Unit 14
Business Intelligence

DATA MODELLING IN POWER BI

What Is Data Modelling?

- Data Modelling is the process of creating a data model. These Data Models are abstract data that defines the data structure, properties and relation. To create a Data Model, multiple entities or values for a given scenario must relate to each other.
- A data model can be of different types based on structure shape and properties. Some types of data models are the Hierarchical Model, Relational Model, Network Model, Entity-Relationship Model and many more.
- For Power BI, we will be more focused on the Entity-Relationship Model.

Entity-Relationship Model

The entity is an object, subject or event in a model. For Example, colour, engine model & mileage are entities that define the car. Thus Entity-Relationship model is the relation between multiple entities. This model is also known as ER Model.

Table 1

ID1	Name	Type
01	Porsche	Sports
02	Porsche	Sports
03	Volkswagen	Hatchback

Table 2

ID2	Car ID	Model	Colour
A	01	Model 1	Red
B	01	Model 1	Yellow
C	02	Model 3	Blue

Types of Keys

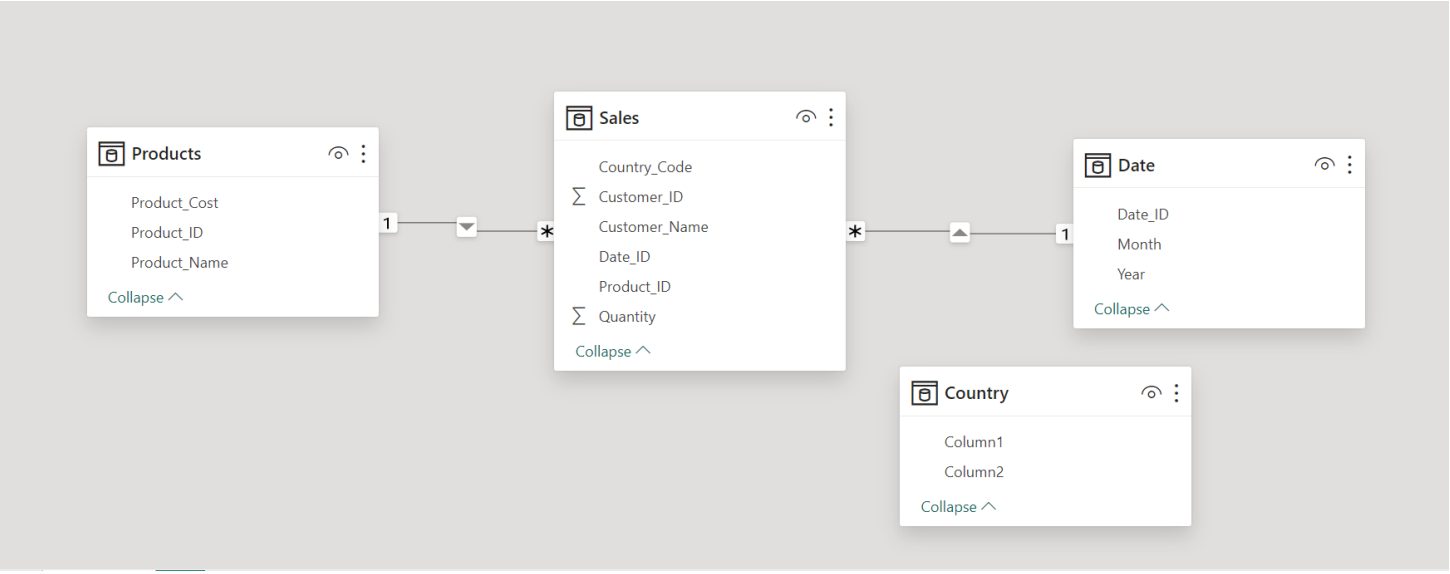
- The Primary key is unique in nature and doesn't repeat itself in records. In the previous table, ID is the primary key that doesn't repeat and is useful in identifying a unique record.
- The Foreign key is the key that makes a relation to another table. This key may or may not be unique in nature. In Table 2, 'Car ID' is the Foreign Key that adds up the values to the previous table.

