

P8: Retrieving Data from Multiple Tables using Joins

- a. Natural Join
- b. Inner Join
- c. Outer Join
- d. Self Join

1. Display all the records of each table.

```
mysql> select * from Chef_details;
+-----+-----+-----+-----+-----+-----+-----+
| Chef_id | Employee_id | Fname | Lname | Shifting | Phone_no | specialisation | Designation |
+-----+-----+-----+-----+-----+-----+-----+
| 1 | 1001 | Alen | Grace | Morning | +919625453557 | Saucier | Sous Chef |
| 2 | 1002 | Anitta | Aldrin | Morning | +919625453550 | Saucier | Sous Chef |
| 3 | 1005 | Jolly | Francis | Evening | +919605747571 | Patissier | commis Chef |
| 4 | 1006 | Ambily | Francis | Night | +919605747521 | Patissier | Head Chef |
+-----+-----+-----+-----+-----+-----+-----+
4 rows in set (0.01 sec)

mysql> select * from employee;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Employee_id | Fname | Lname | Work_dept | Phone_no | Hire_date | Sex | Birth_date | Address | Basic_salary | Education_level |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1001 | Alen | Grace | Chef | +919625453557 | 2019-05-01 | M | 1996-03-09 | Grace villa Bangalore | 920000.00 | Masters |
| 1002 | Anitta | Aldrin | Chef | +919625453550 | 2019-05-01 | F | 1994-07-29 | pico villa Bangalore | 920000.00 | Masters |
| 1003 | Asha | Tampi | Manager | +919623453550 | 2019-05-01 | F | 1990-04-22 | MNM villa Bangalore | 1035000.00 | Bachelors |
| 1004 | Deepak | A | Manager | +919623453570 | 2020-09-01 | M | 1995-04-22 | DO apartment Bangalore | 575000.00 | Bachelors |
| 1005 | Jolly | Francis | Chef | +918605747571 | 2020-02-02 | F | 1978-10-28 | Jolly villa bangalore | 500000.00 | Masters |
| 1006 | Ambily | Francis | Chef | +918605747521 | 2020-07-02 | F | 1977-10-28 | ABC villa bangalore | 500000.00 | Masters |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
6 rows in set (0.01 sec)

mysql> select * from orderitems;
+-----+-----+-----+-----+-----+-----+-----+
| Order_id | Quantity | Total_price | Menu_id | Customer_id | Table_num | Cust_note |
+-----+-----+-----+-----+-----+-----+-----+
| 10001 | 2 | 500 | 6001 | 2001 | NULL | NULL |
| 10002 | 3 | 700 | 6002 | 2002 | NULL | NULL |
| 10003 | 0 | 10 | 6001 | 2003 | NULL | NULL |
| 10004 | 1 | 500 | 6005 | 2004 | 208 | add extra cheese |
| 10005 | 2 | 350 | 6004 | 2003 | 208 | add extra toppings |
+-----+-----+-----+-----+-----+-----+-----+
5 rows in set (0.01 sec)

mysql> select * from order_details;
+-----+-----+-----+-----+-----+-----+-----+
| Order_id | Order_date | trans_status | trans_type | Total_price | Menu_id | Customer_id |
+-----+-----+-----+-----+-----+-----+-----+
| 10001 | 2021-01-01 | Completed | Debit card | 500 | 6001 | 2001 |
| 10002 | 2021-01-02 | Completed | UPI | 700 | 6002 | 2002 |
| 10003 | 2021-01-02 | Completed | UPI | 10 | 6001 | 2003 |
| 10004 | 2021-01-08 | Completed | Debit card | 500 | 6005 | 2004 |
| 10005 | 2021-01-10 | Completed | Debit card | 350 | 6004 | 2003 |
+-----+-----+-----+-----+-----+-----+-----+
5 rows in set (0.01 sec)

mysql>
```

```
mysql> desc Chef_details;
```

Field	Type	Null	Key	Default	Extra
Chef_id	int	NO	PRI	NULL	
Employee_id	int	YES	MUL	NULL	
Fname	varchar(20)	YES		NULL	
Lname	char(10)	YES		NULL	
Shifting	varchar(10)	YES		NULL	
Phone_no	varchar(13)	YES		NULL	
specialisation	varchar(15)	YES		NULL	
Designation	varchar(15)	YES		NULL	

8 rows in set (0.01 sec)

```
mysql> desc employee;
```

Field	Type	Null	Key	Default	Extra
Employee_id	int	NO	PRI	NULL	auto_increment
Fname	varchar(15)	NO		NULL	
Lname	varchar(15)	NO		NULL	
Work_dept	varchar(15)	NO		NULL	
Phone_no	varchar(13)	NO		NULL	
Hire_date	date	NO		NULL	
Sex	char(1)	NO		NULL	
Birth_date	date	NO		NULL	
Address	varchar(100)	NO		NULL	
Basic_salary	decimal(9,2)	YES		NULL	
Education_level	varchar(10)	YES		NULL	

