film_id	fa.actor_id
1	ABC	1	1
1	ABC	1	4
1	ABC	1	5
2	DEF	2	3
3	EFG	3	3
3	EFG	3	9
3	EFG	3	5

actors

Multi-table join

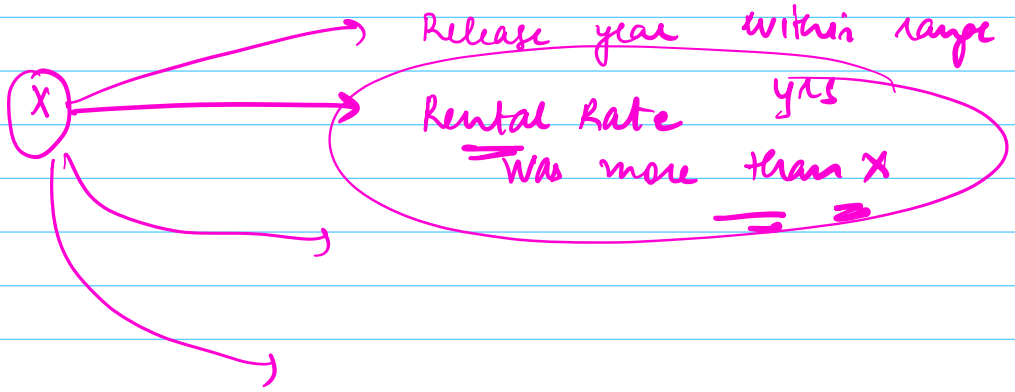
↓

Breaking it down into pair-wise joins

```
SELECT f.name, a.name FROM
    FILM f
    JOIN
        FilmHistory fh
    ON
        f.film_id = fh.film_id)
    JOIN
        Actors a
    ON fh.actor_id = a.actor_id;
```

COMPOUND JOINS

Film →
name of all films that were released in the range of 2 yrs



film

id	name	R.Y	R.R
1	AB	2006	70
2	BC	2007	60
3	CD	2008	80
4	DE	2009	90

R.Y within 2 yrs
R.R ?

CD - 80
AB - 70

AB	CD
BC	AB
BC	CD
BC	DE
CD	DE

conditions

(f1) | (f2) ⇒ f1.RR < f2.RR AND

(f2.RY - 2 <= f1.RY <= f2.RY + 2)

film f1 JOIN film f2

ON f1.RR < f2.RR

AND (f2.RY BETWEEN f1.RY - 2 AND f1.RY + 2)

2008 BETWEEN (2004, 2008)

2006

film

id	name	R.Y	R.R
1	AB	2006	70
2	BC	2007	60
3	CD	2008	80
4	DE	2009	90

R.Y

Row1 id = 1

Row2 id = 2

r1.RR = 70

r2.RR = 60

r2.RR > r1.RR

Compound Join is the type of join where you add multiple conditions with ON clause.

TYPES OF JOINS

LEFT

Students

id	name	b_id
1	A	1
2	B	1
3	C	NULL
4	D	3
5	E	2

RIGHT

Batches

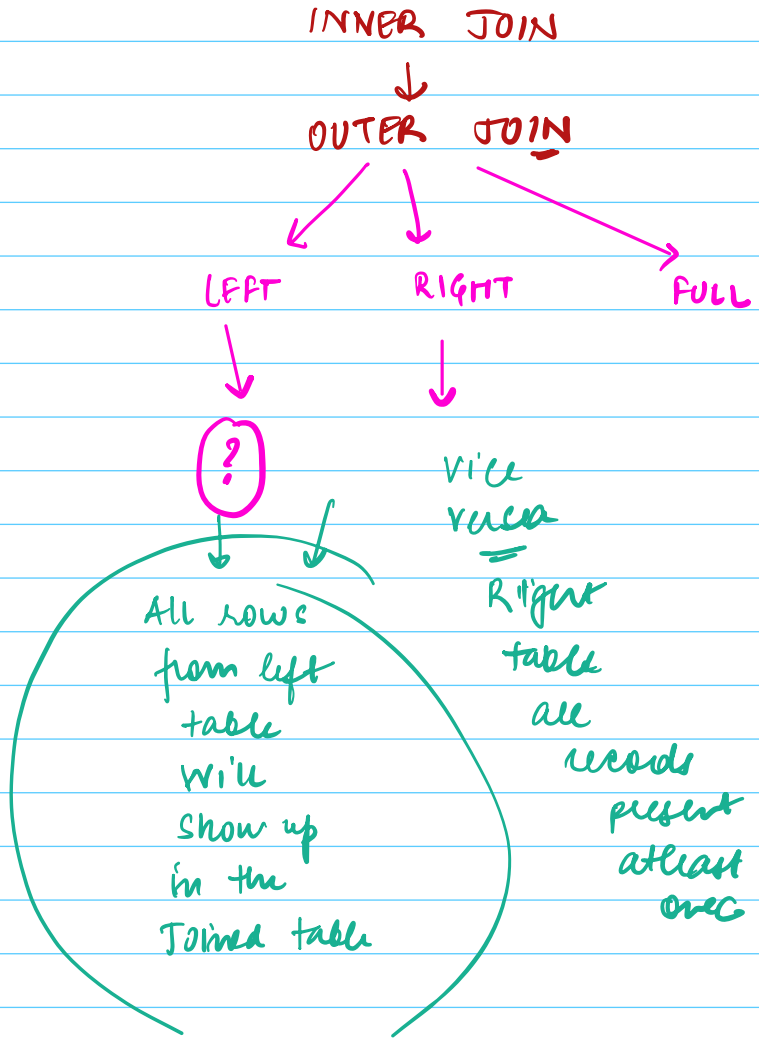
id	name
1	X
2	Y
3	Z
4	ABC

STUDENTS JOIN BATCHES
ON s.b_id = b.id

1	A	1	1	X
2	B	1	1	X
4	D	3	3	Z
5	E	2	2	Y

INNER JOIN

INNER JOIN
= Optional


INNER JOIN
OUTER JOIN
LEFT
RIGHT
FULL
?
Vice versa
=
Right table all records present atleast once
All rows from left table will show up in the Joined table

LEFT

Students

i'd	name	b-i'd
1	A	1
2	B	1
→ 3	C	NULL
4	D	3
5	E	2

Batches

id	name
1	X
2	Y
3	Z
4	AB

```
Students s LEFT JOIN
    Batches b
on s.b_id = b.id
```

LEFT JOIN

Students _ BATCHES

i'd	name	b-i'd		
1	A	1	1	X
2	B	1	2	X
→ 3	C	NULL	NULL	NULL
4	D	3	3	Z
5	E	2	2	Y

```
SELECT * FROM
STUDENTS s RIGHT JOIN BATCHES b
ON s.b_id = b.id
```

Students

i'd	name	b-i'd	bid	name
1	A	1	1	X
2	B	1	1	X
4	D	3	3	Z
5	E	2	2	Y
NULL	NULL	NULL	4	AB

FULL OUTER JOIN

Students

id	name	b-id
1	A	1
2	B	1
4	D	3
5	E	2
3	C	NULL
NULL	NULL	NULL

1	X
1	X
3	Z
2	Y
NULL	NULL
4	AB

LE

id	fname	lname	b-id
1	John	Doe	1
2	Jane	Doe	1
3	Jim	Brown	NULL
4	Jenny	Smith	NULL
5	Jack	Johnson	2

Bid	Name
1	Batch A
2	Batch B
3	Batch C

STUDENTS RIGHT JOIN BATCHES

BREAK

10:20 pm – 10:27 pm