Data modeling and table properties

DATA MODELING IN POWER BI

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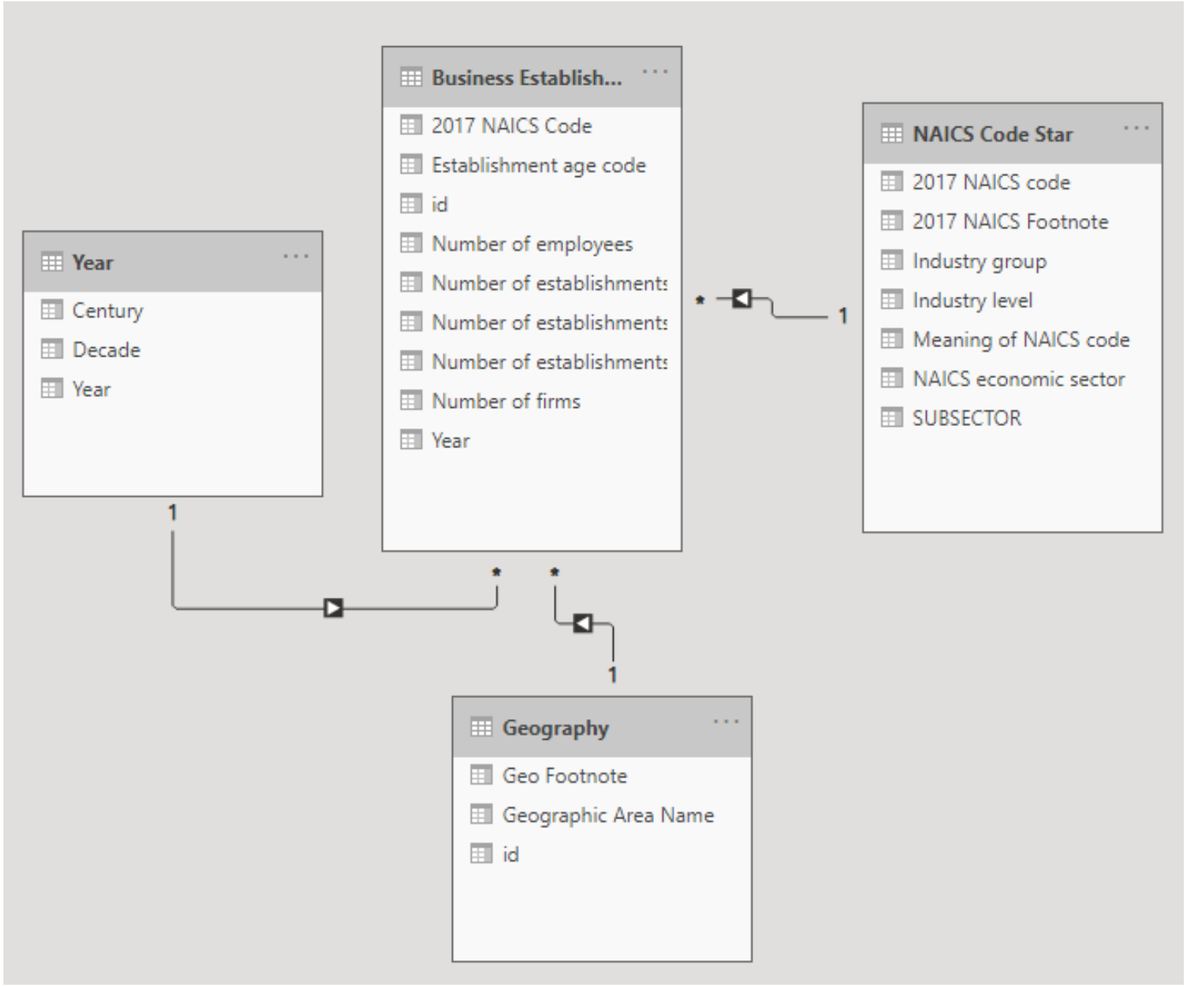
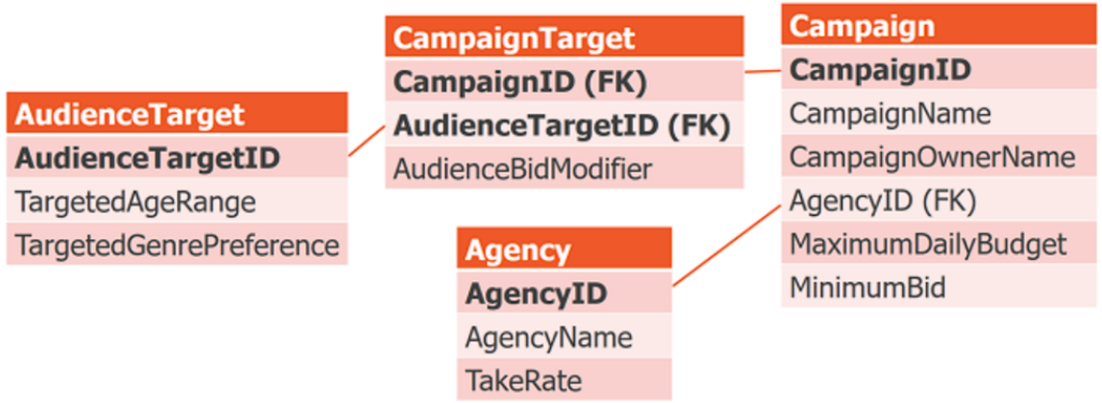
What is a data model?

