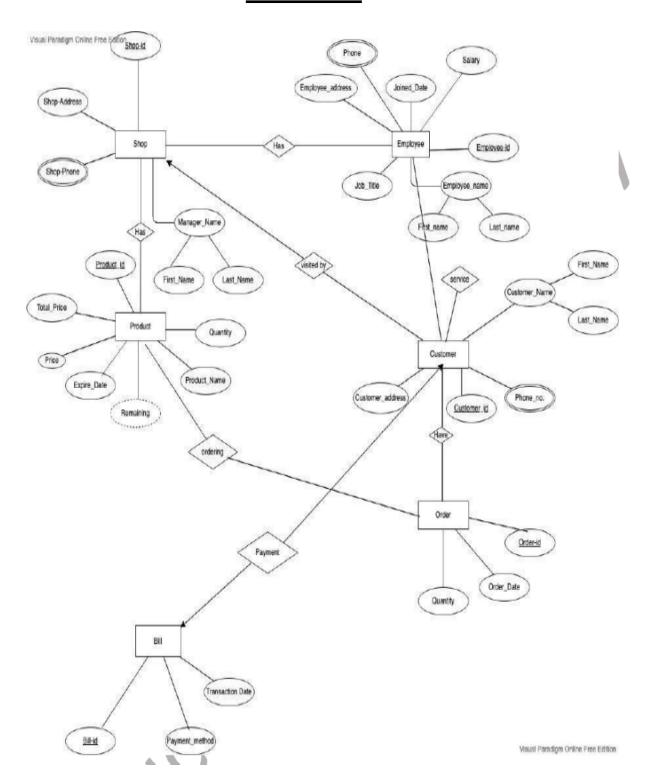
Problem Statement-

In a Superstore management system, there are various entities and their respective attributes. Let's break down the information:

- 1. Shops are a fundamental part of the system, and each shop is uniquely identified by a Shop_id. They have attributes such as Shop_Address, Shop_Phone, Shop_Email, and Manager_Name.
- 2. Employees are associated with shops, and each employee is identified by an Emp_id. Employee attributes include Emp_Name, Emp_Address, Job_Title, Joined_Date, Phone, and Salary.
- 3. An employee is exclusively affiliated with one shop. Customers interact with the shops, and each customer is identified by a Customer_Id. Customer details encompass Customer_Name, Customer_Address, and Phone.
- 4. A customer can visit only one shop at a given time but may choose to receive services from multiple employees within that shop.
- 5.Products are available for sale in the shops, and each product is recognized by a Product_id. Product attributes include Product_Name, Expiry_Date, and Quantity. The products are part of the inventory.
- 6. Orders are placed by customers and are identified by an Order_id. Orders consist of Order_Date and Quantity. Multiple customers can place identical orders, and multiple orders can be placed by a single customer.
- 7. Bills are generated for transactions and are identified by Bill_id. They include attributes like Total_Bill, Payment_Method, Transaction_Date, Last_Transaction_Value, and Discount.

In summary, this Superstore management system involves shops, employees, customers, products, orders, and bills. Each entity has specific attributes and relationships within the system, facilitating the management of shop operations and customer interactions.

ER-Model



ER Diagram To Relational Model

Shop is an entity set having multivalued attributes so it will require 2 tables in the relational model. One table will contain all the simple attributes with the primary key and another table will contain the primary key and all the multivalued attributes. They are having many to many and one to many relations respectively. In many to many relation, we will make three tables and in one to many relation we make 2 tables. The one on the side of many relation will have the primary key of the other as one of the attributes. If any entity set is having one to one relation then there will be two tables and any of two will have primary key of the other. These rules are applied on the entity set of sets of our database which included Employee, Customer, Order, Bill and Product.

SHOP

shop_id

First name

Last_Name

Shop_Address

Employee

Employee_id
shop_id
First_Name
Last_Name
Shop_Address
Salary
Shop_id(fk)

S_Phone

shop_Phone shop_id(fk)

Employee_number

<u>Phone(fk,reference)</u> Employee_id(fk,refference)

Customer

Customer id

Shop_id(fk)

First_Name

Last Name

Customer_address

Service

Employee_id(fk,pk)
Shop_id (fk,pk)

Orders

CustomerPhone

Phone_no

Customer_id(fk)

Orders_id Orders_date Quantity

Product

Product id

Expire-data

Product_Quantity

Product Name

Price

Total Price

Shop_id(fk)

Bill

Bill_id

Payment_Method

Customer_id(fk)

