My Perfect Date (Table)

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My Perfect Date

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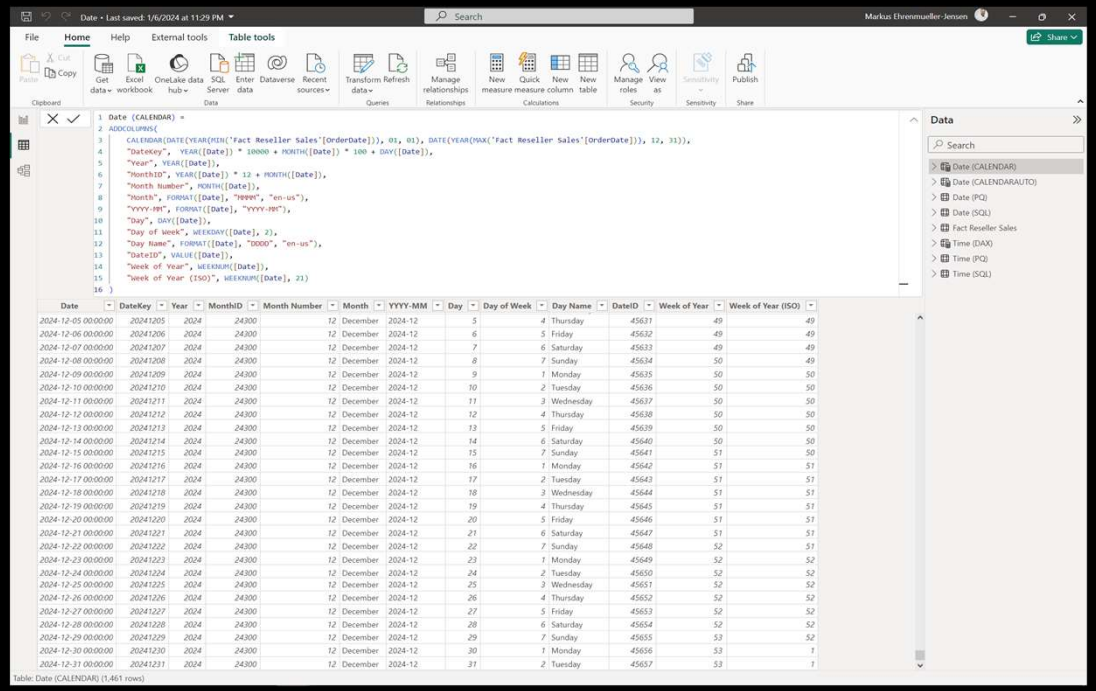


Date Table

- Typical dimension table
  - Most data is connected to a point in time
- For convenience
  - Extraction of elements should not happen in report
  - E. g. Year, Month Number, Month Name, Day of Week, Is Holiday, …
- *Date* table needed for DAX's Time Intelligence functions
  - Full years (from January 1 to December 31) for all years
- Turn off *Auto date/time*
- Do not create from fact table
  - Usually has gaps, possibly bad performance
  - Create in DAX, Power Query, SQL, etc. instead
- Set correct column properties
  - Data types, *Default summarization*, *Sort by column*, create hierarchy
- *Mark as date table*

Disadvantages of “Auto date/time”

- Creates a calendar table for every column of data type date/datetime
  - Including columns like birthdate, valid from/until, create date, …
  - Tables are hidden
  - Can contain a significant amount of data
- Available columns are restricted to Year, Month, Month Number, Day
  - No way to edit or add columns
- Disabling *Auto date/time* later can corrupt your data model and/or your reports
  - References in DAX have a special notation
  - Visuals using the date hierarchy will change their content
  - People get used to reference columns of fact table

Demo

Auto date/time

Waiving the date table?

- Not recommended for Power BI
- Bad data compression
- Slower slicers
- Slower reports for more complex calculations
  - Faster for simple calculations
- Slower refresh
  - Slower throughput
  - Updates to dimensional data requires full refresh
- Only one fact table
  - As there are no (shared) dimension tables
- Auto-Exist

Demo

Auto-Exist

Add a Date/Time dimension table (DAX)

