

NEW DELHI

FORE SCHOOL OF MANAGEMENT

**Academic Year 2023-25**

Big Data and Data Analytics II

TOPIC: Marketing Campaign Data in SQL

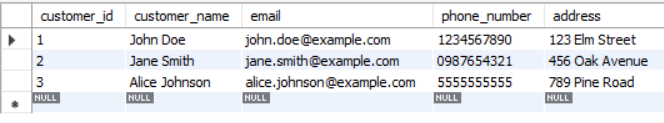
Submitted to: Prof. Amarnath Mitra

Submitted by:

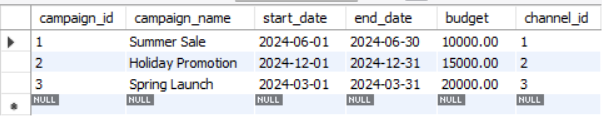
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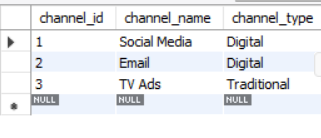
Customer Table



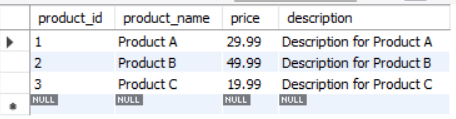
Campaign Table



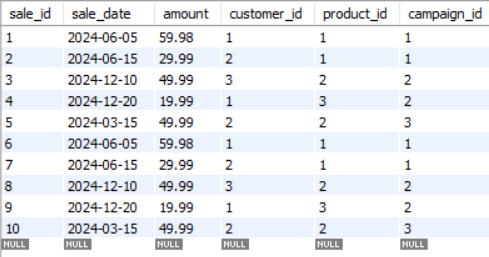
Marketing channel



Product



Sales



Normal Forms of the Table

Customer Table;

CREATE TABLE Customer (

customer\_id INT PRIMARY KEY Unique,

customer\_name VARCHAR (100),

email VARCHAR (100),

phone\_number VARCHAR (15),

address VARCHAR (255)

);

* **1NF**: The table is in 1NF because all columns contain atomic values, and each column contains a single type of value.
* **2NF**: The table is in 2NF because it has a single-column primary key (customer\_id), and all non-key attributes are fully functionally dependent on the primary key.

Product Table

CREATE TABLE Product (

product\_id INT AUTO\_INCREMENT PRIMARY KEY,

product\_name VARCHAR(100),

price DECIMAL(10, 2),

description TEXT

);

* **1NF**: The table is in 1NF because all columns contain atomic values, and each column contains a single type of value.
* **2NF**: The table is in 2NF because it has a single-column primary key (product\_id), and all non-key attributes are fully functionally dependent on the primary key.

Marketing Channel Table

CREATE TABLE MarketingChannel (

channel\_id INT AUTO\_INCREMENT PRIMARY KEY,

channel\_name VARCHAR (100),

channel\_type VARCHAR (50)

);

* **1NF**: The table is in 1NF because all columns contain atomic values, and each column contains a single type of value.
* **2NF**: The table is in 2NF because it has a single-column primary key (channel\_id), and all non-key attributes are fully functionally dependent on the primary key.

Campaign table

CREATE TABLE Campaign (

campaign\_id INT AUTO\_INCREMENT PRIMARY KEY,

campaign\_name VARCHAR (100),

start\_date DATE,

end\_date DATE,

budget DECIMAL (15, 2),

channel\_id INT,

FOREIGN KEY (channel\_id) REFERENCES MarketingChannel(channel\_id)

);

* **1NF**: The table is in 1NF because all columns contain atomic values, and each column contains a single type of value.
* **2NF**: The table is in 2NF because it has a single-column primary key (campaign\_id), and all non-key attributes are fully functionally dependent on the primary key.

Sales Table

CREATE TABLE Sales (

sale\_id INT AUTO\_INCREMENT PRIMARY KEY,

sale\_date DATE, amount DECIMAL(15, 2),

customer\_id INT,

product\_id INT, campaign\_id INT,

FOREIGN KEY (customer\_id) REFERENCES Customer(customer\_id),

FOREIGN KEY (product\_id) REFERENCES Product(product\_id),

FOREIGN KEY (campaign\_id) REFERENCES Campaign(campaign\_id)

);

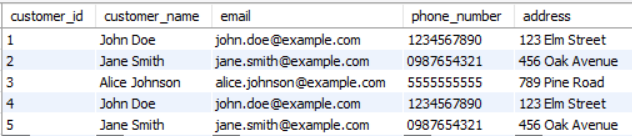
* **1NF**: The table is in 1NF because all columns contain atomic values, and each column contains a single type of value.
* **2NF**: The table is in 2NF because it has a single-column primary key (sale\_id), and all non-key attributes are fully functionally dependent on the primary key.
* **3NF**: The table is in 3NF because there are no transitive dependencies; all attributes are directly dependent on the primary key.

Stress testing

Insertion Function



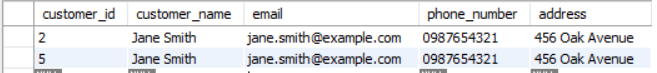
Therefore, the newly Updated table becomes:



Read operations:







Update Functions:



Therefore, the newly updated table becomes:

