

12-07-2025

## Agenda:-

### Database - I

- Core SQL Queries
  - cloud Postgres
  - Connect
  - Non-relational Database
  - MongoDB Atlas (online)
  - (RUD) Operation
- } Completed → Module

## JOINS

Student

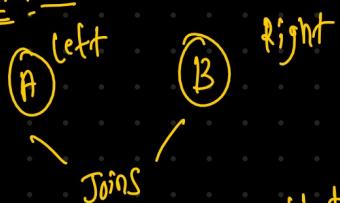
student_id	name	class_id
1	Bhuvika	101
2	Tanuja	101
3	Yusuf	102
4	Aswathip	NULL
5	Avani	104

Class table

class_id	class_name
101	Math
102	Science
103	History

- \* INNER JOIN
- \* LEFT JOIN (LEFT OUTER JOIN)
- \* RIGHT JOIN (RIGHT OUTER JOIN)
- \* FULL OUTER JOIN
- \* CROSS JOIN

NOTE :-



\* from  $\textcircled{A}$  X JOIN  $\textcircled{B}$  → left table      right table

- \* when tables are joined we can pick any attribute from any selected table.

Student

student_id	name	class_id
1	Bhuvika	101
2	Tanuja	101
3	Yusuf	102
4	Aswathip	NULL
5	Avani	104

Class table

class_id	class_name
101	Math
102	Science
103	History

INNER P.S. → Students who are correctly assigned to existing class.

JOIN:

(Intersection)  
(common from both  
table)

SELECT

s.name AS student\_name,  
c.class\_name

FROM

Student s -- left table

INNER JOIN Class c -- right table

ON s.class\_id = c.class\_id;

→ Bhuvika → Math  
 → Tanuja → Math  
 → Yusuf → Science

Student

student_id	name	class_id
1	Bhuvika	101
2	Tanuja	101
3	Yusuf	102
4	Aswathip	NULL
5	Avani	104

Class table

class_id	class_name
101	Math
102	Science
103	History

LEFT JOIN:

p.s. List all student & their class\_name

```

SELECT
    s.name as student_name
    , c.class_name
FROM
    student s -- left table
LEFT JOIN class c -- right table
ON s.class_id = c.class_id;
    
```

→ Bhuvika → Math  
 → Tanuja → Math  
 → Yusuf → Science  
 → Aswathip → NULL  
 → Avani → NULL

Student

student_id	name	class_id
1	Bhuvika	101
2	Tanuja	101
3	Yusuf	102
4	Aswathip	NULL
5	Avani	104

Class table

class_id	class_name
101	Math
102	Science
103	History

Right JOIN

PS: List all classes and enrolled students (if any)

Math, Science, History

SELECT  
s.name AS student\_name  
c.class\_name

FROM student s -- left table

RIGHT JOIN class c -- right table  
ON s.class\_id = c.class\_id;



Bhuvika ← Math  
Tanuja ← Math  
Yusuf ← Science  
NULL ← History

Student

student_id	name	class_id
1	Bhuvika	101
2	Tanuja	101
3	Yusuf	102
4	Aswathip	NULL
5	Avani	104

Class table

class_id	class_name
101	Math
102	Science
103	History

FULL OUTER JOIN

p.s: All student and all classes.

left join    Inner join    right join

↓

↓

↓

=====

→ Bhuvika

Math →

SELECT

s.name AS student\_name

→ Tanuja

Math →

c.class\_name

→ Yusuf

Science →

From student s -- left table

→ Aswathip

NULL →

full outer join class c -- right table

→ Avani →

NULL →

ON s.class\_id = c.class\_id;

NULL

History →

Student

student_id	name	class_id
1	Bhuvika	101
2	Tanuja	101
3	Yusuf	102
4	Aswathip	NULL
5	Avani	104

Class Table

class_id	class_name
101	Math
102	Science
103	History

CROSS JOIN :

P.J. Every student paired with every class

SELECT

s.name as student\_name,  
c.class\_name

FROM student s

(CROSS JOIN) class c;

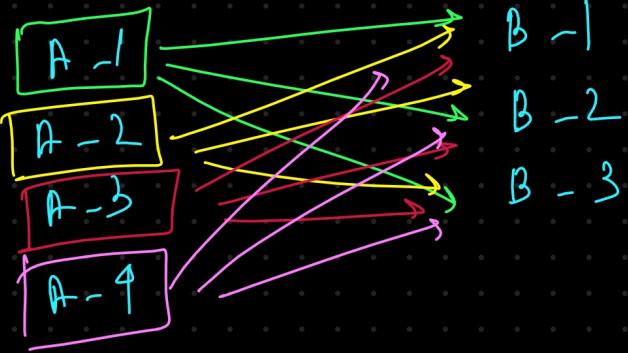
Bhuvika	Math
Bhuvika	Science
Bhuvika	History
Tanuja	Math
Tanuja	Science
Tanuja	History

:

A → 100

B → 3

$$100 \times 3 \rightarrow \underline{\underline{300}}$$



$$\begin{aligned} A-1 &\rightarrow B-1 \\ A-1 &\rightarrow B-2 \\ A-1 &\rightarrow B-3 \\ A-2 &\rightarrow B-1 \\ A-2 &\rightarrow B-2 \\ A-2 &\rightarrow B-3 \end{aligned}$$

CRUD

C → Create (create, Insert)

R → Read (select)

U → Update (UPDATE)

D → Delete (DELETE)

DML → insert, update, delete, merge

SELECT, INSERT, DELETE, UPDATE

Do something

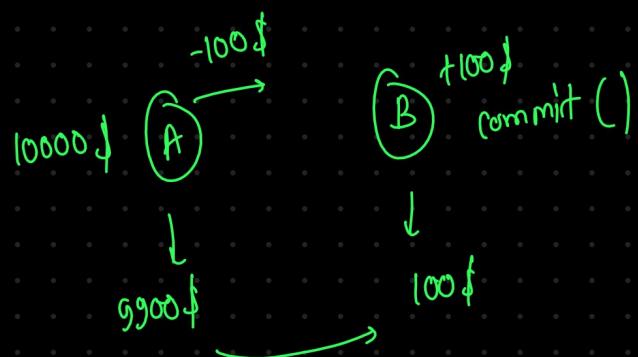
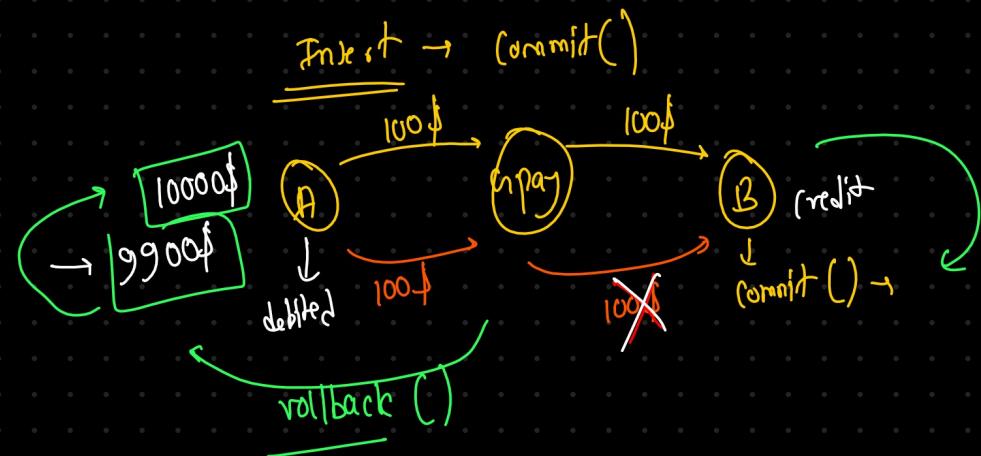
Select → read → no change in database

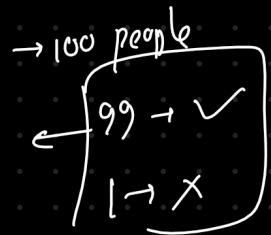
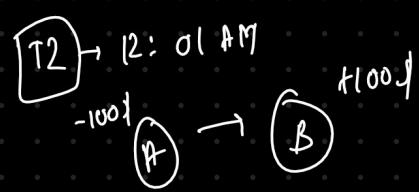
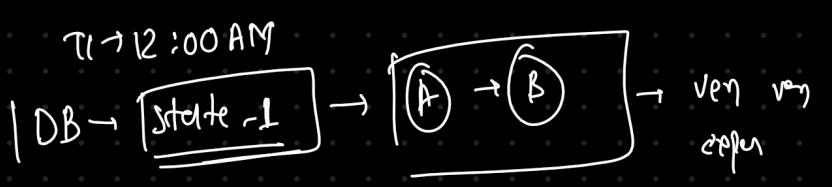
Insert → Yes, change



commit() →  
rollback() →

- ① update
- ② updated temp in database memory
- ③ commit() → changes are permanent
- ④ successfull.



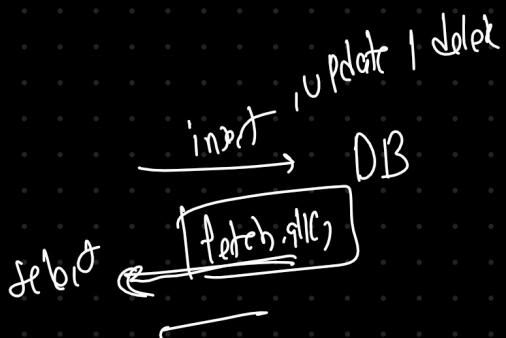


$T_3 \rightarrow 12:02 \text{ AM} \rightarrow \text{Bank} \rightarrow X^B$

$\text{Bank} \rightarrow \boxed{T_1}$



$\boxed{\quad}$   
Trace point



$2 \text{ rows} \rightarrow 1 \text{ album}$   
 $\rightarrow DB \xrightarrow{\text{rows}} \text{rows} \rightarrow$

$\text{select} \rightarrow \underline{\text{rows}}$