`CALENDARAUTO()`

`CALENDAR()`

`GENERATESERIES()`

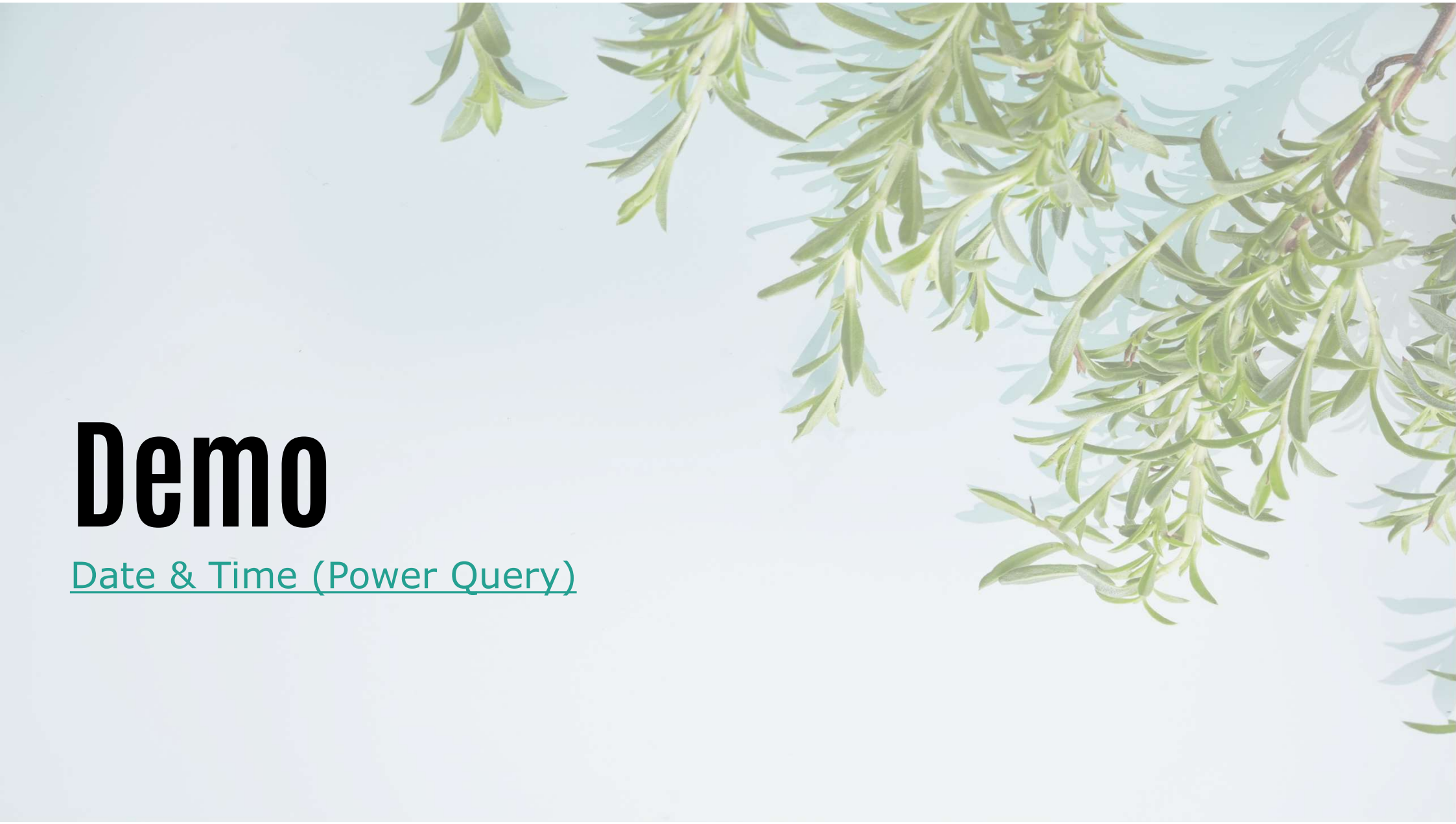
`FORMAT()` is your friend

Demo
Date & Time (DAX)

Add a Date/Time dimension table (Power Query)

```
{Number.From() .. Number.From()}
List.Times()
```

Column from Examples is your friend



Demo

Date & Time (Power Query)

Add a Date/Time dimension table (SQL)

- Generate a number table
  - T-SQL loop, self-join, …
- Add number of number table to start date/time
- Use T-SQL functions to derive columns
  - `FORMAT()` is your friend

- Table vs. view vs. function vs. stored procedure

Demo
Add a Date/Time dimension table

Column properties

- Choose correct data types
  - Date vs. Date/time
- Set *Default Summarization* off
  - You do no want to aggregate e.g. the Year column
- Set *Order By Column* right
  - You do not want the month names ordered alphabetically
- Create a hierarchy
  - Adds convenience to the report creator

