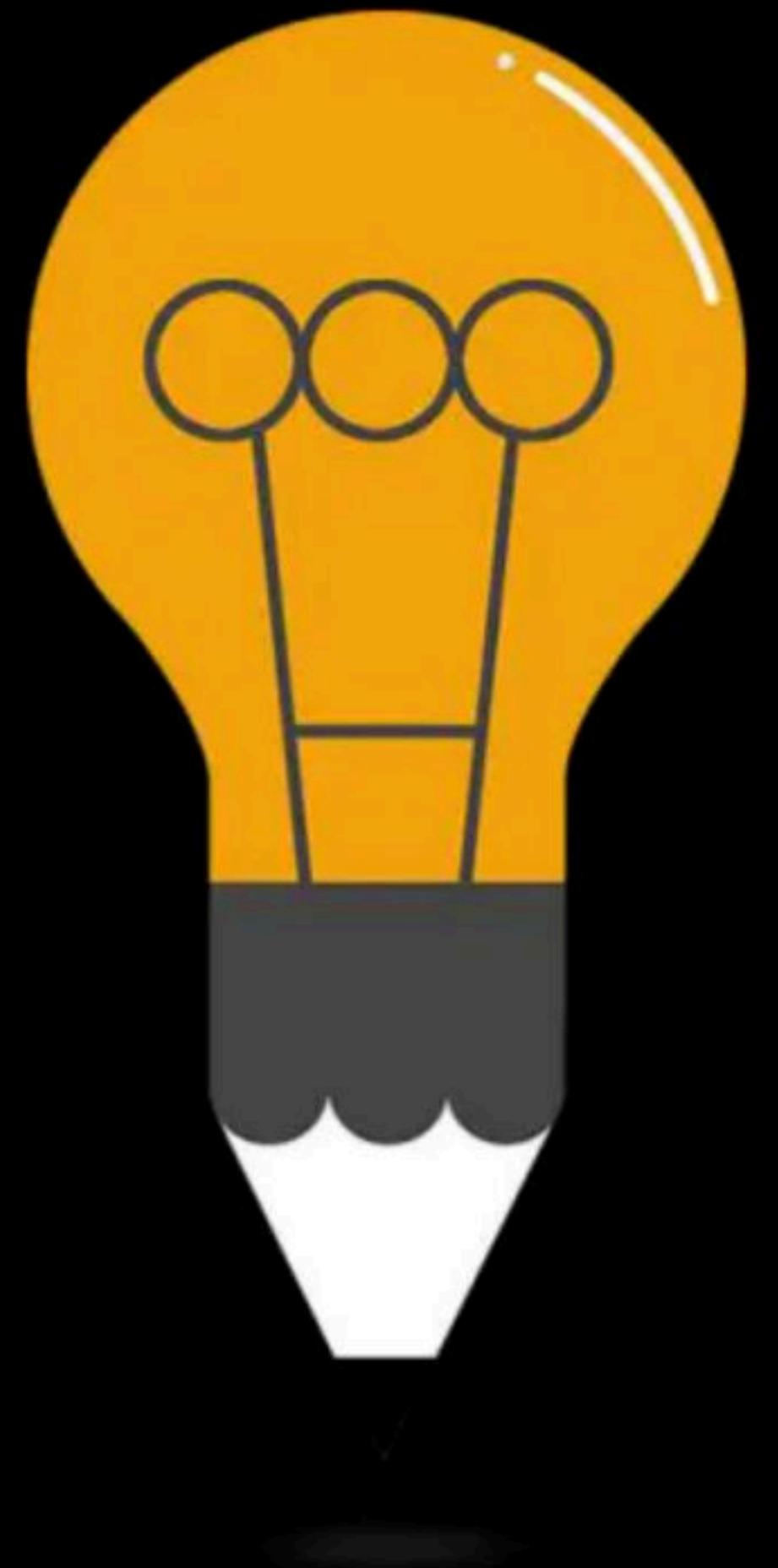


SQL: Part III

Complete Course on Database Management System



DBMS SQL 2

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▲ 1 • Asked by Sheldon

sir isme itemp 4 rows return hogi na? as NULL values are different from each other

Select Command with distinct

```
select distinct itemp from itemmaster
```

itemmaster

item	itemp
1	2
2	4
3	null
4	null

itemp

2
4
NULL

} 3 rows



Select Command: All Columns

```
select *
```

Select Command: Selected Column

select change



Select Command: Selected Multiple Columns

select c1, c2, c3

Select Command with distinct

Need to be used with select, to fetch only unique values of designated column(s)

