### **Assignment\_02**

**Blue Sky Online Consumer Electronics Retailer**

## 

## IMG_256

## Submitted by

Mehar Hamid Ishfaq

201980038

Muhammad Nadeem

201980050

Muhammad Bilal Butt

191980015

**Submitted to**

Sir Hamza Ali

**Department of Data Science,**

GIFT University, Gujranwala

Due : 10-01-2023

1. **Collapsing Tables (One-to-One Relationship):**

Combine Customer\_Dimension and Customer Profitability Fact Table:

SELECT

c.Customer\_ID,

c.Name,

c.Age\_Group,

c.Income\_Group,

c.Marital\_Status,

c.Postcode,

c.City,

c.Country,

c.Email,

c.Phone\_Number,

cp.Time\_Key INTO Collapsed\_CustomerFROM Customer\_Dimension c JOIN [Customer Profitability Fact Table] cp ON c.Customer\_ID = cp.Customer\_ID;

1. **Splitting Tables (Horizontal/Vertical Splitting):**

No need for horizontal or vertical splitting in this case.

1. **Pre-Joining:**

Join Sales Transaction Fact Table with Product and Channel during data loading:

SELECT

st.Product\_ID,

st.Channel\_ID,

st.Payment\_Type\_ID,

st.Customer\_ID,

st.Time\_Key,

p.Product\_Name,

p.Product\_Category,

p.Brand,

p.Description,

c.Channel\_Name,

p.Payment\_Method INTO Pre Joined\_Sales FROM [Sales Transaction Fact Table]

st JOIN

Product p ON st.Product\_ID = p.Product\_ID JOIN Channel c ON st.Channel\_ID = c.Channel\_ID;

1. **Adding Redundant Columns (Reference Data):**

Add redundant columns for Channel\_Name and Payment\_Method to Sales Transaction Fact Table:

ALTER TABLE [Sales Transaction Fact Table] ADD Channel\_Name VARCHAR(255),

Payment\_Method VARCHAR(50);

UPDATE st SET

Channel\_Name = c.Channel\_Name,

Payment\_Method = p.Payment\_Method FROM [Sales Transaction Fact Table] st JOIN Channel c ON st.Channel\_ID = c.Channel\_ID

JOIN

Payment p ON st.Payment\_Type\_ID = p.Payment\_Type\_ID;

**5. Derived Attributes:**

ALTER TABLE [Sales Transaction Fact Table] ADD Total\_Amount DECIMAL(18, 2);

UPDATE st SET Total\_Amount = p.Price \* st.Quantity

-- Assuming a 'Price' column exists in the 'Product' table

FROM [Sales Transaction Fact Table] st JOIN Product p ON st.Product\_ID = p.Product\_ID;

**Dummy Data on which De-Normalization is Applied:**

**Customer\_Dimension:**

INSERT INTO Customer\_Dimension (Customer\_ID, Name, Age\_Group, Income\_Group, Marital\_Status, Postcode, City, Country, Email, Phone\_Number)

VALUES

(1, 'John Doe', '25-34', 'High', 'Married', '12345', 'New York', 'USA', 'john@example.com', '123-456-7890'),

(2, 'Alice Smith', '18-24', 'Medium', 'Single', '67890', 'Los Angeles', 'USA', 'alice@example.com', '987-654-3210'),

(3, 'Bob Johnson', '35-44', 'Low', 'Divorced', '54321', 'Chicago', 'USA', 'bob@example.com', '111-222-3333'),

(4, 'Emily Davis', '25-34', 'High', 'Married', '13579', 'London', 'UK', 'emily@example.com', '444-555-6666'),

(5, 'Michael Brown', '35-44', 'Medium', 'Single', '24680', 'Sydney', 'Australia', 'michael@example.com', '777-888-9999');

(6, 'Sophia Johnson', '18-24', 'Low', 'Single', '97531', 'Houston', 'USA', 'sophia@example.com', '222-333-4444'),

(7, 'Oliver Williams', '25-34', 'Medium', 'Married', '88888', 'San Francisco', 'USA', 'oliver@example.com', '555-666-7777'),

(8, 'Emma Brown', '35-44', 'High', 'Divorced', '44444', 'Miami', 'USA', 'emma@example.com', '999-000-1111'),

(9, 'William Wilson', '45-54', 'High', 'Single', '66666', 'Austin', 'USA', 'william@example.com', '123-456-7890'),

(10, 'Mia Taylor', '18-24', 'Low', 'Married', '11111', 'Seattle', 'USA', 'mia@example.com', '987-654-3210');

**Product:**

-- Insert dummy data into the existing 'Products' table

INSERT INTO Product (Product\_ID, Product\_Name, Product\_Category, Brand, Description)

VALUES

(1, 'Smartphone\_XYZ', 'Smartphones', 'ABC Electronics', 'This is a smartphone description.'),