- Conceptual view of data elements
- Typically a visual representation
- Data models include:
  - Tables
  - Columns
  - Relationships between tables
  - Data types
  - Keys



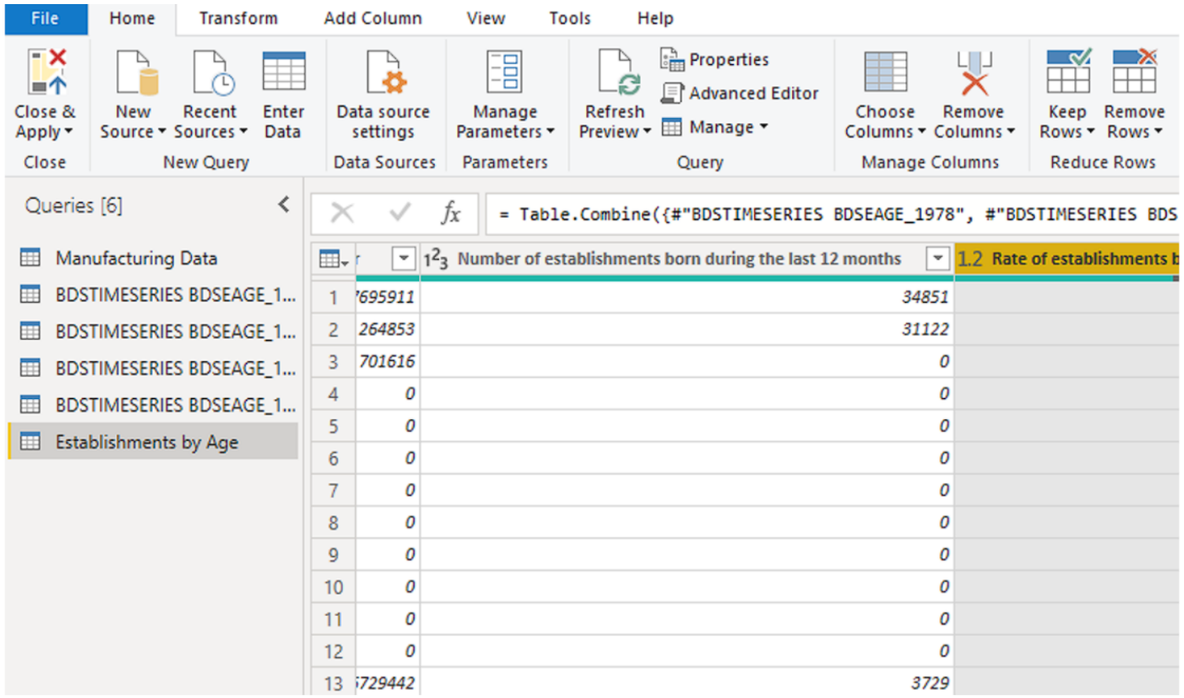
Data modeling

- The process of creating a data model
- Why model data?
  - Data $\neq$ perfect
  - Reshape data for analysis
  - Compress data usage
  - Easier to understand model



Data modeling in Power BI & Power Query

- Power Query is the data preparation tool of different Microsoft products, including Power BI
- Main goals:
  - Manage queries
  - Data modeling
- Data modeling: 80% in Power Query, 20% in Power BI



