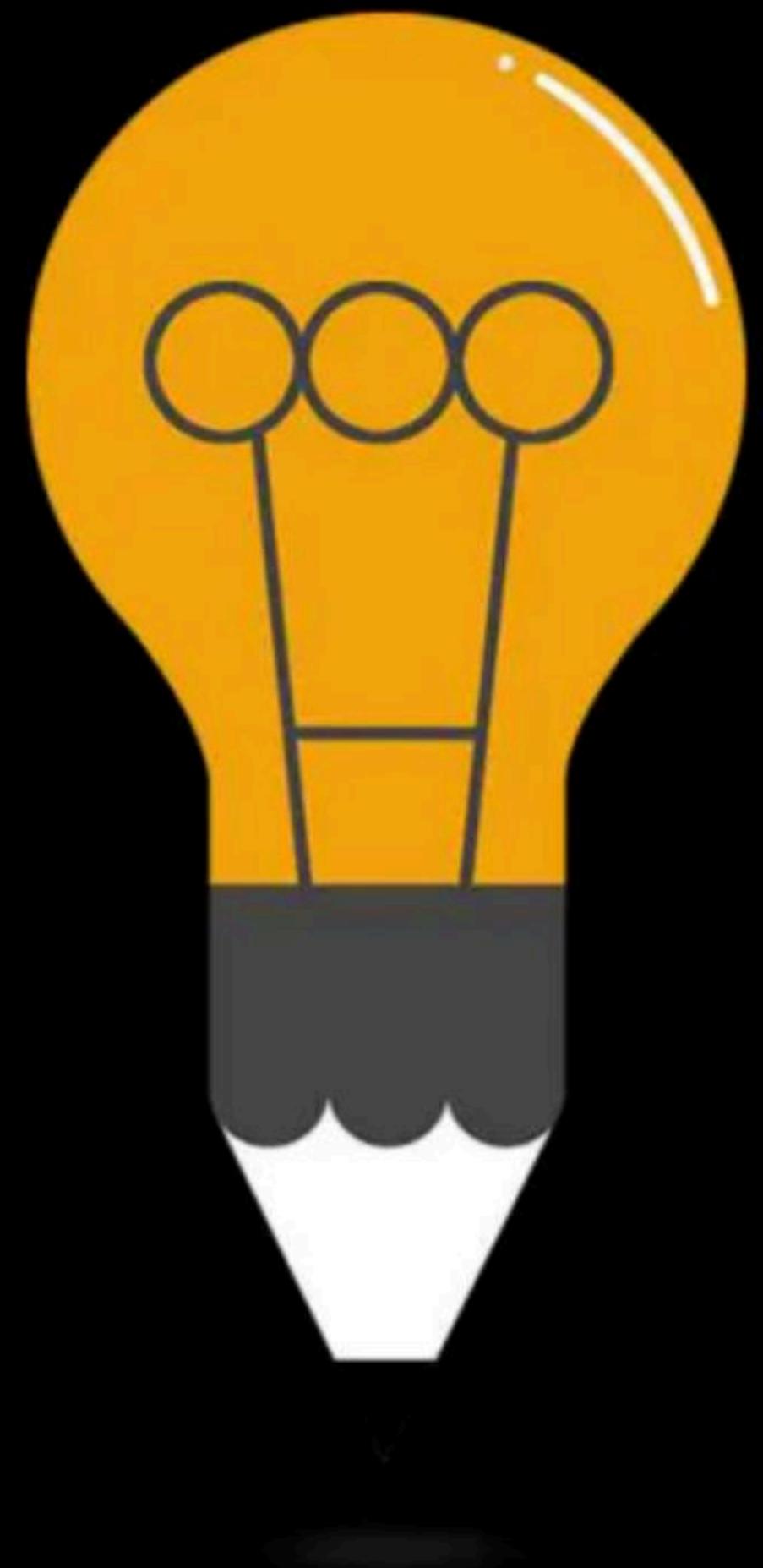




Doubt Clearing Session & SQL Queries

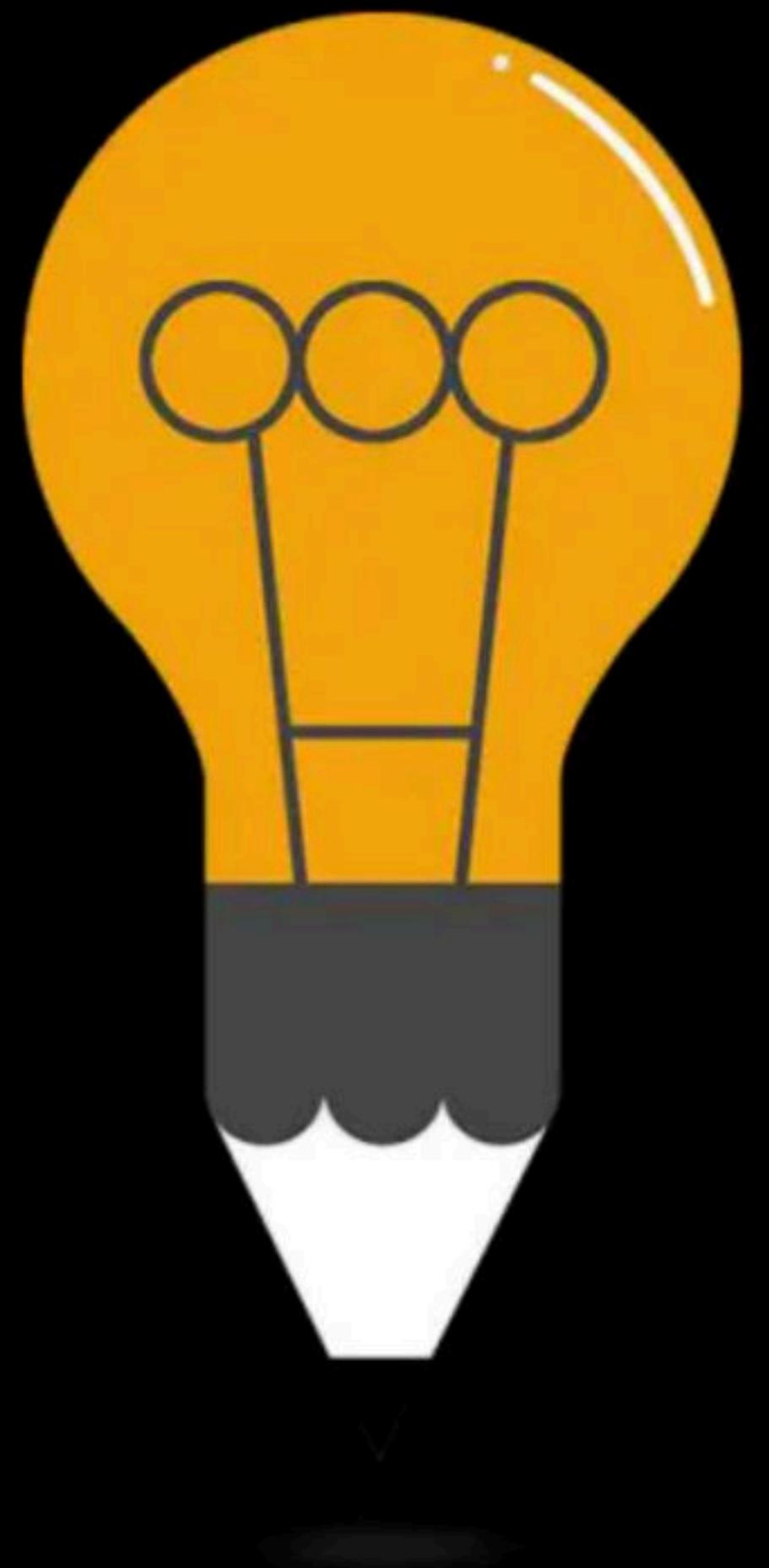
Complete Course on Database Management System



DBMS

Doubts & SQL

By: Vishvadeep Gothi



DPP

By: Vishvadeep Gothi

Question

DBMS is the collection of _____ that enables user to create and maintain a database?