11 rows in set (0.00 sec)

```
mysql>
```

```
mysql> desc orderitems;
```

Field	Type	Null	Key	Default	Extra
Order_id	int	NO	PRI	NULL	
Quantity	int	YES		1	
Total_price	double	YES		10	
Menu_id	int	YES	MUL	NULL	
Customer_id	int	YES	MUL	NULL	
Table_num	int	YES		NULL	
Cust_note	varchar(255)	YES		NULL	

7 rows in set (0.00 sec)

```
mysql> desc order_details;
```

Field	Type	Null	Key	Default	Extra
Order_id	int	YES	MUL	NULL	
Order_date	date	YES		NULL	
trans_status	varchar(10)	YES		NULL	
trans_type	varchar(10)	YES		NULL	
Total_price	int	YES		NULL	
Menu_id	int	YES	MUL	NULL	
Customer_id	int	YES	MUL	NULL	

7 rows in set (0.00 sec)

2. Natural Join: (highlight the outcomes of each of the following use case)
- with common attribute (with same attribute name and data type)

```
mysql> select od.Order_id, od.Menu_id, oi.Customer_id from orderitems as oi natural join order_details as od;
```

Order_id	Menu_id	Customer_id
10001	6001	2001
10002	6002	2002
10003	6001	2003
10004	6005	2004
10005	6004	2003

5 rows in set (0.00 sec)

```
mysql> select c.Employee_id, c.Fname, e.Phone_no from Chef_details as c natural join employee as e;
```

Employee_id	Fname	Phone_no
1001	Alen	+919625453557
1002	Anitta	+919625453550

2 rows in set (0.00 sec)

- different attribute name

```
mysql> select od.Order_date, od.trans_status, od.trans_type, oi.Quantity, oi.Table_num, oi.Cust_note from orderitems as oi Natural join order_details as od;
```

Order_date	trans_status	trans_type	Quantity	Table_num	Cust_note
2021-01-01	Completed	Debit card	2	NULL	NULL
2021-01-02	Completed	UPI	3	NULL	NULL
2021-01-02	Completed	UPI	0	NULL	NULL
2021-01-08	Completed	Debit card	1	208	add extra cheese
2021-01-10	Completed	Debit card	2	208	add extra toppings

5 rows in set (0.00 sec)

```
mysql> select e.Work_dept, e.Hire_date, e.Sex, e.Birth_date, e.Address, e.Basic_salary, e.Education_level, c.Chef_id, c.Shifting, c.specialisation, c.Designation from Chef_details as c natural join employee as e;
```

Work_dept	Hire_date	Sex	Birth_date	Address	Basic_salary	Education_level	Chef_id	Shifting	specialisation	Designation
Chef	2019-05-01	M	1996-03-09	Grace villa Bangalore	920000.00	Masters	1	Morning	Saucier	Sous Chef
Chef	2019-05-01	F	1994-07-29	pico villa Bangalore	920000.00	Masters	2	Morning	Saucier	Sous Chef

2 rows in set (0.00 sec)

- same attribute name but different data type

```
mysql> select od.Total_price from orderitems as oi natural join order_details as od;
```

Total_price
500
700
10
500
350

5 rows in set (0.00 sec)

```
mysql> select od.Total_price, oi.Total_price from orderitems as oi natural join order_details as od;
```

Total_price	Total_price
500	500
700	700
10	10
500	500
350	350

5 rows in set (0.00 sec)

```
mysql> select e.Lname from Chef_details as c natural join employee as e;
```

Lname
Grace
Aldrin

2 rows in set (0.00 sec)

```
mysql> select e.Lname ,c.Lname from Chef_details as c natural join employee as e;
```

Lname	Lname
Grace	Grace
Aldrin	Aldrin

2 rows in set (0.00 sec)

```
mysql>
```

```
mysql> select * from orderitems NATURAL JOIN order_details;
```

Order_id	Total_price	Menu_id	Customer_id	Quantity	Table_num	Cust_note	Order_date	trans_status	trans_type
10001	500	6001	2001	2	NULL	NULL	2021-01-01	Completed	Debit card
10002	700	6002	2002	3	NULL	NULL	2021-01-02	Completed	UPI
10003	10	6001	2003	0	NULL	NULL	2021-01-02	Completed	UPI
10004	500	6005	2004	1	288	add extra cheese	2021-01-08	Completed	Debit card
10005	350	6004	2003	2	288	add extra toppings	2021-01-10	Completed	Debit card

5 rows in set (0.01 sec)

```
mysql>
```

```
mysql> select * from employee NATURAL JOIN Chef_details;
```

