Microsoft Power Platform

Module 6: Optimize Model Performance

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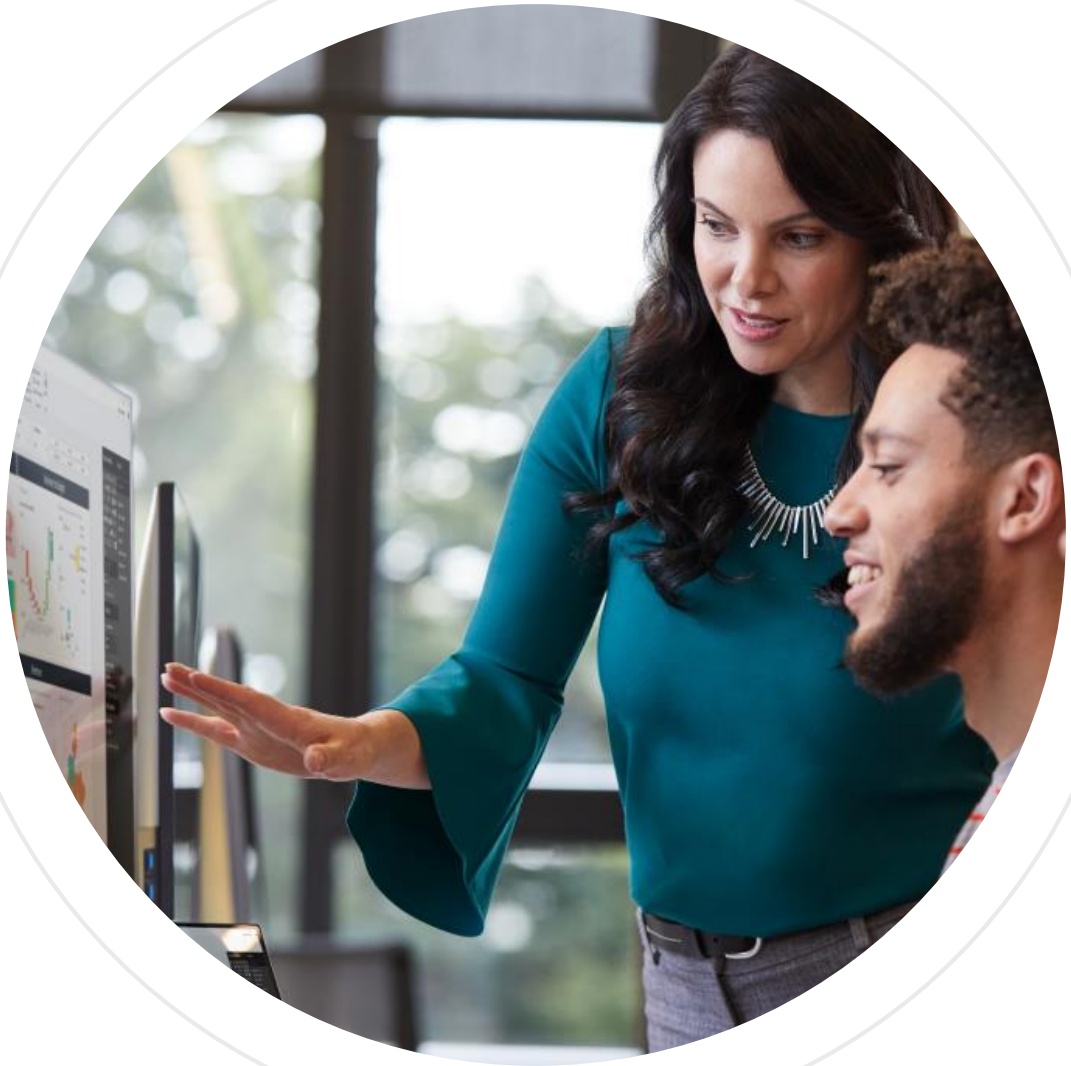


Learning Objectives

You will learn the following concepts:

- Data model performance optimization
- DirectQuery model optimization

Module Agenda

Optimize the Data Model for Performance

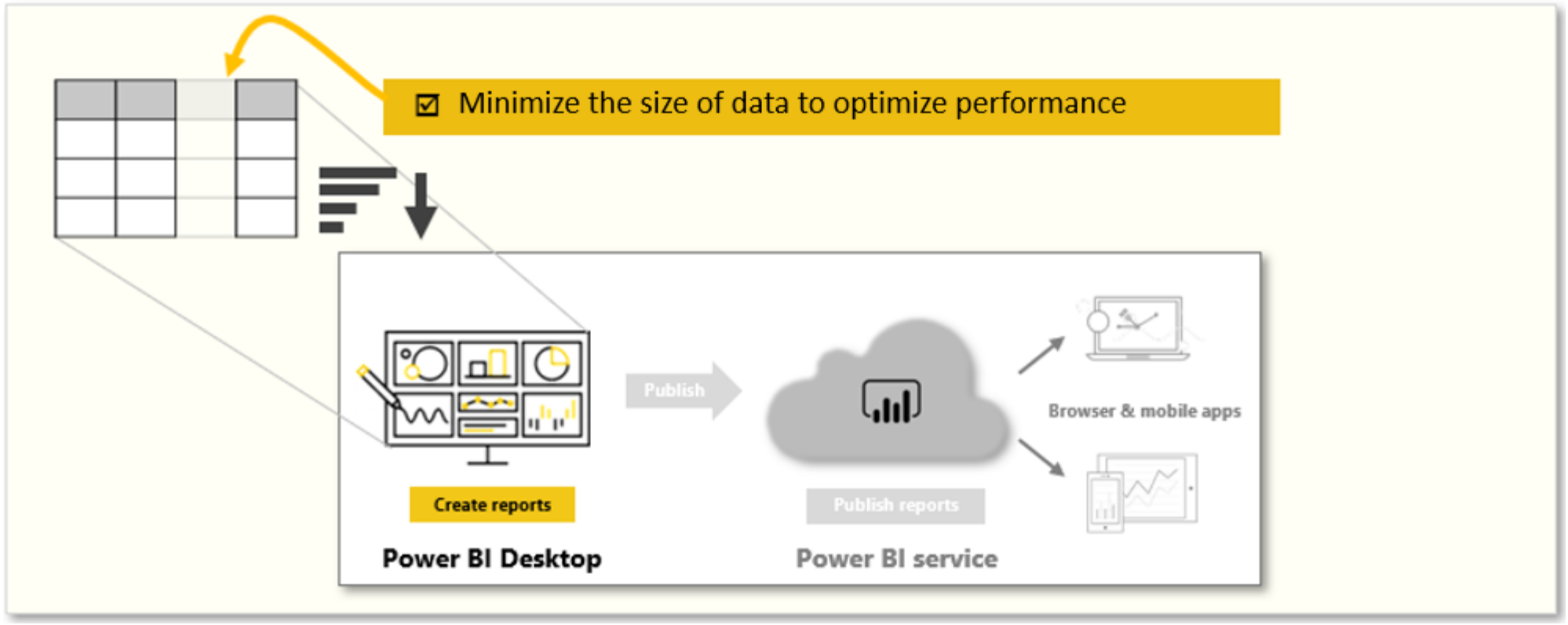
Identify poorly performing measures, relationships, and visuals

Reduce cardinality levels to improve performance

Lesson 1: Optimize the Data Model for Performance

Introduction to Performance Optimization

When your data model is optimized, it performs better.



