Department of Computer Engineering
Academic Year 2021 – 2022

Practical No:	2
Title:	**Implementation of Dimension and Fact Tables**
Date of Performance:	02/08/2021
Date of Submission:	09/08/2021
Name of the Student:	**Brendan Lucas**
Class:	**TE COMPS B**
Roll No:	**8953**

Evaluation

Indicator	BS – Below Standard	MS - Meet standard	ES - Exceeds Standard	Marks awarded
Organization (2)	Poor readability and not structured (0)	Good readability and somewhat structured (1)	Good Readability and structured(2)	
Level of content (4)	Major points are omitted or addressed minimally (1)	All major topics are covered, the information is accurate(3)	Most major and some minor criteria are included. Information Is Accurate (4)	
Support of Diagrams and Examples (2)	None in evidence; superficial at most (0)	Few of the answers are supported by diagrams and examples (1)	All Answers are supported by examples and diagrams wherever needed. (2)	
Knowledge (2)	Superficial knowledge / Failed to explain basic concepts (0)	Basic concepts are clear(1)	Clear with all basic concepts and able to relate it to real world (2)	
Total marks				

awarded (10)		

Experiment No. 2 :

In this experiment, we write the SQL queries for

1. Creating the Dimension Tables
2. Creating the Fact Table
3. Inserting values in both dimension and fact tables
4. Displaying the tables

For this experiment, we take the same case study as in Experiment 1.

#Creating database in MYSQL WorkBench

create database hoteldw;

#Use database

use hoteldw;

#Creating Dimension Hotel

CREATE TABLE DimHotel (HotelID int auto_increment primary key, HotelName varchar(50) not null, Rooms int, HotelType varchar(50), StarRating int, Region varchar(50), City varchar(50), State varchar(50), Country varchar(50));

#Inserting Values in Dimension Hotel

INSERT INTO DimHotel (HotelName, Rooms, HotelType, StarRating, Region, City, State, Country) VALUES ('Treehotel', 300, 'Inn', 4, 'Edeforsvag 2 A','Vidväg 97', 'Harads', 'Sweden'),
('Kakslauttanen Arctic Resort', 200, 'Hotel', 4, 'Kiilopaantie 9','Kiilopaantie 9', 'Saariselka', 'Finland'), ('Giraffe Manor', 500, 'Specialty Lodging', 3, 'Koitobos Rd','Koitobos Rd', 'Nairobi', 'Kenya'), ('Fantasyland Hotel & Resort', 450, 'Hotel', 4, '17700 87 Ave NW','Edmonton', 'Alberta', 'Canada'), ('Ottoman Cave Suites', 700, 'Hotel', 5, 'AvcilarMahallesi','IlkokulSokak No 16', 'Goreme', 'Turkey'), ("Helga's Folly", 700, 'Hotel', 4, '70 Rajaphilla Mawatha','70 RajaphillaMawatha', 'Kandy', 'Sri Lanka');

#Displaying Dimension Hotel

select * from DimHotel;

Hotel ID	Hotel Name	Rooms	Hotel Type	Star Rating	Region	City	State	Country
1	Treehotel	300	Inn	4	Edeforsvag 2 A	Vid väg 97	Harads	Sweden
2	Kakslauttanen Arctic Resort	200	Hotel	4	Kiilopaantie 9	Kiilopaantie 9	Saariselka	Finland
3	Giraffe Manor	500	Specialty Lodging	3	Koitobos Rd	Koitobos Rd	Nairobi	Kenya
4	Fantasyland Hotel & Resort	450	Hotel	4	17700 87 Ave NW	Edmonton	Alberta	Canada
5	Ottoman Cave Suites	700	Hotel	5	AvcilarMahallesi	IlkokulSokak No 16	Goreme	Turkey
6	Helga's Folly	700	Hotel	4	70 RajaphillaMawatha	70 RajaphillaMawatha	Kandy	Sri Lanka