Transaction_Date

Total Bill

Functional Dependencies and Normalisation

- A. **Shop**(Shop_id, First_Name,Last_Name, Shop_Address) Shop_id is the primary key and the only candidate key. It will identify all other attributes and there is no other functional dependency except this.
- B. S_Phone(Shop_Phone, Shop_id) Shop_Phone is the primary key and the only candidate key. So, it will identify all other attributes and there is no other functional dependency except this.
- C. Employee(<u>Employee_id</u>,shop_id,First_Name,Last_Name,Sh op_Address,Salary) Employee_Id is primary key and the only candidate key. So, it will identify all other attributes and there is no other functional dependency except this.
- D. Employee_ number (<u>phone</u>, Employee_id). Phone is the primary key and the only candidate key. So, it will identify all other attributes and there is no other functional dependency except this
- E. Service(<u>Employee_id</u>, <u>Customer_Id</u>) Employee_Id and Customer_Id is primary key and the only candidate key. So, it will identify all other attributes and there is no other functional dependency except this.
- F. Customer(<u>Customer_id</u>,shop_id,First_Name,Last_Name,Custom er_address) Customer_Id is the primary key and the only candidate key. So, it will identify all other attributes and there is no other functional dependency except this.
- G. Customerphone(<u>phone_no</u>,Customer_id) Phone _nois the primary key and the only candidate key. So, it will identify all other attributes and there is no other functional dependency except this.
- H. Have(<u>Order_Id</u>, <u>Customer_Id</u>) Order_Id and Customer_Id is primary key and the only candidate key. So, it will identify all other attributes and there is no other functional dependency except this.
- I. Orders(Orders_id,orders_date,Quantity) Order_Id is the primary key and the only candidate key. So, it will identify all other attributes and there is no other functional dependency except this.
- J. Ordering(<u>Order_Id</u>, <u>Product_Id</u>) Order_Id and Product_Id is the primary key and the only candidate key. So, it will identify all other attributes and there is no other functional dependency except this.

K. Product(<u>Product_id</u>, Expire_date date, shop_id, Product_Quantity, Product_Name, Price) Product_id is the primary key so it will identify all other attributes. Product Name can identify Price.

So, there are 2 functional dependencies one from prime attribute (product_id) to all other remaining attributes and other from non-prime attribute(product_name) to non-prime attribute price. There is a transitive dependency present. Hence, it's not in third normal form but there is no partial dependency and hence, it's second normal form. To convert into the third normal form, we will make a separate table for functional dependencies.

- 1) Product(Product_id , Expire_date date, shop_id, Product_Quantity , Product_Name) Product_Id is the primary key and the only candidate key. So, it will identify all other attributes and there is no other functional dependency except this. Hence, it's reduced to BCNF.
- 2) Product_price (Product_Name , Price) Product_Name primary key and the only candidate key. So, it will identify all other attributes and there is no other functional dependency except this. Hence, it's reduced to BCNF. L) Bill(Bill_id,Payment_method,Transaction_Date,Customer_i d) Bill_id is the primary key and the only candidate key. So, it will identify all other attributes and there is no other functional dependency except this. Hence, it's already normalised till BCNF.

MySql

-- Create Tables

CREATE TABLE shop (

shop_id VARCHAR(8) PRIMARY KEY, First_Name VARCHAR(12) NOT NULL, Last_Name VARCHAR(10) NOT NULL, Shop_Address VARCHAR(40) NOT NULL);

