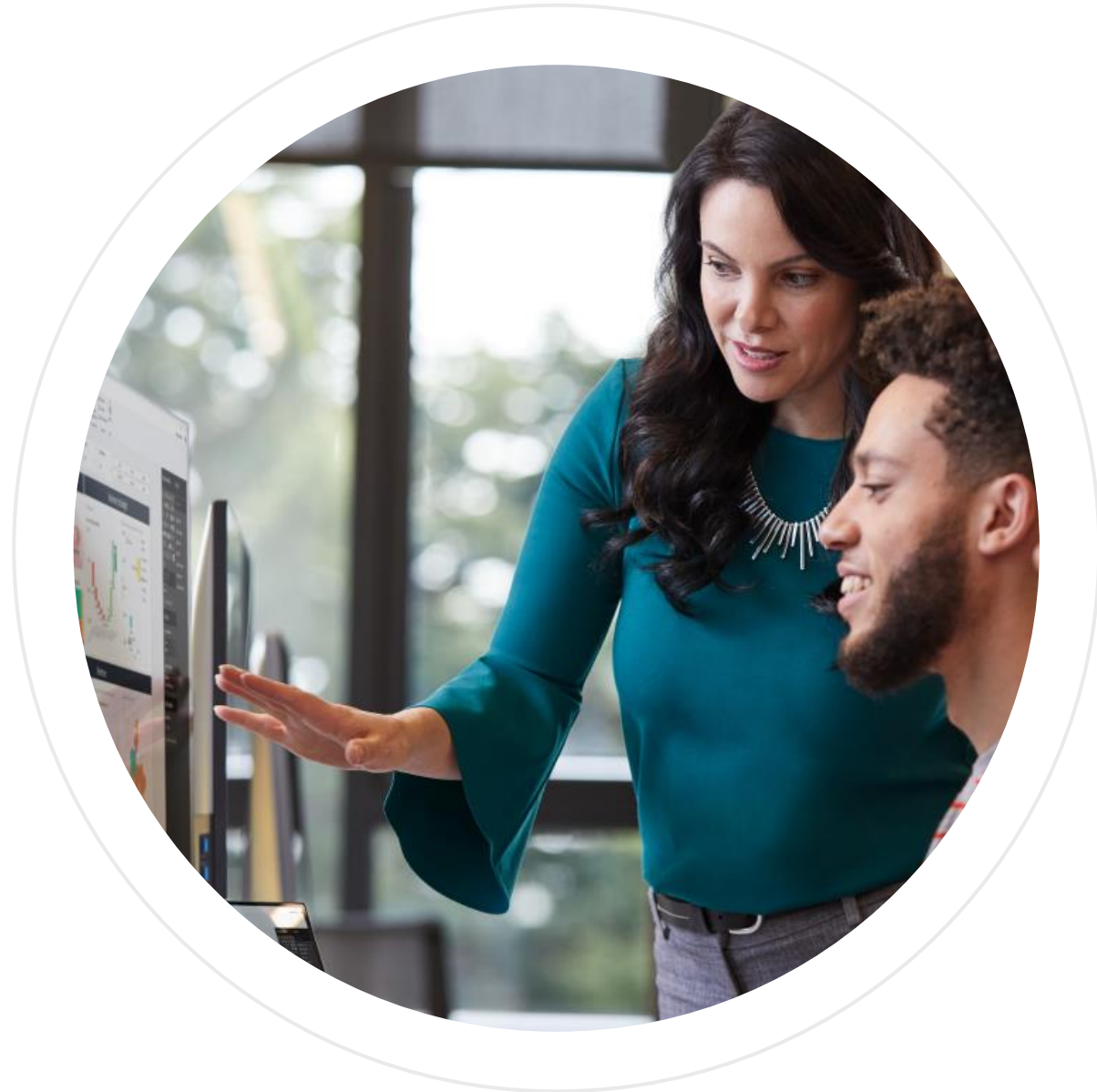


Online Role-based training resources:

Microsoft Learn

<https://docs.microsoft.com/en-us/learn/>

Module 4: Design a Data Model In Power BI



Learning Objectives

You will learn the following concepts:

