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.

.net_1a Em	ployee_id	Fname	Lname	Shifing Ph	none_no	specialis	ation Desgi	nation		
1	1001	Alen	Grace	Morning +9	19625453557	Saucier	Sous	Chef		
	1002	Anitta			19625453550	Saucier	Sous			
	1005	Jolly			19605747571	Patissier		s Chef		
4	1006	Ambily	Francis	Night +9	19605747521	Patissier	Head	Chef		
sql> select	* from emp	loyee;		4						
			Work_dept	+ Phone_no	Hire_da	te Sex	Birth_date	Address	+ Basic_salary	Education_level
sql> select Employee_id 			Work_dept Chef	+				+ Address - Grace villa Bangalore	÷	Education_level
Employee_id	Fname	Lname			 3557 2019-05	 -01 M		+ Grace villa Bangalore	÷	; -
Employee_id	Fname	Lname Grace	Chef	+919625453	3557 2019-05 3550 2019-05	 -01 M -01 F	1996-03-09	Grace villa Bangalore pico villa Bangalore	920000.00	Masters
Employee_id 1001 1002 1003 1004	Fname Alen Anitta Asha Deepak	Lname Grace Aldrin Tampi A	Chef Chef Manager Manager	+919625453 +919625453 +919623453 +919623453	3557 2019-05 3550 2019-05 3550 2019-05 3570 2020-09	-01 M -01 F -01 F -01 M	1996-03-09 1994-07-29 1990-04-22 1995-04-22	Grace villa Bangalore pico villa Bangalore MNN villa Bangalore DD apartment Bangalore	92000.00 92000.00 1035000.00 575000.00	Masters Masters Bachelors Bachelors
Employee_id 1001 1002 1003	Fname Alen Anitta Asha	Lname Grace Aldrin	Chef Chef Manager Manager Chef	+919625453 +919625453 +919623453	3557 2019-05 3550 2019-05 3550 2019-05 3570 2020-09 3571 2020-02	-01 M -01 F -01 F -01 F -01 M -02 F	1996-03-09 1994-07-29 1990-04-22 1995-04-22 1970-10-28	Grace villa Bangalore pico villa Bangalore MNN villa Bangalore DD apartment Bangalore	92000.00 92000.00 1035000.00	Masters Masters Bachelors Bachelors Masters

raer_1a	Quantity	Total_price	Menu_id	Customer_id	Table_nu	m Cus	t_note	
10001	2	500	6001	2001	NUL	L NUL	L	
10002		700	6002	2002	NUL	L NUL	L	
10003	0	10	6001	2003	NUL			
10004	1	500	6005	2004	26	8 add	extra	cheese
10005	2	350	6004	2003	20	8 add	extra	toppings
Order_id 	Order_date	trans_status -+	trans_	type Total_ 	price Me	nu_id +	Custor	ner_id
	2021-01-01	Completed	Debit	card	500	6001		2001
10001								2002
10001 10002	2021-01-02	Completed	UPI		700	6002		2002
		Completed	UPI UPI		700 10	6002 6001		2003
10002 10003 10004	2021-01-02 2021-01-02 2021-01-08	Completed Completed	UPI Debit		10 500	6001 6005		2003 2004
10002 10003	2021-01-02 2021-01-02	Completed Completed	UPI		10	6001		2003

```
mysql> desc Chef_details;
                                                       Default | Extra
 Field
                                      Null | Key
                      Type
 Chef_id
                      int
                                                       NULL
 Employee_id
                                                MUL
                                                       NULL
                      varchar(20)
 Fname
                                                       NULL
                                       YES
                      char(10)
                                                       NULL
 Lname
                      varchar(10)
varchar(13)
varchar(15)
varchar(15)
 Shifing
                                                       NULL
 Phone_no
                                                       NULL
 specialisation
                                                       NULL
 Desgination
B rows in set (0.01 sec)
mysql> desc employee;
 Field
                       Type
                                        | Null | Key
                                                         Default |
                                                                     Extra
 Employee_id
                       int
                                                  PRI
                                                         NULL
                                                                      auto_increment
                                          NO
                       varchar(15)
varchar(15)
varchar(15)
varchar(13)
                                                         NULL
 Fname
                                          NO
                                                         NULL
 Lname
 Work_dept
 Phone_no
                                          NO
                                                         NULL
 Hire_date
                       date
                                         NO
                                                         NULL
                        char(1)
                                          NO
 Sex
                                                         NULL
 Birth_date
                       date
                                          NO
                                                         NULL
                       varchar(100)
decimal(9,2)
varchar(10)
 Address
                                                         NULL
 Basic_salary
                                                         NULL
 Education_level
                                          YES
                                                         NULL
11 rows in set (0.00 sec)
nysql>
```

