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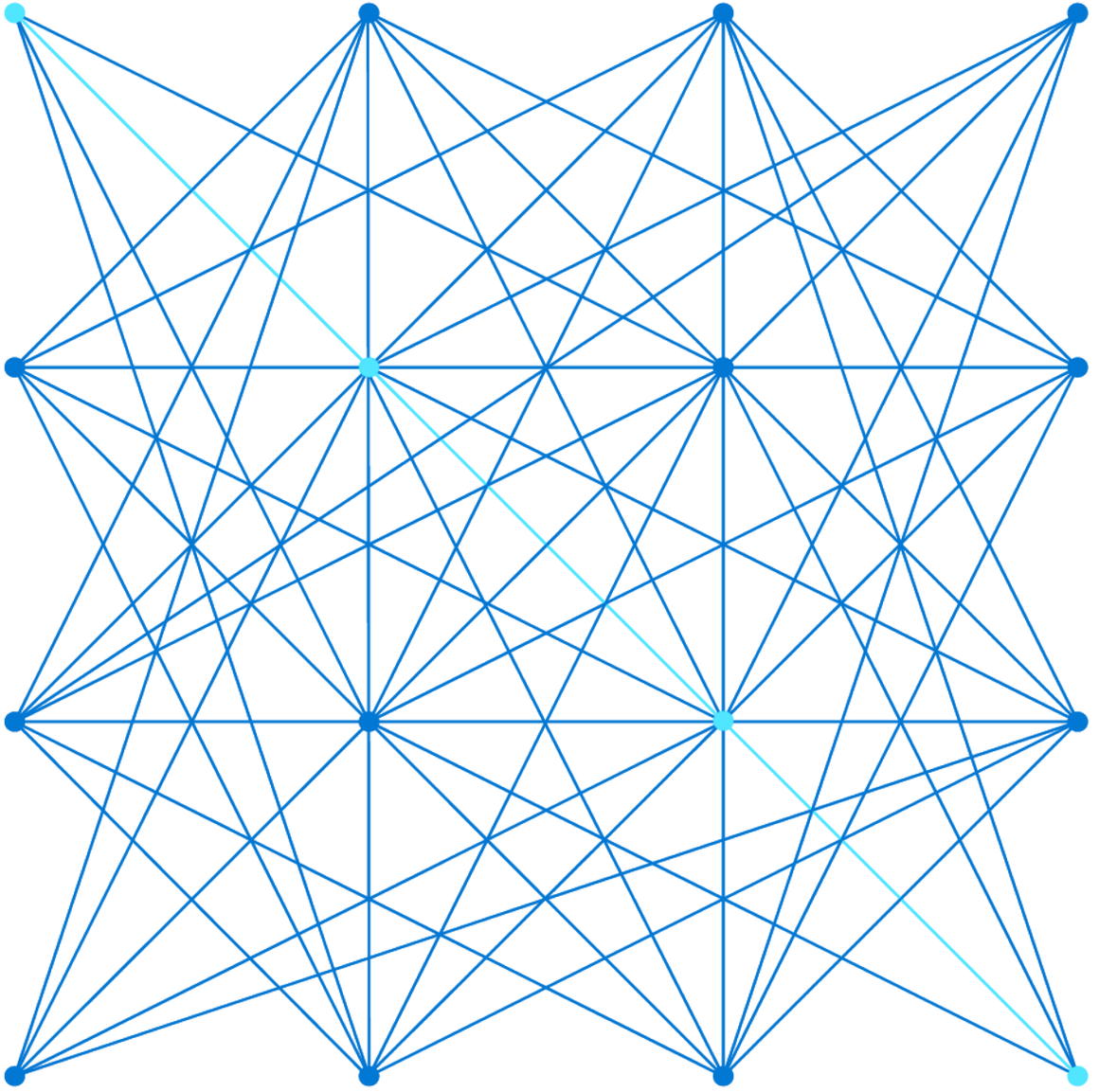
Online Role-based training resources:

Microsoft Learn

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

PL-300 Analyzing Data with Power BI



Module 4: Design a Data Model In Power BI

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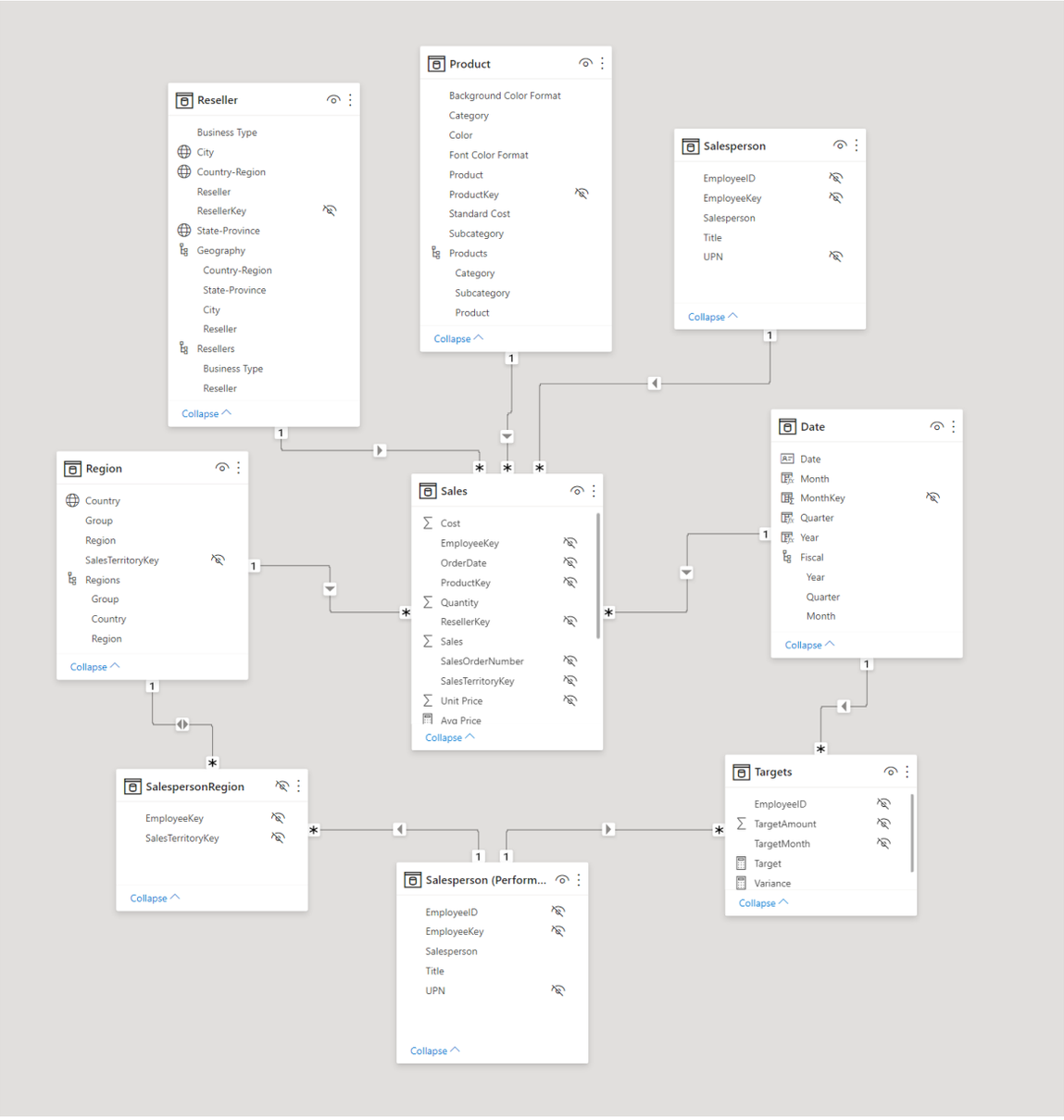
Learning Objectives

You will learn the following concepts:

- Data Modeling
- Working with Tables
- Dimensions and Hierarchies

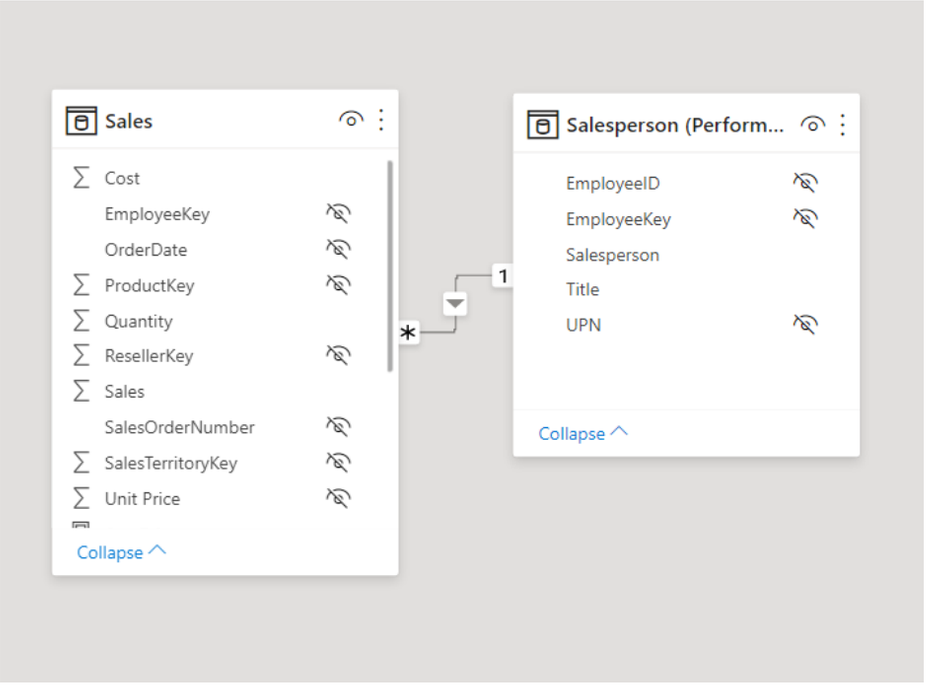
Lesson 1: Introduction to Data Modeling

Introduction to Data Modeling



- Benefits of a good data model:
  - Accurate reports.
  - Faster data exploration.
  - Simpler aggregations.
  - Easier to maintain.