- Data Modeling
- Working with Tables
- Dimensions and Hierarchies

Module Agenda



Introduction to Data Modeling



Working with Tables

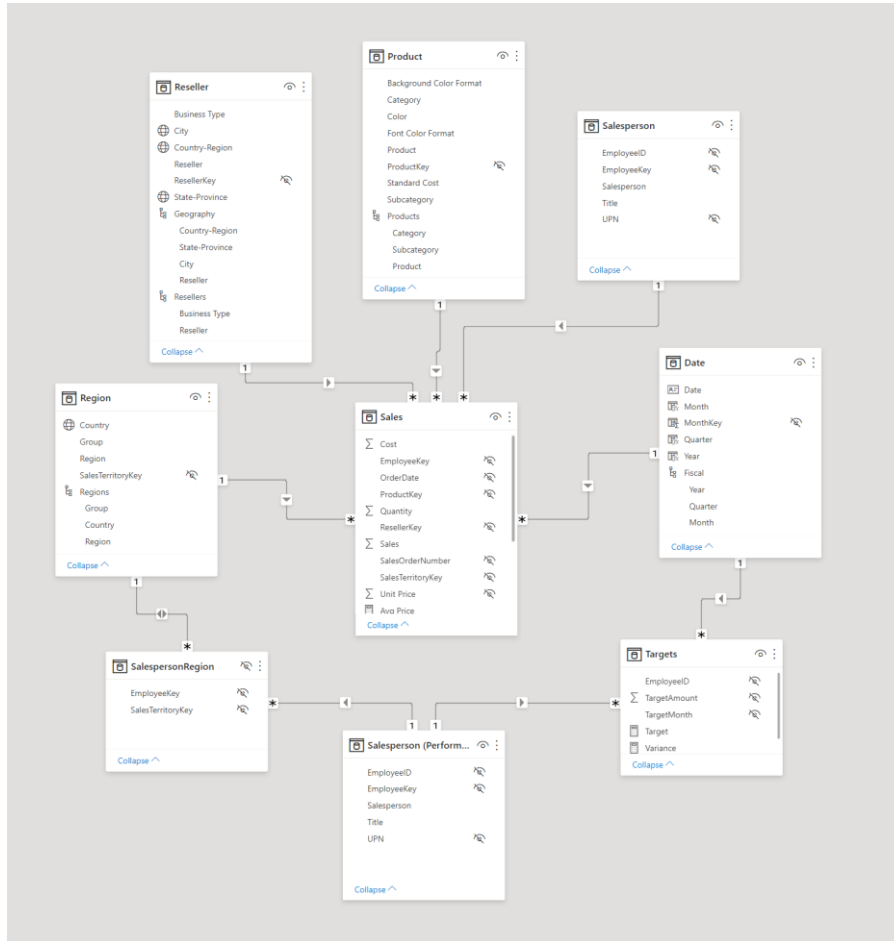


Dimensions and Hierarchies

Lesson 1: Introduction to Data Modeling



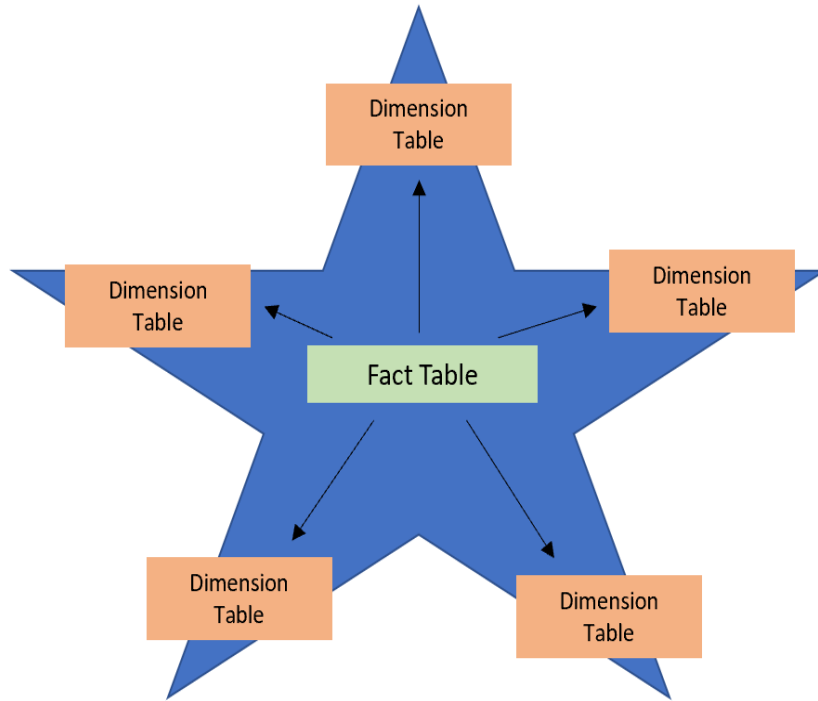
Introduction to Dashboards



Benefits of a good data model:

- Accurate reports.
- Faster data exploration.
- Simpler aggregations.
- Easier to maintain.