Use Variables to Improve Performance and Troubleshooting

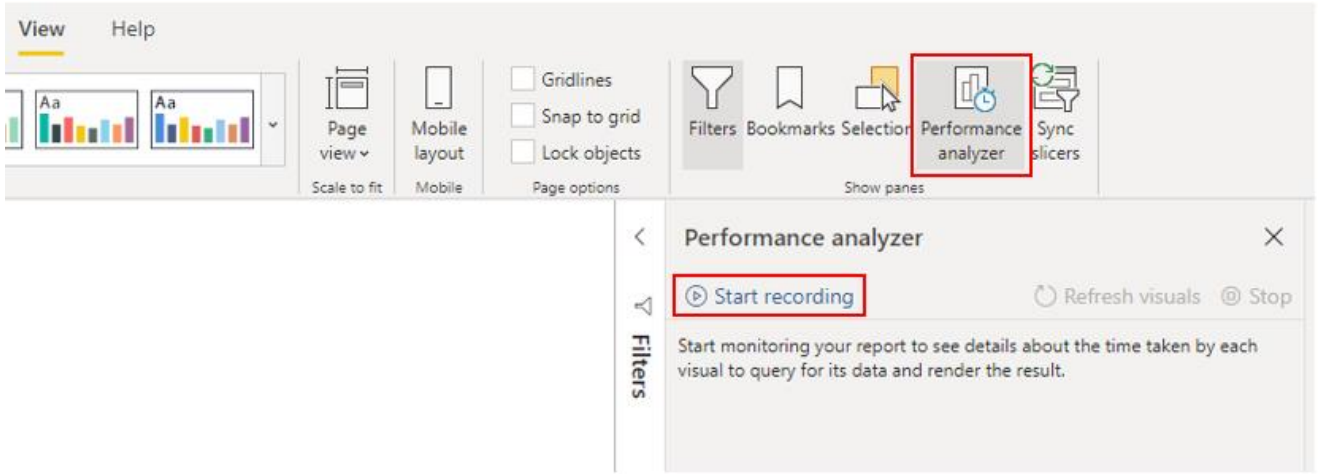
Without variable:

```
Sales YoY Growth =
DIVIDE (
    ( [Sales] - CALCULATE ( [Sales], PARALLELPERIOD ( 'Date'[Date], -12, MONTH ) ) ),
    CALCULATE ( [Sales], PARALLELPERIOD ( 'Date'[Date], -12, MONTH ) )
)
```

With variable:

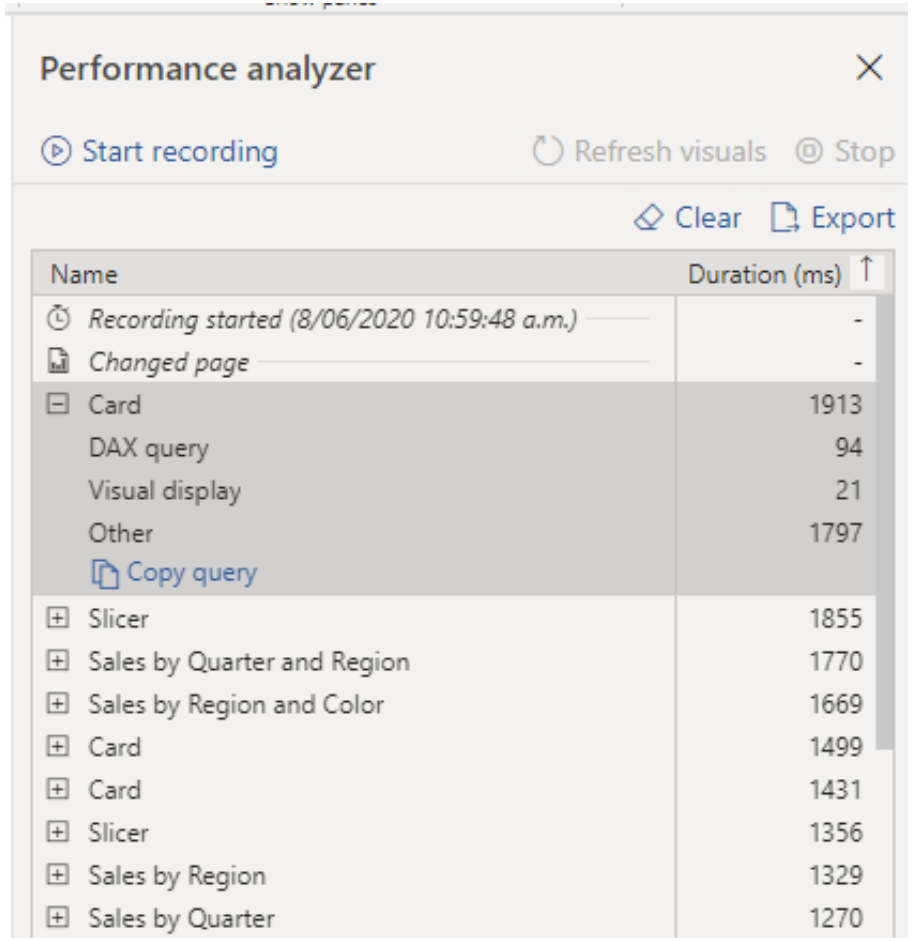
```
Sales YoY Growth =
VAR SalesPriorYear =
    CALCULATE ( [Sales], PARALLELPERIOD ( 'Date'[Date], -12, MONTH ) )
VAR SalesVariance =
    DIVIDE ( ( [Sales] - SalesPriorYear ), SalesPriorYear )
RETURN
    SalesVariance
```

