

DBMS

SQL

By: **Vishvadeep Gothi**

Self Join

Employee

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

select from table1 t1, table1 t2

where



Find name of all such employees
who are managers also



<u>Eno</u>	<u>Ename</u>	<u>ManagerId</u>
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E₁

1	Sunit	NULL
2	Amit	1
3	Priya	1
4	Neha	<u>1</u>

<u>Eno</u>	<u>Ename</u>	<u>ManagerId</u>
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E₂

1	Sunit	NULL
2	Amit	1
3	Priya	1
4	Neha	<u>1</u>

distinct

select ^ E1. name from Employee E1, Employee E2

where E1. Eno = E2. ManagerId

name of all employees who are having manager?

select Ename from Employee where managerId is not NULL

Question

Find name of customers who have placed atleast one order?



customers



orders

distinct

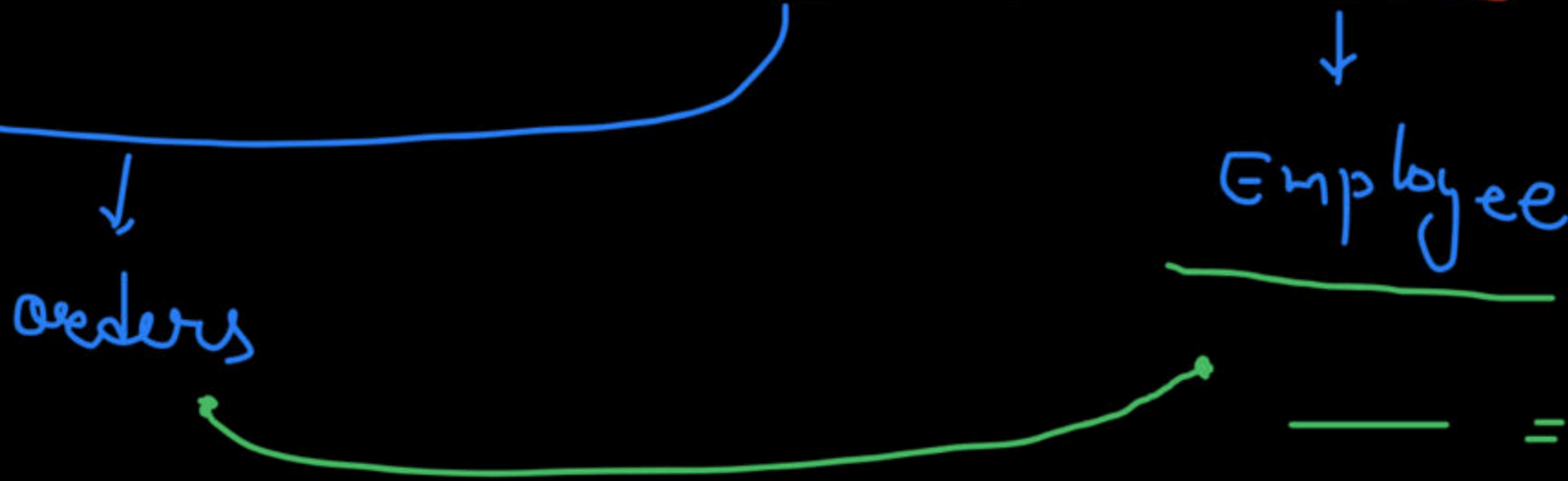
```
select ^ customerName from customers Inner join orders  
on customers.customerId = orders.customerId
```

6 XYZ

7 XYZ

Question

Select all orderIDs who have been taken by Employee named 'Nancy'



```
select orderid from orders inner join Employees on
orders.EmployeeId = Employees.EmployeeId where
FirstName = 'Nancy'
```


Question

Find name of all drivers who have driven atleast once in a race

Drivers(did, dname, dob)

Drives(did, carId, racedate)

1	Amit	15 Jun
2	Sunit	16 Feb
:	:	:
:	:	:
:	:	:

did	cid	racedate
1	C1	27 Jun
1	C2	26 Jun
2	C3	25 Jun
:	:	:

select ^{drivers.did,}
 ^{↓ name} from drivers Inner join drives
on drivers.did = drives.did

Question

Student(sid, sname, dob)

Enrolled(sid, courseid, duration)

Ques) find name of all those students who have enrolled for at least one course?

distinct


```
select ^ student.sid, sname from student inner join enrolled  
on student.sid = Enrolled.sid
```