Select Command with distinct

select distinct Country, PostalCode from Customers

Select Command with distinct

select distinct itemp from itemmaster

item	itemp
1	2
2	4
3	<i>null</i>
4	<i>null</i>

Using dot to access column

student

RNO	name	Dob	address
1	John	1999-01-01	India

select tablename . Columnname from
tablename

select student.name , from student
student.dob ,
address

Select Command with where

Select Command with where

Used with select, update, delete, insert commands

Used to filter specific rows from table

Select Command with where

Relational Operators used in where clause:

1. Equal
2. Not Equal \neq $<>$
3. Less than $<$
4. Less than or equal to \leq
5. Greater than $>$
6. Greater than or equal to \geq

Select Command with where

Logical Operators:

1. AND
2. OR
3. NOT

Between Operator

Used to filter the records in the specific range

Between LB and UB

NULL In RDBMS

NULL In RDBMS

```
SELECT *  
FROM itemmaster  
WHERE itemp is NULL
```

item	itemp
1	2
2	4
3	<i>null</i>
4	<i>null</i>

NULL In RDBMS

```
SELECT *  
FROM itemmaster  
WHERE itemp is NOT NULL
```

item	itemp
1	2
2	4
3	<i>null</i>
4	<i>null</i>

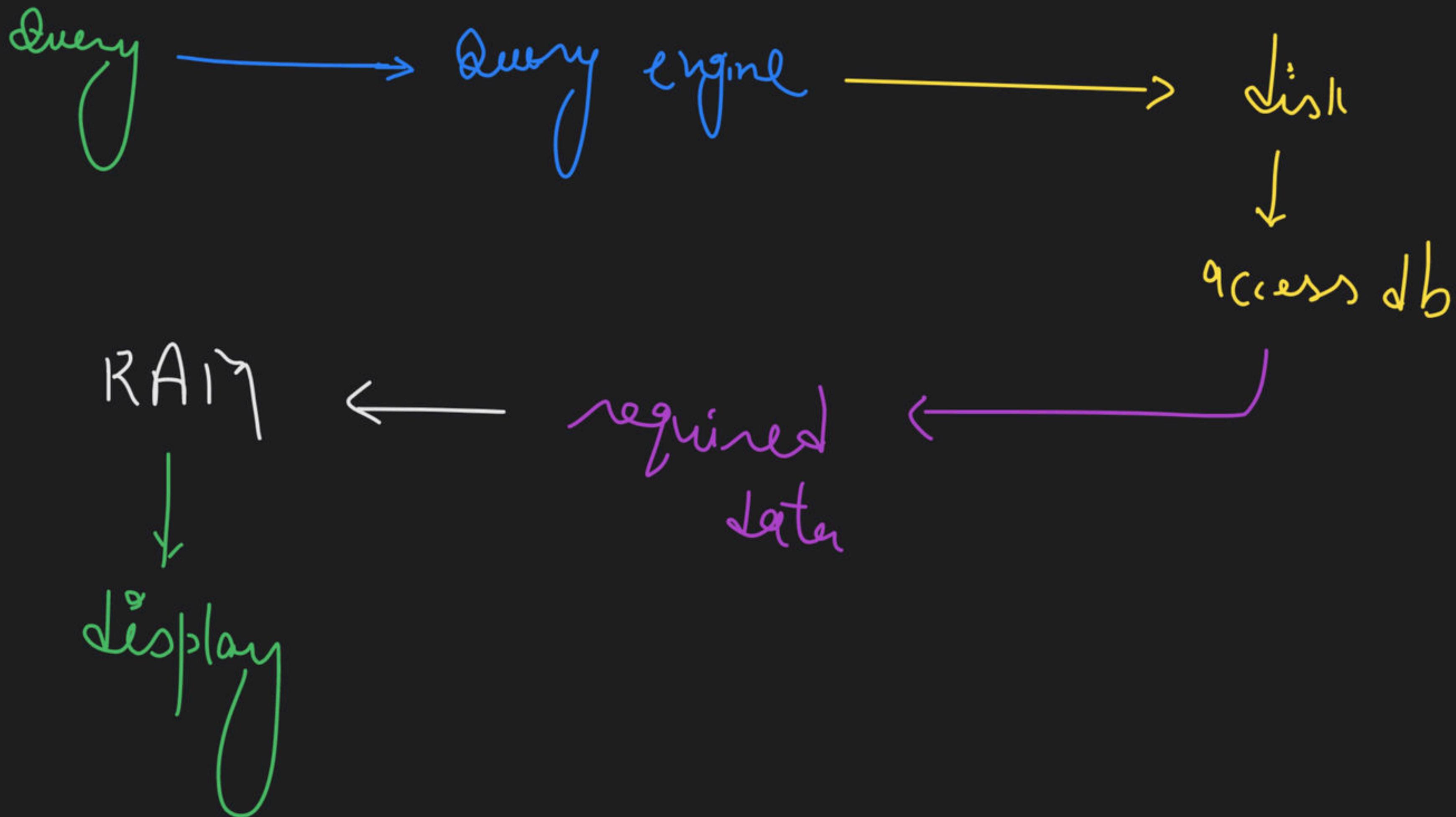
student

col1	col2	xyz	xyz

not possible

→ keywords, tablename, columnname

→ Table values → case sensitive



Limit

Used to limit number of fetched records from a huge database table

Query limit number

ex. select * from customers limit 5

↓
Displays first 5 records

Limit

Fetch only top 4 records from products table

Products

ProductID	ProductName	SupplierID	CategoryID	Unit	Price
1	Chais	1	1	10 boxes x 20 bags	18
2	Chang	1	1	24 - 12 oz bottles	19
3	Aniseed Syrup	1	2	12 - 550 ml bottles	10
4	Chef Anton's Cajun Seasoning	2	2	48 - 6 oz jars	22
5	Chef Anton's Gumbo Mix	2	2	36 boxes	21.35
6	Grandma's Boysenberry Spread	3	2	12 - 8 oz jars	25
7	Uncle Bob's Organic Dried Pears	3	7	12 - 1 lb pkgs.	30
8	Northwoods Cranberry Sauce	3	2	12 - 12 oz jars	40
9	Mishi Kobe Niku	4	6	18 - 500 g pkgs.	97
10	Ikura	4	8	12 - 200 ml jars	31
11	Queso Cabrales	5	4	1 kg pkg.	21
12	Queso Manchego La Pastora	5	4	10 - 500 g pkgs.	38