Creating Dimension Room

CREATE TABLE DimRoom(RoomID int auto_increment primary key, RoomType varchar(50), Max_Occupant int, No_of_beds int, Room_side varchar(50), AC varchar(1), Renovation_year year);

#Inserting Values in Dimension Room

INSERT INTO DimRoom (RoomType, Max_Occupant, No_of_beds, Room_side, AC, Renovation_year) VALUES ('Queen', 3, 3, 'West', 'Y', 2015),

('King', 2, 2, 'South', 'N', 2012),

('King', 2, 2, 'West', 'Y', 2015),

('Suite', 4, 4, 'East', 'N', 2011),

('King', 2, 2, 'North', 'N', 1993),

('King', 2, 2, 'South', 'Y', 1980);

Displaying Dimension Room

select * from DimRoom ;

Room ID	Room Type	Max_Occupant	No_of_beds	Room_side	AC	Renovation_year
1	Queen	3	3	West	Y	2015
2	King	2	2	South	N	2012
3	King	2	2	West	Y	2015
4	Suite	4	4	East	N	2011

5	King	2	2	North	N	1993
6	King	2	2	South	Y	1980

Create Dimension Customer

CREATE TABLE DimCustomer (CustomerID int auto_increment primary key, CustomerName varchar(50) not null, Address varchar(100), Type_of_stay varchar(50), Check_in datetime, Check_out datetime, Amount_paid decimal(19,4));

#Insert Values in Dimension Customer

INSERT INTO DimCustomer (CustomerName, Address, Type_of_stay, Check_in, Check_out, Amount_paid) VALUES ('Krish Khatri', '061, Shenoy Nagar New Delhi-214996', 'Night', '2016-03-08 01:00:22', '2016-03-18
09:54:24', 16871.9772),

('NayantaraKalita', '72/64 JaggiZilaRaebareli 623911', 'Night', '2018-06-27 22:07:35', '2018-06-30 08:18:50', 14708.9695),

('PurabRamaswamy', '67/74 Malhotra Ganj, Mau-524031', 'Day', '2019-04-30 15:15:37', '2019-05-10 02:31:12', 14394.8425),

('NehmatVerma', '52/20 Thaman Gulbarga-366179', 'Day', '2015-06-01 11:22:44', '2015-06-26 05:27:48', 18337.4186),

('ArmaanJohal', 'H.No. 71 Basu Circle, Raiganj 310096', 'Day', '2015-12-06 08:32:13', '2015-12-14 19:25:12', 13656.1320),

('KismatChada', '85/504 ShereChowkMehsana 483469', 'Day', '2012-12-21 18:06:03', '2012-12-28 05:28:15', 17314.9652);

#Displaying Dimension Customer

select * from DimCustomer;

Customer ID	Customer Name	Address	Type_of_stay	Check_in	Check_out	Amount_paid
1	Krish Khatri	061, Shenoy Nagar, New Delhi-214996	Night	08-03-2016 01:00:22	18-03-2016 09:54:24	16871.9772
2	NayantaraKalita	72/64 JaggiZilaRaebareli 623911	Night	27-06-2018 22:07:35	30-06-2018 08:18:50	14708.9695
3	PurabRamaswamy	67/74 Malhotra Ganj, Mau-524031	Day	30-04-2019 15:15:37	10-05-2019 02:31:12	14394.8425
4	NehmatVerma	52/20 Thaman	Day	01-06-2015	26-06-2015	18337.4186

		Gulbarga-366179			11:22:44	05:27:48	
5	ArmaanJohal	H.No. 71 Basu Circle, Raiganj 310096	Day	06-12-2015 08:32:13	14-12-2015 19:25:12		13656.132
6	KismatChada	85/504 ShereChowkMehsana 483469	Day	21-12-2012 18:06:03	28-12-2012 05:28:15		17314.9652

#Create Dimension Time

CREATE TABLE DimTime (Date date primary key, Day_of_week int, Day_of_month int, Week int, Month int, Year year, Holiday varchar(1));