What is Cardinality?

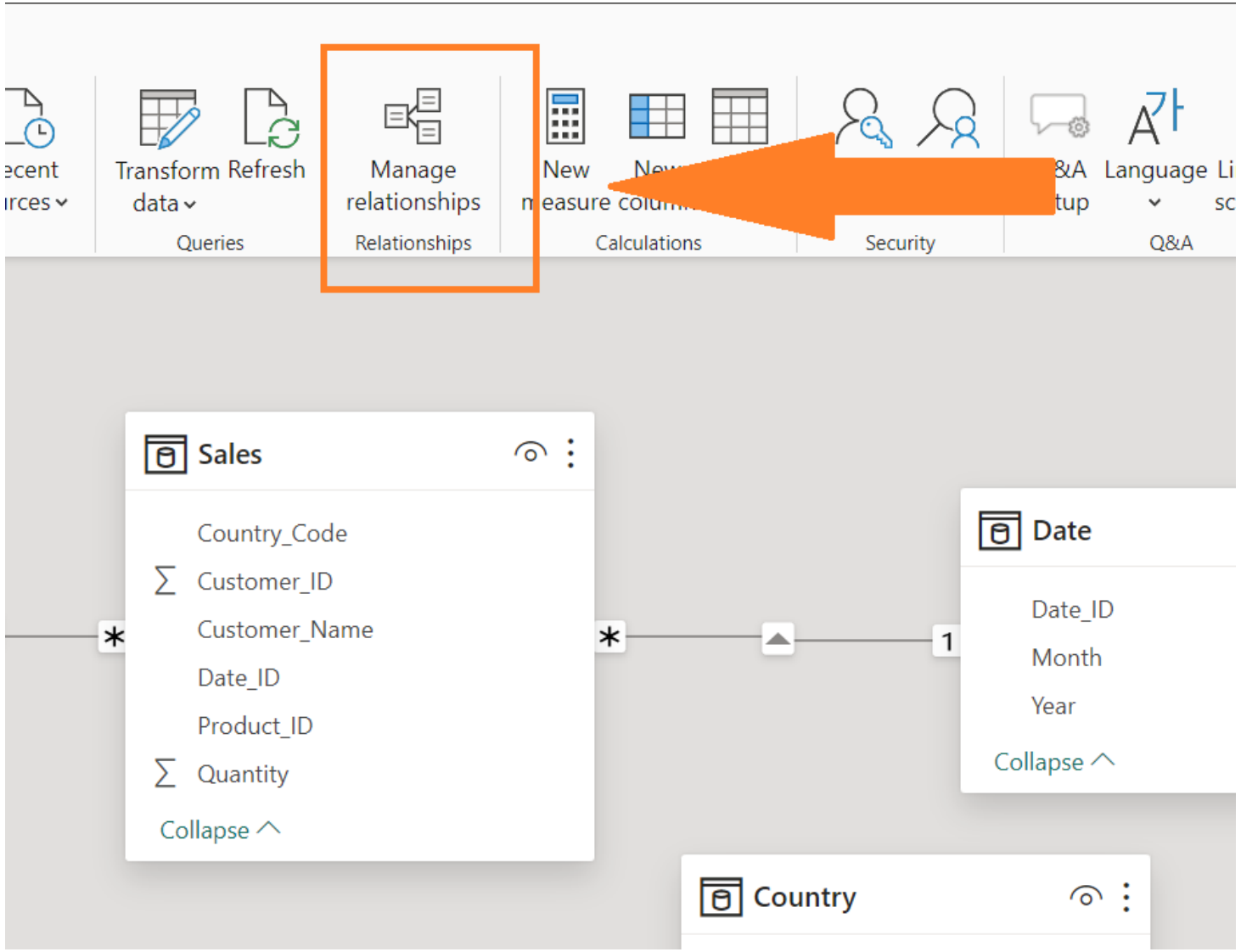
Cardinality defines the number of relation from one table to another table. There are mainly 3 types of cardinality in a table.

