Power BI Power Query Concepts

# Merge (Join) in Power BI In Power BI, Merge is used to combine columns from two tables based on a common field/key, similar to SQL JOINs.

1. **Left Outer Join (default)**

All rows from the first (left) table, and matching rows from the second (right) table.

If there's no match, you'll get null for the right table's column

2. **Right Outer Join**

All rows from the second (right) table, and matching rows from the first (left) table

3. **Full Outer Join**

All rows from both tables, matching wherever possible.

If no match, you'll get null for unmatched side.

4. **Inner Join**

Only matching rows from both tables are kept.

**5. Left Anti Join**

Only rows from the left table that do NOT match any row in the right table.

Example:  
Show sales records where the customer ID is not in the customer table (possible data error or missing info).

**6. Right Anti Join**

Only rows from the right table that do NOT match any row in the left table.

Example:  
Show customers who have never made a purchase.  
  
  
  
\* Append Queries  
Appending in Power BI means combining rows from two or more tables with the same column structure — like stacking data vertically, one table below the other. It’s similar to the UNION operation in SQL.  
\* All tables being appended must have the same columns,  
  
  
  
\*Group BY  
   
The GROUP BY feature in Power BI is used to summarize data by one or more columns. It helps you aggregate your data — like SUM, COUNT, AVERAGE, etc.  
  
  
Why use Advanced Group By?

Group by multiple columns at once (e.g., by Region and Product).

Add multiple aggregations at the same time (e.g., sum of sales, count of orders, average quantity).

Have full control over how to summarize your data.

# Functions Inside Home Pane  Data Type: Assigns a specific data type (e.g., text, number, date) to a column for accurate data transformation.

* **Use First Row as Headers**: Promotes the first row of data to be used as column headers.
* **Replace Values:** Finds and replaces specific values in a selected column.
* **Split Column:** Divides a column into multiple columns based on a delimiter or number of characters.
* **Remove Rows:** Deletes unwanted rows, including top rows, bottom rows, duplicates, or blank rows.
* **Keep Rows:** Keeps only the selected rows and removes the rest (e.g., top N, bottom N, range, or matching rows).
* **Remove Columns:** Deletes selected columns from the table.
* **Choose Columns:** Selects which columns to keep from the dataset.
* **Properties:** Edits the query name and description.
* **Advanced Editor:** Opens the M code editor to view or manually edit the query steps in code format.
* **Manage (Delete, Duplicate, Reference):**

**Delete:** Removes the selected query.

**Duplicate:** Creates a copy of the query.

**Reference:** Creates a new query that references the original one.

* **Refresh Preview:** Refreshes the data preview in Power Query to reflect recent changes.
* **Manage Parameters**: Lets you view and edit existing parameters.
* **Create Parameter:** Allows you to define a dynamic value that can be reused in queries.
* **Data Source Settings:** Manages the credentials and privacy settings for data sources.
* **Enter Data:** Enables manual data entry to create a new table directly in Power Query.  
    
  **\* Transform Pane Functions**
* **Transpose:** Swaps rows and columns—rows become columns and columns become rows.
* **Reverse Rows:** Flips the order of rows from top to bottom (last row becomes first).
* **Count Rows:** Returns the total number of rows in the table.
* **Detect Data Type:** Automatically sets the most appropriate data type for each column based on its values.
* **Rename:** Allows renaming of a column or query for better clarity or consistency.
* **Fill:**

**Up:** Fills null cells with the value from the cell below.

**Down:** Fills null cells with the value from the cell above.

* **Move:** Lets you reposition columns to the beginning, end, left, or right in the table.
* **Convert to List**: Converts a column (or entire table) into a list of values.
* **Extract:** Pulls out parts of text in a column, like first characters, last characters, or text before/after a delimiter.
* **Parse:** Converts text into a specific data type like date, time, or number  
    
    
    
  **\* ADD Column pane Functions**
* **Column from Examples:**  
  Creates a new column by providing sample output values. Power Query infers the transformation logic based on your examples.
* **Custom Column:**  
  Lets you create a new column using M code (Power Query formula language) to define custom logic and expressions.
* **Invoke Custom Function:**  
  Allows you to create a new column by applying a custom function (you’ve defined earlier) to each row.
* **Conditional Column:**  
  Builds a new column based on conditions (like if-else logic) without writing M code.
* **Index Column:**  
  Adds a sequential numeric column (0, 1, 2, …) to your table, useful for ordering or referencing rows.
* **Duplicate Column:**  
  Creates a copy of an existing column, allowing you to perform different transformations on the copy.

# View Pane Functions  Formula Bar: Displays the M code for the selected step in the query. Useful for editing or reviewing transformations.

* **Monospaced:**  
  Changes the font in the data preview to a monospaced (equal-width) font, making it easier to read and compare values, especially numbers or codes.
* **Show Whitespace:**  
  Highlights spaces, tabs, and other white space characters in the data. Helps identify hidden formatting issues.
* **Column Quality:**  
  Shows a visual summary (valid, error, empty) of the quality of data in each column, helping to identify data cleanliness.
* **Column Distribution:**  
  Displays a histogram of the values in each column, giving a quick insight into data distribution and frequency.
* **Column Profile:**  
  Provides detailed statistics for a selected column, such as count, distinct values, min, max, average, and more. Helps in understanding data patterns.