Performance Analyzer



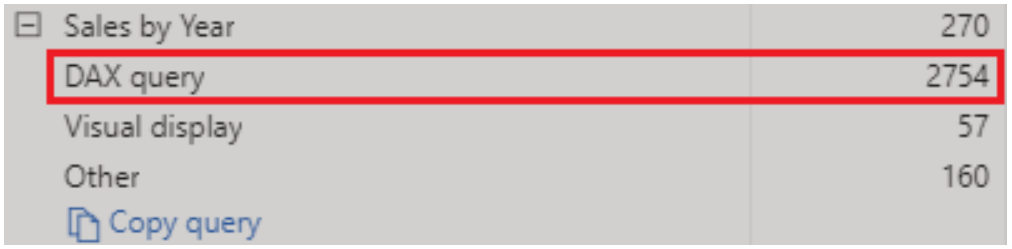
- Find out how each report element is performing.
- Measure report elements during user interaction.
- Detect which aspects are least or most resource intensive.

Review Performance Results



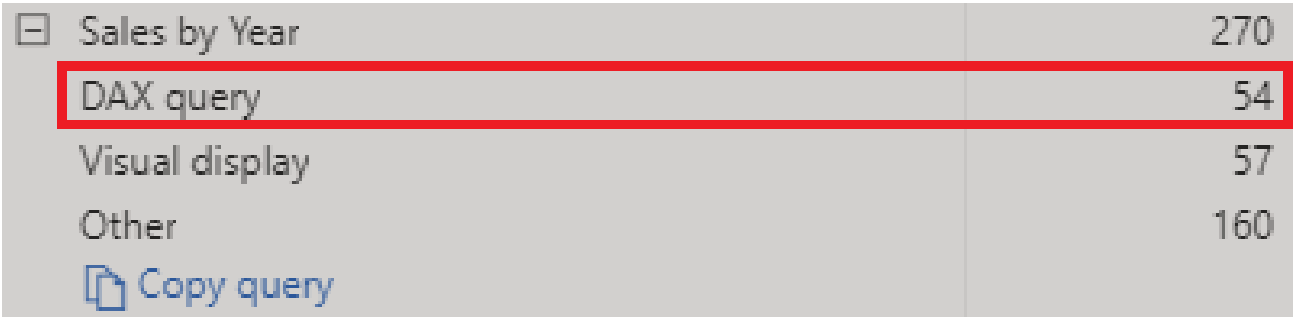
- Log information shows duration to complete each task.
- Duration value indicates the difference between the start and end timestamp for each operation.