Star Schemas



Tables are classified as dimension or fact tables:

Dimension: Describes business entities.

Fact: Store observations or events.

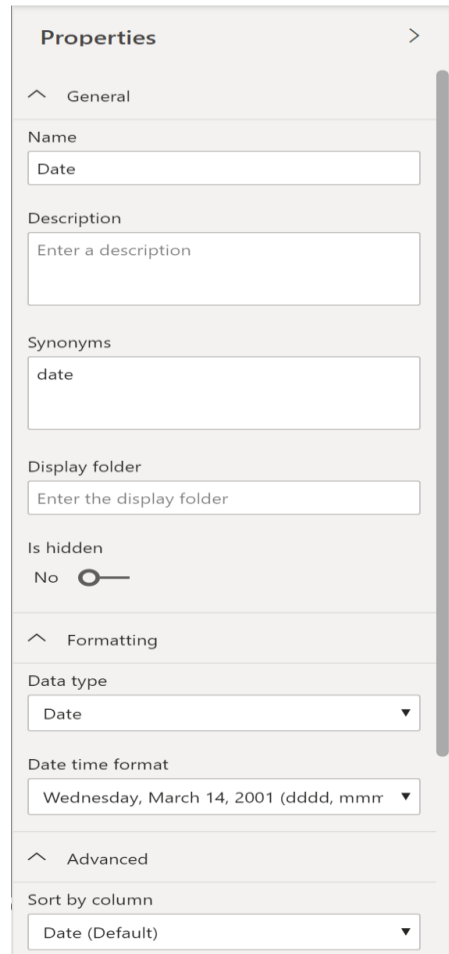
Review Questions

- Q01 – The two types of tables in a star schema are what?
- Q02 – What is the difference between a fact table and a dimension table?

Lesson 2: Working with Tables



Configure Table and Column Properties



The screenshot shows a 'Properties' pane with three expandable sections: General, Formatting, and Advanced. The General section includes fields for Name (set to 'Date'), Description (placeholder 'Enter a description'), Synonyms (set to 'date'), Display folder (placeholder 'Enter the display folder'), and an 'Is hidden' toggle (set to 'No'). The Formatting section includes a 'Data type' dropdown (set to 'Date') and a 'Date time format' dropdown (set to 'Wednesday, March 14, 2001 (dddd, mmmr)'). The Advanced section includes a 'Sort by column' dropdown (set to 'Date (Default)').

Properties

General

Name
Date

Description
Enter a description

Synonyms
date

Display folder
Enter the display folder

Is hidden
No ☒

Formatting

Data type
Date

Date time format
Wednesday, March 14, 2001 (dddd, mmmr)

Advanced

Sort by column
Date (Default)

Before working on reports, ensure your model and table structure are simplified.