mysql> desc orderitems;									
Field	Туре	Null	Key	Default	Extra				
Order_id Quantity Total_price Menu_id Customer_id Table_num Cust_note +		NO YES YES YES YES YES YES	PRI MUL MUL	NULL 1 10 NULL NULL NULL NULL					
Field	Type	Null	Key	Default	Extra				
Order_id Order_date trans_status trans_type Total_price Menu_id Customer_id	int date varchar(10) varchar(10) int int int	YES YES YES YES YES YES YES YES	MUL MUL MUL	NULL NULL NULL NULL NULL 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)

- different attribute name

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

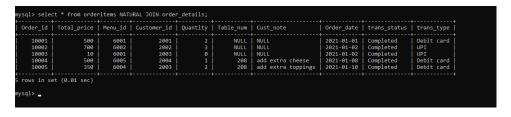
Order_date | trans_status | trans_type | Quantity | Table_num | Cust_note |

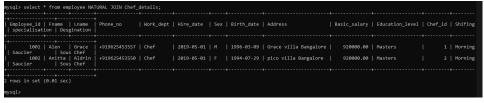
2021-01-01 | Completed | Debit card | 2 | NULL | NULL |
2021-01-02 | Completed | UP1 | 3 | NULL | NULL |
2021-01-02 | Completed | UP1 | 3 | NULL | NULL |
2021-01-02 | Completed | Debit card | 0 | NULL | NULL |
2021-01-03 | Completed | Debit card | 1 | 200 | and extra cheess |
2021-01-01-03 | Completed | Debit card | 2 | 200 | and extra toppings |

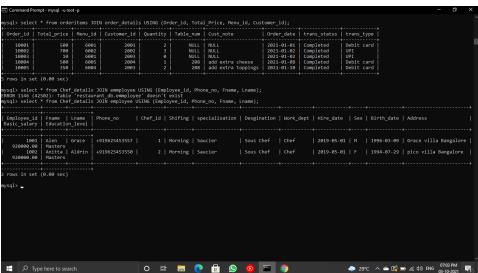
5 rows in set (0.00 sec)
```

Work_dept	Hire_date Sex	Birth_date	Address	Basic_salary	Education_level	Chef_id Shif	ing specialisation	Desgination	
Chef Chef	2019-05-01 M 2019-05-01 F		Grace villa Bangalore pico villa Bangalore				ing Saucier ing Saucier	Sous Chef Sous Chef	
rows in set	t (0.00 sec)								

- same attribute name but different data type

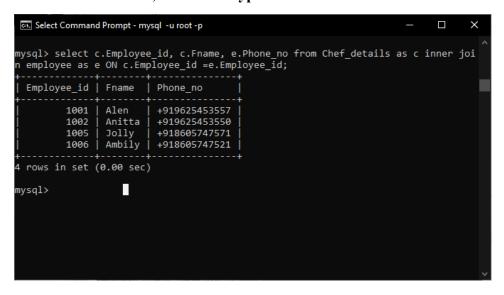






3. Inner Join:

- with "=" condition, same data type



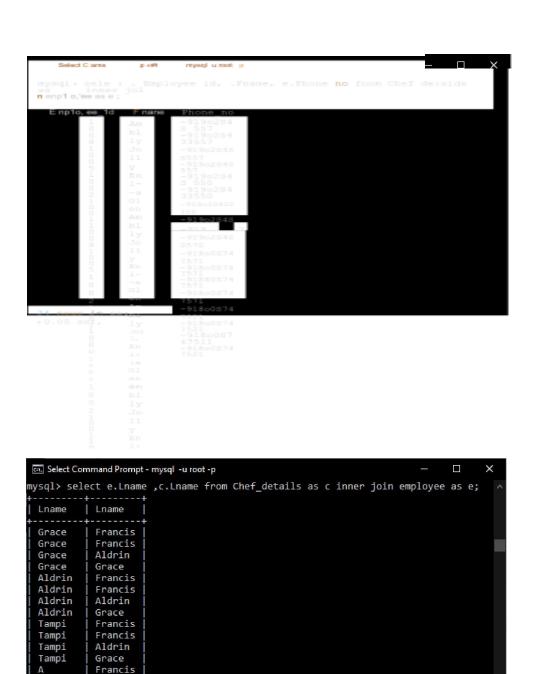
```
Select Command Prompt - mysql -u root -p
                                                                                              mysql> select od.Order_id, od.Menu_id, oi.Customer_id from orderitems as oi inner ^
join order_details as od ON od.Order_id =oi.Order_id;
  Order_id | Menu_id | Customer_id
      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





