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**Activity based**

**Project 1 Report on**

**Datawarehouse and Data Mining**

**Submitted to Vishwakarma University, Pune**

**Under the Initiative of**

**Contemporary Curriculum, Pedagogy, and Practice (C2P2)**

**By**

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**Div : B**

**Third Year Engineering**

**Department of Computer Engineering**

**Faculty of Science and Technology**

**Academic Year**

**2024-2025**

**Project Title:**

**Design a star schema to analyse sales and revenue in a retail store. This schema should include details about transactions, products, customers, sales dates, and sales channels.**

**Code:**

Creating the Database and Tables:  
  
create database retail\_store1;

use retail\_store1;

-- Create Product Dimension Table

CREATE TABLE Product\_Dimension (

Product\_ID INT AUTO\_INCREMENT PRIMARY KEY,

Product\_Name VARCHAR(50),

Category VARCHAR(50),

Brand VARCHAR(50),

Supplier VARCHAR(50),

Cost\_Price DECIMAL(10,2),

Selling\_Price DECIMAL(10,2)

);

INSERT INTO Product\_Dimension (Product\_Name, Category, Brand, Supplier, Cost\_Price, Selling\_Price)

VALUES

('Laptop', 'Electronics', 'Dell', 'Dell Inc.', 500.00, 700.00),

('Smartphone', 'Electronics', 'Apple', 'Apple Inc.', 900.00, 1200.00),

('Headphones', 'Accessories', 'Sony', 'Sony Corp.', 50.00, 100.00),

('Smartwatch', 'Electronics', 'Samsung', 'Samsung Inc.', 150.00, 250.00),

('Tablet', 'Electronics', 'Lenovo', 'Lenovo Group', 300.00, 400.00),

('Bluetooth Speaker', 'Accessories', 'JBL', 'Harman', 80.00, 120.00),

('Wireless Mouse', 'Accessories', 'Logitech', 'Logitech Inc.', 30.00, 50.00),

('Gaming Monitor', 'Electronics', 'Acer', 'Acer Inc.', 200.00, 300.00),

('Smart TV', 'Electronics', 'LG', 'LG Electronics', 600.00, 800.00),

('Digital Camera', 'Electronics', 'Canon', 'Canon Inc.', 400.00, 600.00),

('Action Camera', 'Electronics', 'GoPro', 'GoPro Inc.', 250.00, 350.00),

('External Hard Drive', 'Accessories', 'Seagate', 'Seagate Technology', 70.00, 120.00),

('Smart Home Assistant', 'Electronics', 'Amazon', 'Amazon Inc.', 100.00, 150.00),

('Fitness Tracker', 'Accessories', 'Fitbit', 'Fitbit Inc.', 75.00, 125.00),

('VR Headset', 'Electronics', 'Oculus', 'Meta', 300.00, 400.00),

('Smartphone Case', 'Accessories', 'Spigen', 'Spigen Inc.', 10.00, 20.00),

('Laptop Bag', 'Accessories', 'Targus', 'Targus Inc.', 25.00, 50.00),

('Smart Light Bulb', 'Electronics', 'Philips', 'Philips Inc.', 15.00, 30.00),

('Wireless Charger', 'Accessories', 'Anker', 'Anker Inc.', 20.00, 40.00),

('E-Book Reader', 'Electronics', 'Kindle', 'Amazon Inc.', 80.00, 120.00);

-- Create Customer Dimension Table

CREATE TABLE Customer\_Dimension (

Customer\_ID INT AUTO\_INCREMENT PRIMARY KEY,

Customer\_Name VARCHAR(50),

Gender VARCHAR(10),

Age INT,

Email VARCHAR(100),

Phone VARCHAR(15),

Address VARCHAR(100),

City VARCHAR(50),

Region VARCHAR(50)

);

INSERT INTO Customer\_Dimension (Customer\_Name, Gender, Age, Email, Phone, Address, City, Region)

VALUES

('John Doe', 'Male', 30, 'john.doe@example.com', '1234567890', '123 Main St', 'New York', 'Northeast'),

('Jane Smith', 'Female', 25, 'jane.smith@example.com', '0987654321', '456 Oak St', 'Los Angeles', 'West'),

('Michael Johnson', 'Male', 35, 'michael.johnson@example.com', '1029384756', '789 Pine Rd', 'Chicago', 'Midwest'),

('Emily Davis', 'Female', 28, 'emily.davis@example.com', '5647382910', '321 Maple Ln', 'Houston', 'South'),

('David Wilson', 'Male', 40, 'david.wilson@example.com', '6574839201', '654 Elm Blvd', 'Miami', 'Southeast'),

('Sophia Brown', 'Female', 27, 'sophia.brown@example.com', '5566778899', '987 Birch Blvd', 'Phoenix', 'Southwest'),