#Insert Values in Dimension Time

INSERT INTO DimTime VALUES ('2016-03-08', 2, 8, 10, 3, 2016, 'N'),
('2018-06-27', 3, 27, 26, 6, 2018, 'N'),
('2019-04-30', 2, 30, 18, 4, 2019, 'N'),
('2015-06-01', 1, 1, 22, 6, 2015, 'N'),
('2015-12-06', 7, 6, 49, 12, 2015, 'N'),
('2012-12-21', 5, 21, 51, 12, 2012, 'N');

Displaying Dimension Time

select * from DimTime;

Date	Day_of_week	Day_of_month	Week	Month	Year	Holiday
2012-12-21	5	21	51	12	2012	N
2015-06-01	1	1	22	6	2015	N
2015-12-06	7	6	49	12	2015	N
2016-03-08	2	8	10	3	2016	N
2018-06-27	3	27	26	6	2018	N
2019-04-30	2	30	18	4	2019	N

Create Fact Table

CREATE TABLE FactHotelOccupancy (HotelID int references DimHotel(HotelID), RoomID int references DimRoom(RoomID), CustomerID int references DimCustomer(CustomerID), Date date references DimTime(Date), No_of_occupied_rooms int, No_of_vacant_rooms int, Revenue decimal(19,4), primary key (HotelID, RoomID, CustomerID));

#Insert Values in Fact Table

INSERT INTO FactHotelOccupancy VALUES (1, 2, 6, '2012-12-21', 60, 240, 11161382.6162),
(2, 5, 4, '2015-06-01', 150, 50, 7696742.5189),
(3, 3, 1, '2016-03-08', 325, 175, 3904503.3812),
(4, 4, 3, '2019-04-30', 236, 214, 4981383.1735),
(5, 6, 2, '2018-06-27', 284, 416, 7735696.0160),
(6, 1, 5, '2015-12-06', 657, 43, 9987647.5030);

Display Fact Table

select * from Fact Hotel Occupancy;

| Hotel ID	Room ID	Customer ID	Date	No_of_occupied_rooms	No_of_vacant_rooms	Revenue
1	2	6	2012-12-21	60	240	11161382.6162
2	5	4	2015-06-01	150	50	7696742.5189
3	3	1	2016-03-08	325	175	3904503.3812
4	4	3	2019-04-30	236	214	4981383.1735
5	6	2	2018-06-27	284	416	7735696.0160
6	1	5	2015-12-06	657	43	9987647.5030