- without "=" condition



Francis Aldrin Grace

Francis

Francis Aldrin

Grace Francis

Francis Aldrin

| Francis | Grace | +-----+ 24 rows in set (0.00 sec)

A Francis

Francis

Francis Francis

Francis

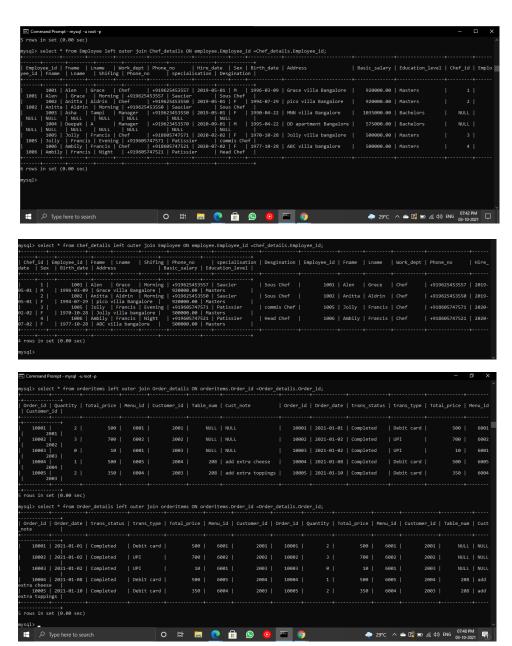
Francis | Francis | Francis |

```
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
                 6004
     10005
                                 2001
25 rows in set (0.00 sec)
```

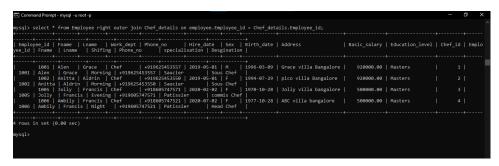
```
Command Prompt - mysql -u root -p
mysql> select od.Total_price, oi.Total_price from orderitems as oi inner join ord
er_details as od;
 Total_price | Total_price |
          500
                          350
          500
                         500
          500
                          700
  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

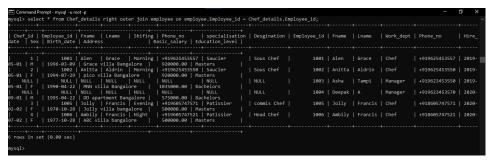
4. Outer Join:

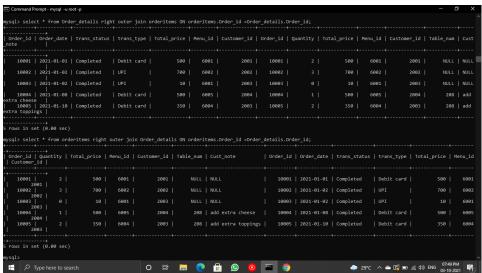
- left outer Join (null values of right table to be shown)



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

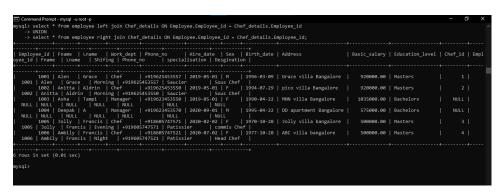


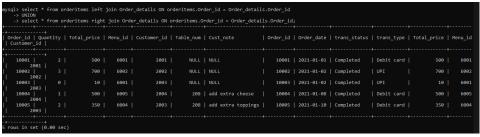




- full outer join (null values of both tables to be shown)

FULL OUTER JOIN CAN BE DONE USING UNION OPERATION IN MYSQL





5. Self Join

- should get meaningful records from the same table itself
- minimum of 4 use cases should be tried