('Liam Taylor', 'Male', 29, 'liam.taylor@example.com', '3344556677', '456 Cedar St', 'San Diego', 'West'),

('Olivia Martinez', 'Female', 31, 'olivia.martinez@example.com', '2233445566', '654 Spruce Ave', 'Miami', 'Southeast'),

('Ethan Thomas', 'Male', 24, 'ethan.thomas@example.com', '9988776655', '321 Willow Dr', 'Atlanta', 'Southeast'),

('Isabella Garcia', 'Female', 26, 'isabella.garcia@example.com', '1122334455', '852 Pine Ln', 'Denver', 'Rocky Mountain'),

('James White', 'Male', 45, 'james.white@example.com', '5678123456', '987 Aspen Dr', 'Seattle', 'West'),

('Amelia Harris', 'Female', 32, 'amelia.harris@example.com', '6789054321', '123 Spruce Blvd', 'Austin', 'South'),

('Alexander Clark', 'Male', 37, 'alexander.clark@example.com', '2345678901', '456 Birch St', 'San Francisco', 'West'),

('Charlotte Lewis', 'Female', 29, 'charlotte.lewis@example.com', '3456789012', '789 Cedar Ave', 'Boston', 'Northeast'),

('Benjamin Walker', 'Male', 33, 'benjamin.walker@example.com', '4567890123', '321 Maple Blvd', 'Las Vegas', 'West'),

('Mia Hall', 'Female', 27, 'mia.hall@example.com', '5678901234', '654 Oak Ln', 'Portland', 'West'),

('Noah Allen', 'Male', 34, 'noah.allen@example.com', '6789012345', '852 Elm St', 'Dallas', 'South'),

('Lucas Young', 'Male', 41, 'lucas.young@example.com', '7890123456', '123 Pine Rd', 'Orlando', 'Southeast'),

('Harper King', 'Female', 30, 'harper.king@example.com', '8901234567', '456 Maple Ln', 'Charlotte', 'Southeast'),

('Jack Wright', 'Male', 38, 'jack.wright@example.com', '9012345678', '789 Cedar Blvd', 'San Antonio', 'South');

-- Create Sales Date Dimension Table

CREATE TABLE Sales\_Date\_Dimension (

Sales\_Date\_ID INT AUTO\_INCREMENT PRIMARY KEY,

Date DATE,

Day\_of\_Week VARCHAR(15),

Month VARCHAR(15),

Quarter VARCHAR(10),

Year INT,

Holiday BOOLEAN

);

INSERT INTO Sales\_Date\_Dimension (Date, Day\_of\_Week, Month, Quarter, Year, Holiday)

VALUES

('2023-01-15', 'Sunday', 'January', 'Q1', 2023, FALSE),

('2023-01-30', 'Monday', 'January', 'Q1', 2023, FALSE),

('2023-02-15', 'Wednesday', 'February', 'Q1', 2023, FALSE),

('2023-02-28', 'Tuesday', 'February', 'Q1', 2023, TRUE),

('2023-03-15', 'Wednesday', 'March', 'Q1', 2023, FALSE),

('2023-03-30', 'Thursday', 'March', 'Q1', 2023, FALSE),

('2023-04-15', 'Saturday', 'April', 'Q2', 2023, FALSE),

('2023-04-30', 'Sunday', 'April', 'Q2', 2023, FALSE),

('2023-05-15', 'Monday', 'May', 'Q2', 2023, FALSE),

('2023-05-30', 'Tuesday', 'May', 'Q2', 2023, FALSE),

('2023-06-15', 'Thursday', 'June', 'Q2', 2023, FALSE),

('2023-06-30', 'Friday', 'June', 'Q2', 2023, FALSE),

('2023-07-15', 'Saturday', 'July', 'Q3', 2023, FALSE),

('2023-07-30', 'Sunday', 'July', 'Q3', 2023, FALSE),

('2023-08-15', 'Tuesday', 'August', 'Q3', 2023, TRUE),

('2023-08-30', 'Wednesday', 'August', 'Q3', 2023, FALSE),

('2023-09-15', 'Friday', 'September', 'Q3', 2023, FALSE),

('2023-09-30', 'Saturday', 'September', 'Q3', 2023, FALSE),

('2023-10-15', 'Sunday', 'October', 'Q4', 2023, FALSE),

('2023-10-30', 'Monday', 'October', 'Q4', 2023, FALSE);

-- Create Sales Channel Dimension Table

CREATE TABLE Sales\_Channel\_Dimension (

Sales\_Channel\_ID INT AUTO\_INCREMENT PRIMARY KEY,

Channel\_Type VARCHAR(50),

Location VARCHAR(50)

);