Employee_id	Fname	Lname	Phone_no	Work_dept	Hire_date	Sex	Birth_date	Address	Basic_salary	Education_level	Chef_id	Shifting
1001	Alen	Grace	+919625453557	Chef	2019-05-01	M	1996-03-09	Grace villa Bangalore	920000.00	Masters	1	Morning
1002	Anitta	Aldrin	+919625453550	Chef	2019-05-01	F	1994-07-29	pico villa Bangalore	920000.00	Masters	2	Morning

2 rows in set (0.01 sec)

```
mysql>
```

```
mysql> select * from orderitems JOIN order_details USING (Order_id, Total_Price, Menu_id, Customer_id);
```

Order_id	Total_price	Menu_id	Customer_id	Quantity	Table_num	Cust_note	Order_date	trans_status	trans_type
10001	500	6001	2001	2	NULL	NULL	2021-01-01	Completed	Debit card
10002	700	6002	2002	3	NULL	NULL	2021-01-02	Completed	UPI
10003	10	6001	2003	0	NULL	NULL	2021-01-02	Completed	UPI
10004	500	6005	2004	1	288	add extra cheese	2021-01-08	Completed	Debit card
10005	350	6004	2003	2	288	add extra toppings	2021-01-10	Completed	Debit card

5 rows in set (0.00 sec)

```
mysql> select * from Chef_details JOIN employee USING (Employee_id, Phone_no, Fname, Lname);
```

```
ERROR 1146 (42S02): Table 'restaurant_db.employee' doesn't exist
```

```
mysql> select * from Chef_details JOIN employee USING (Employee_id, Phone_no, Fname, Lname);
```

Employee_id	Fname	Lname	Phone_no	Chef_id	Shifting	specialisation	Designation	Work_dept	Hire_date	Sex	Birth_date	Address
1001	Alen	Grace	+919625453557	1	Morning	Saucier	Sous Chef	Chef	2019-05-01	M	1996-03-09	Grace villa Bangalore
1002	Anitta	Aldrin	+919625453550	2	Morning	Saucier	Sous Chef	Chef	2019-05-01	F	1994-07-29	pico villa Bangalore

2 rows in set (0.00 sec)

```
mysql>
```

3. Inner Join:

- with "=" condition, same data type

```
mysql> select c.Employee_id, c.Fname, e.Phone_no from Chef_details as c inner join employee as e ON c.Employee_id=e.Employee_id;
```

Employee_id	Fname	Phone_no
1001	Alen	+919625453557
1002	Anitta	+919625453550
1005	Jolly	+918605747571
1006	Ambily	+918605747521

4 rows in set (0.00 sec)

```
mysql>
```

```
Select Command Prompt - mysql -u root -p
mysql> select od.Order_id, od.Menu_id, oi.Customer_id from orderitems as oi inner
join order_details as od ON od.Order_id =oi.Order_id;
+-----+-----+-----+
| Order_id | Menu_id | Customer_id |
+-----+-----+-----+
| 10001 | 6001 | 2001 |
| 10002 | 6002 | 2002 |
| 10003 | 6001 | 2003 |
| 10005 | 6004 | 2003 |
| 10004 | 6005 | 2004 |
+-----+-----+-----+
5 rows in set (0.00 sec)

mysql> _
```

- with "=" condition, different data type

```
Select Command Prompt - mysql -u root -p
mysql> select e.Lname ,c.Lname from Chef_details as c inner join employee as e ON
c.Employee_id= e.Employee_id;
+-----+-----+
| Lname | Lname |
+-----+-----+
| Grace | Grace |
| Aldrin | Aldrin |
| Francis | Francis |
| Francis | Francis |
+-----+-----+
4 rows in set (0.00 sec)

mysql>
```

```
Select Command Prompt - mysql -u root -p
mysql> select od.Total_price, oi.Total_price from orderitems as oi inner join ord
er_details as od ON od.Order_id= oi.Order_id;
+-----+-----+
| Total_price | Total_price |
+-----+-----+
| 500 | 500 |
| 700 | 700 |
| 10 | 10 |
| 500 | 500 |
| 350 | 350 |
+-----+-----+
5 rows in set (0.00 sec)

mysql> _
```

- without "=" condition

```

mysql> select e.Employee id, e.Fname, e.Phone no from Chef_details
as c inner join
employee as e;

```

Empid, ee id	Fname	Phone no
1	Ans	-9190224
0	bl	557
0	ly	-9190224
8	Jo	33557
1	Jo	-91902242
0	ll	557
0	Y	-91902242
1	En	557
0	En	-9190224
0	i-	5550
2	-a	-9190224
0	Gl	33550
1	en	-919022422
0	en	555
1	Ans	-91902242
1	bl	557
0	ly	-91902242
8	Jo	5570
1	ll	-91800274
0	Y	7571
0	En	-91800274
0	i-	7571
1	-a	-91800274
0	Gl	7571
0	en	-91800274
0	en	7571
1	Jo	-91800274
0	ly	7521
0	Jo	-9180027
0	l-	47511
0	En	-91800274
0	i-	7521
1	-a	
0	Gl	
0	en	
1	en	
0	bl	
0	ly	
0	Jo	
0	ll	
0	Y	
1	En	
1	l-	

```

mysql> select e.Lname ,c.Lname from Chef_details as c inner join employee as e;