Joins and Relationships



Manage relationships

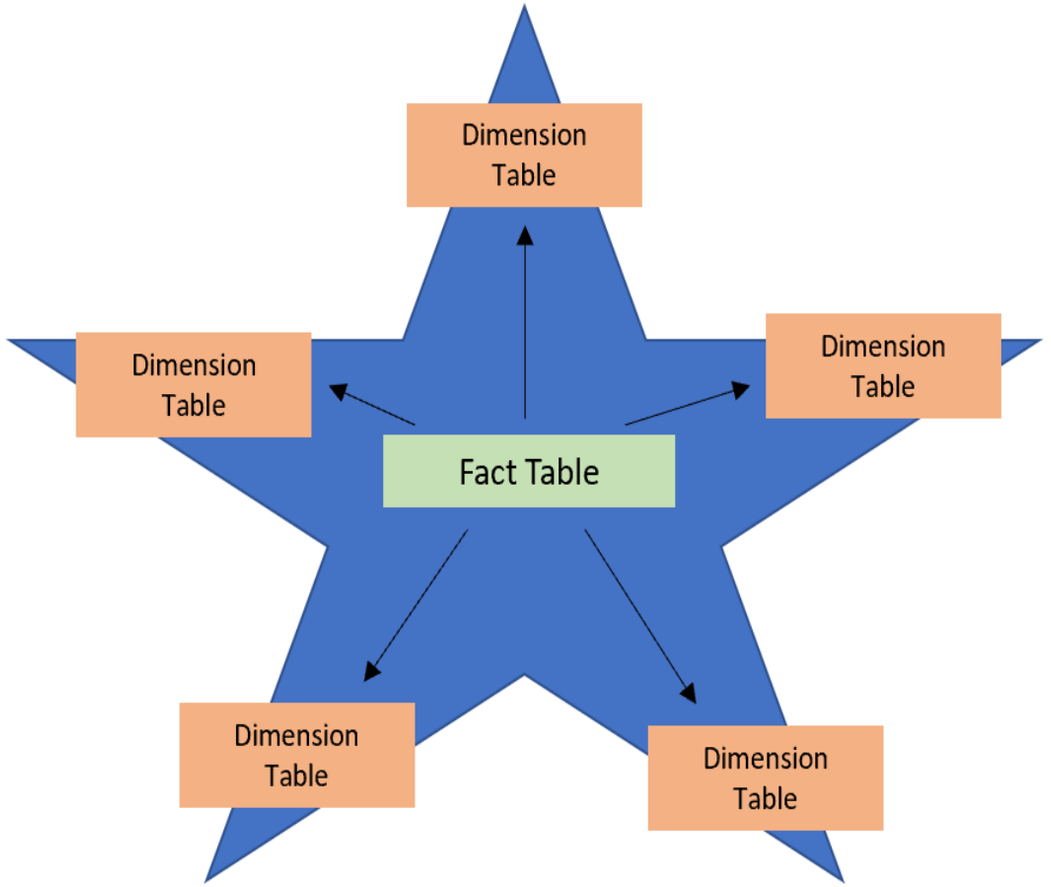
Active	From: Table (Column)	To: Table (Column)
☑	Sales (EmployeeKey)	Salesperson (EmployeeKey)
☑	Sales (OrderDate)	Date (Date)
☑	Sales (ProductKey)	Product (ProductKey)
☑	Sales (ResellerKey)	Reseller (ResellerKey)
☑	Sales (SalesTerritoryKey)	Region (SalesTerritoryKey)
☑	SalespersonRegion (EmployeeKey)	Salesperson (Performance) (EmployeeKey)
☑	SalespersonRegion (SalesTerritoryKey)	Region (SalesTerritoryKey)
☑	Targets (EmployeeID)	Salesperson (Performance) (EmployeeID)
☑	Targets (TargetMonth)	Date (Date)

New... Autodetect... Edit... Delete

Close

Star Schemas

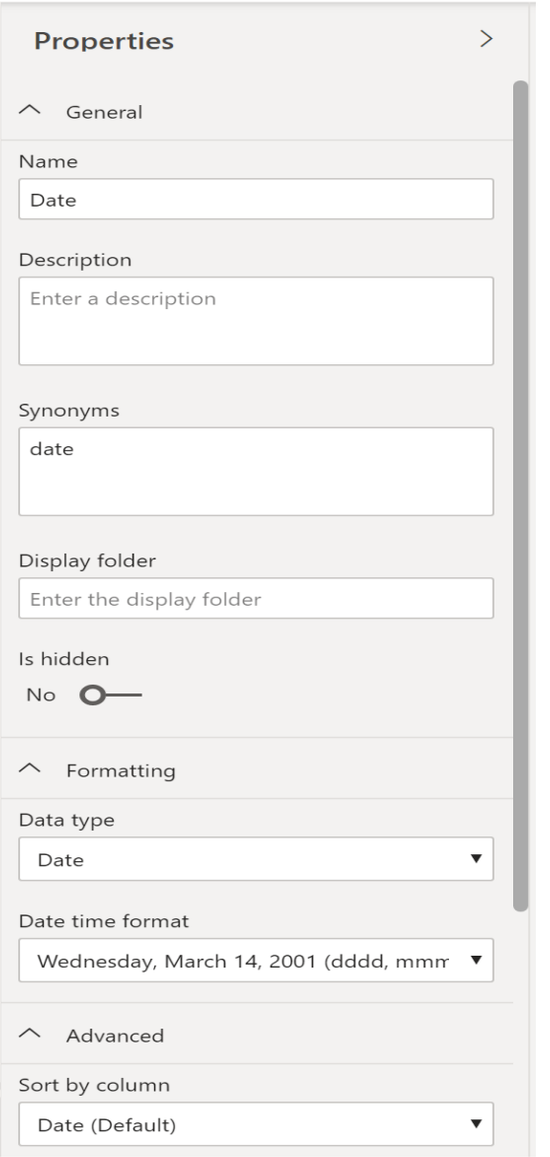
- Tables are classified as dimension or fact tables.
  - Dimension: Describes business entities.
  - Fact: Store observations or events.



Lesson 2: Working with Tables

Configure Table and Column Properties

- Before working on reports, ensure your model and table structure are simplified.
- A simple table structure will be easy to navigate.