- a) Keys
- b) Transactions
- c) Objects
- d) Programs

Question

Which of the following is the process of selecting the data storage and data access characteristics of the database?

- (A) Logical DB design
- (B) Physical DB design
- (C) Testing & Performance tuning
- (D) Schema Refinement

Question

In which model the database is stored in tables?

- (A) Network Model
- (B) Relational Model
- (C) Hierarchical Model
- (D) E-R Model

Question

Which is the data model?

- (A) Relational
- (B) Object-Oriented
- (C) Network
- (D) All

Question

Which is not the feature of DBMS?

- (A) Data Redundancy
- (B) Independence
- (C) Flexibility
- (D) Data Integrity

Question

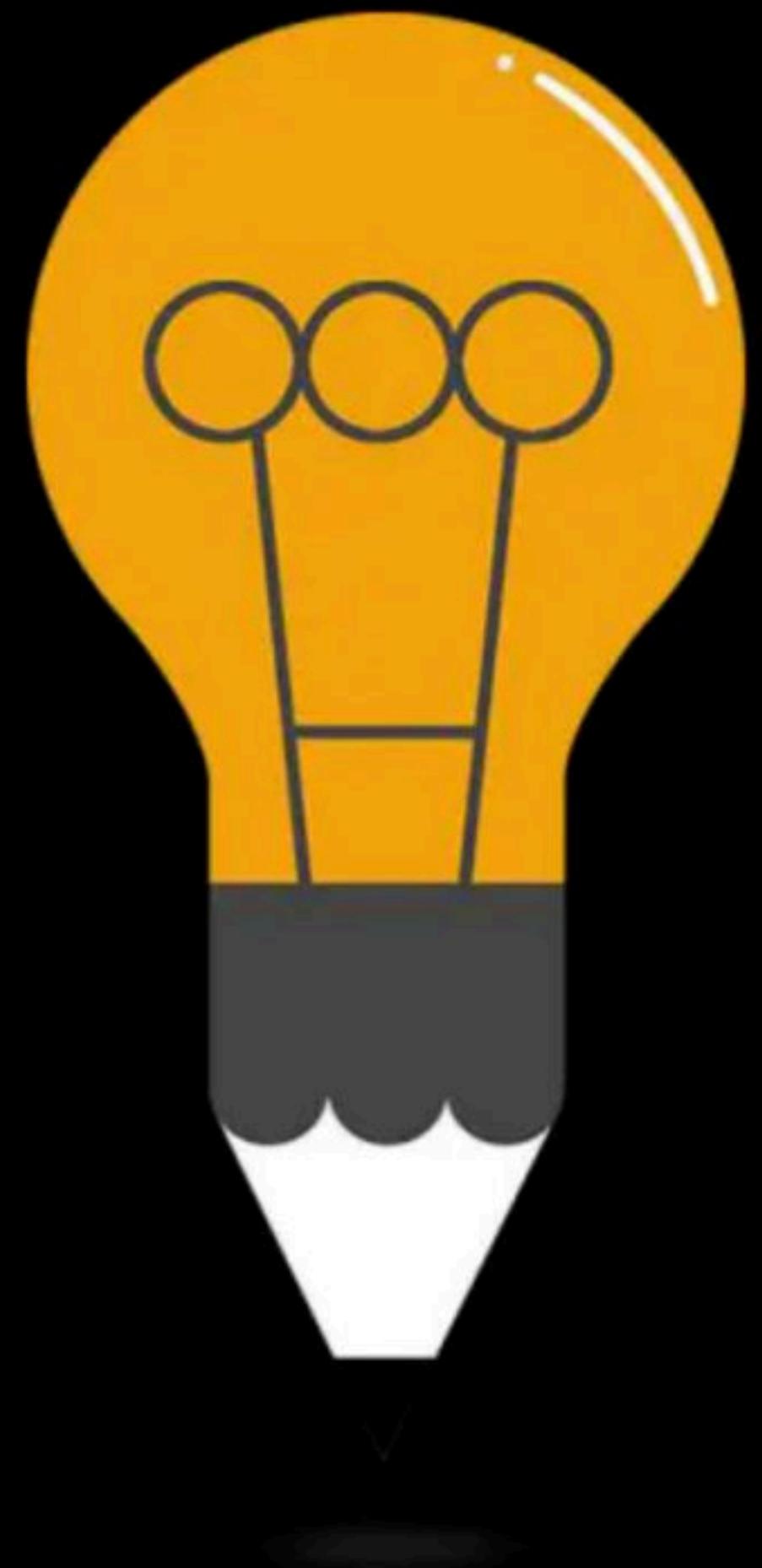
The ability to query information from the database, insert, delete and modify the tuples is