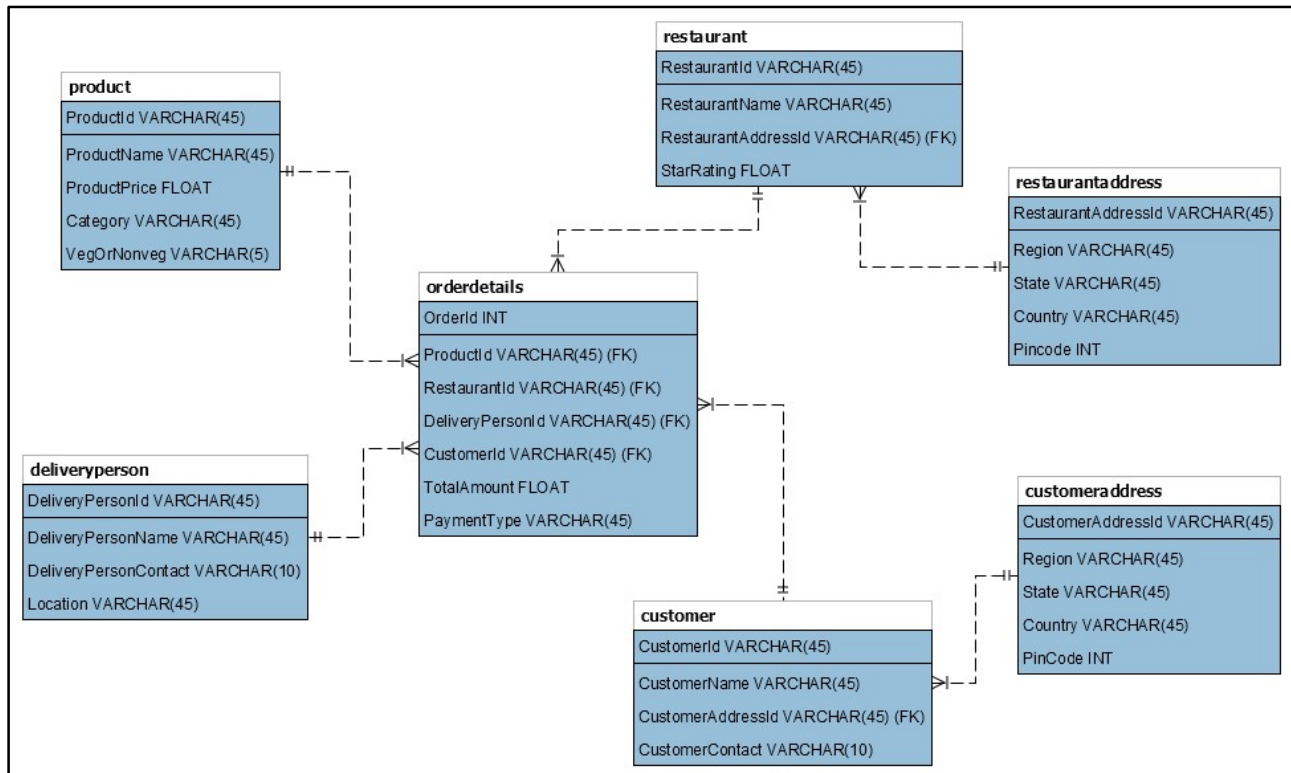# Online Food Delivery System

Problem Statement:

The online food ordering system sets up a food menu online and customers can easily place the order as per they like. Also, the online customers can easily track their orders. The management maintains the customer's database, and improve food delivery service.

This system also provides a feedback system in which user can rate the food items. Also, the proposed system can recommend hotels, food, based on the ratings given by the user, the hotel staff will be informed for the improvements along with the quality. The payment can be made online or cash or pay-on-delivery system. For more secured ordering separate accounts are maintained for each user by providing them an ID and a password.