Analyze Query Plans

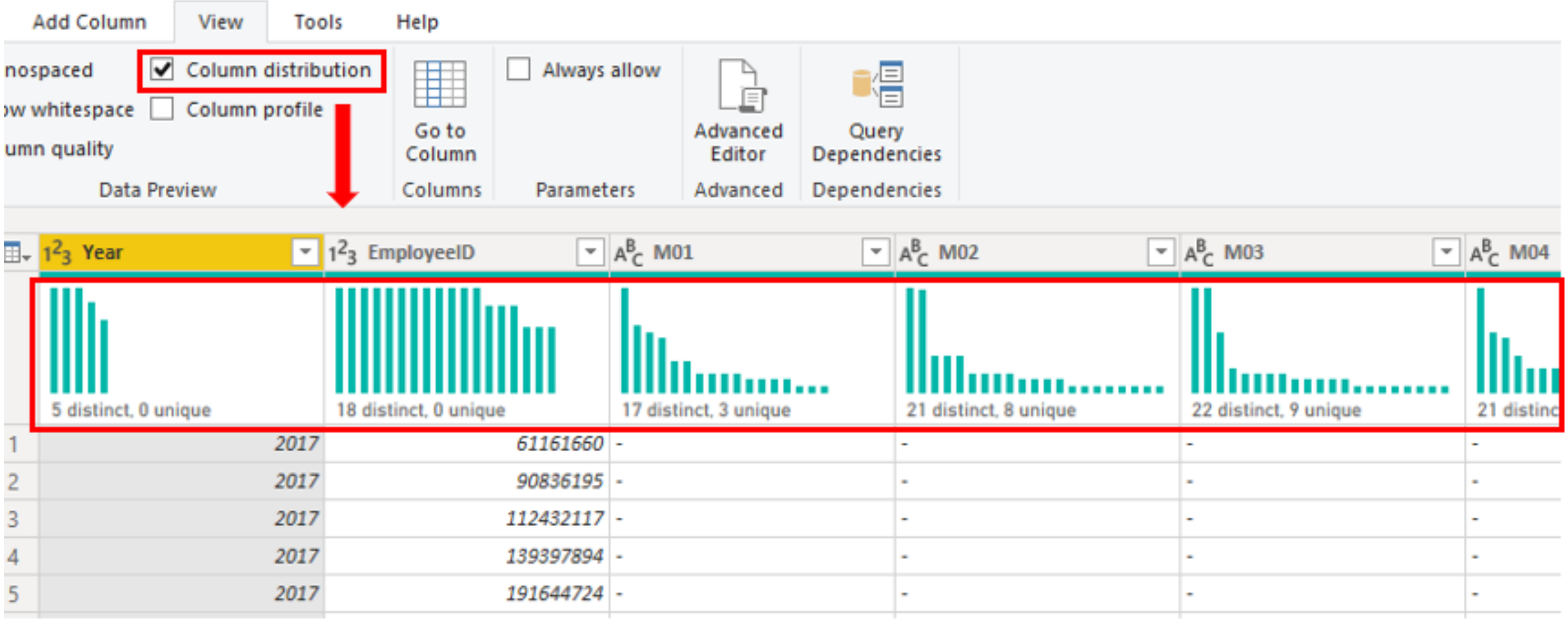



```
Count Customers =

CALCULATE ( DISTINCTCOUNT (
Order[ProductID] ), FILTER ( Order,
Order[OrderQty] >= 5 ) )
```

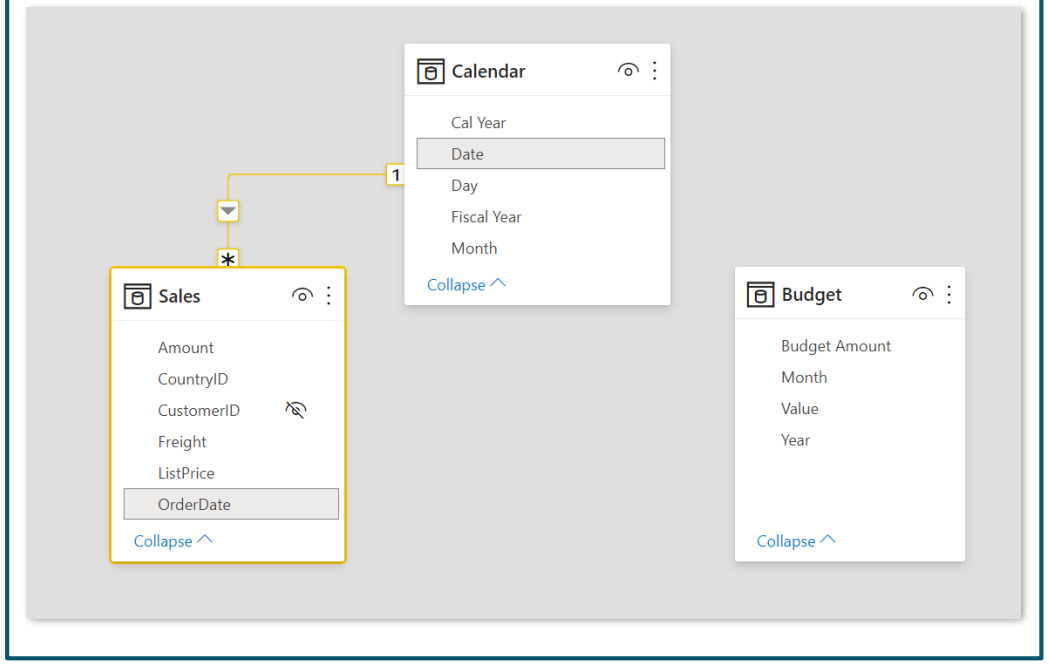
```
Count Customers =

CALCULATE ( DISTINCTCOUNT (
Order[ProductID] ), KEEPFILTERS
(Order[OrderQty] >= 5 ) )
```