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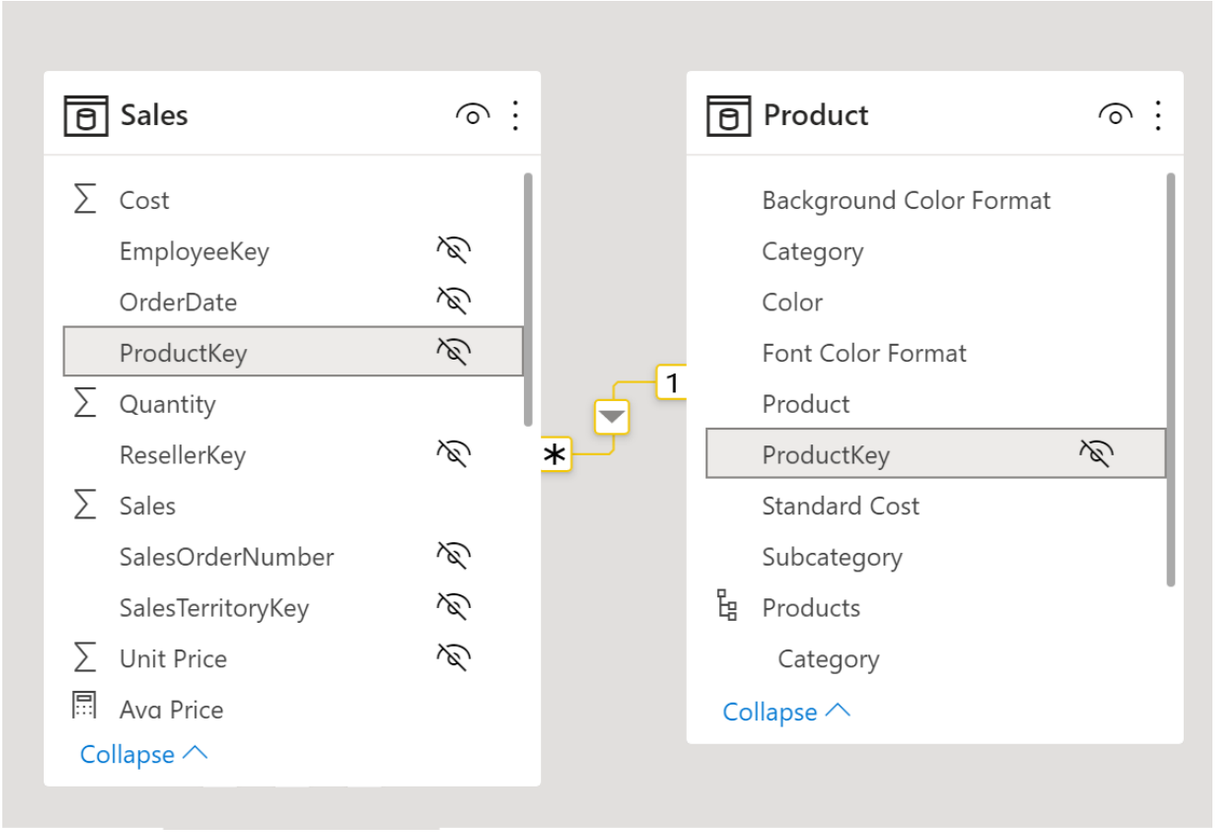
Create a Dates Table

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.



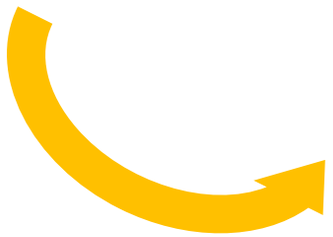
Create Many-to-many Relationships

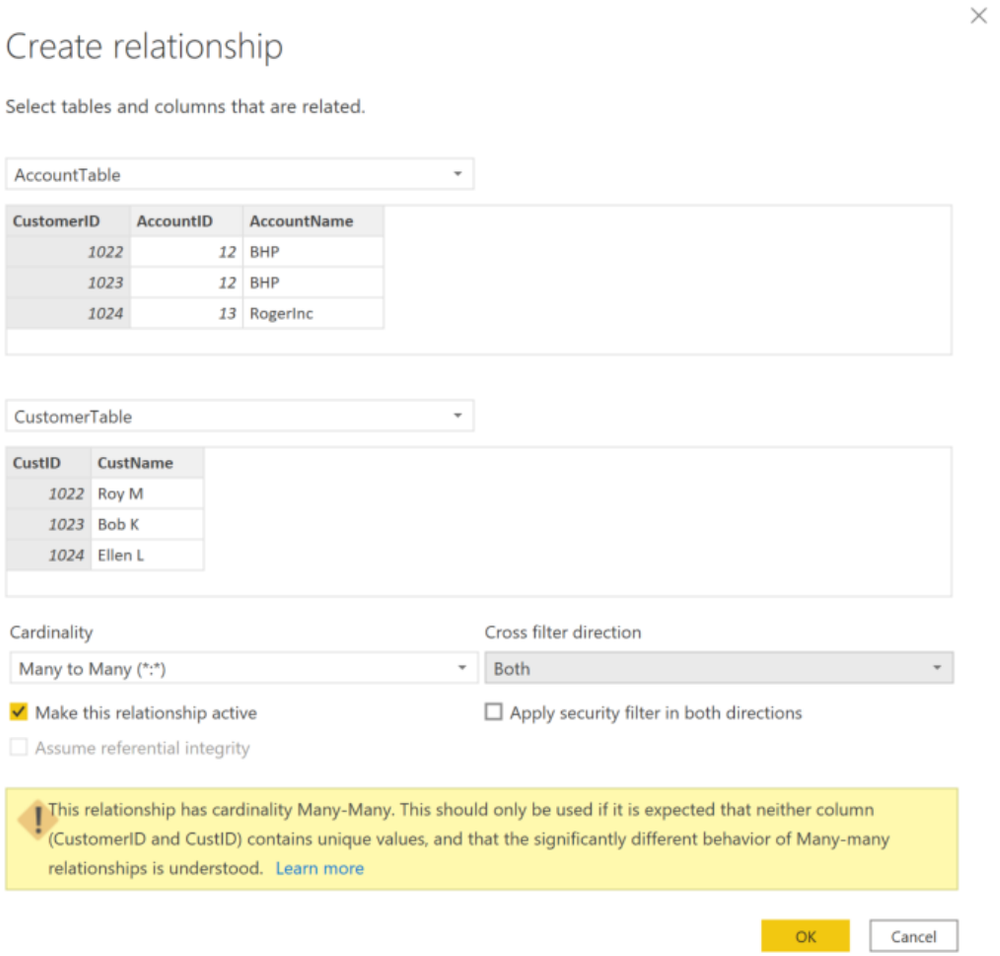
CustID	CustName
1022	Roy M
1023	Bob K
1024	Ellen L
1025	Mitch W
1026	Regan Q
1027	Lulu S
1028	Aliya R