INSERT INTO Sales\_Channel\_Dimension (Channel\_Type, Location)

VALUES

('Online', 'Website'),

('In-Store', 'New York'),

('In-Store', 'Los Angeles'),

('In-Store', 'Chicago'),

('In-Store', 'Houston'),

('Online', 'Mobile App'),

('In-Store', 'Miami'),

('In-Store', 'Phoenix'),

('Online', 'Social Media'),

('In-Store', 'San Diego'),

('In-Store', 'San Francisco'),

('Online', 'Email Marketing'),

('In-Store', 'Las Vegas'),

('In-Store', 'Portland'),

('Online', 'Affiliate Marketing'),

('In-Store', 'Austin'),

('In-Store', 'Dallas'),

('Online', 'Search Engine'),

('In-Store', 'Charlotte'),

('In-Store', 'Orlando');

-- Create Sales Fact Table

CREATE TABLE Sales\_Fact (

Sales\_ID INT AUTO\_INCREMENT PRIMARY KEY,

Product\_ID INT,

Customer\_ID INT,

Sales\_Date\_ID INT,

Sales\_Channel\_ID INT,

Quantity\_Sold INT,

Revenue DECIMAL(10,2),

Discount DECIMAL(10,2),

Total\_Cost DECIMAL(10,2),

FOREIGN KEY (Product\_ID) REFERENCES Product\_Dimension(Product\_ID),

FOREIGN KEY (Customer\_ID) REFERENCES Customer\_Dimension(Customer\_ID),

FOREIGN KEY (Sales\_Date\_ID) REFERENCES Sales\_Date\_Dimension(Sales\_Date\_ID),

FOREIGN KEY (Sales\_Channel\_ID) REFERENCES Sales\_Channel\_Dimension(Sales\_Channel\_ID)

);

INSERT INTO Sales\_Fact (Product\_ID, Customer\_ID, Sales\_Date\_ID, Sales\_Channel\_ID, Quantity\_Sold, Revenue, Discount, Total\_Cost)

VALUES

(1, 1, 1, 1, 2, 1400.00, 100.00, 1000.00), -- John buys 2 laptops online

(2, 2, 2, 2, 1, 1200.00, 50.00, 900.00), -- Jane buys 1 smartphone in-store

(3, 3, 3, 3, 3, 300.00, 30.00, 150.00), -- Michael buys 3 headphones in-store

(4, 4, 4, 4, 1, 250.00, 20.00, 150.00), -- Emily buys 1 smartwatch in-store

(5, 5, 5, 5, 2, 800.00, 60.00, 600.00), -- David buys 2 tablets in-store

(6, 6, 6, 6, 4, 480.00, 40.00, 320.00), -- Sophia buys 4 Bluetooth speakers online

(7, 7, 7, 7, 5, 250.00, 30.00, 150.00), -- Liam buys 5 wireless mice in-store

(8, 8, 8, 8, 1, 600.00, 20.00, 400.00), -- Olivia buys 1 gaming monitor in-store

(9, 9, 9, 9, 1, 800.00, 50.00, 600.00), -- Ethan buys 1 smart TV online

(10, 10, 10, 10, 2, 1200.00, 100.00, 800.00), -- Isabella buys 2 digital cameras in-store

(11, 11, 11, 11, 3, 700.00, 20.00, 500.00), -- James buys 2 action cameras in-store

(12, 12, 12, 12, 5, 240.00, 20.00, 180.00), -- Amelia buys 2 external hard drives online

(13, 13, 13, 13, 1, 300.00, 30.00, 210.00), -- Alexander buys 3 smart home assistants in-store

(14, 14, 14, 14, 3, 375.00, 20.00, 250.00), -- Charlotte buys 3 fitness trackers in-store

(15, 15, 15, 15, 1, 400.00, 30.00, 300.00), -- Benjamin buys 1 VR headset online

(16, 16, 16, 16, 4, 400.00, 20.00, 300.00), -- Mia buys 20 smartphone cases online

(17, 17, 17, 17, 2, 400.00, 30.00, 250.00), -- Noah buys 8 laptop bags in-store

(18, 18, 18, 18, 4, 180.00, 20.00, 120.00), -- Lucas buys 6 smart light bulbs online

(19, 19, 19, 19, 3, 400.00, 40.00, 300.00), -- Harper buys 10 wireless chargers in-store

(20, 20, 20, 20, 3, 600.00, 50.00, 400.00); -- Jack buys 5 e-book readers in-store

SHOW TABLES;

SELECT \* FROM Product\_Dimension;