Columns and row management

Operation

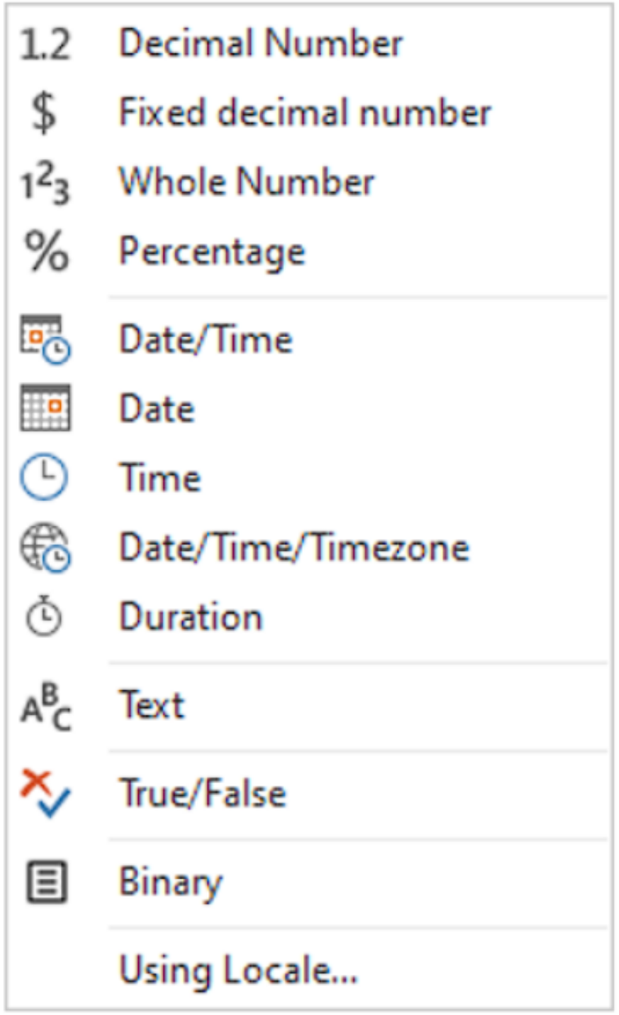
- Keep or remove specific columns
- Keep or remove specific rows
- Split a single column in multiple columns
- Summarize/group rows in a table by the contents of a column

Example

- Remove empty column
- Keep top row as header
- DD/MM/YYYY column split in DD, MM, YYYY columns
- Sum or median of all rows

Data types

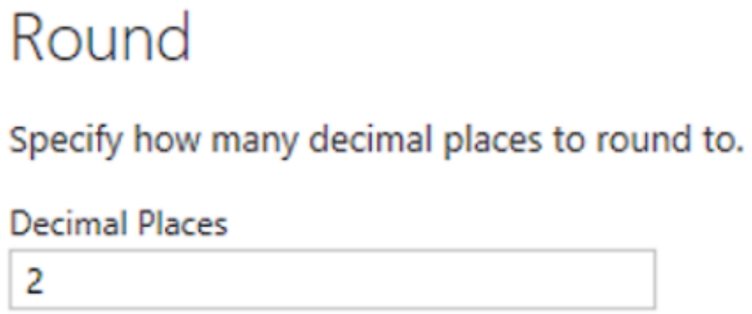
- Choosing the right data type is essential:
  - Constrain data to a specific shape
  - Optimize storage
  - Enable specific functionality
- Power Query infers data type on first few hundred rows



Rounding

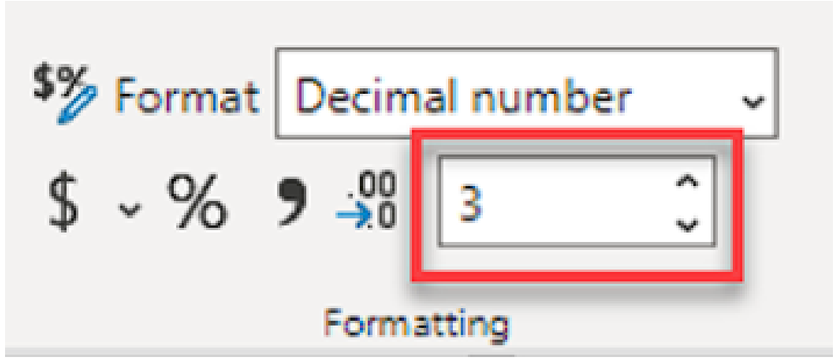
Power Query

- Actually *changes* the data, not just formatting
- Typically not the right answer



Power BI

- Changes how the data *appears*, not how it's stored
- Generally a better answer than rounding in Power Query



The dataset

- United States Census Bureau survey data of manufacturers
- Summary statistics for manufacturing firms
- North American Industry Classification System (NAICS)

United States Census Bureau

ASMAREA2017.AM1831BASIC01

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Annual Survey of Manufactures: Summary Statistics for Industry Groups and Industries in the U.S.: 2019 and 2018

Survey/Program: Annual Economic Surveys

Table: AM1831BASIC01

Annual Survey of Manufactures: Summary Statistics for Industry Groups and Industries in the U.S.: 2019 and 2018

Survey/Program: Annual Economic Surveys **TableID:** AM1831BASIC01

Dataset: ASMAREA2017

Geographic Area Name	2017 NAICS code	Meaning of NAICS code	Year	Sales, value of shipments, ...	Relative sta
United States	31-33	Manufacturing	2018	5,890,662,939	
United States	31-33	Manufacturing	2019	5,731,187,355	
United States	311	Food manufacturing	2018	784,628,928	
United States	311	Food manufacturing	2019	794,130,354	
United States	3111	Animal food manufacturing	2018	57,501,604	

Let's practice!

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Load and transform data

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