Identifying performance problems

INTERMEDIATE DATA MODELING IN POWER BI

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Resolving performance problems

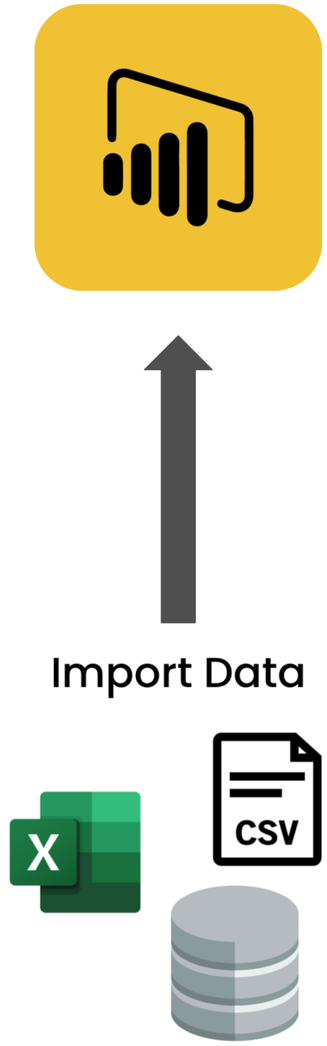
Performance problems

Where things can go wrong:

- Data import
- Querying the database with DirectQuery
- Displaying visuals
- Calculated versus computed columns
- Inefficient relationships
  - Many-to-many relationships
  - Bi-directional cross-filtering

Optimizing data import

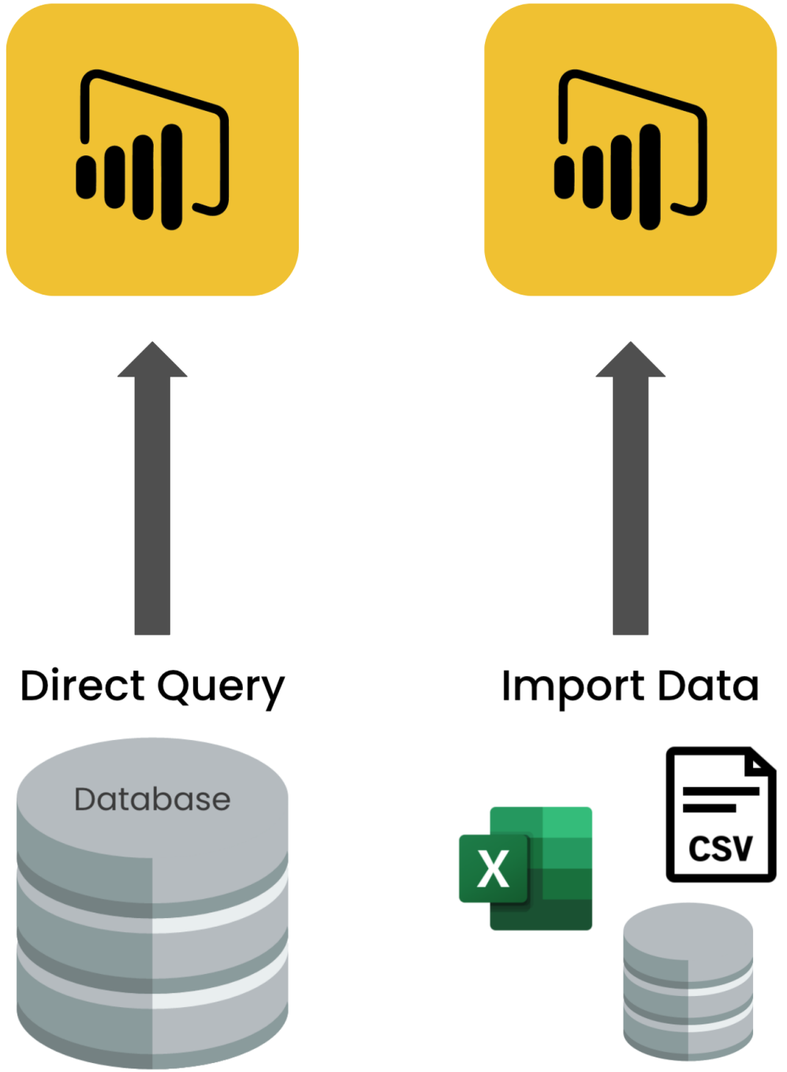
- Remove unnecessary rows and columns
- Choose correct data types
  - Numeric data takes less space
  - Casting and aggregating data is slower
- Group and summarize data
  - Store less data on disk
  - Get to aggregate results faster



