Power BI: Beginner's Guide to Data Transformations

Welcome! This guide is a comprehensive introduction for beginners to understand data transformations in Power BI using Power Query Editor. It includes notes from a live class along with additional concepts to make it a solid reference.

📂 Getting Started: Importing Data in Power BI

Before any transformation, the **first step in Power BI is to import your data**.

📁 Ways to Import Data:

Power BI supports multiple data sources. Here are a few common methods:

1. **Excel File**

   - *Home → Get Data → Excel Workbook → Choose File → Open*

2. **CSV / Text File**

   - *Home → Get Data → Text/CSV → Browse and Load*

3. **SQL Server / Database**

   - *Home → Get Data → SQL Server → Provide Server and DB Info*

4. **Web Data**

   - *Home → Get Data → Web → Paste URL*

5. **Folder (For combining multiple files)**

   - *Home → Get Data → Folder → Browse to the folder containing your files*

Once the data is imported, you'll be taken to the **Power Query Editor** where transformations can be applied.

☑ Basic Transformations

Here are some commonly used data transformations in Power Query Editor:

1. **Use First Row as Headers**

   - Promote the first row to be column headers.

   - *Home → Use First Row as Headers*

2. **Change Data Types**

   - Ensure all columns have the correct data types (Text, Whole Number, Decimal, Date, etc.).

   - *Transform → Data Type*

3. **Filter Rows**

o   You can filter the table like Excel filters.

o   *Click the dropdown arrow on a column → Apply Filter*

4. **Transform Columns**

    o   You can apply functions like lowercase, uppercase, trim, etc.

    o   *Transform → Format → Choose operation*

5. **Split Columns**

    o   Break a column based on a delimiter (e.g., comma, space) into multiple columns.

    o   *Transform → Split Column → By Delimiter*

6. **Merge Columns**

    o   Combine multiple columns into one.

    o   *Select Columns → Right-click → Merge Columns → Give Separator and Name → OK*

🔁 Grouping Data

To group data and perform aggregations:

- *Select the column to group by → Transform → Group By*
- You can choose:

    o   **Basic**: Simple grouping

    o   **Advanced**: Group by multiple fields and define aggregation types (Sum, Average, Count, etc.)

🔗 Joins (Merging Queries)

Joining tables is a crucial transformation in Power BI. Here's how:

🔃 Types of Joins:

- **Left Outer**: All rows from the left table, matching rows from the right
- **Right Outer**: All rows from the right table, matching rows from the left
- **Full Outer**: All rows from both tables
- **Inner**: Only matching rows from both tables
- **Anti Joins** (Left Anti, Right Anti): Returns non-matching rows

🔧 Steps to Join (Merge Queries):

- *Home → Merge Queries*
- Select the tables and matching columns

- Choose the join type

- Expand the merged column to bring in desired fields

💡 Other Key Tips

- **Applied Steps Panel**:
  Shows each transformation step in order. You can click to edit or delete steps.

- **Close & Apply**:
  Click this button to apply all changes made in Power Query and return to the report view.

- **Enable Load**:
  If you disable this under *Queries → Load Options*, the changes will stay in Power Query but won't load into the Power BI data model.

- **Advanced Editor**:
  View and edit the underlying M code for all transformations.

  - *Home → Advanced Editor*

🧠 Best Practices

- Always verify data types before applying complex transformations.

- Use clear column names for readability.

- Create a backup of data before heavy modifications.

- Avoid unnecessary steps that increase load time.