Granularity, measures, and hierarchies

INTERMEDIATE DATA MODELING IN POWER BI

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Understanding granularity

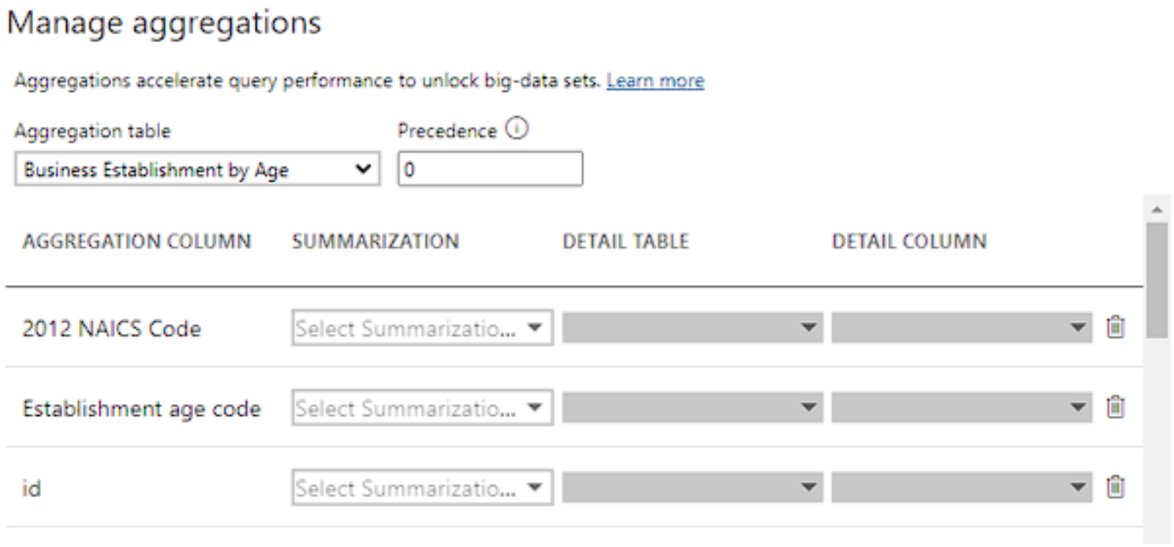
- **Granularity**: at what level is the data stored with respect to dimensions?
- The minimum level of detail to query on
- Define granularity with *"by"* statements:
  - E.g. by customer, by product, by day
  - E.g. by id, by NAICS[1] code, by establishment age, by year

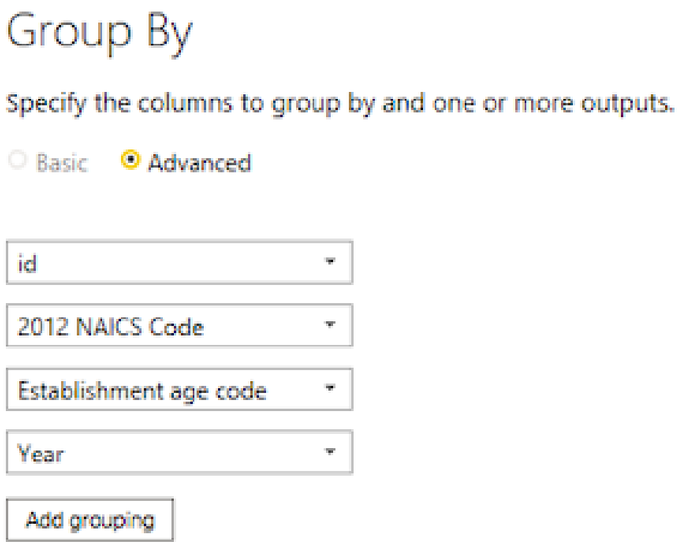
id	2012 NAICS Code	Establishment age code	Year	Number of firms	Number of establishments	Number of employees	N
0100000US	31-33	110	1978	0	0	0	
0100000US	31-33	110	1979	0	0	0	
0100000US	31-33	110	1980	0	0	0	
0100000US	31-33	110	1981	0	0	0	
0100000US	31-33	110	1982	0	0	0	
0100000US	31-33	110	1983	0	0	0	
0100000US	31-33	110	1984	0	0	0	
0100000US	31-33	110	1985	0	0	0	

[1] NAICS: North American Industry Classification System

Handling granularity in Power BI

- Getting to a **finer** grain: not advisable!
- Getting to a **coarser** grain: aggregations and grouping
  - **Better query performance** with fewer rows
  - Smaller cache sizes and **faster refresh time**