```

Lname	Lname
Grace	Francis
Grace	Francis
Grace	Aldrin
Grace	Grace
Aldrin	Francis
Aldrin	Francis
Aldrin	Aldrin
Aldrin	Grace
Tampi	Francis
Tampi	Francis
Tampi	Aldrin
Tampi	Grace
A	Francis
A	Francis
A	Aldrin
A	Grace
Francis	Francis
Francis	Francis
Francis	Aldrin
Francis	Grace
Francis	Francis
Francis	Francis
Francis	Aldrin
Francis	Grace

24 rows in set (0.00 sec)

```
Command Prompt - mysql -u root -p

mysql> select od.Order_id, od.Menu_id, oi.Customer_id from orderitems as oi inner
join order_details as od;

+-----+-----+-----+
| Order_id | Menu_id | Customer_id |
+-----+-----+-----+
| 10001 | 6001 | 2004 |
| 10001 | 6001 | 2003 |
| 10001 | 6001 | 2003 |
| 10001 | 6001 | 2002 |
| 10001 | 6001 | 2001 |
| 10002 | 6002 | 2004 |
| 10002 | 6002 | 2003 |
| 10002 | 6002 | 2003 |
| 10002 | 6002 | 2002 |
| 10002 | 6002 | 2001 |
| 10003 | 6001 | 2004 |
| 10003 | 6001 | 2003 |
| 10003 | 6001 | 2003 |
| 10003 | 6001 | 2002 |
| 10003 | 6001 | 2001 |
| 10004 | 6005 | 2004 |
| 10004 | 6005 | 2003 |
| 10004 | 6005 | 2003 |
| 10004 | 6005 | 2002 |
| 10004 | 6005 | 2001 |
| 10005 | 6004 | 2004 |
| 10005 | 6004 | 2003 |
| 10005 | 6004 | 2003 |
| 10005 | 6004 | 2002 |
| 10005 | 6004 | 2001 |
+-----+-----+-----+
25 rows in set (0.00 sec)
```

```
Command Prompt - mysql -u root -p

mysql> select od.Total_price, oi.Total_price from orderitems as oi inner join ord
er_details as od;

+-----+-----+
| Total_price | Total_price |
+-----+-----+
| 500 | 350 |
| 500 | 500 |
| 500 | 10 |
| 500 | 700 |
| 500 | 500 |
| 700 | 350 |
| 700 | 500 |
| 700 | 10 |
| 700 | 700 |
| 700 | 500 |
| 10 | 350 |
| 10 | 500 |
| 10 | 10 |
| 10 | 700 |
| 10 | 500 |
| 500 | 350 |
| 500 | 500 |
| 500 | 10 |
| 500 | 700 |
| 500 | 500 |
| 350 | 350 |
| 350 | 500 |
| 350 | 10 |
| 350 | 700 |
| 350 | 500 |
+-----+-----+
25 rows in set (0.00 sec)
```

4. Outer Join:

- left outer Join (null values of right table to be shown)

```
mysql> select * from Chef_details left outer join Employee ON employee.Employee_id = Chef_details.Employee_id;
```

	chef_id	Employee_id	Fname	Lname	Shifting	Phone_no	specialisation	Designation	Employee_id	Fname	Lname	Work_dept	Phone_no	Hire_date	Sex	Birth_date	Address	Basic_salary	Education_level
85-01	1	1001	Alen	Grace	Morning	+919625453557	Saucier	Sous Chef	1001	Alen	Grace	Chef	+919625453557	2019-08-05	M	1996-03-09	Grace villa bangalore	920000.00	Masters
	2	1002	Anitta	Aldrin	Morning	+919625453550	Saucier	Sous Chef	1002	Anitta	Aldrin	Chef	+919625453550	2019-05-01	F	1994-07-29	pico villa bangalore	920000.00	Masters
	3	1005	Jolly	Francis	Evening	+919605747571	Patisserie	commis Chef	1005	Jolly	Francis	Chef	+918605747571	2020-02-02	F	1978-10-28	Jolly villa bangalore	500000.00	Masters
	4	1006	Ambily	Francis	Night	+919605747521	Patisserie	Head Chef	1006	Ambily	Francis	Chef	+918605747521	2020-07-02	F	1977-10-28	ABC villa bangalore	500000.00	Masters

```
mysql>
```

```
mysql> select * from orderitems left outer join Order_details ON orderitems.Order_id=Order_details.Order_id;
```