- **One to One Cardinality** – In this type of cardinality, One entity attribute creates only one connection with another attribute.
- **One to Many Cardinality** – In this cardinality, one entity attribute creates multiple connections with another attribute. In the previous tables, the entity (01) from Table 1 (ID1) creates multiple links with the entity (01,01) from Table 2 (Car ID).
- **Many to Many Cardinality** – In this cardinality, multiple entities from one table creates multiple relations with other tables. In the previous tables, the entity (Porsche, Porsche) from Table 1 (Name) creates multiple links with the entity (Model1, Model1) on Table 2 (Model).

Data Modelling in Power BI



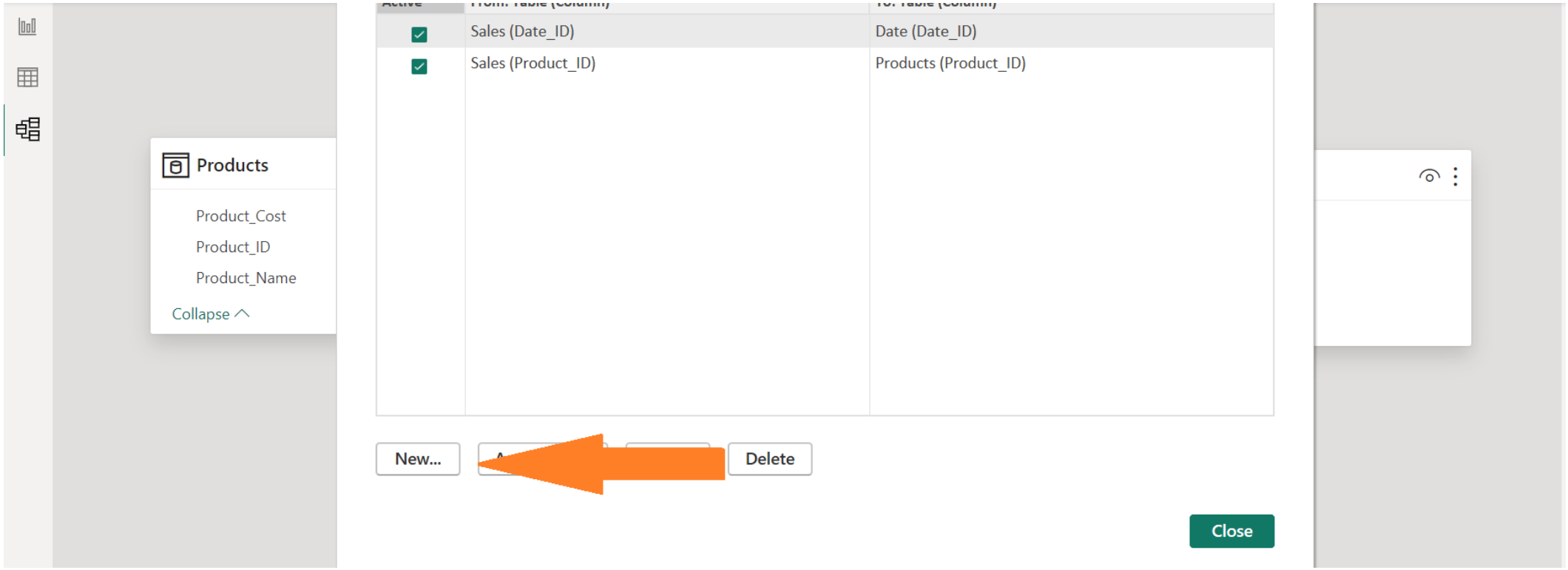
Power BI automatically recognize the data & its relation.



Data Modelling in Power BI

When Power BI imports a table without headers**, it may not be able to automatically detect relationships because it relies on column names to establish those connections.** Sometimes we need to create a relation between the data manually using **Manage Relationships** option.