CustomerTable

CustomerID	AccountID	AccountName
1022	12	BHP
1023	12	BHP
1024	13	RogerInc
1024	14	MyShip
1026	15	Holdings Unl.
1025	16	Key Biz Insiders
1028	17	Ty Inc
1022	17	Ty Inc

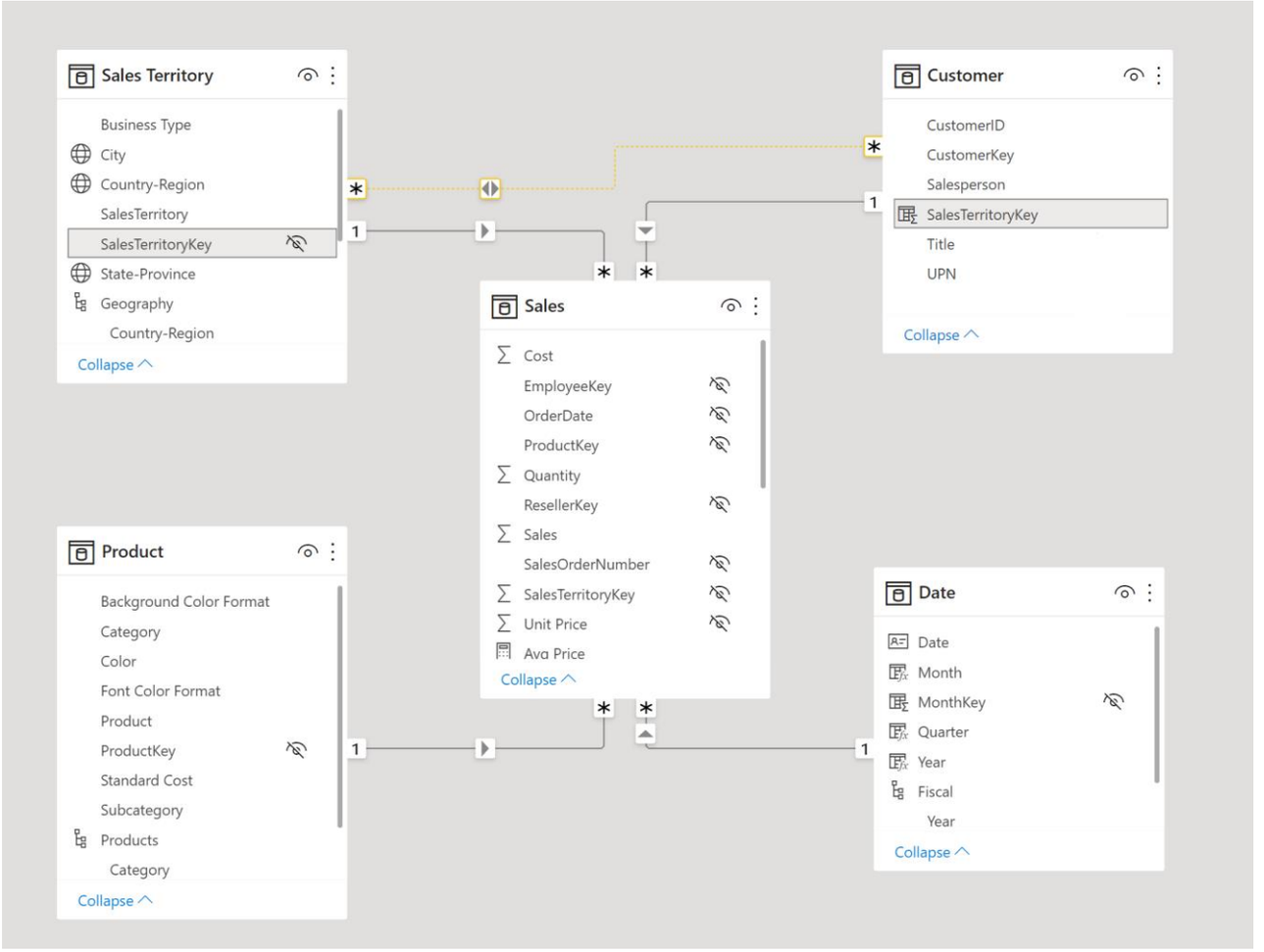
AccountTable





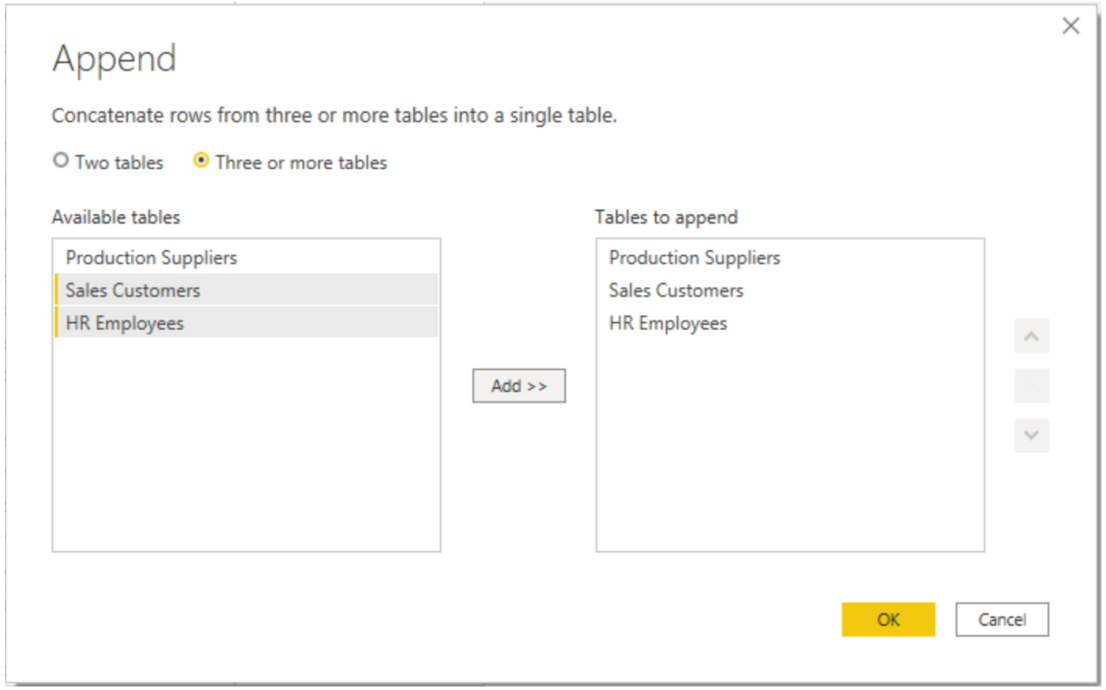
Modeling Challenges

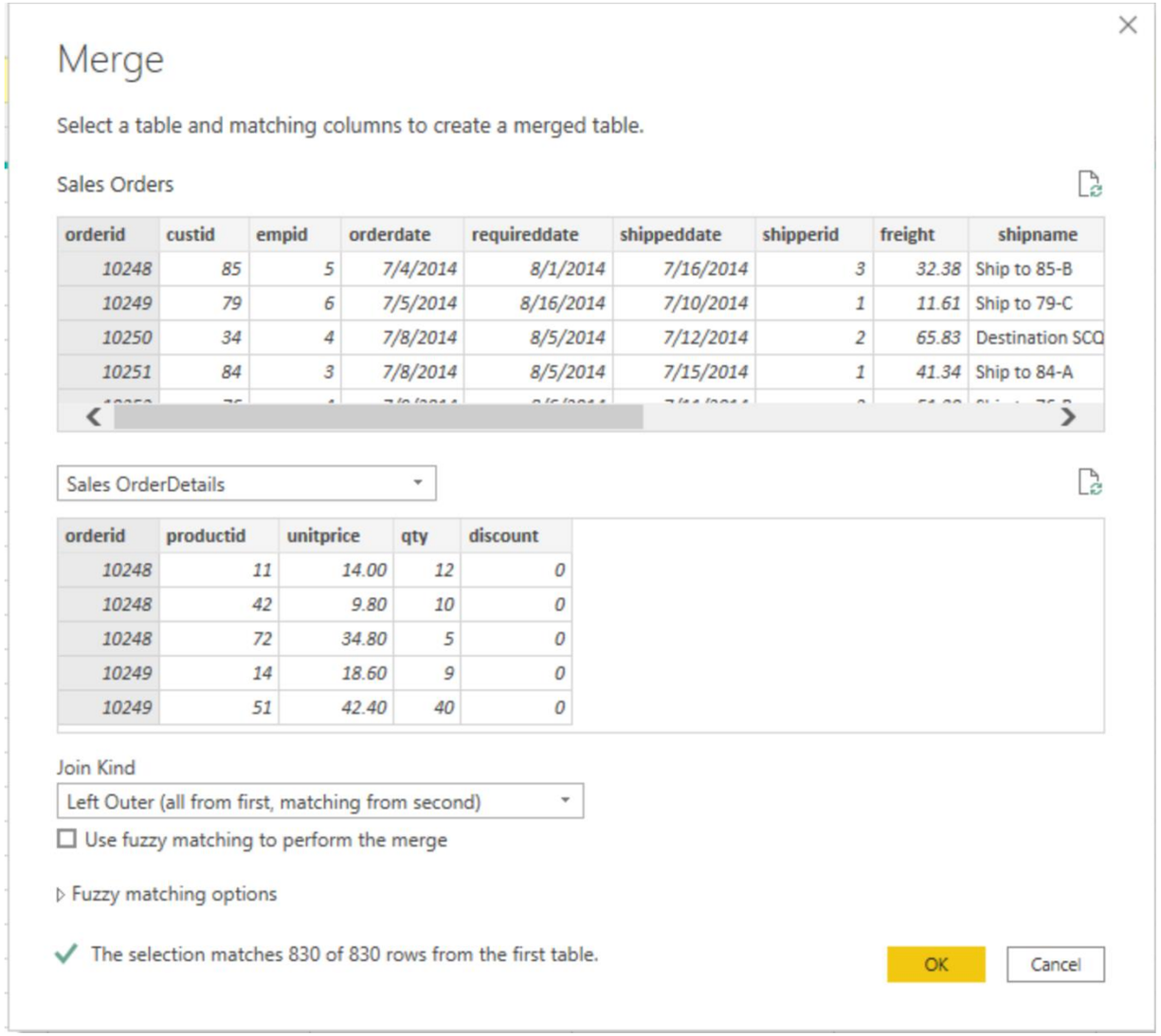
Circular relationships and relational dependencies.