Optimizing Direct Query

- Two ways to connect to data:
  - **Import model**: stores data in Power BI
  - **Direct Query**: directly queries the database

- Limit parallel queries
- Relational database advice
  - Write efficient SQL queries
  - Use appropriate indexes
  - Get the right columns and rows



Calculated versus computed columns

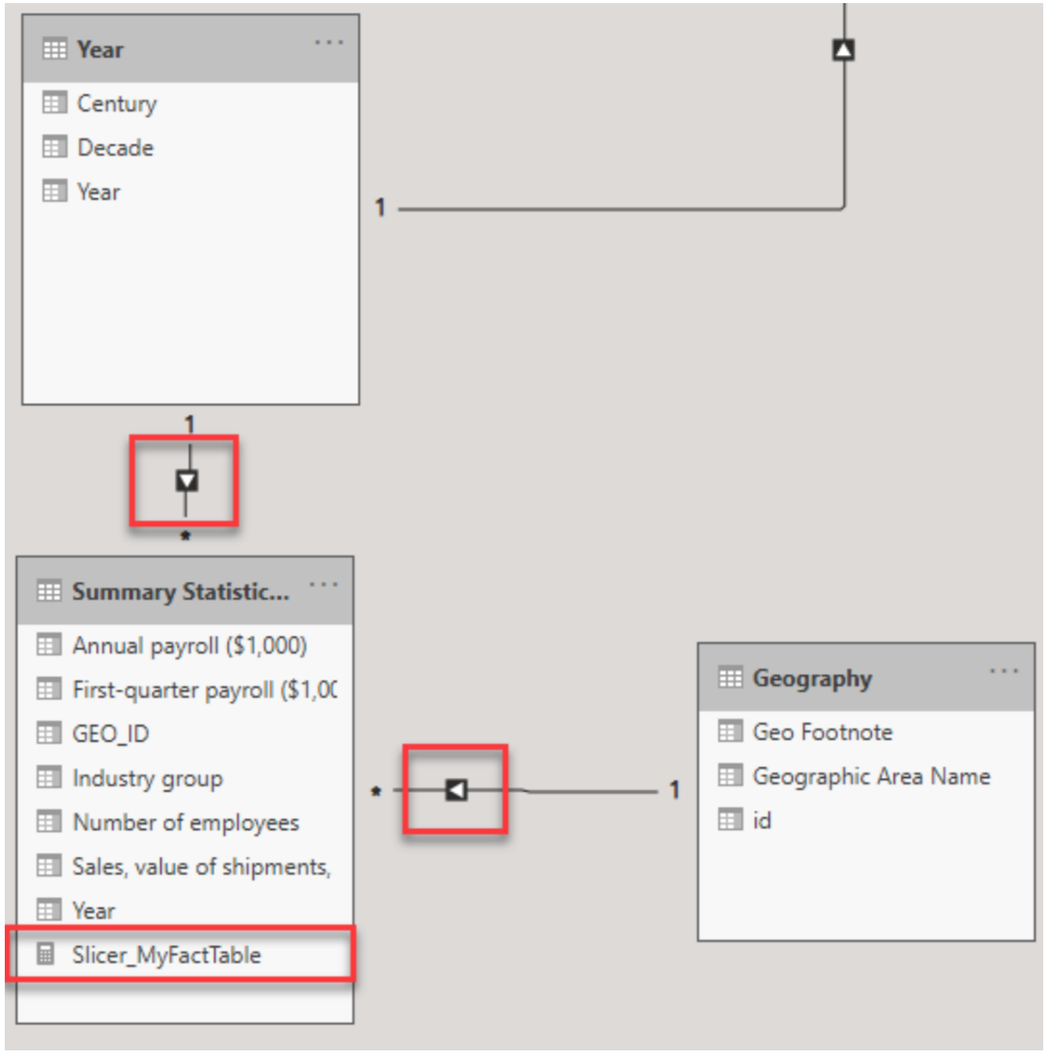
Build custom columns with:

Calculated columns	Computed columns
DAX	Power Query (M)
Fast for *simple* calculations	Fast for *simple* calculations
Slow for *complex* calculations	Fast for *complex* calculations
Generated per visual at runtime	Generated once at import time

Removing bi-directional filtering using filter measures

- Use case for bi-directional filtering
  - Find relevant slicer entries between dimensions
- We can create filter measures to avoid bi-directional relationships for the third use case!

