# DBMS PROJECT NOMALIZATION

Our database contains these 7 tables

```
mysql> show tables;
+----------------------+
| Tables_in_restaurant |
+----------------------+
| chef                 |
| customer_feedback    |
| item                 |
| order_item           |
| orders               |
| tables               |
| waiter               |
+----------------------+
7 rows in set (0.03 sec)
```

chef table:-

```
mysql> describe chef;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| chef_id   | varchar(3)  | NO   | PRI | NULL    |       |
| chef_name | varchar(20) | YES  |     | NULL    |       |
| dob       | date        | YES  |     | NULL    |       |
| salary    | int         | YES  |     | 90000   |       |
| contact   | bigint      | YES  |     | NULL    |       |
| age       | int         | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
6 rows in set (0.01 sec)
```

R( chef_id, chef_name, dob, salary, contact, age)

chef_id is the candidate key

chef_id ----> chef_name

chef_id ----> dob

chef_id ----> salary

chef_id ----> contact

chef_id ----> age

The Table is in BCNF as it is Third Normal Form and the LHS of each functional dependency is a Candidate key.

item table:-

```
mysql> describe item;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| item_id   | varchar(4)  | NO   | PRI | NULL    |       |
| price     | int         | YES  |     | 100     |       |
| type      | varchar(10) | YES  |     | non veg |       |
| item_name | varchar(20) | NO   |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

R( item_id, price, type, item_name)

item_id is the candidate key

item_id -----> price

item_id -----> type

item_id -----> item_name

The Table is in BCNF as it is Third Normal Form and the LHS of each functional dependency is a Candidate key.

order_item table:-

```
mysql> describe order_item;
+----------+-----------+------+-----+---------+-------+
| Field    | Type      | Null | Key | Default | Extra |
+----------+-----------+------+-----+---------+-------+
| order_id | varchar(7) | NO   | MUL | NULL    |       |
| item_id  | varchar(4) | NO   | MUL | NULL    |       |
| quantity | int       | YES  |     | 1       |       |
| t_price  | int       | YES  |     | NULL    |       |
+----------+-----------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

R( order_id, item_id, quantity, t_price )

order_id and item_id together form the candidate key.

(order_id, item_id) -----> quantity

(order_id, item_id) -----> t_price

The Table is in BCNF as it is Third Normal Form and the LHS of each functional dependency is a Candidate key.

orders table:-

```
mysql> describe orders;
+-----------+------------+------+-----+---------+-------+
| Field     | Type       | Null | Key | Default | Extra |
+-----------+------------+------+-----+---------+-------+
| order_id  | varchar(4) | NO   | PRI | NULL    |       |
| table_no  | varchar(3) | NO   | MUL | NULL    |       |
| chef_id   | varchar(3) | NO   | MUL | NULL    |       |
| waiter_id | varchar(3) | NO   | MUL | NULL    |       |
| amount    | int        | NO   |     | NULL    |       |
+-----------+------------+------+-----+---------+-------+
5 rows in set (0.01 sec)
```

R( order_id, table_no, chef_id, waiter_id, amount )

order_id is the candidate key

order_id -----> table_no

order_id -----> chef_id

order_id -----> waiter_id

order_id -----> amount

The Table is in BCNF as it is Third Normal Form and the LHS of each functional dependency is a Candidate key.

tables table:-

```
mysql> describe tables;
+---------------+------------+------+-----+---------+-------+
| Field         | Type       | Null | Key | Default | Extra |
+---------------+------------+------+-----+---------+-------+
| Table_No      | varchar(3) | NO   | PRI | NULL    |       |
| seat_capacity | int        | YES  |     | NULL    |       |
+---------------+------------+------+-----+---------+-------+
2 rows in set (0.00 sec)
```

R( Table_No, seat_capacity)

Table_No is the candidate key

Table_No ----> seat_capacity

The Table is in BCNF as it is Third Normal Form and the LHS of each functional dependency is a Candidate key.

waiter table:-

```
mysql> describe waiter;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| waiter_id   | varchar(3)  | NO   | PRI | NULL    |       |
| waiter_name | varchar(20) | YES  |     | NULL    |       |
| dob         | date        | YES  |     | NULL    |       |
| salary      | int         | YES  |     | 75000   |       |
| contact     | bigint      | YES  |     | NULL    |       |
| age         | int         | YES  |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
6 rows in set (0.01 sec)
```

R( waiter_id, waiter_name, dob, salary, contact, age)

waiter_id is the candidate key

waiter_id -----> waiter_name

waiter_id -----> dob

waiter_id -----> salary

waiter_id -----> contact

waiter_id -----> age

The Table is in BCNF as it is Third Normal Form and the LHS of each functional dependency is a Candidate key.

customer feedback table:-

```
mysql> describe customer_feedback;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| order_id  | varchar(4)  | NO   | MUL | NULL    |       |
| cust_name | varchar(50) | YES  |     | NULL    |       |
| dob       | date        | YES  |     | NULL    |       |
| rating    | int         | YES  |     | NULL    |       |
| review    | text        | YES  |     | NULL    |       |
| contact   | bigint      | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
6 rows in set (0.00 sec)
```

R( cust_name, contact_no, dob, rating, review, order_id )

order_id, contact_no is the candidate key

order_id, contact_no-----> cust_name

order_id, contact_no -----> dob

order_id, contact_no -----> rating

order_id, contact_no -----> review

The Table is in BCNF as it is Third Normal Form and the LHS of each functional dependency is a Candidate key.