13	Konbu	6	8	2 kg box	6
14	Tofu	6	7	40 - 100 g pkgs.	23.25
15	Genen Shouyu	6	2	24 - 250 ml bottles	15.5

Limit

Fetch 4 records after starting 5 records

limit x, y

select from customers

limit 5, 4

leaves starting x no. of records and fetches next
 y records

5, 10

Aggregate Functions

Performs a calculation on multiple values and returns a single value



number

Aggregate Function: min()

```
SELECT min(price) from Products
```

Aggregate Function: max()

SELECT max(price) from Products

select min(price), max(price) from products

min(price) max(price)

Aggregate Function: sum()

```
SELECT sum(price) from Products
```

Aggregate Function: avg()

```
SELECT avg(price) from Products
```

Select min (customername) from customers

min] work on char data and returns first or last
max]

Record acc. of lexicographic order

avg } will work only on numbers
sum }

return 0 for others

Aggregate Function: count()

```
SELECT count(price) from Products
```



Return how many customers are from USA?

Select count(customerId) from customers where



country = 'USA'

Count (*)

item	itemp
1	2
2	4
3	NULL
4	NULL

select count(itemp) from itemmaster

returns $\Rightarrow 2$.

select count(item) from itemmaster

returns $\Rightarrow 4$

select count(*) from itemmaster

$\Rightarrow 4$

itm	itemp
1	5
2	NULL
3	7
4	NULL
5	7
6	NULL
7	7
8	NULL

select avg(itemp) from itemmaster

$$\begin{aligned} \text{avg} &= \frac{5 + 7 - 7 + 7}{4} \\ &= \frac{26}{4} = 6.5 \end{aligned}$$

Select count(*) from itemmaster

⇒ 8



create table itemmaster (item int, itemp int)

insert into itemmaster values (1, 2)

insert into itemmaster (item) values (9)

item	itemp
9	NULL

students

Row -	Name	CoAscore	63 score
1		10	
2		5	
3		8	
4		9	
5		6.2	
6		NULL	
7		NULL	

Ques)

Fetch all such customers who are from countries

- ① USA
- ② Germany
- ③ UK

Select * from customers where
country = 'USA' or country = 'Germany'
or country = 'UK'

In Operator

The IN operator allows you to specify multiple values in a WHERE clause.

The IN operator is a shorthand for multiple OR conditions.

