EXCEL Power query

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1. Getting Data from Various Sources

Description: Power Query's primary function is to import data from a wide range of sources, including local files (Excel, CSV, Text), databases (SQL Server, Access), online services (SharePoint, Azure), and web pages. This process creates a connection to the data without directly copying it, allowing for dynamic updates.

Example:

- **Task:** Connect to a folder containing multiple sales reports.

- **Steps:**

  1. Go to the **Data** tab.

  2. Select **Get Data** > **From File** > **From Folder**.

  3. Browse to the folder and click **OK**.

  4. In the Navigator window, select the files you want to combine.

  5. Click **Transform Data** to open the Power Query Editor.

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2. Cleaning and Transforming Data

Description: This is the core of Power Query. It allows you to clean, shape, and transform your data before loading it into Excel. This includes removing errors, handling missing values, changing data types, and filtering rows.

Example:

- **Task:** Remove unwanted columns and rows with errors.

- **Steps:**

  1. Right-click on the column you want to remove and select **Remove**.

  2. Select the column with errors, go to the **Home** tab, click **Remove Rows**, and then select **Remove Errors**.

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3. Merging Queries

Description: Merging is a way to combine two queries based on a common column, similar to a database join. This is useful for bringing together related data from different tables, such as linking a sales table with a customer information table.

Example:

- **Task:** Add customer names to a sales table using a common "CustomerID" column.

- **Steps:**

    1. With the sales table open in the Power Query Editor, go to the **Home** tab and select **Merge Queries**.

    2. In the Merge dialog box, select the customer table from the dropdown.

    3. Click on the **CustomerID** column in both tables to link them.

    4. Choose the join kind (e.g., Left Outer is common).

    5. Click **OK**. A new column with "Table" values will appear. Click the expand button on the column header and select the columns you want to add (e.g., "CustomerName").

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4. Appending Queries

Description: Appending is the process of stacking two or more queries on top of each other. This is typically used to combine data from multiple files or tables that have the same structure (e.g., combining sales data from different months or regions into one master table).

Example:

- **Task:** Combine sales data from separate "Q1 Sales" and "Q2 Sales" tables.

- **Steps:**

    1. Go to the **Home** tab and select **Append Queries** > **Append Queries as New**.

    2. In the Append dialog box, choose the tables you want to combine.

    3. Click **OK**. A new query with the combined data is created.

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5. Unpivoting Columns

Description: Unpivoting transforms columns into rows. This is extremely useful for restructuring data where a row represents a single entity and multiple columns represent attributes of that entity (e.g., months, product categories). This makes the data easier to analyze and use in PivotTables.

Example:

- **Task:** Convert month columns (Jan, Feb, Mar) into a single "Month" column with corresponding sales values in a "Sales" column.

- **Steps:**

    1. Select the columns you want to unpivot (e.g., Jan, Feb, Mar).

    2. Go to the **Transform** tab and click **Unpivot Columns**.

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6. Creating Custom Columns

Description: Power Query allows you to add new columns to your data by writing a custom formula. This is similar to creating a new column with a formula in an Excel worksheet but is more robust as it becomes part of the query's transformation steps.

Example:

- **Task:** Create a new column called "Total Price" by multiplying the "Price" and "Quantity" columns.

- **Steps:**

    1. Go to the **Add Column** tab and select **Custom Column**.

    2. In the new window, enter a name for the new column (**Total Price**).

    3. In the Custom column formula box, enter the formula: [Price] * [Quantity].

    4. Click **OK**.

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7. Grouping Rows

Description: Grouping rows allows you to summarize data by performing an aggregation (like sum, count, average) on one or more columns based on a unique value in another column. This is useful for creating summary tables.

Example:

- **Task:** Calculate the total sales for each product.

- **Steps:**

    1. Go to the **Transform** tab and click **Group By**.

    2. In the Group By dialog, select **Product** as the column to group by.

    3. Under **New column name**, enter **Total Sales**.

    4. Under **Operation**, select **Sum**.

    5. Under **Column**, select the **Sales** column.

    6. Click **OK**.