CREATE TABLE Employee (

```
Employee_id VARCHAR(8) PRIMARY KEY,
  shop id VARCHAR(8) NOT NULL,
  First Name VARCHAR(12) NOT NULL,
  Last Name VARCHAR(10) NOT NULL,
  Shop Address VARCHAR(40) NOT NULL,
  Salary INT CHECK (Salary >= 5000),
  FOREIGN KEY (shop_id) REFERENCES shop (shop_id) ON
DELETE CASCADE
);
CREATE TABLE S_Phone (
  shop Phone VARCHAR(10) PRIMARY KEY,
  shop id VARCHAR(8) NOT NULL,
  FOREIGN KEY (shop_id) REFERENCES shop (shop_id) ON
DELETE CASCADE
);
CREATE TABLE Employee_number (
  phone VARCHAR(10) PRIMARY KEY,
  Employee id VARCHAR(8) NOT NULL,
  FOREIGN KEY (Employee id) REFERENCES Employee
(Employee id) ON DELETE CASCADE
);
CREATE TABLE Service (
  Employee id VARCHAR(8) NOT NULL,
  shop_id VARCHAR(8) NOT NULL,
  PRIMARY KEY (Employee id, shop id),
  FOREIGN KEY (Employee_id) REFERENCES Employee
(Employee id),
  FOREIGN KEY (shop id) REFERENCES shop (shop id)
);
CREATE TABLE Customer (
  Customer id VARCHAR(8) PRIMARY KEY,
 shop id VARCHAR(8) NOT NULL,
  First_Name VARCHAR(12) NOT NULL,
```

```
Last_Name VARCHAR(10) NOT NULL,
  Customer address VARCHAR(40) NOT NULL,
  FOREIGN KEY (shop id) REFERENCES shop (shop id) ON
DELETE CASCADE
);
CREATE TABLE Customerphone (
  phone no VARCHAR(10) PRIMARY KEY,
  Customer id VARCHAR(8) NOT NULL,
  FOREIGN KEY (Customer id) REFERENCES Customer
(Customer id) ON DELETE CASCADE
);
CREATE TABLE orders (
  orders id VARCHAR(10) PRIMARY KEY,
 orders date DATE,
 Quantity INT CHECK (Quantity >= 0)
);
CREATE TABLE Product price (
  Product Name VARCHAR(12) PRIMARY KEY,
 Price INT CHECK (Price >= 0)
);
CREATE TABLE Product (
  Product id VARCHAR(10) PRIMARY KEY,
  Expire date DATE,
  shop id VARCHAR(8) NOT NULL,
  Product Quantity INT CHECK (Product Quantity >= 0),
  Product Name VARCHAR(12) NOT NULL,
  FOREIGN KEY (Product Name) REFERENCES Product price
(Product Name),
  FOREIGN KEY (shop id) REFERENCES shop (shop id) ON
DELETE CASCADE
);
CREATE TABLE BIII (
```

```
bill_id VARCHAR(10) PRIMARY KEY,
Payment_Method VARCHAR(8) NOT NULL,
Customer_id VARCHAR(8) NOT NULL,
Transaction_Date DATE,
Total_Bill INT CHECK (Total_Bill > 0),
FOREIGN KEY (Customer_id) REFERENCES Customer
(Customer_id) ON DELETE CASCADE
);
```

-- Insert Values

-- Insert values in shop

INSERT INTO shop (shop_id, First_Name, Last_Name, Shop_Address) VALUES

('shop0001', 'Raman', 'Singh', '311-A CHAND NAGAR NEW DELHI'), -- (Other shop records here)

-- Insert values in Employee

INSERT INTO Employee (Employee_id, shop_id, First_Name, Last_Name, Shop_Address, Salary) VALUES ('Emp1', 'shop0001', 'Ram', 'Aggarwal', '1-A CHAND NAGAR', 7000), -- (Other employee records here)

-- Insert values in Customer

INSERT INTO Customer (Customer_id, shop_id, First_Name, Last_Name, Customer_address) VALUES ('Cus1', 'shop0001', 'Raju', 'Aggarwal', '322 CHAND NAGAR NEW DELHI'),

-- (Other customer records here)

-- Insert values in S_Phone

INSERT INTO S_Phone (shop_Phone, shop_id) VALUES ('9811223306', 'shop0001'),

-- (Other shop phone records here)

-- Insert values in Employee_number

INSERT INTO Employee_number (phone, Employee_id) VALUES ('9211423305', 'Emp1'),

-- (Other employee phone records here)

-- Insert values in Service

INSERT INTO Service (Employee_id, shop_id) VALUES
 ('Emp1', 'shop0001'),

-- (Other service records here)

-- Insert values in Orders

INSERT INTO orders (orders_id, orders_date, Quantity) VALUES ('orders001', '2022-10-23', 3),

-- (Other orders records here)

-- Insert values in Product_price

INSERT INTO Product_price (Product_Name, Price) VALUES ('PARLA BISCUT', 10),

-- (Other product price records here)

-- Insert values in Bill

INSERT INTO Bill (bill_id, Payment_Method, Customer_id, Transaction_Date) VALUES ('bill001', 'Cash', 'Cus1', '2022-10-23'), -- (Other bill records here)

-- Create and Use View

CREATE VIEW AS

SELECT Employee_id FROM Employee WHERE Salary >= 6000;