(2, 'Laptop ABC', 'Laptops', 'XYZ Computers', 'This is a laptop description.'),

(3, 'Headphones HD', 'Headphones', 'AudioTech', 'This is a headphone description.'),

(4, 'Tablet QWERTY', 'Tablets', 'TechCo', 'This is a tablet description.'),

(5, 'Smartwatch 123', 'Wearable Tech', 'TechGadgets', 'This is a smartwatch description.'),

(6, 'Camera SuperShot', 'Cameras', 'SnapTech', 'This is a camera description.'),

(7, 'Gaming Console X', 'Gaming Consoles', 'GameMaster', 'This is a gaming console description.'),

(8, 'TV UltraView', 'Televisions', 'ViewTech', 'This is a TV description.'),

(9, 'Printer FastPrint', 'Printers', 'PrintPro', 'This is a printer description.'),

(10, 'Router SpeedNet', 'Networking', 'NetTech', 'This is a router description.');

**Time Dimension:**

INSERT INTO [Time Dimension] (Time\_Key, [Date], [Month], Quarter, [Year])

VALUES

(1, '2023-01-15', 'January', 'Q1', 2023),

(2, '2023-02-20', 'February', 'Q1', 2023),

(3, '2023-03-10', 'March', 'Q1', 2023),

(4, '2023-04-25', 'April', 'Q2', 2023),

(5, '2023-05-07', 'May', 'Q2', 2023),

(6, '2023-06-19', 'June', 'Q2', 2023),

-- Add more dummy entries as needed

(7, '2023-07-22', 'July', 'Q3', 2023),

(8, '2023-08-14', 'August', 'Q3', 2023),

(9, '2023-09-28', 'September', 'Q3', 2023),

(10, '2023-10-05', 'October', 'Q4', 2023),

(11, '2023-11-30', 'November', 'Q4', 2023),

(12, '2023-12-12', 'December', 'Q4', 2023);

**Channel:**

INSERT INTO Channel (Channel\_ID, Channel\_Name, Channel\_Type, Channel\_Description)

VALUES

(5, 'OnlineMart 1', 'Online Marketplace', 'Description for OnlineMart 1'),

(6, 'eShop 2', 'Own Website', 'Description for eShop 2'),

(7, 'RetailStore 3', 'Physical Store', 'Description for RetailStore 3'),

(8, 'OnlineMart 4', 'Online Marketplace', 'Description for OnlineMart 4'),

(9, 'eShop 5', 'Own Website', 'Description for eShop 5'),

(10, 'RetailStore 6', 'Physical Store', 'Description for RetailStore 6'),

(11, 'OnlineMart 7', 'Online Marketplace', 'Description for OnlineMart 7'),

(12, 'eShop 8', 'Own Website', 'Description for eShop 8'),

(13, 'RetailStore 9', 'Physical Store', 'Description for RetailStore 9'),

(14, 'OnlineMart 10', 'Online Marketplace', 'Description for OnlineMart 10');

**Payment:**

INSERT INTO Payment (Payment\_Type\_ID, Payment\_Name, Payment\_Method)

VALUES

(1, 'Credit Card', 'Online'),

(2, 'PayPal', 'Online'),

(3, 'Bank Transfer', 'Offline'),

(4, 'Debit Card', 'Online'),

(5, 'Google Pay', 'Online'),

(6, 'Apple Pay', 'Online'),

(7, 'Cryptocurrency', 'Online'),

(8, 'Cash on Delivery', 'Offline'),

(9, 'Cheque', 'Offline'),

(10, 'Direct Bank Payment', 'Offline');

**Sales Transaction Fact Table:**

INSERT INTO [Sales Transaction Fact Table] (Product\_ID, Channel\_ID, Payment\_Type\_ID, Customer\_ID, Time\_Key)

VALUES

(1, 5, 1, 111, 2),

(2, 6, 2, 112, 3),

(3, 7, 3, 113, 4),

(4, 8, 4, 114, 5),

(5, 9, 5, 115, 6),

(6, 10, 6, 116, 7),

(7, 11, 1, 111, 8),

(8, 12, 2, 112, 9),

(9, 13, 3, 113, 10),

(10, 14, 4, 114, 11);

**Customer Preferences Fact Table**

INSERT INTO [Customer Preferences Fact Table] (Customer\_ID, Channel\_ID, Payment\_Type\_ID)

VALUES

(111, 5, 1),

(112, 6, 2),

(113, 7, 3),

(114, 8, 1),

(115, 9, 2),

(116, 10, 3);

**Customer Profitability Fact Table**

INSERT INTO [Customer Profitability Fact Table] (Customer\_ID, Time\_Key)

VALUES

(111, 1),

(112, 2),

(113, 3),

(114, 4),

(115, 5),

(116, 6);