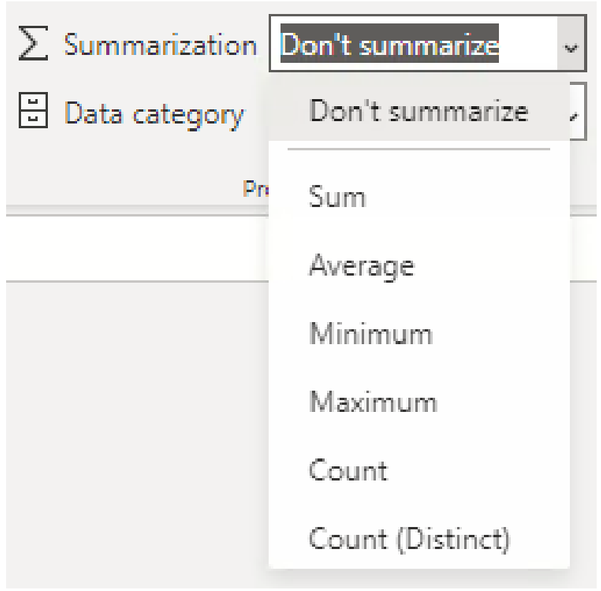
Measures

- Fields or combinations of fields which can be aggregated or calculated
  - Comes directly from fact data
  - New measures can be calculated as well

id	2012 NAICS Code	Establishment age code	Year	Number of firms	Number of establishments	Number of employees	N
0100000US	31-33	110	1978	0	0	0	
0100000US	31-33	110	1979	0	0	0	
0100000US	31-33	110	1980	0	0	0	
0100000US	31-33	110	1981	0	0	0	
0100000US	31-33	110	1982	0	0	0	
0100000US	31-33	110	1983	0	0	0	
0100000US	31-33	110	1984	0	0	0	
0100000US	31-33	110	1985	0	0	0	
0100000US	31-33	110	1986	0	0	0	

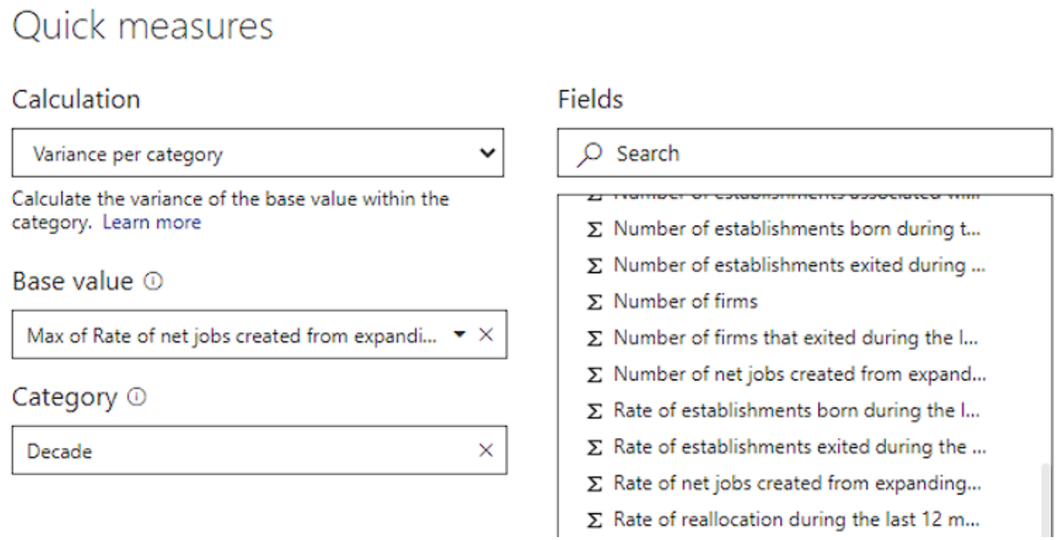
Creating measures

- Numeric values are automatically converted to measures and aggregated by the sum



- Create your own measures in Power BI using DAX

- Create specific types of calculations using a dialog: **Quick measures**



- Great for learning how to create moderately complex measures

Hierarchies

Allow users to drill down into data dimensions

Natural hierarchies

- **Levels** of the hierarchy **exist** "in the real world"
- Year -> Month -> Day

Artificial hierarchies

- **Levels** are **created** for querying purposes
- Intake year -> Favorite color -> Favorite sport

Let's practice!

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Hierarchies and measures in Power BI

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