- A. Data definition language (DDL)
- B. Data manipulation language (DML)
- C. Storage definition language (SDL)
- D. Relational schema

Question

Which one of the following makes permanently recorded transaction in the database?

- A. View
- B. Commit
- C. Roll back
- D. Flash back



DPP: SQL

By: **Vishvadeep Gothi**

Customers Table

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

Question

Write query for all below questions on table Customers

1. Select all customers which are from country "Germany", "Berlin"
2. Fetch that customers' name, address city, postal code and country who has contact name 'Yang Wang'
3. Fetch all customers information till customerID 19
4. Fetch all customers information except from Country 'Germany', 'UK', 'USA'

1. select * from customers where
country = 'Germany' or country = 'Berlin'
or
... country IN ('Germany', 'Berlin')

2) select customerName, Address.city, postelcode, country from
customers where contactname = 'Yang Wang'

3) select * from customers where CustomerID <= 19

4) select * from customers where country not in ('Germany', 'USA',
or
'UK')

—||—||—
country != 'Germany'
and country != 'USA' and
country != 'UK'

Products Table

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

Question

Write query for all below questions on table Products

1. Select all products which are supplied by suppliers with Id 1 or 2 or 3
2. Fetch the name of all such products which have price in range 5 to 25
3. Find all suppliers who supply the products of category 2?
4. Find all products which are supplied by supplier of ID 2 with price more than 30?
5. Find all products which have price more than 50 but not supplied by supplier with ID 6?
6. Find all products which have price less than 30 but not supplied by supplier with ID 2 or 6?

1. select * from products where supplierID

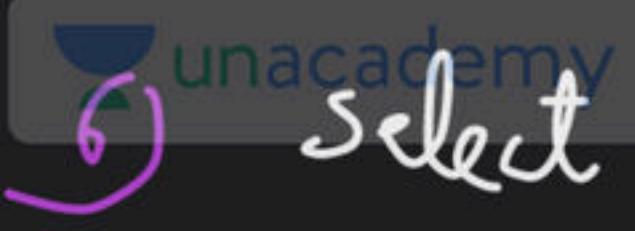
In (1,2,3)

2) select productname from products where price between 5 and 25

3) select supplierID from products where categoryID = 2

4) select * from products where supplierID = 2 and price > 30

5) select * from products where price > 50
and supplierID != 6



⑤ select * from products where price < 30 and

SupplierId != 2 and

SupplierId != 6

or

select * from products where price < 30 and

SupplierId not In(2,6)

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)
2. Left Join (Left Outer Join)
3. Right Join (Right Outer Join)
4. Full Join (Full Outer Join)
5. Self Join
6. Cartesian Product (cross product)

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

Select * from table1 Inner Join table2 on
 -table1.Column = table2.Column

Or

Select * from table1,table2 where table1.Column
 = table2.Column

Select * from student inner join library on student.rno
= library.rno

Result

Rno	Name	Fname	Rno	BookId	Bookname
1	Syntel	swresh	1	B1	Himachal
3	Eija	mesh	3	B2	Galvin