Demo

Choose Data type
Set Default Summarization off
Set Order By column
Add Hierarchy

Mark as Date Table

Only necessary when

1. Relationship to Date table is not based on a column of data type date/datetime (e. g. integer 20240229)
2. You want to use built-in time intelligence functions of DAX

In other cases, not necessary, but does not do any harm

→ Always mark your data table(s) as a data table

Demo

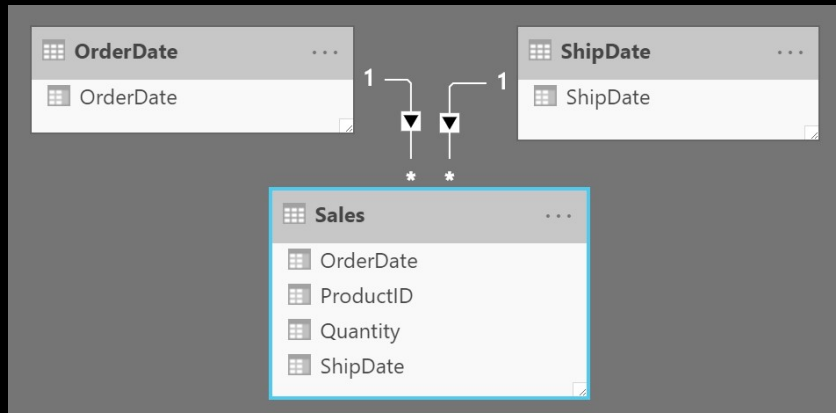
Mark as Date Table

Duplicate tables for role-playing purposes

E. g. Order date vs. Ship date
  Concept can be applied to any dimension

Duplicating dimension table is one option
  Alternative: DAX measures with `USERELATIONSHIP()`

Make sure to rename the columns accordingly
  e. g. Order Year, Order Month, Order Date, etc.



Duplicate tables for role-playing purposes (DAX)

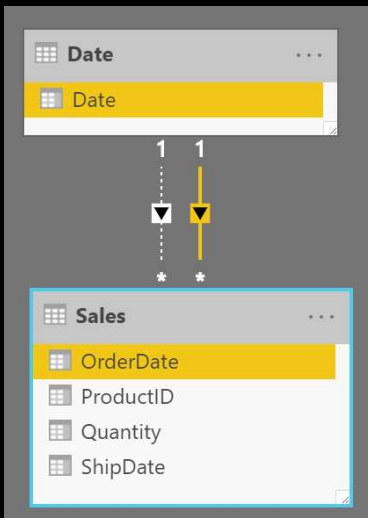
Duplicating dimension table is one option

- Calculated Table

Make sure to rename the columns accordingly

- e. g. Order Year, Order Month, Order Date, etc.
- `SELECTCOLUMNS()`

Alternative: Add inactive relationships & activate in DAX measures with `USERELATIONSHIP()`



Demo

Duplicate tables for role-playing purposes (DAX)