Removing bi-directional filtering using filter measures



Removing bi-directional filtering using filter measures

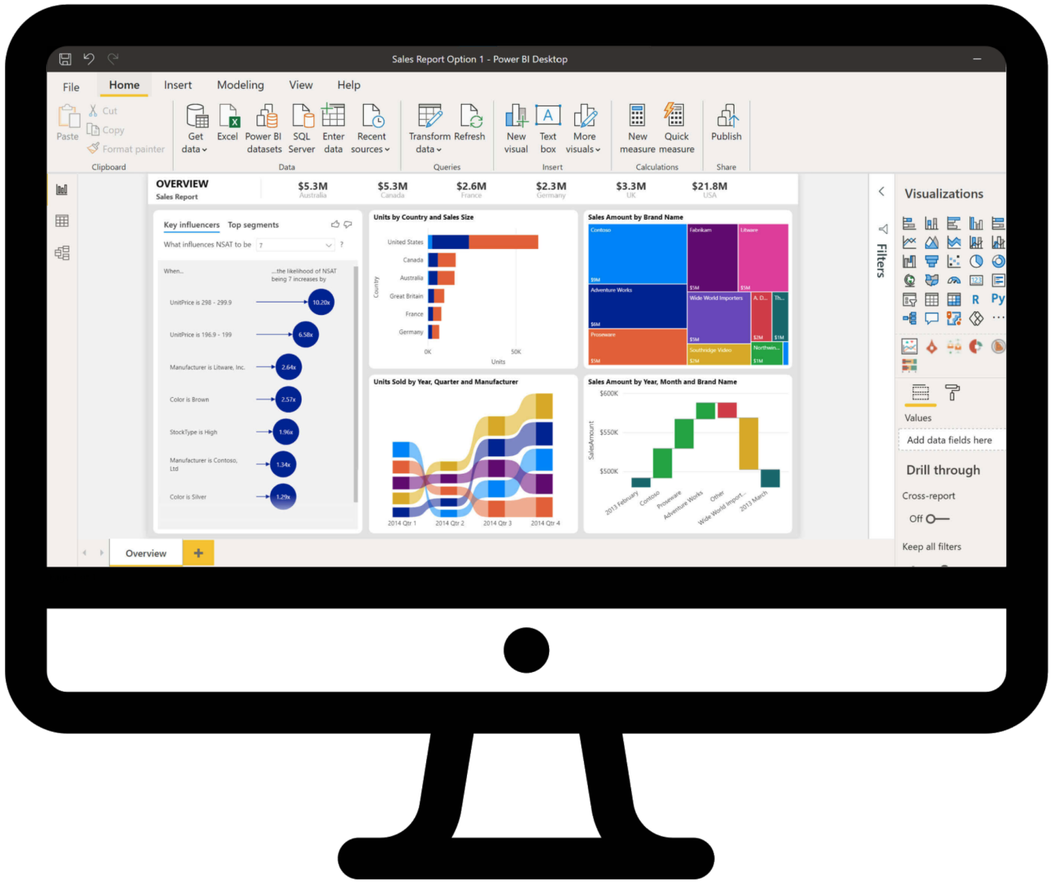
1) Create a filter measure in DAX:

```
Slicer_MyFactTable = INT(NOT ISEMPTY('My Fact Table'))
```

- Returns 1 if at least one value in the fact table
- Returns 0 if no values in the fact table

2) Add a visual filter to the slicer and set where `Slicer_MyFactTable = 1`

Displaying visuals



- Use restrictive filters to minimize data
- Show as little data as possible on visuals
- Limit the number of visuals on report pages
- Use only fast custom visuals

Let's practice!

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Performance tips in Power BI

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Congratulations!

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Intermediate Data Modeling

- Date dimensions and relationships
- Hierarchies and granularity
- Bi-directional cross filtering
- Role-playing dimensions
- Performance optimization

Thank you!

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