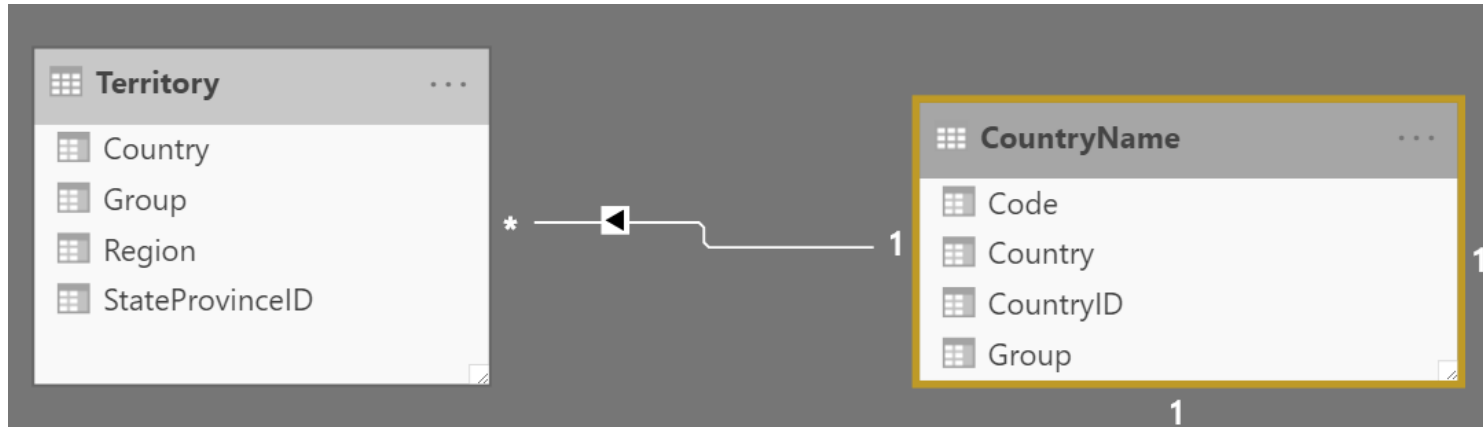
A simple table structure will be easy to navigate.

Create a Dates Table

Standardize on date formats and ranges that meet company requirements.

Date	Year	MonthNum	WeekNum	DayoftheWeek
Tuesday, May 31, 2011	2011	5	23	Tuesday
Wednesday, June 1, 2011	2011	6	23	Sunday
Thursday, June 2, 2011	2011	6	23	Monday
Friday, June 3, 2011	2011	6	23	Tuesday

