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Assignment No 6

Aim: To design and implement a data warehouse for a customer order processing system in a company

Creating Database:

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Schemas:
--Headquarter Database
CREATE DATABASE Headquarter;
use Headquarter;
CREATE TABLE Customer (
  Customer_id INT PRIMARY KEY,
  Customer_name VARCHAR(50),
  City_id INT,
  First_order_date DATE,
 FOREIGN KEY (City_id) REFERENCES Sales.Headqarters(City_id)
);
CREATE TABLE Walk_in_customers (
  Customer_id INT PRIMARY KEY,
  tourism_guide VARCHAR(50),
  Time DATETIME,
  FOREIGN KEY (Customer_id) REFERENCES Customer(Customer_id)
);
```

CREATE TABLE Mail_order_customers (

Customer_id INT PRIMARY KEY,

post_address VARCHAR(100),

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Time DATETIME,
 FOREIGN KEY (Customer_id) REFERENCES Customer(Customer_id)
);
--Sales Database
CREATE DATABASE Sales;
use Sales;
CREATE TABLE Headqarters (
  City_id INT PRIMARY KEY,
  City_name VARCHAR(50),
 Headquarter_addr VARCHAR(100),
  State VARCHAR(50),
  Time DATETIME
);
CREATE TABLE Stores (
  Store_id INT PRIMARY KEY,
 City_id INT,
 Phone VARCHAR(20),
  Time DATETIME,
 FOREIGN KEY (City_id) REFERENCES Headqarters(City_id)
);
CREATE TABLE Items (
  Item_id INT PRIMARY KEY,
  Description VARCHAR(100),
  Size VARCHAR(20),
  Weight DECIMAL(10,2),
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Unit_price DECIMAL(10,2),
  Time DATETIME
);
CREATE TABLE Stored_items (
  Store_id INT,
  Item_id INT,
  Quantity_held INT,
  Time DATETIME,
  PRIMARY KEY (Store_id, Item_id),
  FOREIGN KEY (Store_id) REFERENCES Stores(Store_id),
  FOREIGN KEY (Item_id) REFERENCES Items(Item_id)
);
CREATE TABLE OrderT (
  Order_no INT PRIMARY KEY,
  Order_date DATE,
  Customer_id INT,
  FOREIGN KEY (Customer_id) REFERENCES Headquarter.Customer(Customer_id)
);
CREATE TABLE Ordered_item (
  Order_no INT,
  Item_id INT,
  Quantity_ordered INT,
  Ordered_price DECIMAL(10,2),
  Time DATETIME,
  PRIMARY KEY (Order_no, Item_id),
  FOREIGN KEY (Order_no) REFERENCES OrderT(Order_no),
  FOREIGN KEY (Item_id) REFERENCES Items(Item_id)
```

```
);
```

```
Creating Datawarehouse:
create database datawarehouse;
use datawarehouse;
CREATE TABLE Sales_Fact (
  Store_id INT,
  Item_id INT,
  Quantity_held INT,
  Unit_price DECIMAL(10,2),
  PRIMARY KEY (Store_id, Item_id),
  FOREIGN KEY (Store_id) REFERENCES Sales.Stores(Store_id),
  FOREIGN KEY (Item_id) REFERENCES Sales.Items(Item_id)
);
CREATE TABLE Store_Dim (
  Store_id INT PRIMARY KEY,
  City_id INT,
  Phone VARCHAR(20),
  FOREIGN KEY (City_id) REFERENCES Sales.Headqarters(City_id)
);
CREATE TABLE Item_Dim (
  Item_id INT PRIMARY KEY,
  Description VARCHAR(100),
  Size VARCHAR(20),
  Weight DECIMAL(10,2)
);
```

```
CREATE TABLE City_Dim (
City_id INT PRIMARY KEY,
City_name VARCHAR(50),
State VARCHAR(50)
);
```

Insert Sample Data:

use Headquarter;

-- Customer table

INSERT INTO Customer_id, Customer_name, City_id, First_order_date) VALUES

- (1, 'John Smith', 1, '2022-01-01'),
- (2, 'Mary Johnson', 2, '2022-02-15'),
- (3, 'David Lee', 3, '2022-03-20');
- -- Walk_in_customers table

INSERT INTO Walk_in_customers (Customer_id, tourism_guide, Time) VALUES

- (1, 'Tourist Guide A', '2022-01-01 10:00:00'),
- (2, 'Tourist Guide B', '2022-02-15 15:30:00');
- -- Mail_order_customers table

INSERT INTO Mail_order_customers (Customer_id, post_address, Time) VALUES (3, '123 Main St, Anytown USA', '2022-03-20 09:00:00');

use Sales:

-- Headqarters table

INSERT INTO Headqarters (City_id, City_name, Headquarter_addr, State, Time) VALUES

- (1, 'New York City', '123 Broadway, Suite 500', 'NY', '2022-01-01 00:00:00'),
- (2, 'Los Angeles', '456 Main St, 12th Floor', 'CA', '2022-02-01 00:00:00'),
- (3, 'Chicago', '789 Elm St, Suite 200', 'IL', '2022-03-01 00:00:00');

-- Stores table

INSERT INTO Stores (Store_id, City_id, Phone, Time) VALUES

- (1, 1, '555-1234', '2022-01-02 09:00:00'),
- (2, 1, '555-5678', '2022-01-02 09:00:00'),
- (3, 2, '555-9876', '2022-02-15 10:30:00'),
- (4, 3, '555-4321', '2022-03-20 11:45:00');