Star Schema
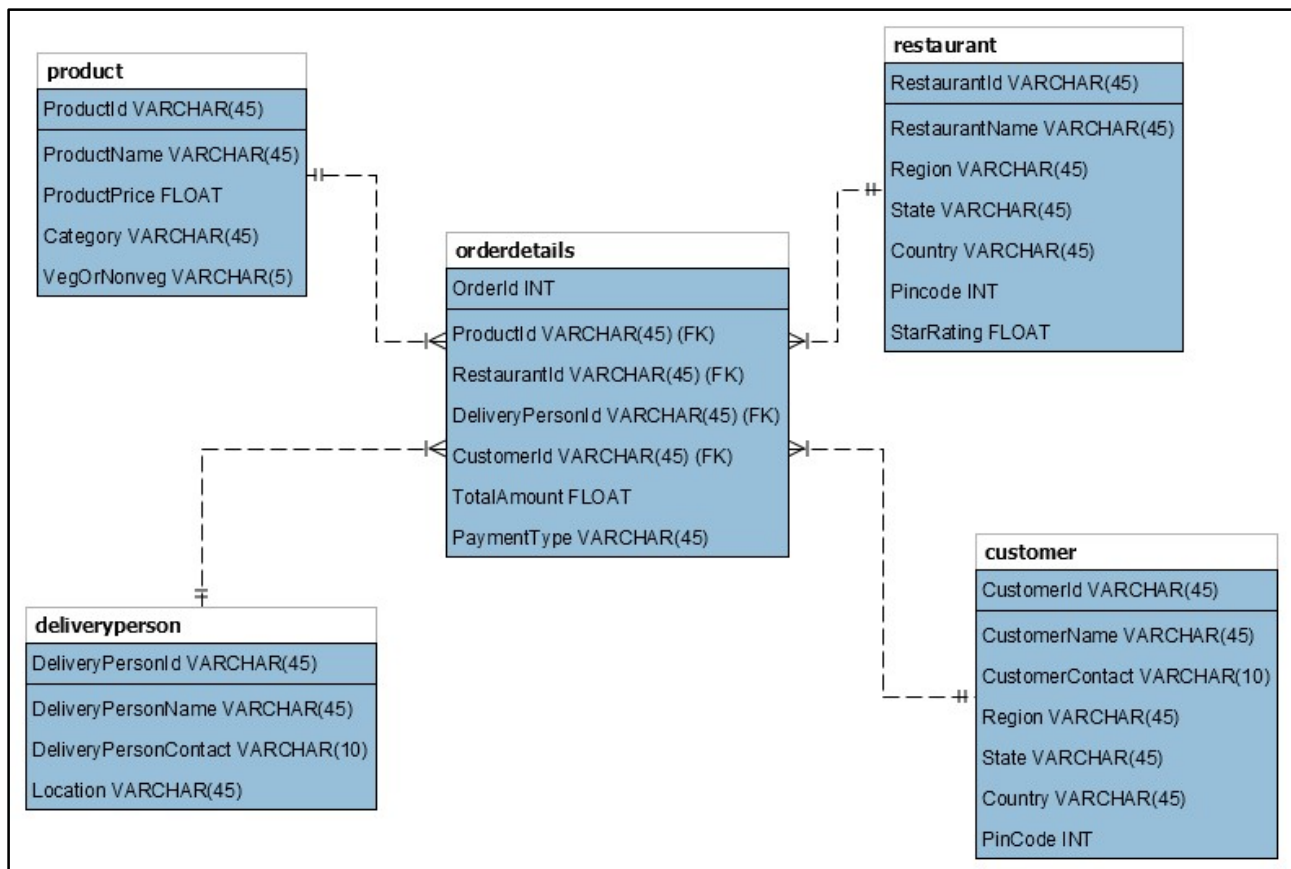
Snowflake Schema

- **Creating a database in MYSQL WorkBench**

  CREATE DATABASE OnlineFoodDeliverySystem;

- **Setting as Default Schema**

  USE OnlineFoodDeliverySystem;

- **Creating Dimension Tables**
  1. Product

     CREATE TABLE Product (
     ProductId VARCHAR(45) UNIQUE NOT NULL ,
     ProductName VARCHAR(45) NOT NULL,
     ProductPrice FLOAT NOT NULL,
     Category VARCHAR(45) NULL,
     VegOrNonveg VARCHAR(5) NULL,
     PRIMARY KEY(ProductId));

2. Restaurant

```sql
CREATE TABLE Restaurant (
RestaurantId VARCHAR(45) UNIQUE NOT NULL,
RestaurantName VARCHAR(45) NOT NULL,
Region VARCHAR(45) NOT NULL,
State VARCHAR(45) NOT NULL,
Country VARCHAR(45) NOT NULL,
Pincode INT NOT NULL,
StarRating FLOAT NOT NULL,
PRIMARY KEY (RestaurantId));
```

3. DeliveryPerson

```sql
CREATE TABLE DeliveryPerson (
DeliveryPersonId VARCHAR(45) UNIQUE NOT NULL,
DeliveryPersonName VARCHAR(45) NULL,
DeliveryPersonContact VARCHAR(10) NULL,
Location VARCHAR(45) NULL,
PRIMARY KEY (DeliveryPersonId));
```