Relationships and Cardinality

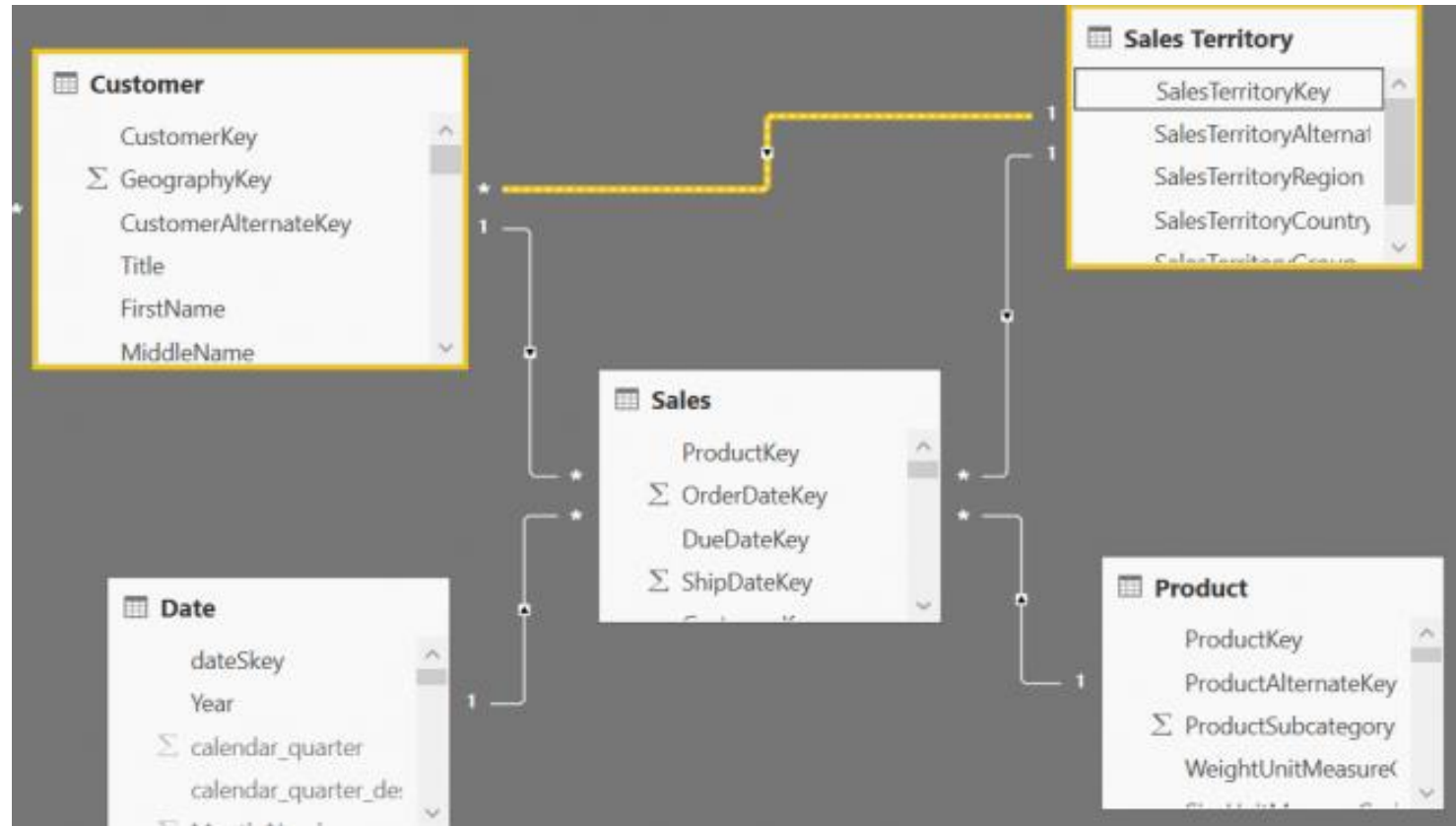


Relationship: Formed by correlating rows belonging to different tables.

Cardinality: Uniqueness of data values in a column.