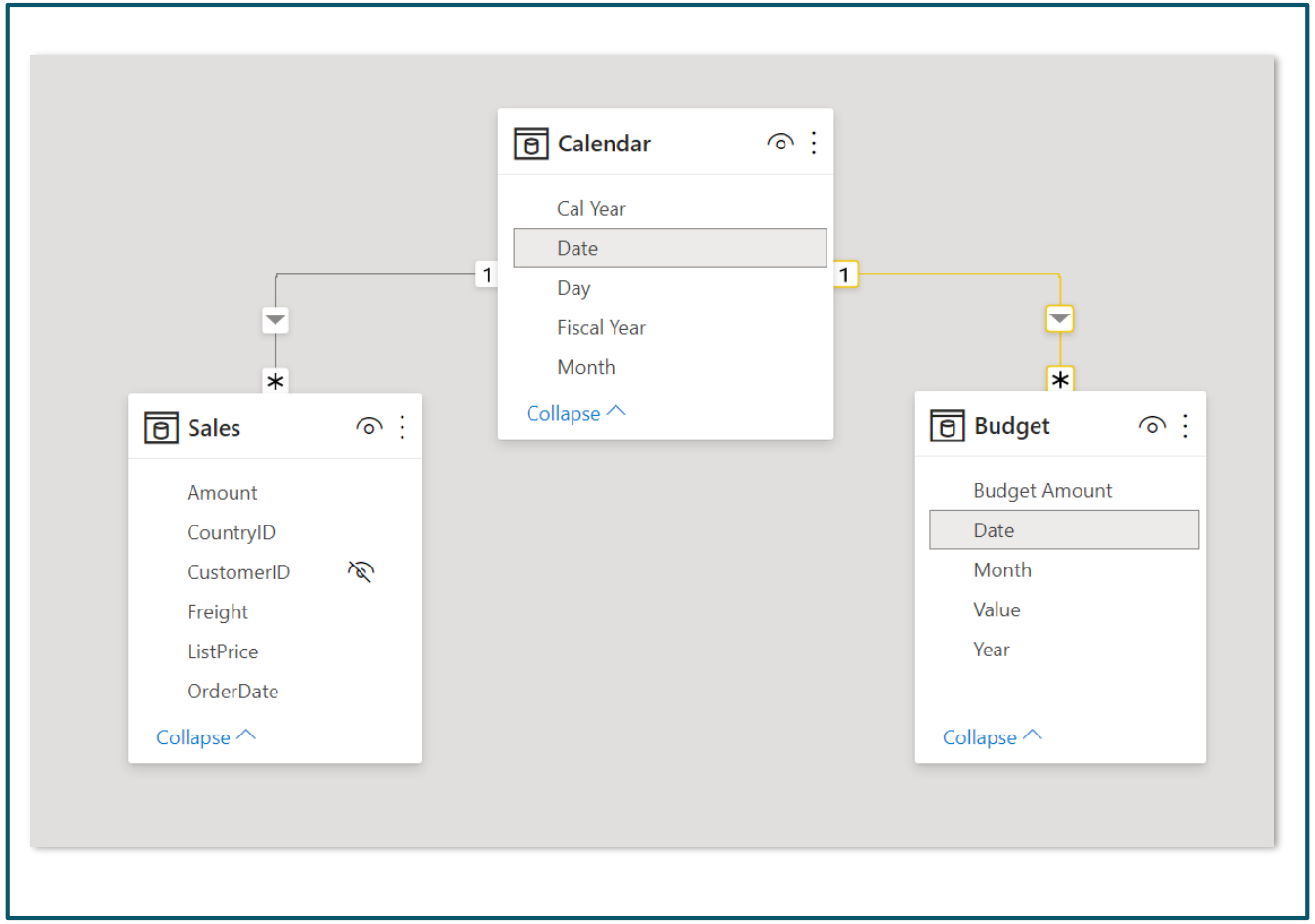
Reduce Cardinality



Implement Table Granularity



Granularity: The lowest level that data can be in a set of data.