Combine Queries

- Two methods for combining queries:
  - Append
  - Merge





Lesson 3: Dimensions and Hierarchies

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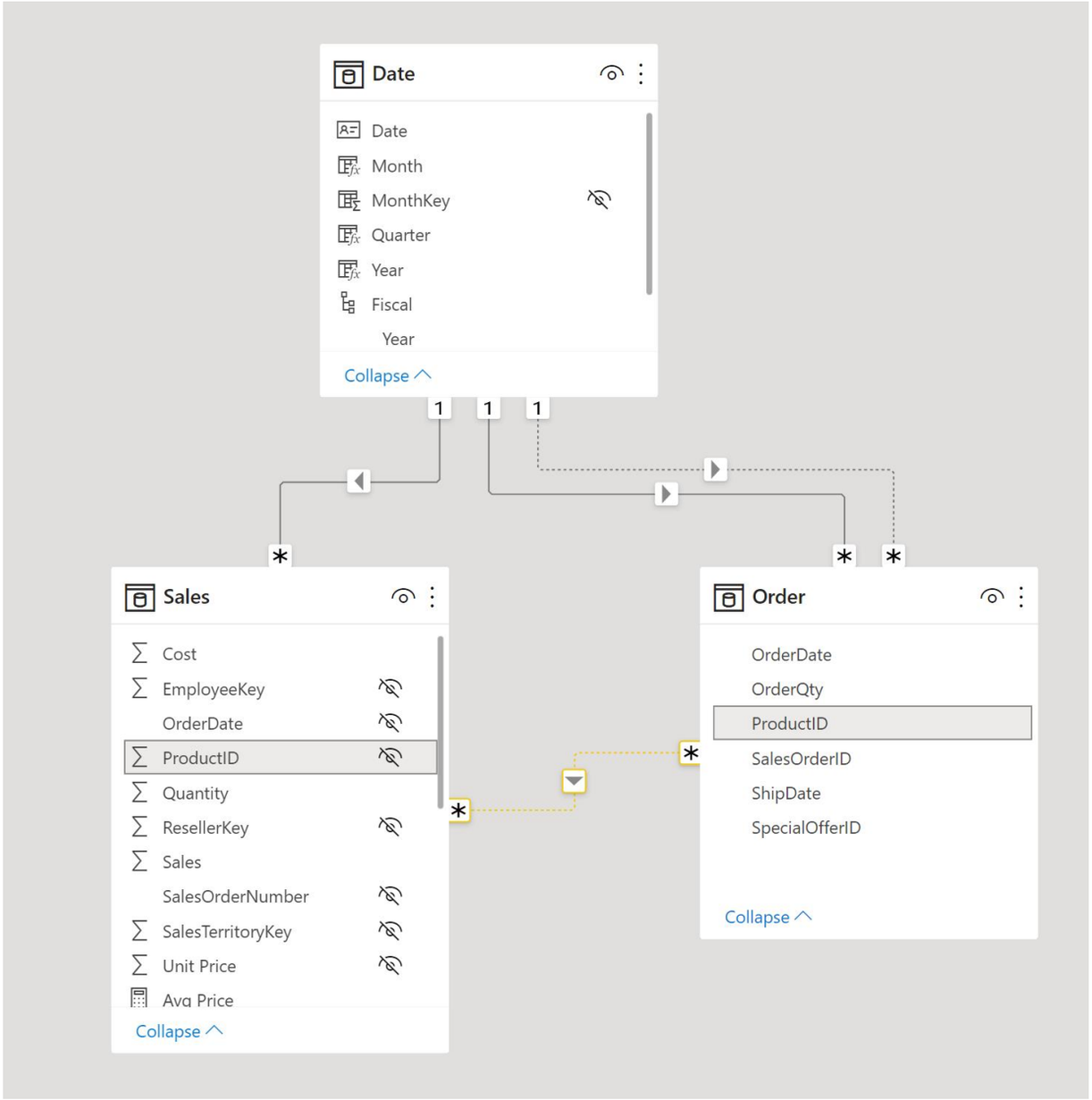
Introduction to Dimensions and Hierarchies

- Dimension: Store details about business entities.
- Hierarchy: Organize data such that one element is ranged over other data.

	Employee ID	Employee	Manager ID	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

Role-playing Dimensions

A dimension that can filter related facts differently.