In Operator

Find all such customers which are from either Germany, UK or France

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
1	Alfreds Futterkiste	Maria Anders	Obere Str. 57	Berlin	12209	Germany
2	Ana Trujillo Emparedados y helados	Ana Trujillo	Avda. de la Constitución 2222	México D.F.	05021	Mexico
3	Antonio Moreno Taquería	Antonio Moreno	Mataderos 2312	México D.F.	05023	Mexico
4	Around the Horn	Thomas Hardy	120 Hanover Sq.	London	WA1 1DP	UK
5	Berglunds snabbköp	Christina Berglund	Berguvsvägen 8	Luleå	S-958 22	Sweden
6	Blauer See Delikatessen	Hanna Moos	Forsterstr. 57	Mannheim	68306	Germany
7	Blondel père et fils	Frédérique Citeaux	24, place Kléber	Strasbourg	67000	France
8	Bólido Comidas preparadas	Martín Sommer	C/ Araquil, 67	Madrid	28023	Spain

Select * from Customers where country IN
('Germany', 'UK', 'France)

A or B or C

List out all customers which are not from Mexico or Sweden

select * from customers where country not in ('Mexico', 'Sweden')

or

select * from customers where country != 'Mexico'
and country != 'Sweden'

In Operator

The IN operator is used with subqueries also.

Alias

Used to give a temporary name to a table, or a column in a table

Alias

Used to make table names or column names more readable

Only exists for the duration of the query

Created with the keyword: AS

select * from customers as cust

select * from customers cust

no spaces allowed

Select cust. CustomerID ID from customers cust

Result

ID

1

2

3

4

:

51

Select avg(price) from products

result ->

avg(price)
28.86....

Select avg(price) Average from products



select avg(rice) avg from products ✓

select avg(rice) where from products ✗

select avg(rice) 'where' from Products ✓

select avg(rice) 'avg rice' from products ✓

Query

select col₁, col₂ from table where Condition

from → where → select

limit runs at the end

SQL Joins

Needed to retrieve records from more than one table collectively

Why Joins?

Types of SQL Joins

1. Inner Join (Equi Join or Simple Join) → natural join
 2. Left Join (Left Outer Join)
 3. Right Join (Right Outer Join)
 4. Full Join (Full Outer Join)
 5. Self Join
 6. Cartesian Product
- } outer join

Total
^ no. of columns in result of join = sum of columns of
all tables

Schema

Student

Rno	Name	Fname
1	Sumit	Suresh
2	Amit	Naresh
3	Priya	Mahesh
4	Neha	Dinesh

Library

Rno	BookId	BookName
1	B1	Hamacher
3	B2	Galvin
5	B3	CLRS

Inner Join

Student

Rno	Name	Fname
1	Sumit	Suresh
2	Amit	Naresh
3	Priya	Mahesh
4	Neha	Dinesh

Library

Rno	BookId	BookName
1	B1	Hamacher
3	B2	Galvin
5	B3	CLRS

Left Join

Student

Rno	Name	Fname
1	Sumit	Suresh
2	Amit	Naresh
3	Priya	Mahesh
4	Neha	Dinesh

Library

Rno	BookId	BookName
1	B1	Hamacher
3	B2	Galvin
5	B3	CLRS

Right Join

Student

Rno	Name	Fname
1	Sumit	Suresh
2	Amit	Naresh
3	Priya	Mahesh
4	Neha	Dinesh

Library

Rno	BookId	BookName
1	B1	Hamacher
3	B2	Galvin
5	B3	CLRS

Full Join

Student

Rno	Name	Fname
1	Sumit	Suresh
2	Amit	Naresh
3	Priya	Mahesh
4	Neha	Dinesh

Library

Rno	BookId	BookName
1	B1	Hamacher
3	B2	Galvin
5	B3	CLRS

Cartesian Product

Student		
Rno	Name	Fname
1	Sumit	Suresh
2	Amit	Naresh
3	Priya	Mahesh
4	Neha	Dinesh

Library		
Rno	BookId	BookName
1	B1	Hamacher
3	B2	Galvin
5	B3	CLRS

select col1, col2 from
table1, table2

select * from student, library

→ no. of rows = 4 * 3 = 12

It returns combination of each row of student table with each row of library table

Rno	Name	Fname
1	Smit	suresh
1	Smit	suresh
1	Smit	suresh
2	Amit	vansh

Rno	Book Id	Book name
1	B1	Hannacher
1	B2	Galvin
1	B3	CLRS

Self Join

Employee

Eno	Name	ManagerID
1	Sumit	NULL
2	Amit	4
3	Priya	4
4	Neha	1

Happy Learning.!

- DPP discussion
- Topics
- last doubts



only doubt? ✎