4. Customer

```sql
CREATE TABLE Customer(
CustomerId VARCHAR(45) NOT NULL,
CustomerName VARCHAR(45) NOT NULL,
CustomerContact VARCHAR(10) NOT NULL,
Region VARCHAR(45) NOT NULL,
State VARCHAR(45) NOT NULL,
Country VARCHAR(45) NOT NULL,
PinCode INT NOT NULL,
PRIMARY KEY (CustomerId));
```

- Inserting Values in Dimension Tables
  1. Product

```sql
INSERT INTO Product(ProductID, ProductName, ProductPrice, Category,
VegOrNonveg)
VALUES
    ('P001', 'Chicken Tikka', 250, 'Starter', 'N'),
    ('P002', 'Tandoori Prawns', 300, 'Starter', 'N'),
    ('P003', 'Tandoori Mushroom', 240,'Starter', 'V'),
    ('P004', 'Butter Chicken', 550, 'Main Course', 'N'),
    ('P005', 'Murgh Hyderabadi', 450, 'Main Course', 'N'),
```

('P006', 'Paneer Makhanwala', 250, 'Main Course', 'V'),
('P007', 'Veg. Kolhapuri', 230, 'Main Course', 'V'),
('P008', 'Jeera Rice', 210, 'Main Course', 'V'),
('P009', 'Chicken Tikka Biryani', 600, 'Main Course', 'N'),
('P010', 'Prawns Biryani', 650, 'Main Course', 'N'),
('P011', 'Raita', 80, 'Main Course', 'V'),
('P012', 'Caramel Custard', 120, 'Dessert', 'V'),
('P013', 'Gulab Jamun', 100, 'Dessert', 'V');

2. Restaurant

INSERT INTO Restaurant(RestaurantId, RestaurantName, Region, State, Country, Pincode, StarRating)
VALUES
('R001', 'Jaihind', 'Bandra(W)','Maharashtra','India',400050,4),
('R002', 'Tanatan', 'Dadar','Maharashtra','India',400028,5),
('R003', 'Kebabs & Kurries', '287 Dr B R Ambedkar Road ', 'Maharashtra', 'India', 400067, 4.5),
('R004', 'Barbeque Nation', 'Bandra(W)','Maharashtra','India',400050,4.4),
('R005', 'The Earth Plate - Global Cuisine', 'Andheri', 'Maharashtra', 'India', 400040, 4.5),
('R006', 'Flavours', 'Goregaon(W)','Maharashtra','India',400054,4.3);

3. DeliveryPerson

INSERT INTO DeliveryPerson(DeliveryPersonId, DeliveryPersonName, DeliveryPersonContact, Location)
VALUES('D001','Ramesh', 8369565440, 'Bandra'),
('D002','Suresh', 9369755440, 'Worli'),
('D003','Mangesh', 9356755440, 'Dadar'),
('D004','Aman', 7669575440, 'Andheri'),
('D005','Raj', 8689573840, 'Borivali');

4. Customer

INSERT INTO Customer(CustomerId, CustomerName, CustomerContact, Region, State, Country, PinCode)
VALUES
('C001','Heena','9833227978', 'Dadar','Maharashtra','India',400028),
('C002','Veena','8933227978','Bandra(W)','Maharashtra','India',400050),
('C003','Joe','9822427978', 'Mahim','Maharashtra','India',400016),
('C004','Myra','7833247978','Andheri','Maharashtra','India',400040),
('C005','Sunil','9856797978', 'Santacruz','Maharashtra','India',400055);

- **Displaying Dimension Tables**

1. Product
   SELECT * FROM Product;

	ProductId	ProductName	ProductPrice	Category	VegOrNonveg
▶	P001	Chicken Tikka	250	Starter	N
	P002	Tandoori Prawns	300	Starter	N
	P003	Tandoori Mushroom	240	Starter	V
	P004	Butter Chicken	550	Main Course	N
	P005	Murgh Hyderabadi	450	Main Course	N
	P006	Paneer Makhanwala	250	Main Course	V
	P007	Veg. Kolhapuri	230	Main Course	V
	P008	Jeera Rice	210	Main Course	V
	P009	Chicken Tikka Biryani	600	Main Course	N
	P010	Prawns Biryani	650	Main Course	N
	P011	Raita	80	Main Course	V
	P012	Caramel Custard	120	Dessert	V
	P013	Gulab Jamun	100	Dessert	V