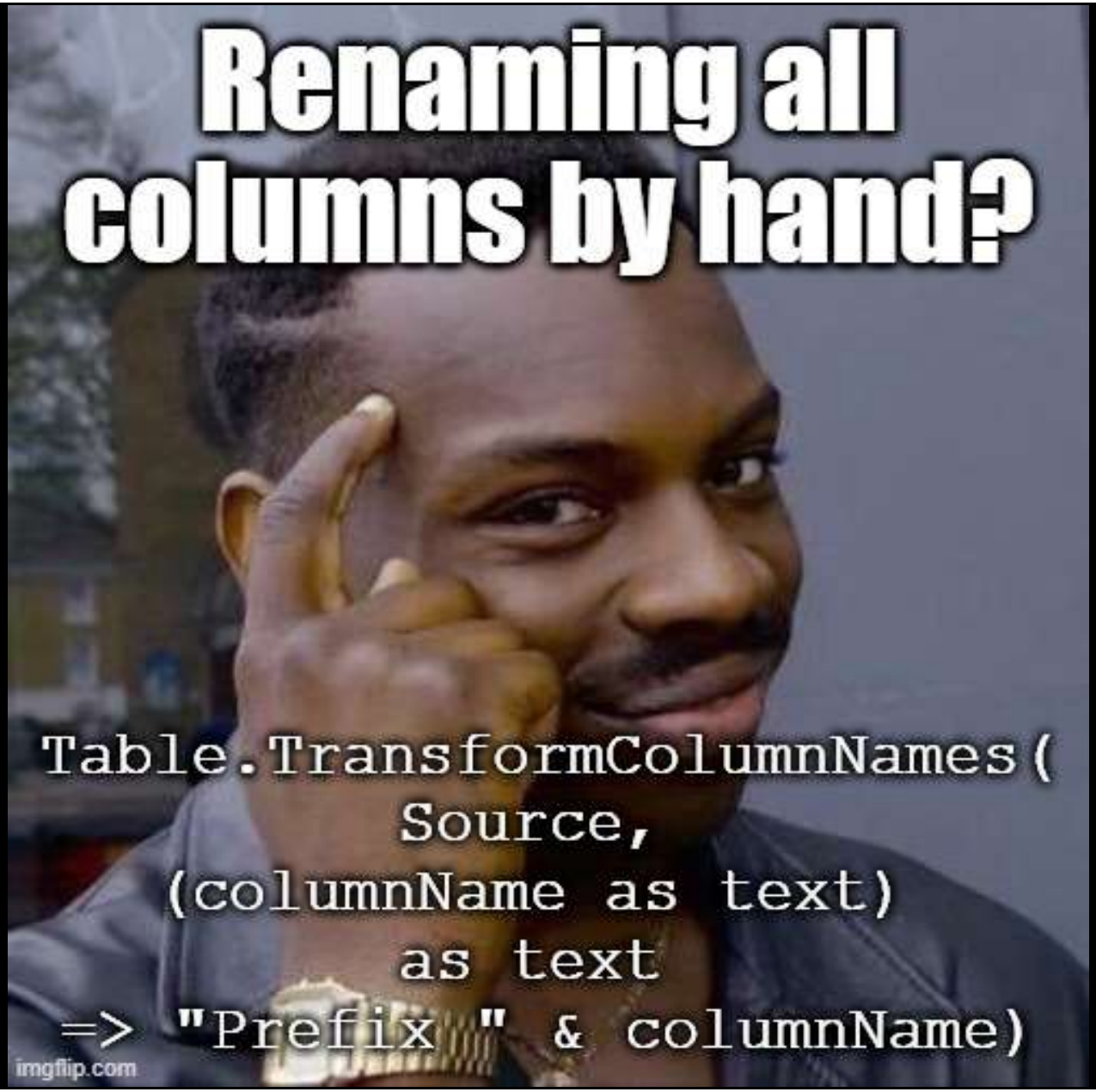
USERELATIONSHIP (DAX)

Duplicate tables for role-playing purposes (Power Query)

Duplicating or reference dimension table

Make sure to rename the columns accordingly

```
Table.TransformColumnNames(Source, (columnName as text) as text
=> "Order " & columnName)
```


Renaming all columns by hand?
Table.TransformColumnNames(
Source,
(columnName as text)
as text
=> "Prefix " & columnName)
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Demo

Duplicate tables for role-playing purposes (Power Query)

Duplicate tables for role-playing purposes (SQL)

Use alias

```
SELECT Date AS OrderDate FROM dbo.DimDate;
```

Manually vs. script

Table vs. view vs. stored procedure

Demo

Duplicate tables for role-playing purposes

PLEASE DESCRIBE YOUR IDEA OF A PERFECT DATE.
I'D HAVE TO SAY APRIL 25TH. BECAUSE IT'S NOT TOO HOT, NOT TOO COLD, ALL YOU NEED IS A LIGHT JACKET.
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PBIG
POWER BI GEBRUIKERSGROEP

Session evaluation

Event evaluation

Questions?

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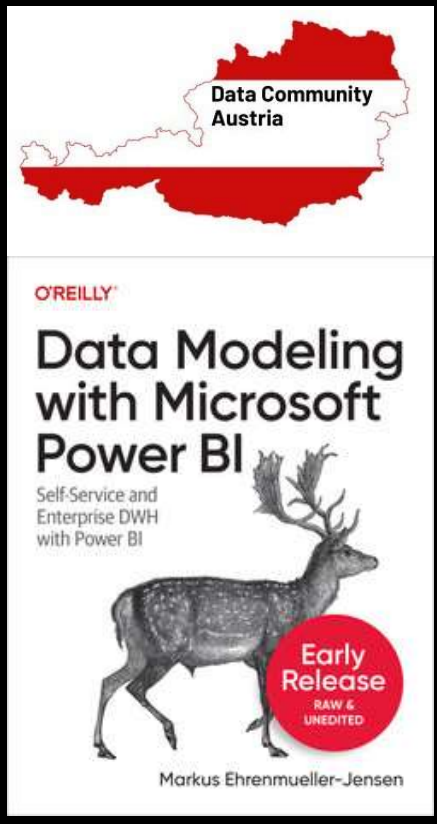
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