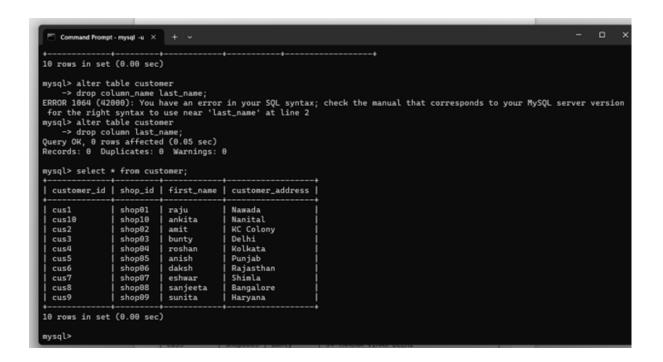
```
mysql> create view veerji as
    -> select employee_id from employee where (salary>=6000);
Query OK, 0 rows affected (0.03 sec)
mysql> select * from veerji;
employee_id |
 emp01
 emp02
  emp03
  етр04
  emp05
  emp06
 етр07
  emp08
 emp09
 emp10
10 rows in set (0.00 sec)
mysql>
```

-- Alter Table

-- SELECT * FROM Customer;

ALTER TABLE Customer DROP COLUMN Last Name;

-- SELECT * FROM Customer;



-- Delete Records

-- SELECT * FROM Customer;

DELETE FROM Customer WHERE Customer id = 'Cus4';

-- SELECT * FROM Customer;

```
mysql> delete from customer where customer_id='cus4';
Query OK, 1 row affected (0.03 sec)
mysql> select * from customer;
 customer_id | shop_id | first_name | customer_address
              shop01
                      raju
                                    Nawada
 cus1
 cus10
             shop10
                      ankita
                                    Nanital
                                    KC Colony
 cus2
              shop02
                      amit
             shop03
                      bunty
                                    Delhi
 cus3
                      anish
                                    Punjab
 cus5
             shop05
             shop06
                      daksh
                                   Rajasthan
 cus6
                                    Shimla
             shop07
                      eshwar
 cus7
              shop08
                      sanjeeta
 cus8
                                    Bangalore
 cus9
             shop09
                      sunita
                                   Haryana
9 rows in set (0.00 sec)
```

-- Update Records

-- SELECT * FROM Bill;

UPDATE Bill SET Payment_Method = 'Paytm' WHERE bill_id = 'bill003';

```
mysql> update bill
   -> set payment_method='paytm'
   -> where bill_id='bill3';
Query OK, 1 row affected (0.03 sec)
Rows matched: 1 Changed: 1 Warnings: 0
mysql> select * from bill;
 bill_id | payment_method | customer_id | transaction_date | total_bill |
 bill1
                                          2023-10-23
                                                                   NULL
           cash
                            cus1
                                          2023-10-18
 bill10
                            cus10
           cash
                                                                   NULL
 bill2
           paytm
                            cus2
                                          2023-10-20
                                                                    NULL
           paytm
 bill3
                            cus3
                                          2023-10-21
                                                                    NULL
 bill5
                                          2023-10-03
           paytm
                            cus5
                                                                    NULL
 bill6
           cash
                            cus6
                                          2023-10-09
                                                                    NULL
 bill7
                            cus7
                                          2023-09-23
                                                                   NULL
           cash
 bill8
                                          2023-07-23
                                                                   NULL
           cash
                            cus8
 bill9
         cash
                           cus9
                                         2023-08-23
                                                                   NULL
 rows in set (0.00 sec)
```

