M QUERY

"M query" refers to the formula language used in Microsoft Power Query. It is designed for **data manipulation and transformation**, often used in **Excel** and **Power BI**. M is a **case-sensitive language** that enables users to **clean**, **reshape**, and **combine data** from various sources before loading it into a data model or report.

WHY USE M QUERY?

Data Transformation: M query allows complex data transformations that are not always possible with standard Excel functions or even in DAX (Data Analysis Expressions).

Automation: Once you define a set of transformations in an M query, you can reuse it and automate data cleaning processes without manual intervention.

Combining Data: M query can combine data from different sources, making it easier to integrate multiple datasets.

Performance: Transformations in M query can be more efficient, especially with large datasets, as they are optimized for data manipulation tasks.

USE CASE FOR M QUERY

Scenario: Consolidating Sales Data

Problem: A company has sales data spread across multiple Excel files, each representing a different region. The data needs to be consolidated into a single dataset for analysis.

Solution:

1. **Import Data:** Use Power Query to import data from each Excel file.

2. **Transform Data:** Use M query to clean and reshape the data, such as removing unnecessary columns, correcting data types, and filtering out irrelevant rows.
3. **Combine Data:** Use M query to append the data from all regions into a single dataset.
4. **Load Data:** Load the consolidated data into Excel or Power BI for further analysis.

```
let
    Source = Folder.Files("C:\SalesData\"),
    #"Filtered Files" = Table.SelectRows(Source, each [Extension] = ".xlsx"),
    #"Added Custom" = Table.AddColumn(#"Filtered Files", "Custom", each
Excel.Workbook(File.Contents([Folder Path] & [Name]))),
    #"Expanded Data" = Table.ExpandTableColumn(#"Added Custom", "Custom", {"Data"},
{"Data.Data"}),
    #"Expanded Columns" = Table.ExpandTableColumn(#"Expanded Data", "Data.Data",
{"Column1", "Column2", "Column3"}),
    #"Renamed Columns" = Table.RenameColumns(#"Expanded Columns", {{"Column1",
"Region"}, {"Column2", "SalesDate"}, {"Column3", "SalesAmount"}}),
    #"Filtered Rows" = Table.SelectRows(#"Renamed Columns", each ([SalesAmount] > 0))
in
    #"Filtered Rows"
```

M QUERY

In this example, the M query:

1. Imports files from **a specified folder**.
2. Filters to include only **.xlsx** files.
3. **Adds a custom column** to load the Excel workbooks.
4. Expands the data from these workbooks.
5. **Renames the columns** for clarity.
6. Filters rows to exclude **any with a SalesAmount** of 0 or less.

This consolidated and cleaned dataset can now be used for further analysis in Power BI or Excel, enabling the company to have a comprehensive view of its sales data.