2. Restaurant
   SELECT * FROM Restaurant;

RestaurantId	RestaurantName	Region	State	Country	Pincode	StarRating
R001	Jaihind	Bandra(W)	Maharashtra	India	400050	4
R002	Tanatan	Dadar	Maharashtra	India	400028	5
R003	Kebabs & Kurries	287 Dr B R Ambedkar Road	Maharashtra	India	400067	5
R004	Barbeque Nation	Bandra(W)	Maharashtra	India	400050	4
R005	The Earth Plate - Global Cuisine	Andheri	Maharashtra	India	400040	5
R006	Flavours	Goregaon(W)	Maharashtra	India	400054	4

3. DeliveryPerson
   SELECT * FROM DeliveryPerson;

DeliveryPersonId	DeliveryPersonName	DeliveryPersonContact	Location
D001	Ramesh	8369565440	Bandra
D002	Suresh	9369755440	Worli
D003	Mangesh	9356755440	Dadar
D004	Aman	7669575440	Andheri
D005	Raj	8689573840	Borivali

4. Customer
   SELECT * FROM Customer;

CustomerId	CustomerName	CustomerContact	Region	State	Country	PinCode
C001	Heena	9833227978	Dadar	Maharashtra	India	400028
C002	Veena	8933227978	Bandra(W)	Maharashtra	India	400050
C003	Joe	9822427978	Mahim	Maharashtra	India	400016
C004	Myra	7833247978	Andheri	Maharashtra	India	400040
C005	Sunil	9856797978	Santacruz	Maharashtra	India	400055

- **Creating Fact Table - OrderDetails**

```
CREATE TABLE OrderDetails(
OrderId INT NOT NULL PRIMARY KEY AUTO_INCREMENT,
ProductId VARCHAR(45) NOT NULL,
RestaurantId VARCHAR(45) NOT NULL,
DeliveryPersonId VARCHAR(45) NOT NULL,
CustomerId VARCHAR(45) NOT NULL,
TotalAmount FLOAT NOT NULL,
PaymentType VARCHAR(45) NOT NULL,
FOREIGN KEY (ProductId) REFERENCES Product(ProductId),
FOREIGN KEY (RestaurantId) REFERENCES Restaurant (RestaurantId) ,
FOREIGN KEY (DeliveryPersonId) REFERENCES DeliveryPerson(DeliveryPersonId),
FOREIGN KEY (CustomerId) REFERENCES Customer(CustomerId));
```

- **Inserting Values in the Fact Table – OrderDetails**

```
INSERT INTO OrderDetails(ProductId, RestaurantId , DeliveryPersonId , CustomerId ,
TotalAmount, PaymentType)
VALUES
        ('P004','R003','D002','C001', 550, 'Card'),
        ('P006','R002','D004','C003', 250, 'UPI'),
        ('P011','R005','D002','C004', 80, 'Paytm'),
        ('P012','R005','D002','C004', 120, 'Paytm'),
        ('P001','R004','D001','C002', 250, 'Google Pay'),
        ('P007','R001','D005','C001', 230, 'Card');
```

- **Displaying the Fact Table – OrderDetails**

```
SELECT * FROM OrderDetails;
```

OrderId	ProductId	RestaurantId	DeliveryPersonId	CustomerId	TotalAmount	PaymentType
1	P004	R003	D002	C001	550	Card
2	P006	R002	D004	C003	250	UPI
3	P011	R005	D002	C004	80	Paytm
4	P012	R005	D002	C004	120	Paytm
5	P001	R004	D001	C002	250	Google Pay
6	P007	R001	D005	C001	230	Card