Modeling Challenges

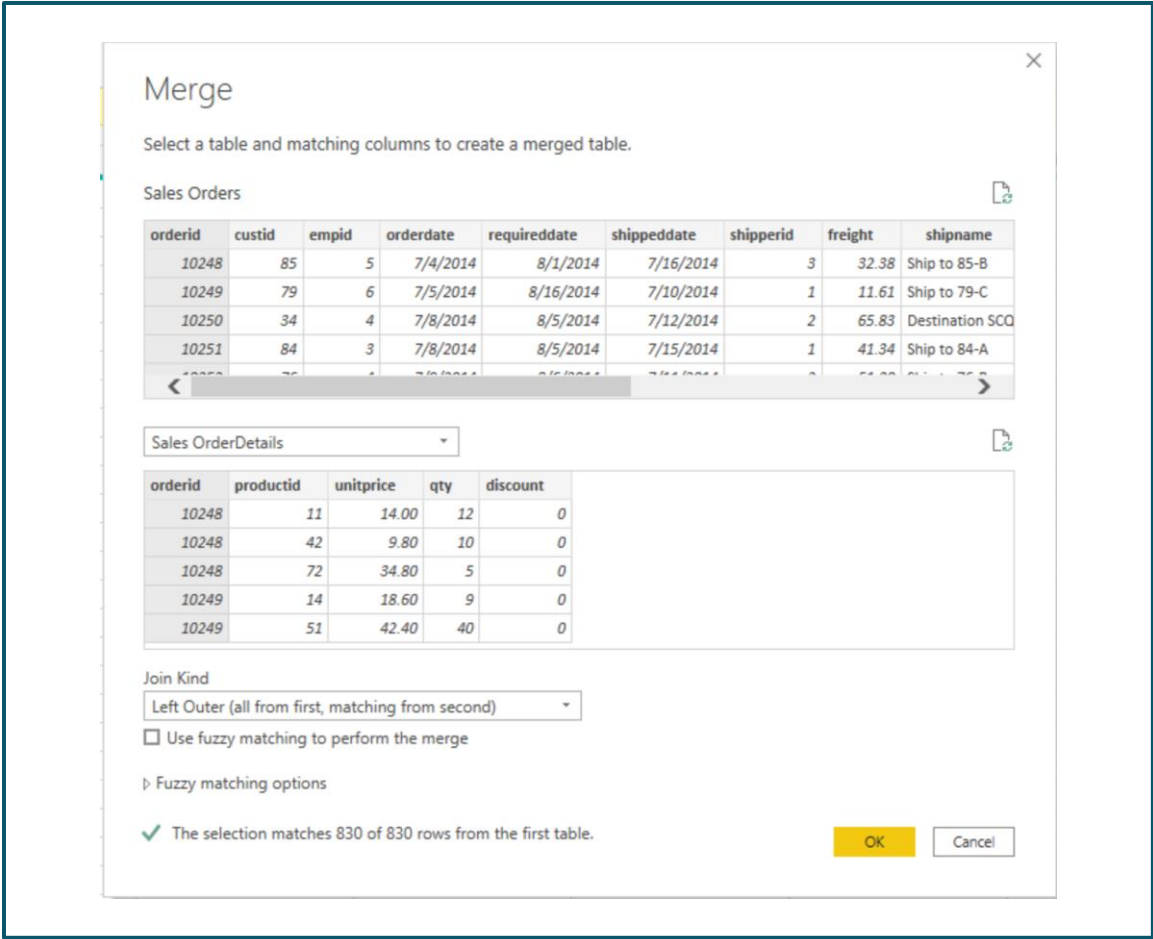
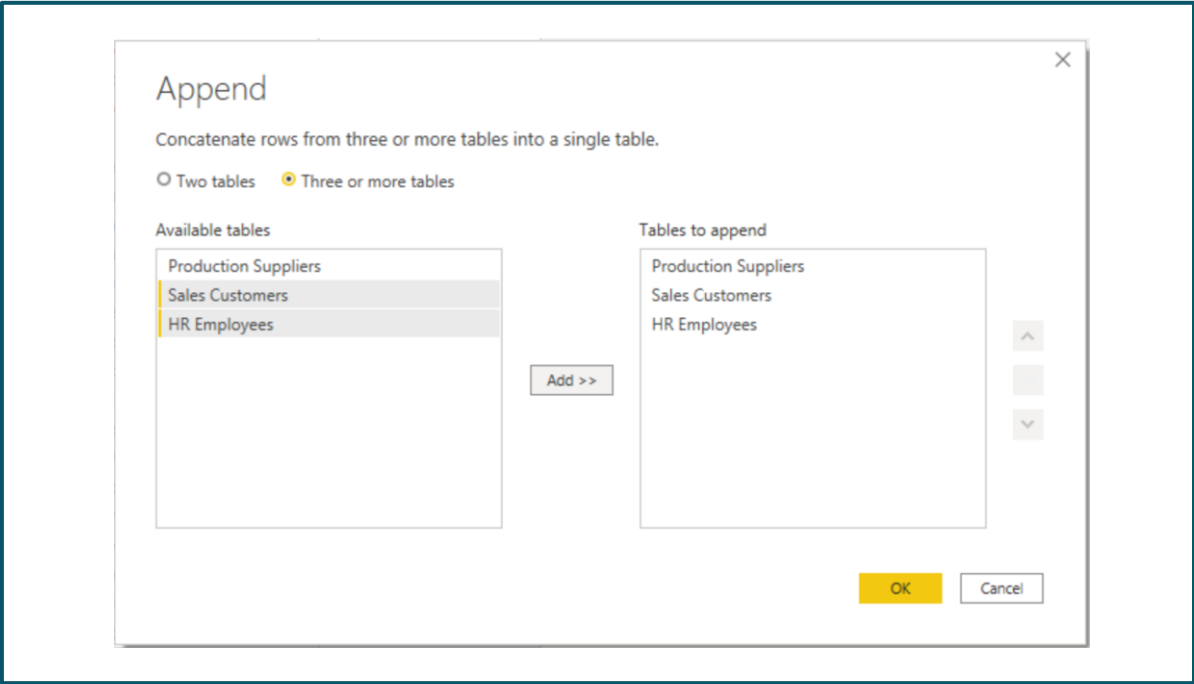
Circular relationships and relational dependencies.



Combine Queries

Two methods for combining queries:

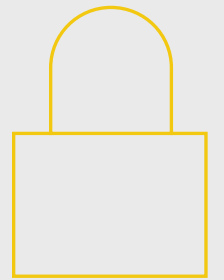
- Append
- Merge



Review Questions

- Q01 – What is Cardinality?