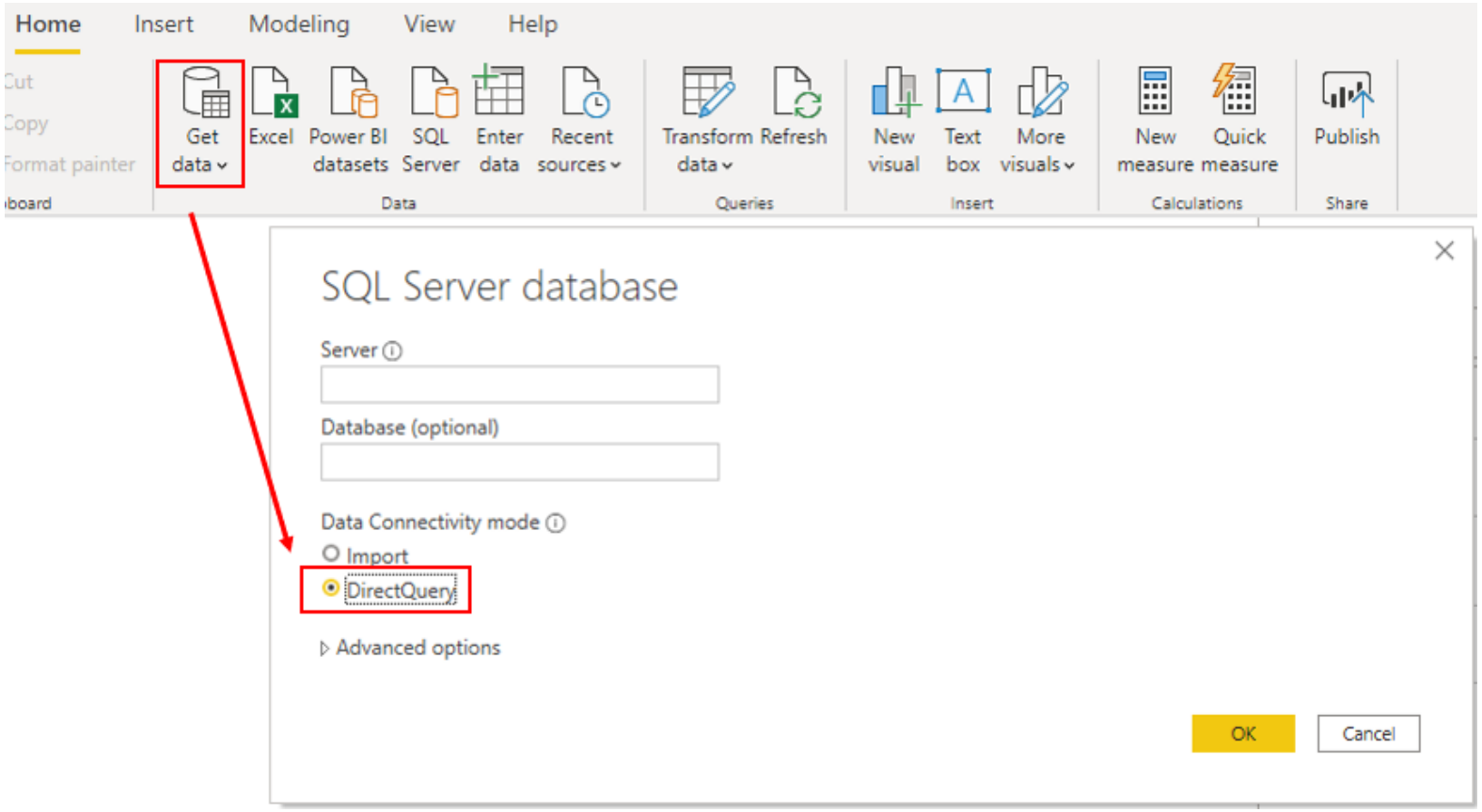
Review Questions

- **Q01 – What benefit do you get from analyzing metadata?**
  - A01 – The benefit of analyzing metadata is that you can clearly identify data inconsistencies with your dataset.
- **Q02 – Which tool enables you to identify bottlenecks that exist in code?**
  - A02 – Performance Analyzer
- **Q03 – What is cardinality?**
  - A03 – The direction that the data flows in a relationship between tables.