Data Modelling in Power BI



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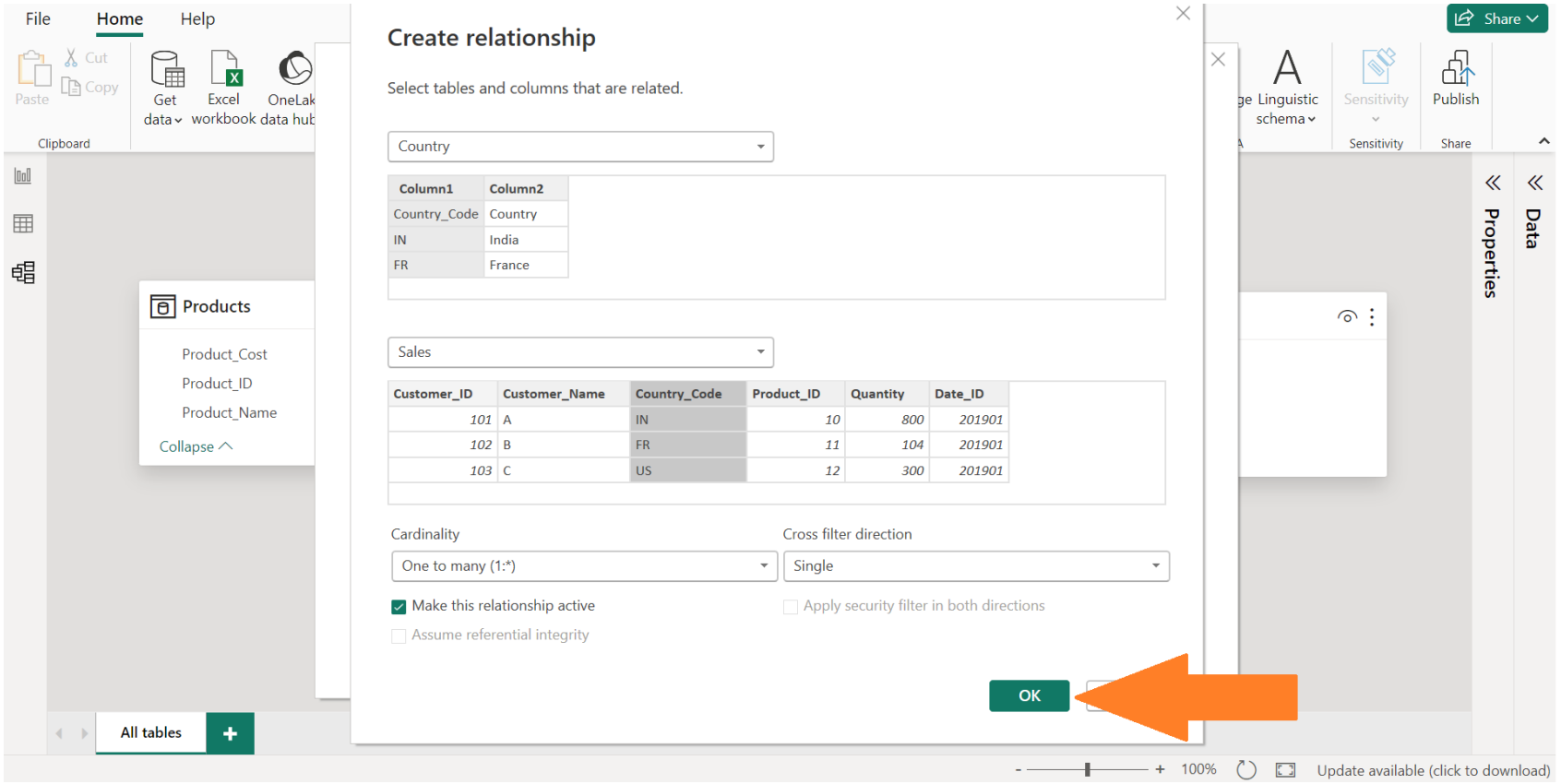

Reference

Data Modeling in Power BI | Steps to Create Data Models (k21academy.com)

Q&A