Order_id	Quantity	Total_price	Menu_id	Customer_id	Table_num	Cust_note	Order_id	Order_date	trans_status	trans_type	Total_price	Menu_id
10001	2	500	6001	2001	NULL	NULL	10001	2021-01-01	Completed	Debit card	500	6001
10002	3	700	6002	2002	NULL	NULL	10002	2021-01-02	Completed	UPI	700	6002
10003	0	10	6001	2003	NULL	NULL	10003	2021-01-02	Completed	UPI	10	6001
10004	1	500	6005	2004	208	add extra cheese	10004	2021-01-08	Completed	Debit card	500	6005
10005	2	350	6004	2003	208	add extra toppings	10005	2021-01-10	Completed	Debit card	350	6004

5 rows in set (0.00 sec)

```
mysql> select * from order_details left outer join orderitems ON orderitems.Order_id=Order_details.Order_id;
```

Order_id	Order_date	trans_status	trans_type	Total_price	Menu_id	Customer_id	Order_id	Quantity	Total_price	Menu_id	Customer_id	Table_num	Cust_note
10001	2021-01-01	Completed	Debit card	500	6001	2001	10001	2	500	6001	2001	NULL	NULL
10002	2021-01-02	Completed	UPI	700	6002	2002	10002	3	700	6002	2002	NULL	NULL
10003	2021-01-02	Completed	UPI	10	6001	2003	10003	0	10	6001	2003	NULL	NULL
10004	2021-01-08	Completed	Debit card	500	6005	2004	10004	1	500	6005	2004	208	add extra cheese
10005	2021-01-10	Completed	Debit card	350	6004	2003	10005	2	350	6004	2003	208	add extra toppings

5 rows in set (0.00 sec)

```
mysql>
```

```
mysql> select * from Employee right outer join Chef_details on employee.Employee_id = Chef_details.Employee_id;
```

Employee_id	Fname	Lname	Work_email	Phone_no	Hire_date	Sex	Birth_date	Address	Basic_salary	Education_level	Chef_id	Emplo
Employee_id	Fname	Lname	Shifing	Phone_no	specialisation	Designation						
1001	Allen	Grace	Chief	+919625453557	2019-05-01	M	1996-03-09	Grace villa Bangalore	920000.00	Masters	1	1
1001	Allen	Grace	Morning	+919625453557	Saucier	Sous Chef						
1002	Anitta	Aldrin	Chief	+919625453550	2019-05-01	F	1994-07-29	pico villa Bangalore	920000.00	Masters	2	2
1002	Anitta	Aldrin	Morning	+919625453550	Saucier	Sous Chef						
1005	Jolly	Francis	Chief	+919605747521	2020-02-02	F						
1005	Jolly	Francis	Evening	+919605747521	Patisserie	comis Chef	1970-10-28	Jolly villa bangalore	500000.00	Masters	3	3
1006	Ambily	Francis	Chief	+918605747521	2020-07-02	F	1977-10-28	ABC villa bangalore	500000.00	Masters	4	4
1006	Ambily	Francis	Night	+919605747521	Patisserie	Head Chef						

```
4 rows in set (0.00 sec)
```

```
mysql>
```



```

mysql> select * from Chef_details right outer join employee on employee.Employee_id = Chef_details.Employee_id;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Chef_id | Employee_id | Fname | Lname | Shifing | Phone_no | specialisation | Designation | Employee_id | Fname | Lname | Work_dept | Phone_no | Hire_ |
| date | Sex | Birth_date | Address | Basic_salary | Education_level | | | | | | | | |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1 | 1001 | Allen | Grace | Morning | +919625453557 | Saucier | Sous Chef | 1001 | Allen | Grace | Chef | +919625453557 | 2019-05-01 |
| 2 | 1002 | Anitta | Aldrin | Morning | +919625453550 | Saucier | Sous Chef | 1002 | Anitta | Aldrin | Chef | +919625453550 | 2019-05-01 |
| F | 1994-07-29 | pico villa Bangalore | 920000.00 | Masters | NULL | NULL | 1003 | Asha | Tampi | Manager | +919623453550 | 2019-05-01 |
| F | 1990-04-22 | MNV villa Bangalore | 1035000.00 | Bachelors | NULL | NULL | 1004 | Deepak | A | Manager | +919623453570 | 2020-09-01 |
| M | 1995-04-22 | DO apartment Bangalore | 575000.00 | Bachelors | NULL | NULL | 1005 | Jolly | Francis | Chef | +918605747571 | 2020-02-02 |
| F | 1970-10-28 | Jolly villa bangalore | 500000.00 | Masters | NULL | NULL | 1006 | Ambily | Francis | Chef | +918605747521 | 2020-07-02 |
| F | 1977-10-28 | ABC villa bangalore | 500000.00 | Masters | NULL | NULL | 1006 | Ambily | Francis | Head Chef | +918605747521 | 2020-07-02 |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
6 rows in set (0.00 sec)

mysql>

```

```

mysql> select * from Order_details right outer join orderitems ON orderitems.Order_id = Order_details.Order_id;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Order_id | Order_date | trans_status | trans_type | Total_price | Menu_id | Customer_id | Order_id | Quantity | Total_price | Menu_id | Customer_id | Table_num | Cust_note |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 10001 | 2021-01-01 | Completed | Debit card | 500 | 6001 | 2001 | 10001 | 2 | 500 | 6001 | 2001 | NULL | NULL | |
| 10002 | 2021-01-02 | Completed | UPI | 700 | 6002 | 2002 | 10002 | 3 | 700 | 6002 | 2002 | NULL | NULL |
| 10003 | 2021-01-02 | Completed | UPI | 10 | 6001 | 2003 | 10003 | 0 | 10 | 6001 | 2003 | NULL | NULL |
| 10004 | 2021-01-08 | Completed | Debit card | 500 | 6005 | 2004 | 10004 | 1 | 500 | 6005 | 2004 | 208 | add |
| extra cheese | 10005 | 2021-01-10 | Completed | Debit card | 350 | 6004 | 2003 | 10005 | 2 | 350 | 6004 | 2003 | 208 | add |
| extra toppings |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
6 rows in set (0.00 sec)

mysql> select * from orderitems right outer join Order_details ON orderitems.Order_id = Order_details.Order_id;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Order_id | Quantity | Total_price | Menu_id | Customer_id | Table_num | Cust_note | Order_id | Order_date | trans_status | trans_type | Total_price | Menu_id |
| Customer_id |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 10001 | 2 | 500 | 6001 | 2001 | NULL | NULL | 10001 | 2021-01-01 | Completed | Debit card | 500 | 6001 |
| 2001 |
| 10002 | 3 | 700 | 6002 | 2002 | NULL | NULL | 10002 | 2021-01-02 | Completed | UPI | 700 | 6002 |
| 2002 |
| 10003 | 0 | 10 | 6001 | 2003 | NULL | NULL | 10003 | 2021-01-02 | Completed | UPI | 10 | 6001 |
| 2003 |
| 10004 | 1 | 500 | 6005 | 2004 | 208 | add extra cheese | 10004 | 2021-01-08 | Completed | Debit card | 500 | 6005 |
| 2004 |
| 10005 | 2 | 350 | 6004 | 2003 | 208 | add extra toppings | 10005 | 2021-01-10 | Completed | Debit card | 350 | 6004 |
| 2003 |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
6 rows in set (0.00 sec)

mysql>

```

- full outer join (null values of both tables to be shown)

FULL OUTER JOIN CAN BE DONE USING UNION OPERATION IN MYSQL

```

mysql> select * from employee left join Chef_details ON Employee.Employee_id = Chef_details.Employee_id
-> UNION
-> select * from employee right join Chef_details ON Employee.Employee_id = Chef_details.Employee_id;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Employee_id | Fname | Lname | Work_dept | Phone_no | Hire_date | Sex | Birth_date | Address | Basic_salary | Education_level | Chef_id | Empl |
| Employee_id | Fname | Lname | Shifing | Phone_no | specialisation | Designation | | | | | | |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1001 | Allen | Grace | Chef | +919625453557 | 2019-05-01 | M | 1996-03-09 | Grace villa Bangalore | 920000.00 | Masters | 1 | 1 |
| 1001 | Allen | Grace | Morning | +919625453557 | Saucier | Sous Chef | 1002 | Anitta | Aldrin | Chef | +919625453550 | 2019-05-01 |
| 1002 | Anitta | Aldrin | Morning | +919625453550 | Saucier | Sous Chef | 1003 | Asha | Tampi | Manager | +919623453550 | 2019-05-01 |
| 1003 | Asha | Tampi | Manager | +919623453550 | NULL | NULL | 1004 | Deepak | A | Manager | +919623453570 | 2020-09-01 |
| 1004 | Deepak | A | Manager | +919623453570 | NULL | NULL | 1005 | Jolly | Francis | Chef | +918605747571 | 2020-02-02 |
| 1005 | Jolly | Francis | Evening | +918605747571 | Patissier | commis Chef | 1006 | Ambily | Francis | Chef | +918605747521 | 2020-07-02 |
| 1006 | Ambily | Francis | Night | +918605747521 | Patissier | Head Chef | 1006 | Ambily | Francis | Head Chef | +918605747521 | 2020-07-02 |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
6 rows in set (0.01 sec)

mysql>