Lesson 2: Optimize DirectQuery Models

Introduction to DirectQuery

Connect directly to your data source repository.



Implications of using DirectQuery

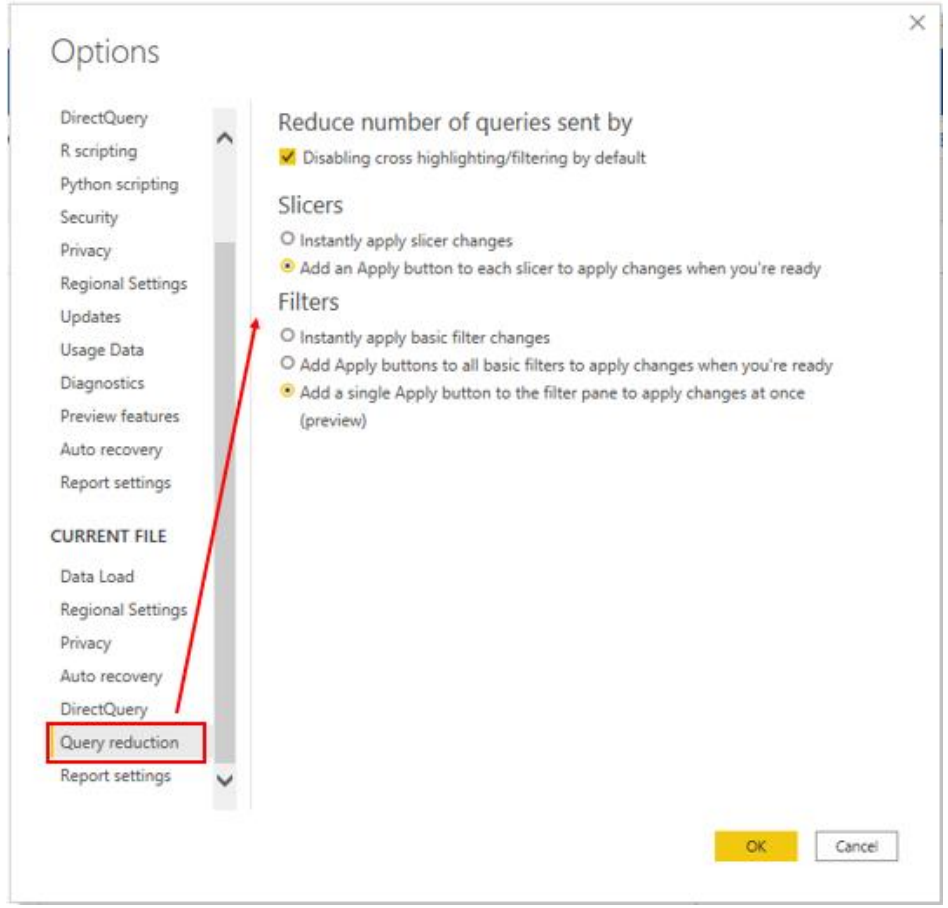
Benefits:

- Where data changes frequently.
- Near-real time reporting is needed.
- Supports large data volumes.
- Supports multi-dimensional data.

Limitations:

- Performance: Depends on the underlying data source.
- Security: Understand how data moves between source and destination.
- Modeling: Some modeling capabilities are limited or aren't supported.
- Transformation: Some data transformation techniques are limited.

Optimize Performance



Steps to optimize:

Performance Analyzer

Data Source

Query Reduction

Review Questions

- **Q01 – Which Power BI option gives you the option to send fewer queries and disable certain interactions?**
  - A01 – Query reduction.
- **Q02 – Other than Power BI, another place for performance optimization can be performed is where?**
  - A02 – At the data source
- **Q03 – Is it possible to create a relationship between two columns if they are different DATA TYPE columns?**
  - A03 – No, both columns in a relationship must be sharing the same DATA TYPE.

Module Overview

We covered the following concepts:

- Data model performance optimization
- DirectQuery model optimization

References

PL-300 Optimize a model for performance in Power BI

https://docs.microsoft.com/en-us/learn/modules/create-measures-dax-power-bi/