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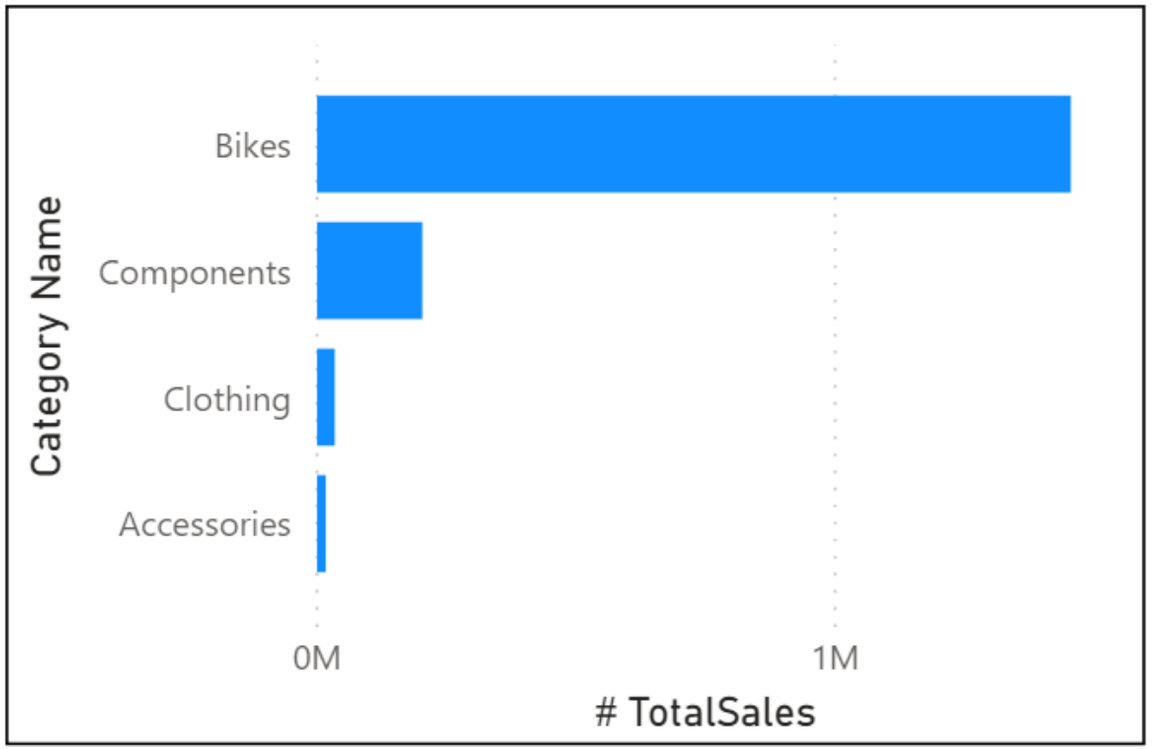
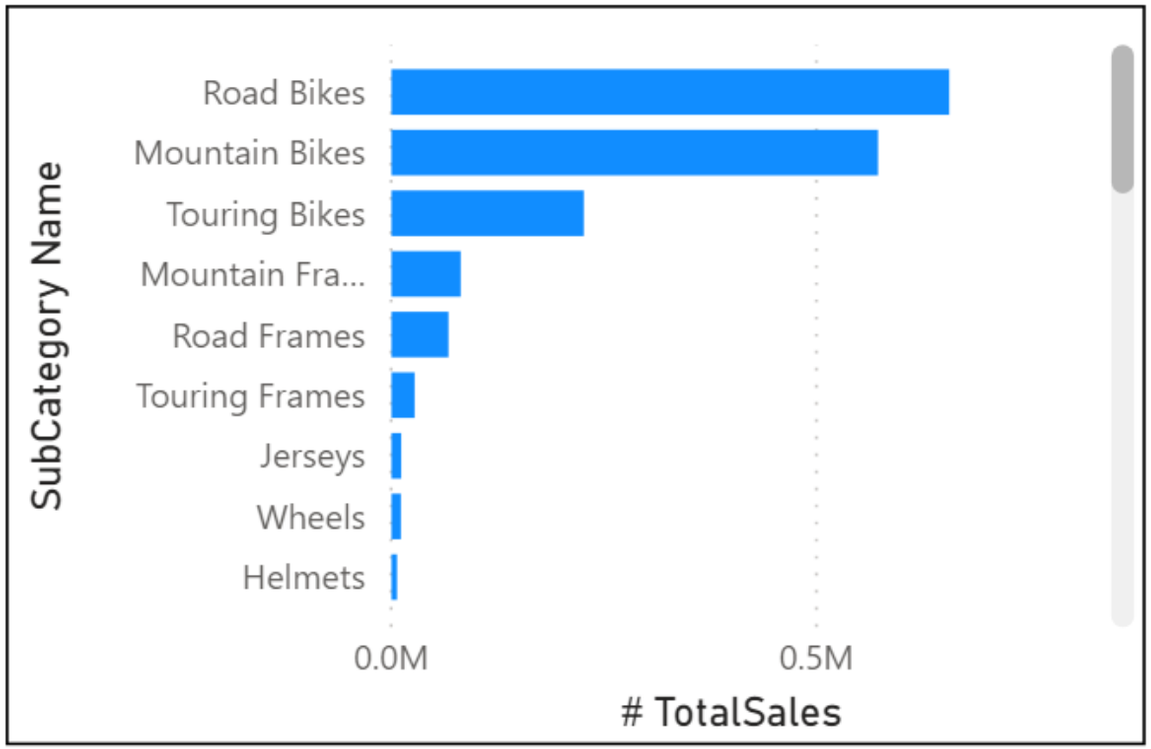
Creating new Hierarchies





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Flatten out a Parent-child Hierarchy

Employee ID	Manager ID	Employee	Manager	Path
1010		Roy F		1010
1011	*1010*	Pam H	Roy F	1010|1011
1012	*1010*	Guy L	Roy F	1010|1012
1013	*1011*	Roger M	Pam H	1010|1011|1013
1014	*1011*	Kaylie S	Pam H	1010|1011|1014
1015	*1012*	Mike O	Guy L	1010|1012|1015

Employee ID	Name	Manager	Manager ID	Path	Level 1	Level 2	Level 3	Level 4
1000	Quincy Howard			1000	1000			
1001	Mallory Yang	Quincy Howard	*1000*	1000|1001	1000	1001		
1002	Donovan Maynard	Quincy Howard	*1000*	1000|1002	1000	1002		
1003	Giselle Mcclain	Mallory Yang	*1001*	1000|1001|1003	1000	1001	1003	
1004	Melvin Marsh	Mallory Yang	*1001*	1000|1001|1004	1000	1001	1004	
1005	Ria Snow	Giselle Mcclain	*1003*	1000|1001|1003|1005	1000	1001	1003	1005
1006	Callie Savage	Giselle Mcclain	*1003*	1000|1001|1003|1006	1000	1001	1003	1006

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Module Overview

We covered the following concepts:

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- Working with Tables
- Dimensions and Hierarchies

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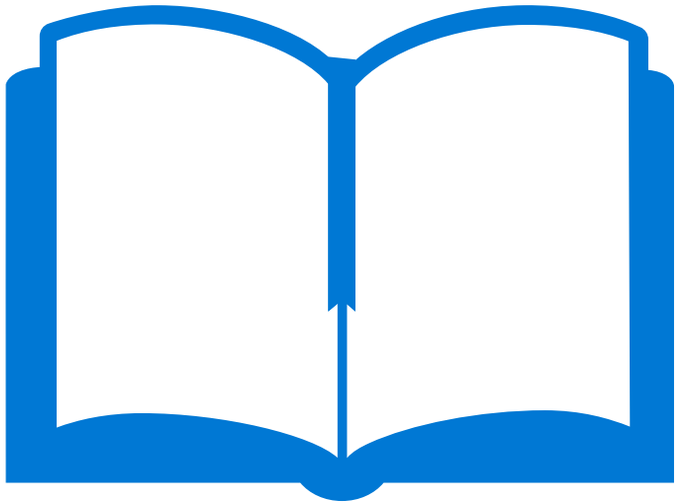
References

- PL-300 Design a data model in Power BI

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



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