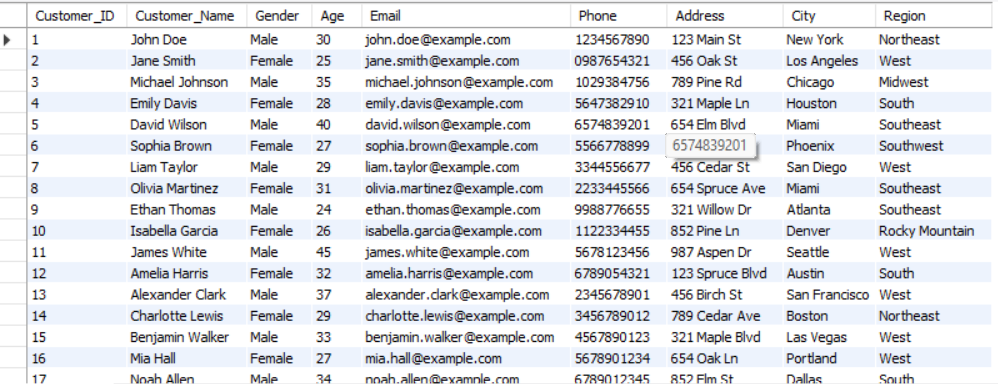
SELECT \* FROM Customer\_Dimension;

SELECT \* FROM Sales\_Date\_Dimension;

SELECT \* FROM Sales\_Channel\_Dimension;

SELECT \* FROM Sales\_Fact;

**TABLES:**



A screenshot of a computer

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A screenshot of a computer

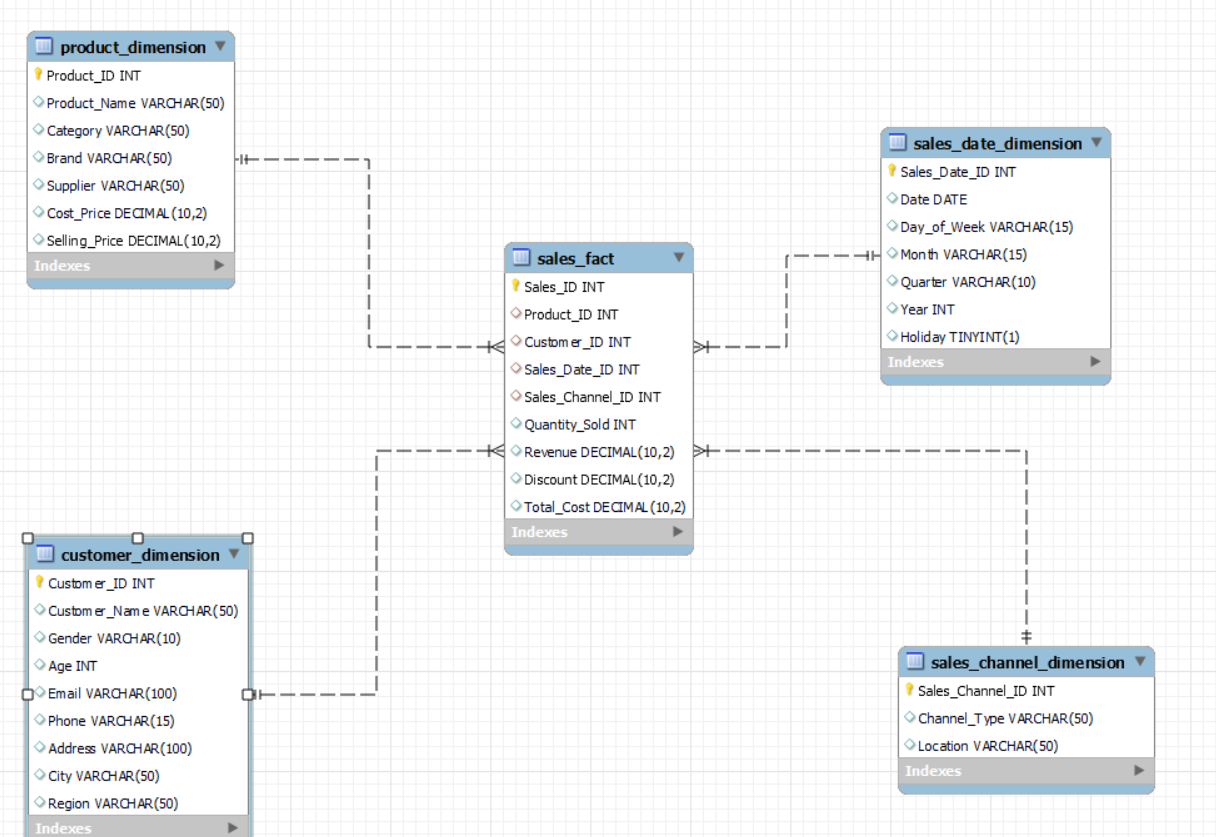
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A screenshot of a calendar

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A screenshot of a table

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**Star Schema:  
  
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