T1

A	B
---	---

1 2

3 4

2 6

9 3

4 5

5 15

4 1

4 3

T2

A	C
---	---

1 6

1 7

1 9

2 4

3 16

select * from T1 inner join
 T2 on T1.A = T2.A

result ||

A	B	A	C
1	2	1	6
1	2	1	7
1	2	1	9
3	4	3	10
2	6	2	4
4	5	4	1
4	3	4	3

Left Join / left outer 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

↓

entire rows of left table
& matching rows of right table

select * from student left join library on
student.Rno = library.Rno

result

Rno	Name	Fname	Rno	BookId	Bookname
1	Sumit	Swadesh	1	B1	Hanumacheer
2	Amit	Naresh	NULL	NULL	NULL
3	Riyg	Rahesh	3	B2	Galvin
4	Neha	Dinesh	NULL	NULL	NULL

min no. of rows in result = no. of rows in left table
 ↗

- true when common column has unique values in both tables

Right Join / Right outer 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



all rows of right-table
and only matching rows
from left-table.

select * from student right join library on
student.rno = library.rno

Rno	Name	Fname	Rno	Bid	Bookname
1	Symit	swresh	1	B1	Hgmacher
3	Priya	Mahesh	3	B2	Galvin
NULL	NULL	NULL	5	B3	CLRS

Full Join

Full outer join

Student

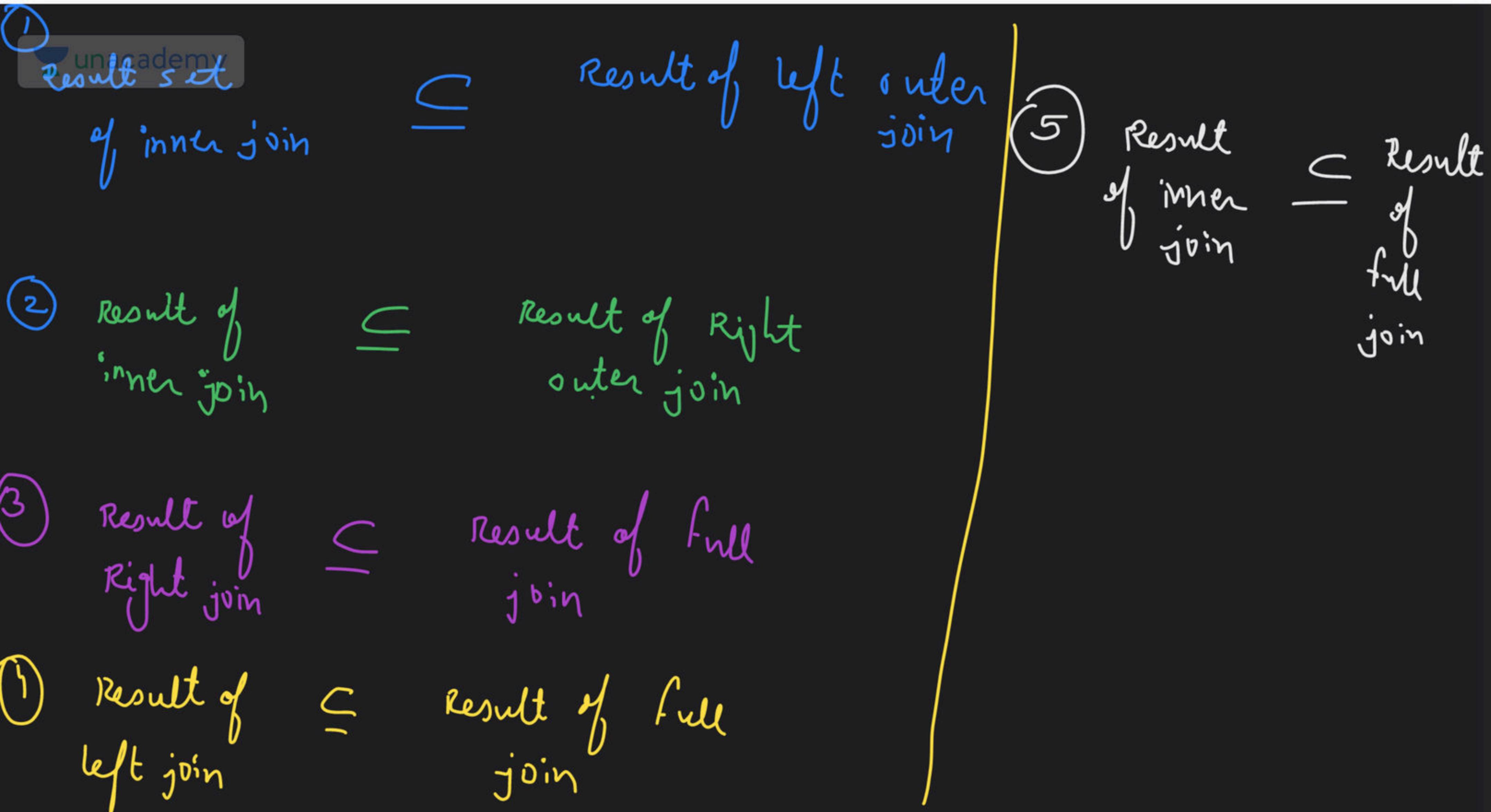
Rno	Name	Fname
1	Sumit	Suresh
2	Amit	Naresh
3	Priya	Mahesh
4	Neha	Dinesh

