# 4: Identification and Description of Dimension and Fact Tables

In the data model created for the Revenue Analysis project, the following tables have been categorized based on their roles in the star schema:

## Dimension Tables:

1. Customers  
 This table contains descriptive information about the customers such as CustomerId, Full Name, City, Company Name, and other attributes.  
 Purpose: Used to filter and categorize the data in the fact tables based on customer details.

2. Plant  
 This table stores data about manufacturing or processing plants including Plant Id, Plant Name, City, and State.  
 Purpose: Helps to analyze order data by plant location or region.

## Fact Tables:

1. Total Orders  
 This table contains transactional data such as CustomerId, PlantId, Order Date, Firm Orders, and Shipped Quantity.  
 Purpose: It is the central fact table representing sales or order transactions.

2. Total Orders with Customer  
 A variation of the Total Orders table that has been enriched with customer-related fields.  
 Purpose: Used for customer-based sales analysis.

3. Total Orders with Plant ID  
 Another variation of the Total Orders table that includes plant-related fields.  
 Purpose: Used for analyzing order quantities based on plant details.

## Definitions:

• Dimension Table:  
 A dimension table is a lookup or reference table that provides descriptive context (attributes) for facts. It usually contains textual data (like names, regions, or categories) and has a unique identifier used to relate it to fact tables.

• Fact Table:  
 A fact table contains measurable and quantitative data for analysis. It typically includes foreign keys to dimension tables and numerical values (facts) like quantities, amounts, or counts.

# 5: Types of Relationships in the Star Schema

The following relationships were established between the dimension and fact tables in the data model to form a Star Schema. Each relationship type is based on how the data is connected:

Relationship Summary:  
From Table: Customers → To Table: Total Orders → Column: CustomerId → Relationship Type: One-to-Many  
From Table: Customers → To Table: Total Orders with customer → Column: CustomerId → Relationship Type: One-to-Many  
From Table: Plant → To Table: Total Orders → Column: PlantId → Relationship Type: One-to-Many  
From Table: Plant → To Table: Total Orders with plant ID → Column: PlantId → Relationship Type: One-to-Many

## Relationship Type Descriptions:

• One-to-Many:  
 This means a single record in the dimension table (e.g., one Customer or one Plant) can be linked to multiple records in the fact table (e.g., multiple Orders). This is the standard relationship in a Star Schema and ensures proper filtering and aggregation during analysis.

• Many-to-Many / One-to-One:  
 These were not used in this model. Only one-to-many relationships were created to maintain a clean star schema.