```

```

mysql> select * from orderitems left join Order_details ON orderitems.Order_id = Order_details.Order_id
-> UNION
-> select * from orderitems right join Order_details ON orderitems.Order_id = Order_details.Order_id;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Order_id | Quantity | Total_price | Menu_id | Customer_id | Table_num | Cust_note | Order_id | Order_date | trans_status | trans_type | Total_price | Menu_id |
| Customer_id |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 10001 | 2 | 500 | 6001 | 2001 | NULL | NULL | 10001 | 2021-01-01 | Completed | Debit card | 500 | 6001 |
| 2001 |
| 10002 | 3 | 700 | 6002 | 2002 | NULL | NULL | 10002 | 2021-01-02 | Completed | UPI | 700 | 6002 |
| 2002 |
| 10003 | 0 | 10 | 6001 | 2003 | NULL | NULL | 10003 | 2021-01-02 | Completed | UPI | 10 | 6001 |
| 2003 |
| 10004 | 1 | 500 | 6005 | 2004 | 208 | add extra cheese | 10004 | 2021-01-08 | Completed | Debit card | 500 | 6005 |
| 2004 |
| 10005 | 2 | 350 | 6004 | 2003 | 208 | add extra toppings | 10005 | 2021-01-10 | Completed | Debit card | 350 | 6004 |
| 2003 |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
6 rows in set (0.00 sec)

```

5. Self Join

- should get meaningful records from the same table itself

- minimum of 4 use cases should be tried

```

mysql> select a.fname as fname1, b.fname as fname2, a. Address from employee a, employee b where a.Employee_id <> b.Employee_id and a.
-> Phone_no <> b.Phone_no order by a.address;
+-----+-----+-----+
| fname1 | fname2 | Address |
+-----+-----+-----+
| Ambily | Alen   | ABC villa bangalore |
| Ambily | Anitta | ABC villa bangalore |
| Ambily | Asha   | ABC villa bangalore |
| Ambily | Deepak | ABC villa bangalore |
| Ambily | Jolly  | ABC villa bangalore |
| Deepak | Alen   | DO apartment Bangalore |
| Deepak | Anitta | DO apartment Bangalore |
| Deepak | Asha   | DO apartment Bangalore |
| Deepak | Jolly  | DO apartment Bangalore |
| Deepak | Ambily | DO apartment Bangalore |
| Alen   | Anitta | Grace villa Bangalore |
| Alen   | Asha   | Grace villa Bangalore |
| Alen   | Deepak | Grace villa Bangalore |
| Alen   | Jolly  | Grace villa Bangalore |
| Alen   | Ambily | Grace villa Bangalore |
| Jolly  | Alen   | Jolly villa bangalore |
| Jolly  | Anitta | Jolly villa bangalore |
| Jolly  | Asha   | Jolly villa bangalore |
| Jolly  | Deepak | Jolly villa bangalore |
| Jolly  | Ambily | Jolly villa bangalore |
| Asha   | Alen   | MNV villa Bangalore |
| Asha   | Anitta | MNV villa Bangalore |
| Asha   | Deepak | MNV villa Bangalore |
| Asha   | Jolly  | MNV villa Bangalore |
| Asha   | Ambily | MNV villa Bangalore |
| Anitta | Alen   | pico villa Bangalore |
| Anitta | Asha   | pico villa Bangalore |
| Anitta | Deepak | pico villa Bangalore |
| Anitta | Jolly  | pico villa Bangalore |
| Anitta | Ambily | pico villa Bangalore |
+-----+-----+-----+
38 rows in set (0.00 sec)

```

```

mysql> select a.fname as fname1, b.fname as fname2, a. Address from employee a, employee b where a.Employee_id <> b.Employee_id and a.
-> Education_level = b.Education_level order by a.Education_level;
+-----+-----+-----+
| fname1 | fname2 | Address |
+-----+-----+-----+
| Deepak | Asha   | DO apartment Bangalore |
| Asha   | Deepak | MNV villa Bangalore |
| Ambily | Alen   | ABC villa bangalore |
| Jolly  | Alen   | Jolly villa bangalore |
| Anitta | Alen   | pico villa Bangalore |
| Ambily | Anitta | ABC villa bangalore |
| Jolly  | Anitta | Jolly villa bangalore |
| Alen   | Anitta | Grace villa Bangalore |
| Ambily | Jolly  | ABC villa bangalore |
| Anitta | Jolly  | pico villa Bangalore |
| Alen   | Jolly  | Grace villa Bangalore |
| Jolly  | Ambily | Jolly villa bangalore |
| Anitta | Ambily | pico villa Bangalore |
| Alen   | Ambily | Grace villa Bangalore |
+-----+-----+-----+
14 rows in set (0.00 sec)

mysql>