Lesson 3: Dimensions and Hierarchies



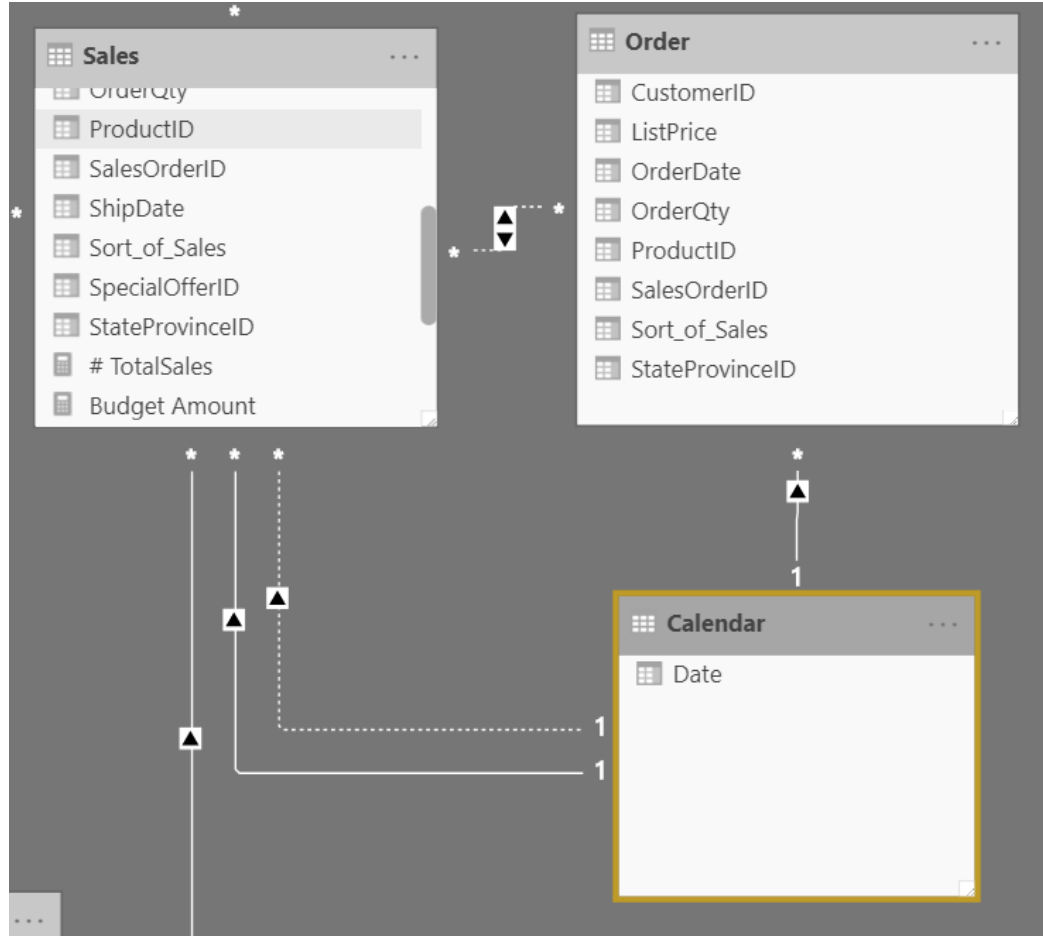
Introduction to Dimensions and Hierarchies

	1 ² ₃ Employee ID	A ^B _C Employee	1 ² ₃ Manager ID	A ^B _C Manager
1	1010	Roy F	null	
2	1011	Pam H	1010	Roy F
3	1012	Guy L	1010	Roy F
4	1013	Roger M	1011	Pam H
5	1014	Kaylie S	1011	Pam H
6	1015	Mike O	1012	Guy L
7	1016	Rudy Q	1012	Guy L

Dimension: Store details about business entities.

Hierarchy: Organize data such that one element is ranged over other data.

