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Data Transformation with Power Query in Power BI

TRANSFORM YOUR DATA INTO DECISIONS!

What is Power Query Editor?

Power Query Editor is a data connection and transformation tool built into Power BI. It allows users to import data from various sources, clean and reshape it without writing complex code. It follows a **no-code/low-code approach**, making it accessible to both technical and non-technical users.

When you load data into Power BI, Power Query acts as a preparation layer, helping you make your data analysis-ready through a process known as **ETL (Extract, Transform, Load)**.

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What Can We Do with It?

✅ **Remove Unnecessary Columns**

Delete columns that aren't needed for analysis.
Process: Home > Remove Columns or right-click the column > Remove.

✅ **Filter and Sort Data**

Refine your dataset using conditions or sorting logic.
Process: Click the column dropdown > Apply Filter or Sort.

✅ **Rename Columns**

Make your dataset more meaningful. Process: Double-click the column header or right-click > Rename.

✅ **Change Data Types**

Correct data types ensure proper calculations and visuals.
Process: Click the icon next to the column name > Select correct data type.

✅ **Split and Merge Columns**

Break down or combine columns as per your needs.
Process: Transform > Split Column or Merge Columns > Choose delimiter or rule

✅ **Replace Values**

Standardize inconsistent data entries. Process: Right-click a cell > Replace Values > Enter the old and new values.

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✅ **Remove Duplicates**

Clean your data by eliminating repeated records.

Process: Select the column(s) > Remove Duplicates.

✅ **Add Custom Columns**

Create new logic-based columns.

Process: Add Column > Custom Column > Write your logic.

✅ **Group Data**

Summarize data based on categories.

Process: Select a column > Group By > Choose aggregation type (e.g., Sum, Count).

✅ **Pivot & Unpivot Columns**

Reshape data formats for better visualization.

Process: Transform > Pivot Column or Unpivot Columns.

✅ **Merge Queries**

Combine data from two tables based on a common key.

Use Case: You have Sales and Product tables and want to combine product info with sales records.

Process: Home > Merge Queries > Select the common key in both tables > Choose join type (Left, Right, Inner, etc.)

✅ **Append Queries**

Stack data from two or more similar tables vertically.

Use Case: You have separate files for monthly sales and want to combine them into one table.

Process: Home > Append Queries > Select tables to append > Combine them into a single query.

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M Language in PQ

M stands for "Mashup" – it's a functional programming language used in Power Query.

Every transformation you perform in Power Query is translated into M code, which you can view in the Advanced Editor.

✨ Why Learn M?
- It helps in writing custom logic not available in the UI.
- It's useful for automating complex transformation workflows.
- It gives you more control and flexibility.

🗝️ Key Elements:
- let = defines steps, in = final output.
- Case-sensitive Uses
- # and [] for special characters or column names
- Records, Lists, Tables, Functions Steps build on top of previous steps

```
let                                                          Example
    // Load the data from a CSV file
    Source = Csv.Document(File.Contents("CustomerData.csv"), [Delimiter=",", Columns=4,
Encoding=65001, QuoteStyle=QuoteStyle.None]),
    // Promote the first row to headers
    PromotedHeaders = Table.PromoteHeaders(Source, [PromoteAllScalars=true]),
    // Remove duplicate rows based on "Email" column
    RemovedDuplicates = Table.Distinct(PromotedHeaders, {"Email"}),
    // Rename column "CustName" to "Customer Name"
    RenamedColumn = Table.RenameColumns(RemovedDuplicates, {{"CustName",
"Customer Name"}})
in
    RenamedColumn
```

THANK YOU!!!

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