Ques find name of all those students who have enrolled for course with id 5?

```
select distinct student.sid, sname from student inner join  
Enrolled on student.sid = Enrolled.sid where courseid = 5
```

Ques find name of all those students who have enrolled for atleast one course during 2022?

```
select . . . . . sid where duration = 2022
```


 Ques) list out all students infoⁿ and if they enrolled for any Courses then those infoⁿ also?

```
select * from Student Left join Enrolled on  
Student.Sid = Enrolled.Sid
```

Question

Student(sid, sname, dob)

Course(courseid, Coursename)

Enrolled(sid, courseid, duration)

Ques) find name of all students who have enrolled for
Course 'DBMS' ?

^{distinct}
select student.sid, sname from student, course, Enrolled

where student.sid = Enrolled.sid and

Enrolled.courseid = course.courseid and

coursename = 'DBMS'

select from student inner join Enrolled inner join

course on student.sid = Enrolled.sid and

Enrolled.courseid = course.courseid

where coursename = 'DBMS'

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
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

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?

Subquery

Find all customers that are from the same countries as the suppliers

Subquery

Find all customers, that are from those countries where there is not any suppliers

Orders Table

OrderID	CustomerID	EmployeeID	OrderDate	ShipperID
10248	90	5	1996-07-04	3
10249	81	6	1996-07-05	1
10250	34	4	1996-07-08	2
10251	84	3	1996-07-08	1
10252	76	4	1996-07-09	2
10253	34	3	1996-07-10	2
10254	14	5	1996-07-11	2
10255	68	9	1996-07-12	3
10256	88	3	1996-07-15	2
10257	35	4	1996-07-16	3
10258	20	1	1996-07-17	1
10259	13	4	1996-07-18	3
10260	55	4	1996-07-19	1
10261	61	4	1996-07-19	2
10262	65	8	1996-07-22	3
10263	20	9	1996-07-23	3
10264	24	6	1996-07-24	3
10265	7	2	1996-07-25	1
10266	87	3	1996-07-26	3

