

## Power query

Power Query is a powerful data connection and transformation tool in Power BI. Here are the essential steps you can perform on data using Power Query to clean, shape, and prepare it for analysis:

### Steps to Perform on Data in Power Query

#### 1. Importing Data

- Open Power BI Desktop.
- Go to the **Home** tab and click on **Get Data**.
- Choose your data source (e.g., Excel, SQL Server, Web).
- Browse to your file or connect to your data source, and click **Load**.

#### 2. Opening Power Query Editor

- Once data is loaded, click on **Transform Data** in the ribbon to open the **Power Query Editor**.

#### 3. Navigating the Power Query Editor

- **Query Pane:** Shows all queries loaded into the editor.
- **Data Preview:** Displays a preview of the selected query data.
- **Applied Steps:** Lists all transformations applied to the data (can be found in the right-hand pane).

#### 4. Basic Data Transformations

- **Remove Columns:**
  - Right-click on the column header and select **Remove** or select the column and click on **Remove Columns** in the ribbon.
- **Rename Columns:**
  - Double-click the column header or right-click and select **Rename**.
- **Change Data Types:**
  - Select a column, right-click, and choose **Change Type** to select the appropriate data type (e.g., Text, Number, Date).
- **Filter Rows:**
  - Click the filter icon in the column header to filter data based on specific criteria (e.g., values, date ranges).

#### 5. Combining Data

- **Append Queries:**
  - To stack data from multiple tables, go to the **Home** tab, select **Append Queries**, and choose the tables to combine.

- **Merge Queries:**
  - To combine data from two tables based on a common column, go to the **Home** tab, select **Merge Queries**, and choose the appropriate columns to join.

## 6. Transforming Data

- **Removing Duplicates:**
  - Select the column(s) to check for duplicates, then right-click and choose **Remove Duplicates**.
- **Pivot/Unpivot Columns:**
  - To reshape data, use **Pivot Column** to turn unique values into column headers or **Unpivot Columns** to convert column headers into rows.
- **Group By:**
  - Use the **Group By** feature to summarize data based on one or more columns (e.g., sum, average).

## 7. Advanced Data Transformations

- **Add Custom Columns:**
  - Go to the **Add Column** tab and click on **Custom Column** to create new columns based on existing data using a formula.
- **Conditional Columns:**
  - In the **Add Column** tab, select **Conditional Column** to create new columns based on if/then logic.
- **Replace Values:**
  - Right-click on a column header and select **Replace Values** to find and replace specific values.
- **Fill Down/Up:**
  - Use the **Fill** option in the **Transform** tab to fill blank values in a column based on adjacent values.

## 8. Using M Language

- For advanced transformations, you can write M code directly in the **Advanced Editor**. Access it via **Home > Advanced Editor** to modify or write your own M scripts.

## 9. Previewing Data Changes

- After applying transformations, always check the data preview to ensure changes are applied as expected.

## 10. Loading Transformed Data

- Once you've completed your transformations, click **Close & Apply** in the **Home** tab to load the transformed data back into Power BI.

## 11. Refreshing Data

- After setting up your data, you can refresh it later to pull in updated data from the source by going to the **Home** tab and clicking **Refresh**.

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### Summary of Key Power Query Functions

- **Import Data:** Load data from various sources.
- **Transform Data:** Clean and reshape data using filters, renaming, type changes, etc.
- **Combine Data:** Merge and append data from different tables.
- **Advanced Transformations:** Use custom columns, grouping, and conditional logic for complex transformations.
- **Preview and Load:** Always check your work before loading data back into Power BI.