Python MySql Connectivity

Backend

```
print("--SUPER STORE MANAGEMENT SYSTEM--")
          print("Menu")
         print("Menu")
print("1. Press 1 to show details of products available.")
print("2. Press 2 to show details of Shop_id and their corresponding managers.")
print("3. Press 3 to show the average salary provided to the employees.")
print("4. Press 4 to show the number of employees working in our organization.")
print("5. Press 5 to show the ID of the employee getting the maximum salary.")
print("6. Press 6 to show the number of customers associated with us.")
print("7. Press 7 to show the details of the employees getting a salary ranging from 5000-8000.")
print("8. Press 8 to show the price of the product with the maximum price.")
print("9. Press 9 to show the details of the products between the price range 10-20.")
print("10. Press 10 to show details (like address. manager name) of all branches of our organization.")
          choice = int(input("Enter your choice: "))
          if choice == 1:
                  import pandas as pd
                 import mysql.connector as c
con = c.connect(host="localhost", user="root", password="1234", database="superstore")
                  query = "SELECT * FROM Product_price"
                df = pd.read_sql(query, con)
print(tabulate(df, headers='keys', tablefmt='psql', showindex=False))
                  import pandas as pd
                 from tabulate import tabulate
                  import mysql.connector as c
                 con = c.connect(host="localhost", user="root", password="1234", database="superstore")
query = "SELECT shop_id, First_Name, Last_Name FROM shop"
               df = pd.read_sql(uery, con)
print(tabulate(df, headers='keys', tablefmt='psql', showindex=False))
          if choice == 3:
              import pandas as pd
from tabulate import tabulate
                 import mysql.connector as c
con = c.connect(host="localhost", user="root", password="1234", database="superstore")
query = "SELECT AVG(Salary) FROM Employee"
39
40
                 ff = pd.read_sql(query, con)
print(tabulate(df, headers='keys', tablefmt='psql', showindex=False))
          if choice == 4:
                 import pandas as pd
                   from tabulate import tabulate
                  import mysql.connector as c
```

```
con = c.connect(host="localhost", user="root", password="1234", database="superstore")
    query = "SELECT COUNT(Employee_id) FROM Employee"
   df = pd.read_sql(query, con)
    print(tabulate(df, headers='keys', tablefmt='psql', showindex=False))
if choice == 5:
    import pandas as pd
    from tabulate import tabulate
   import mysql.connector as c
   con = c.connect(host="localhost", user="root", password="1234", database="superstore")
   query = "SELECT Employee_id FROM Employee WHERE Salary=(SELECT MAX(Salary) FROM Employee)"
   df = pd.read_sql(query, con)
   print(tabulate(df, headers='keys', tablefmt='psql', showindex=False))
if choice == 6:
    import pandas as pd
    from tabulate import tabulate
   import mysql.connector as c
   con = c.connect(host="localhost", user="root", password="1234", database="superstore")
   query = "SELECT COUNT(Customer_id) FROM Customer"
   df = pd.read_sql(query, con)
   print(tabulate(df, headers='keys', tablefmt='psql', showindex=False))
if choice == 7:
   import pandas as pd
    from tabulate import tabulate
   import mysql.connector as c
   con = c.connect(host="localhost", user="root", password="1234", database="superstore")
    query = "SELECT * FROM Employee WHERE Salary BETWEEN 5000 AND 8000"
   df = pd.read_sql(query, con)
   print(tabulate(df, headers='keys', tablefmt='psql', showindex=False))
if choice == 8:
   import pandas as pd
   from tabulate import tabulate
    import mysql.connector as c
   con = c.connect(host="localhost", user="root", password="1234", database="superstore")
   query = "SELECT Price FROM Product_price WHERE Price=(SELECT MAX(Price) FROM Product_price)"
   df = pd.read_sql(query, con)
   print(tabulate(df, headers='keys', tablefmt='psql', showindex=False))
if choice == 9:
   import pandas as pd
    from tabulate import tabulate
    import mysql.connector as c
    con = c.connect(host="localhost", user="root", password="1234", database="superstore")
```

```
query = "SELECT * FROM Product_price WHERE Price BETWEEN 10 AND 20"

df = pd.read_sql(query, con)

print(tabulate(df, headers='keys', tablefmt='psql', showindex=False))

if choice == 10:
    import pandas as pd

from tabulate import tabulate
    import mysql.connector as c

con = c.connect(host="localhost", user="root", password="1234", database="superstore")

query = "SELECT * FROM shop"

df = pd.read_sql(query, con)

print(tabulate(df, headers='keys', tablefmt='psql', showindex=False))
```

Frontend

Press 1

Press2

```
PS C:\Users\padma\OreOrive\Desktop\dhms_project> python -u "c:\Users\padma\OreDrive\Desktop\dbms_project\shop_management.py"

Shop Management System

Shop Management System

Ners 1 to show the details product available.

Press 2 to show details of shop_id and their corresponding managers

Press 3 to show the masker of employees working in ur organization

Press 4 to show the ind of the number of employee getting maximum salary

Press 5 to show the ind of the number of employee getting maximum salary

Press 6 to show the fro. of customers associated with us.

Press 5 to show the fro. of customers associated with us.

Press 5 to show the fro. of customers associated with us.

Press 8 to show the price of the product with maximum price.

Press 9 to show details of employees getting salary ranging from 5000-8000.

Press 9 to show details of all brankes of an organizarion.

Free 10 to show details of all brankes of an organizarion.

Free 10 to show details of all brankes of an organizarion.

Press 10 to show details of the product between the the price 10-20

Press 9 to show details of the product between the the price 10-20

Press 10 to show details of the product between the the price 10-20

Press 10 to show details of all brankes of an organizarion.

Free 11 to show the price of the product between the the price 10-20

Press 10 to show details of the product between the the price 10-20

Press 10 to show details of the product between the the price 10-20

Press 10 to show details of the product between the the price 10-20

Press 10 to show details of the product between the the price 10-20

Press 10 to show details of the product between the the price 10-20

Press 10 to show details of the product between the the price 10-20

Press 10 to show details of the product between the the price 10-20

Press 10 to show the
```

Press 4

Press 8