Library

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

Select * from student full outer join library on
student.rno = library.rno

Rno	Rname	frame	Rno	Bid	Bname
1	Sunit	swresh	1	B1	Harmacher
2	Amit	Naresh	NULL	NULL	NULL
3	Priya	Mahesh	3	B2	Galvin
4	Neha	Dinesh	NULL	NULL	NULL
NULL	NULL	NULL	5	B3	CLRS



Cartesian Product

Student

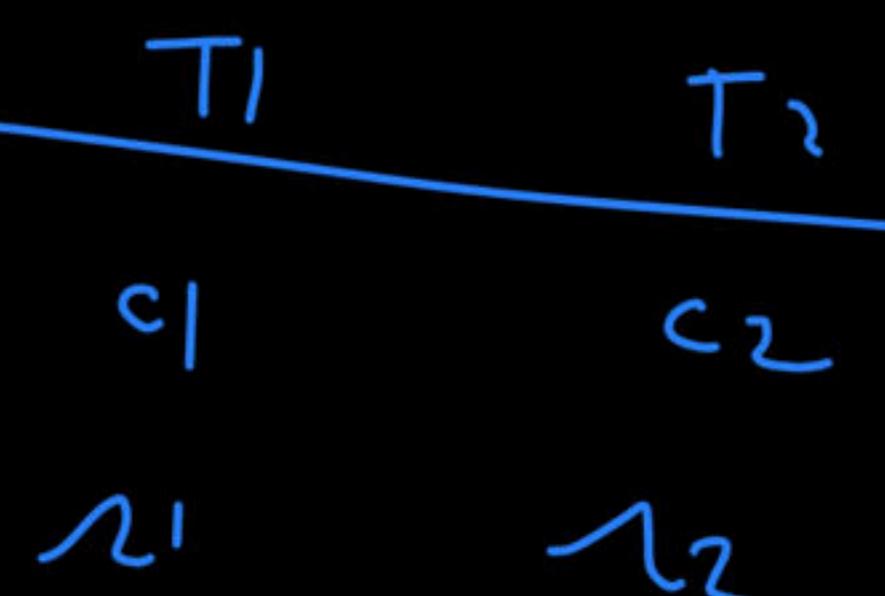
Rno	Name	Fname
1	Sumit	Suresh
2	Amit	Naresh
3	Priya	Mahesh
4	Neha	Dinesh

Library

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

no. of columns

no. of rows



select * from T1, T2

no. of columns = c1 + c2

no. of rows = r1 * r2

Self Join

Employee

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

Question GATE-2018

Consider the following two tables and four queries in SQL.