```
ee b where a.Employee_id <> b.Employee_id and a
                                                                                                                                                             Address

AEC villa bangalore
Care villa Bangalore
Grace villa Bangalore
Grace villa Bangalore
Grace villa Bangalore
AEC villa Bangalore
                                                                           in set (0.00 sec)
                                                                                  set (0.00 sec)
                                                                                                                                                                                                             Assic_salary order by a.E.
Address2
Grace vills Bangalore
Grace vills Bangalore
pico vills Bangalore
pico vills Bangalore
pico vills Bangalore
DO aparteent Bangalore
Jolly vills bangalore
Jolly vills bangalore
ABC vills bangalore
Grace vills Bangalore
Grace vills Bangalore
pico vills Bangalore
DO aparteent Bangalore
NMN vills Bangalore
NMN vills Bangalore
JOB parteent Bangalore
DO aparteent Bangalore
BO Vills Bangalore
BO Vills Bangalore
DO aparteent Bangalore
                                                  in set (0.00 sec
ysql> select a.Address as Address1 , b.Address as Address2 , a. F
-> Basic_salary <> b.Basic_salary order by a.Education_level;
mpty set (0.00 sec)
   2021 - 01 - 10

2021 - 01 - 08

2021 - 01 - 08

2021 - 01 - 02

2021 - 01 - 02

2021 - 01 - 02

2021 - 01 - 02

2021 - 01 - 02

2021 - 01 - 01

2021 - 01 - 02

2021 - 01 - 02

2021 - 01 - 02

2021 - 01 - 02

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2021 - 01 - 02

2021 - 01 - 02

2021 - 01 - 02

2021 - 01 - 02

2021 - 01 - 02

2021 - 01 - 02
                                                                                                                              2021-01-01
2021-01-01
2021-01-01
2021-01-01
2021-01-01
2021-01-02
2021-01-02
2021-01-02
2021-01-02
2021-01-02
2021-01-02
2021-01-02
2021-01-02
2021-01-02
2021-01-01
2021-01-01
2021-01-01
2021-01-01
2021-01-01
2021-01-01
                                                                                                                                                                                                                                                                  Debit card
Debit card
UPI
UPI
Debit card
UPI
Debit card
Debit card
Debit card
Debit card
UPI
Debit card
            rows in set (0.00 sec)
                            >> select a.Order_date as Order_date1 , b.Order_date as Or
>> and a.trans_type = b.trans_type order by a.trans_type;
```

```
mysql> select a.Order_datea & Order_datea , b.Order_date as Order_datea, a.trans_type from order_details a ,order_details b where a.Order_id 
→ and a.trans_type = b.trans_type

| Order_date1 | Order_date2 | trans_type |

| 2001-01-03 | 2001-01-01 | Debit card |
| 2001-01-03 | 2001-01-01 | Debit card |
| 2001-01-03 | 2001-01-03 | Debit card |
| 2001-01-04 | 2001-01-03 | Debit card |
| 2001-01-08 | 2001-01-01 | Debit card |
| 2001-01-08 | 2001-01-09 | Debit card |
| 2001-01-01 | 2001-01-03 | Debit card |
| 2001-01-02 | 2001-01-02 | Debit card |
| 2001-01-02 | 2001-01-02 | UPI |
| 2001-01-01 | 2001-01-02 | UPI |
| 3001-01-02 | 2001-01-02 | UPI |
| 4 rows in set (0.00 sec)
```