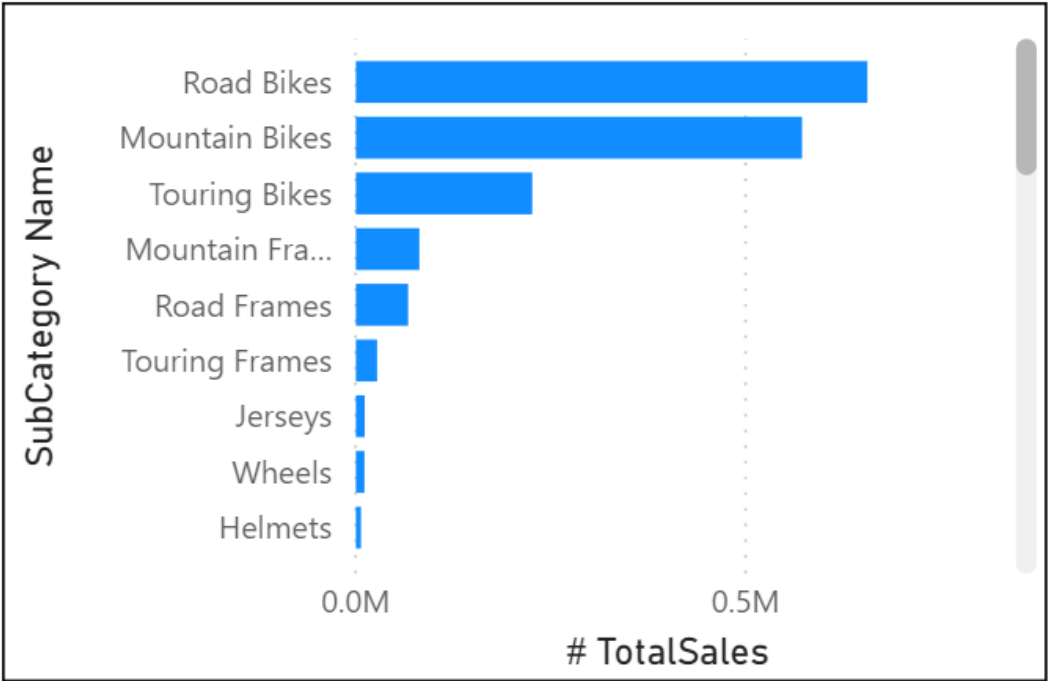
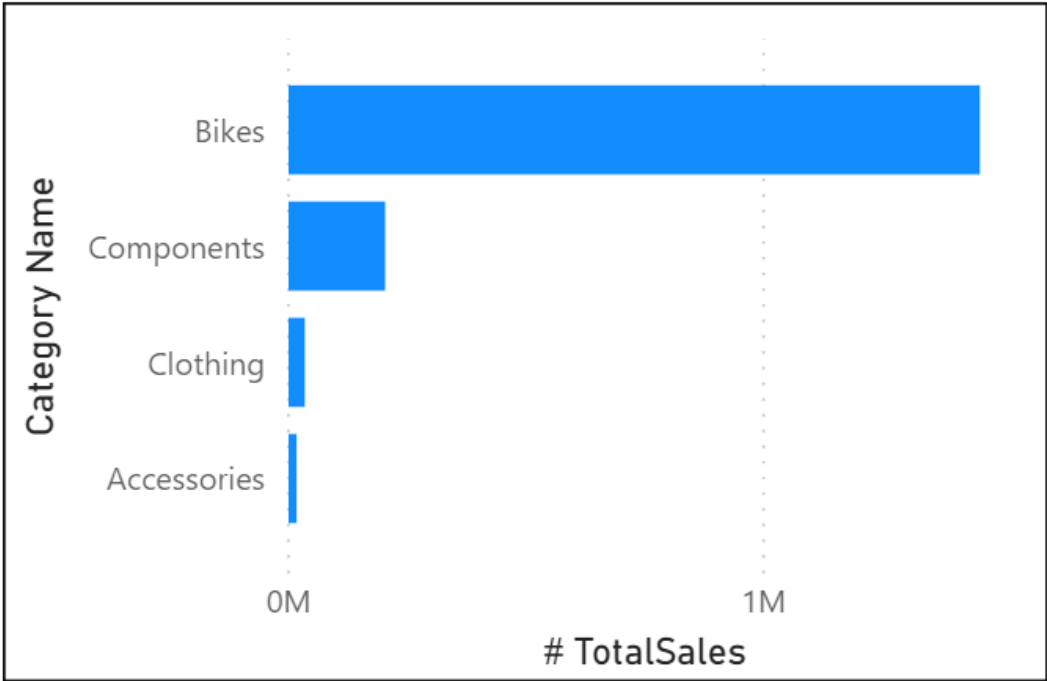
Role-playing Dimensions



A dimension that can filter related facts differently.

Creating new Hierarchies

Causes:



Review Questions

- **Q01 – A dimension that can filter related facts differently is called what?**
 - A01 – A role-playing dimension.
- **Q02 – What type of table stores details about business entities?**
 - A02 – Dimension table.

Lab: Model Data in Power BI Desktop

Lab: Model Data in Power BI
Desktop



Module Overview

We covered the following concepts:

- Data Modeling
- Working with Tables
- Dimensions and Hierarchies

References

PL-300 Design a data model in Power BI

<https://docs.microsoft.com/en-us/learn/modules/design-model-power-bi/>