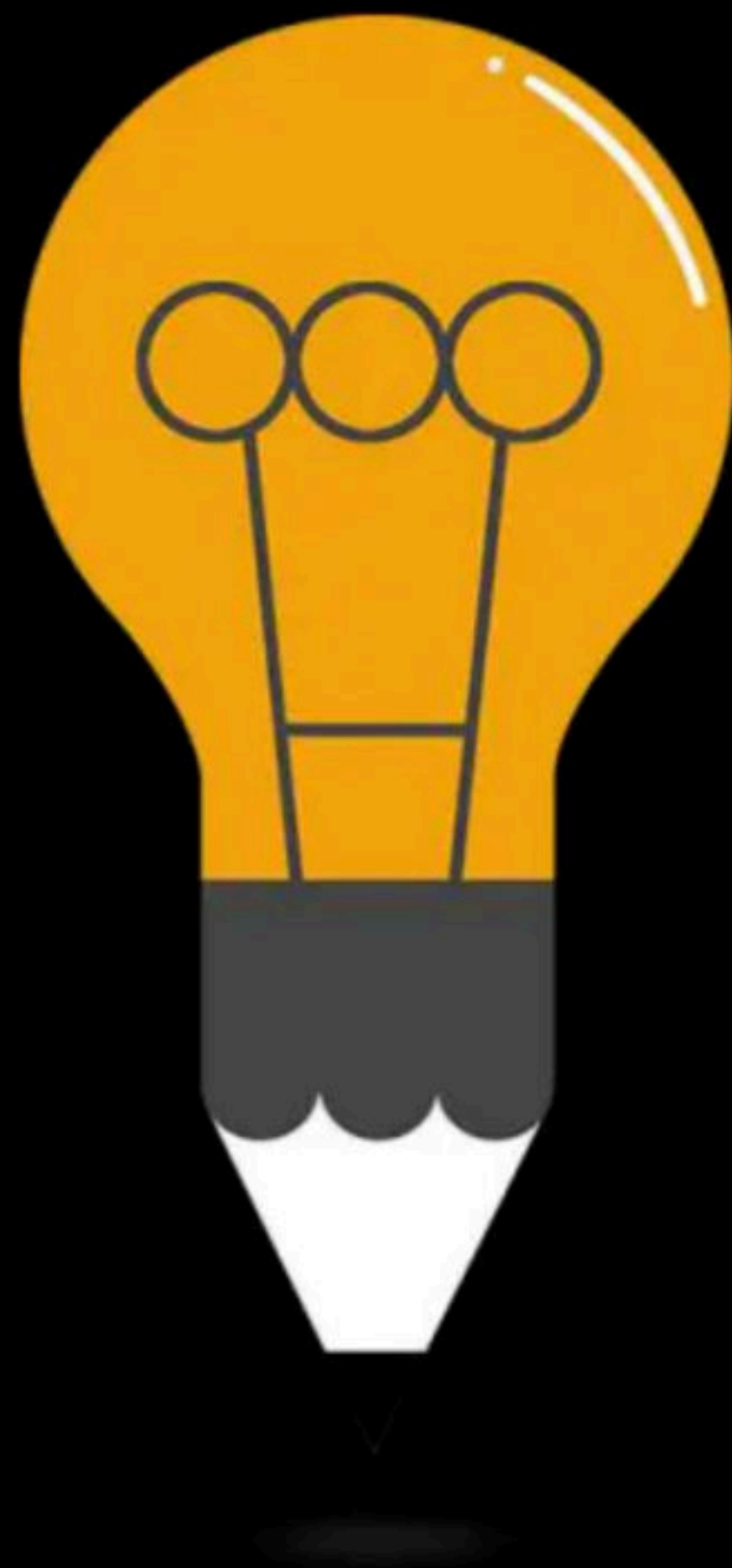
Subquery

Find all customers, who have placed more than 2 orders

Why subquery not Join

Subquery

In operator can only has “Equal to” comparison



DPP: SQL

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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. Find name of all such customers who live in same country as the country of customer with name 'Around the Horn'
2. Write a query to know how many customers share same postalcode?
3. Write a query to know from which country we have maximum number of customers?
4. Write a query to know from which country we have only one customer?

Products Table

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14	Tofu	6	7	40 - 100 g pkgs.	23.25
15	Genen Shouyu	6	2	24 - 250 ml bottles	15.5

Suppliers Table

SupplierID	SupplierName	ContactName	Address	City	PostalCode	Country	Phone
1	Exotic Liquid	Charlotte Cooper	49 Gilbert St.	Londona	EC1 4SD	UK	(171) 555-2222
2	New Orleans Cajun Delights	Shelley Burke	P.O. Box 78934	New Orleans	70117	USA	(100) 555-4822
3	Grandma Kelly's Homestead	Regina Murphy	707 Oxford Rd.	Ann Arbor	48104	USA	(313) 555-5735
4	Tokyo Traders	Yoshi Nagase	9-8 Sekimai Musashino-shi	Tokyo	100	Japan	(03) 3555-5011
5	Cooperativa de Quesos 'Las Cabras'	Antonio del Valle Saavedra	Calle del Rosal 4	Oviedo	33007	Spain	(98) 598 76 54
6	Mayumi's	Mayumi Ohno	92 Setsuko Chuo-ku	Osaka	545	Japan	(06) 431-7877
7	Pavlova, Ltd.	Ian Devling	74 Rose St. Moonie Ponds	Melbourne	3058	Australia	(03) 444-2343
8	Specialty Biscuits, Ltd.	Peter Wilson	29 King's Way	Manchester	M14 GSD	UK	(161) 555-4448
9	PB Knäckebröd AB	Lars Peterson	Kaloadagatan 13	Göteborg	S-345 67	Sweden	031-987 65 43
10	Refrescos Americanas LTDA	Carlos Diaz	Av. das Americanas 12.890	São Paulo	5442	Brazil	(11) 555 4640
11	Heli Süßwaren GmbH & Co. KG	Petra Winkler	Tiergartenstraße 5	Berlin	10785	Germany	(010) 9984510
12	Plutzer Lebensmittelgroßmärkte AG	Martin Bein	Bogenallee 51	Frankfurt	60439	Germany	(069) 992755
13	Nord-Ost-Fisch Handelsgesellschaft mbH	Sven Petersen	Frahmredder 112a	Cuxhaven	27478	Germany	(04721) 8713
14	Formaggi Fortini s.r.l.	Elio Rossi	Viale Dante, 75	Ravenna	48100	Italy	(0544) 60323

Question

Write query for all below questions on table Customers

1. Find all such products which have price equal to the price of product name 'Aniseed Syrup'?
2. Find all such suppliers name who suppliers products of price greater than 20?
3. Find all other products of the category of the product 'Tofu'?

Happy Learning.!