```

```

mysql> select a.Address as Address1, b.Address as Address2, a. Phone_no from employee a, employee b where a.Employee_id <> b.Employee_id and a.
-> Basic_salary <> b.Basic_salary order by a.Education_level;
+-----+-----+-----+
| Address1 | Address2 | Phone_no |
+-----+-----+-----+
| DO apartment Bangalore | Grace villa Bangalore | +919623453578 |
| MNV villa Bangalore | Grace villa Bangalore | +919623453558 |
| DO apartment Bangalore | pico villa Bangalore | +919623453578 |
| MNV villa Bangalore | pico villa Bangalore | +919623453558 |
| DO apartment Bangalore | MNV villa Bangalore | +919623453578 |
| MNV villa Bangalore | DO apartment Bangalore | +919623453558 |
| DO apartment Bangalore | Jolly villa bangalore | +919623453578 |
| MNV villa Bangalore | Jolly villa bangalore | +919623453558 |
| DO apartment Bangalore | ABC villa bangalore | +919623453578 |
| MNV villa Bangalore | ABC villa bangalore | +919623453558 |
| ABC villa bangalore | Grace villa Bangalore | +918685747521 |
| Jolly villa bangalore | Grace villa Bangalore | +918685747521 |
| ABC villa bangalore | pico villa Bangalore | +918685747521 |
| Jolly villa bangalore | pico villa Bangalore | +918685747571 |
| ABC villa bangalore | MNV villa Bangalore | +918685747521 |
| Jolly villa bangalore | MNV villa Bangalore | +918685747571 |
| pico villa Bangalore | MNV villa Bangalore | +919625453558 |
| Grace villa Bangalore | MNV villa Bangalore | +919625453557 |
| ABC villa bangalore | DO apartment Bangalore | +918685747521 |
| Jolly villa bangalore | DO apartment Bangalore | +918685747571 |
| pico villa Bangalore | DO apartment Bangalore | +919625453558 |
| Grace villa Bangalore | DO apartment Bangalore | +919625453557 |
| pico villa Bangalore | Jolly villa bangalore | +919625453558 |
| Grace villa Bangalore | Jolly villa bangalore | +919625453557 |
| pico villa Bangalore | ABC villa bangalore | +919625453558 |
| Grace villa Bangalore | ABC villa bangalore | +919625453557 |
+-----+-----+-----+
26 rows in set (0.00 sec)

```

```

mysql> select a.Address as Address1, b.Address as Address2, a. Phone_no from employee a, employee b where a.Employee_id = b.Employee_id and a.
-> Basic_salary <> b.Basic_salary order by a.Education_level;
Empty set (0.00 sec)

```

```

mysql>
mysql> select a.Order_date as Order_date1, b.Order_date as Order_date2, a.trans_type from order_details a ,order_details b where a.Order_id <> b.Order_id
-> ;
+-----+-----+-----+
| Order_date1 | Order_date2 | trans_type |
+-----+-----+-----+
| 2021-01-10 | 2021-01-01 | Debit card |
| 2021-01-08 | 2021-01-01 | Debit card |
| 2021-01-02 | 2021-01-01 | UPI |
| 2021-01-02 | 2021-01-01 | UPI |
| 2021-01-10 | 2021-01-02 | Debit card |
| 2021-01-08 | 2021-01-02 | Debit card |
| 2021-01-02 | 2021-01-02 | UPI |
| 2021-01-01 | 2021-01-02 | Debit card |
| 2021-01-10 | 2021-01-02 | Debit card |
| 2021-01-08 | 2021-01-02 | Debit card |
| 2021-01-02 | 2021-01-02 | UPI |
| 2021-01-01 | 2021-01-02 | Debit card |
| 2021-01-10 | 2021-01-08 | Debit card |
| 2021-01-02 | 2021-01-08 | UPI |
| 2021-01-02 | 2021-01-08 | UPI |
| 2021-01-01 | 2021-01-08 | Debit card |
| 2021-01-08 | 2021-01-10 | Debit card |
| 2021-01-02 | 2021-01-10 | UPI |
| 2021-01-02 | 2021-01-10 | UPI |
| 2021-01-01 | 2021-01-10 | Debit card |
+-----+-----+-----+
28 rows in set (0.00 sec)

mysql>

```

```

mysql> select a.Order_date as Order_date1, b.Order_date as Order_date2, a.trans_type from order_details a ,order_details b where a.Order_id <> b.Order_id
-> and a.trans_type = b.trans_type order by a.trans_type;
+-----+-----+-----+
| Order_date1 | Order_date2 | trans_type |
+-----+-----+-----+
| 2021-01-10 | 2021-01-01 | Debit card |
| 2021-01-08 | 2021-01-01 | Debit card |
| 2021-01-10 | 2021-01-08 | Debit card |
| 2021-01-01 | 2021-01-08 | Debit card |
| 2021-01-08 | 2021-01-10 | Debit card |
| 2021-01-01 | 2021-01-10 | Debit card |
| 2021-01-02 | 2021-01-02 | UPI |
| 2021-01-02 | 2021-01-02 | UPI |
+-----+-----+-----+
8 rows in set (0.00 sec)

mysql>

```