-- Items table

INSERT INTO Items (Item_id, Description, Size, Weight, Unit_price, Time) VALUES

- (1, 'Widget', 'Small', 1.0, 10.00, '2022-01-01 00:00:00'),
- (2, 'Gizmo', 'Large', 2.5, 25.00, '2022-02-01 00:00:00'),
- (3, 'Thingamajig', 'Medium', 0.5, 5.00, '2022-03-01 00:00:00');

-- Stored_items table

INSERT INTO Stored_items (Store_id, Item_id, Quantity_held, Time) VALUES

- (1, 1, 100, '2022-01-02 09:00:00'),
- $(1, 2, 50, '2022-01-02\ 09:00:00'),$
- (2, 1, 75, '2022-01-02 09:00:00'),
- (3, 2, 100, '2022-02-15 10:30:00'),
- (4, 3, 200, '2022-03-20 11:45:00');

-- OrderT table

INSERT INTO OrderT (Order_no, Order_date, Customer_id) VALUES

(1001, '2022-02-15', 1),

(1000, 2022-01-01, 2),

(1002, '2022-03-20', 3);

INSERT INTO Ordered_item (Order_no, Item_id,Quantity_ordered,Ordered_price,Time) VALUES

(1000,1,2,20.00,2022-01-0110:00:00),

(1001,2,3,75.00,'2022-02-15 15:30:00'), (1002,3,1,5.00,'2022-03-20 09:00:00');

Loading data into datawarehouse: Initial Load

use datawarehouse;

-- Load data into the dimension tables:

INSERT INTO Store_Dim (Store_id, City_id, Phone)

SELECT DISTINCT Store_id, City_id, Phone

FROM Sales.Stores;

INSERT INTO Item_Dim (Item_id, Description, Size, Weight)

SELECT DISTINCT Item_id, Description, Size, Weight

FROM Sales.Items;

INSERT INTO City_Dim (City_id, City_name, State)

SELECT DISTINCT City_id, City_name, State

FROM Sales. Headqarters;

-- Load data into the fact table:

INSERT INTO Sales_Fact (Store_id, Item_id, Quantity_held, Unit_price)

SELECT si.Store_id, si.Item_id, si.Quantity_held, i.Unit_price

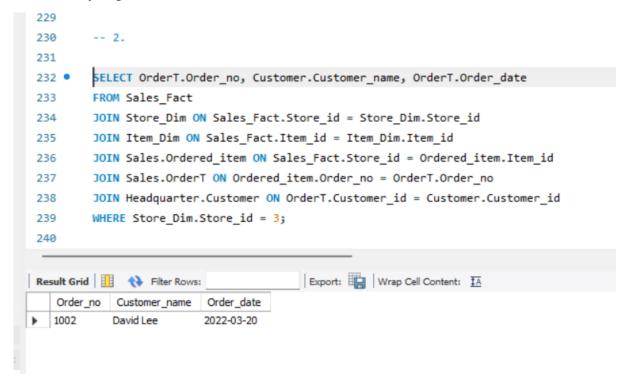
FROM Sales.Stored_items si

JOIN Sales.Items i ON si.Item_id = i.Item_id;

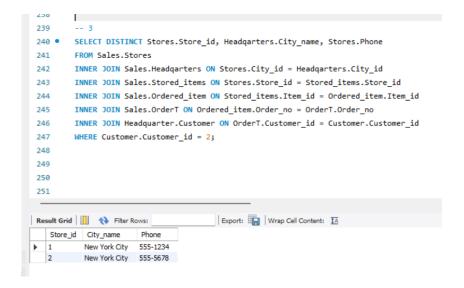
Build data warehouse / OLAP which will answer the following queries :

1. Find all the stores along with city, state, phone, description, size, weight and unit price that hold a particular item of stock.

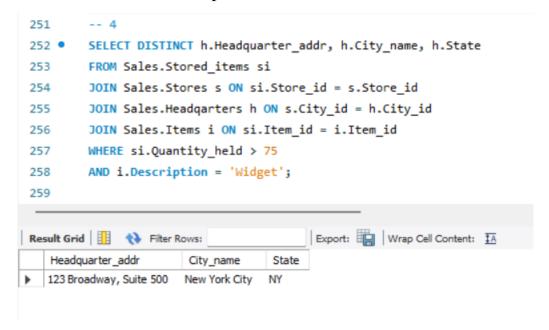
2. Find all the orders along with customer name and order date that can be fulfilled by a given store.



3. Find all stores along with city name and phone that hold items ordered by given customer.



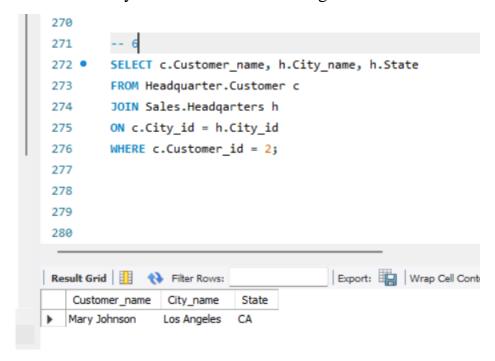
4. Find the headquarter address along with city and state of all stores that hold stocks of an item above a particular level.



5. For each customer order, show the items ordered along with description, store id and city name and the stores that hold the items



6. Find the city and the state in which a given customer lives.



Conclusion: Designed and implemented data warehouse of enterprise