Book (isbn, bname), Stock(isbn, copies)

Query 1:

```
SELECT B.isbn, S.copies FROM Book B INNER JOIN Stock S ON B.isbn=S.isbn;
```

Query 2:

```
SELECT B.isbn, S.copies FROM Book B LEFT OUTER JOIN Stock S ON B.isbn=S.isbn;
```

Query 3:

```
SELECT B.isbn, S.copies FROM Book B RIGHT OUTER JOIN Stock S ON B.isbn=S.isbn
```

Query 4:

```
SELECT B.isbn, S.copies FROM Book B FULL OUTER JOIN Stock S ON B.isbn=S.isbn
```

Which one of the queries above is certain to have an output that is a superset of the outputs of the other three queries?

- A. Query 1
- B. Query 2
- C. Query 3
- ✓ D. Query 4

Question GATE-2004

A relational database contains two tables student and department in which student table has columns roll_no, name and dept_id and department table has columns dept_id and dept_name. The following insert statements were executed successfully to populate the empty tables:

```

Insert into department values (1, 'Mathematics')
Insert into department values (2, 'Physics')
Insert into student values (1, 'Navin', 1)
Insert into student values (2, 'Mukesh', 2)
Insert into student values (3, 'Gita', 1)

```

<u>student</u>		<u>Department</u>	
roll_no	name	dept_id	dept_name
1	Nav	1	math
2	Mukesh	2	Phy
3	Gita	1	

How many rows and columns will be retrieved by the following SQL statement?

Select * from student, department

→ Cartesian prod.

- (A) 0 rows and 4 columns
- (B) 3 rows and 4 columns
- (C) 3 rows and 5 columns
- (D) 6 rows and 5 columns

Group by Clause

Used in collaboration with the SELECT statement to arrange identical data into groups

Group by Clause

Student(Rno, Name, Fname, Dob)

Select * from student

Group by Clause

Student(Rno, Name, Fname, Dob)

Select * from student group by Dob

Group by Clause

Count number of customers from each country?

Products Table

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
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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

Group by Clause

Write a query to fetch sum of prices of all products for each of the category?

Group by Clause

Write a query to fetch min of prices of all products for each of the category, only when the price of product is greater than 20?

Group by Clause

Write a query to fetch sum of prices of all products for each of the category, only when sum of price is greater than 200?

Having Clause

The HAVING clause in SQL is used if we need to filter the result set based on aggregate functions such as MIN() and MAX(), SUM() and AVG() and COUNT().

The HAVING clause was introduced because the WHERE clause does not support aggregate functions. Also, GROUP BY must be used before the HAVING clause.

Where vs Having

HAVING Clause	WHERE Clause
The HAVING clause checks the condition on a group of rows.	The WHERE clause checks the condition on each individual row.
The HAVING is used with aggregate functions.	The WHERE clause cannot be used with aggregate functions.
The HAVING clause is executed after the GROUP BY clause.	The WHERE clause is executed before the GROUP BY clause.

ORDER BY Clause

The ORDER BY keyword is used to sort the result-set in ascending or descending order

ORDER BY Clause

Fetch all customers records but sorted by country name

ORDER BY Clause

Fetch all customers records but sorted by country name in descending order

ORDER BY Clause

Can we fetch records which are sorted for 2 columns?

Happy Learning.!



▲ 1 • Asked by Rishabh

Is mapping cardinality is only for binary relationships ?

Is key and super key are same ? What is the difference between them ?

▲ 1 • Asked by Rishabh

Definition of prime attributes should be - The attributes which are part of any candidate key.

Definition of non-prime attributes should be - The attributes which are not the part

unacademy

Prime vs non-prime

Part of key

hot part of key

Rno
name
Student

ex:- entity set :- E

attribute :- a_1
 a_2
 a_3
 a_4
 a_5
 a_6

keys :- ① a_1 }
 ② a_2 a_3 }

Prime $\Rightarrow a_1, a_2, a_3$
non-key $\Rightarrow a_4, a_5, a_6$

▲ 1 • Asked by Kumar

Sir if we write query select table1.col from table1,table2 and suppose table1 is empty then why it returns empty

▲ 1 • Asked by Sumit Bikr...

How to fetch the last 5 rows of a table with limit??