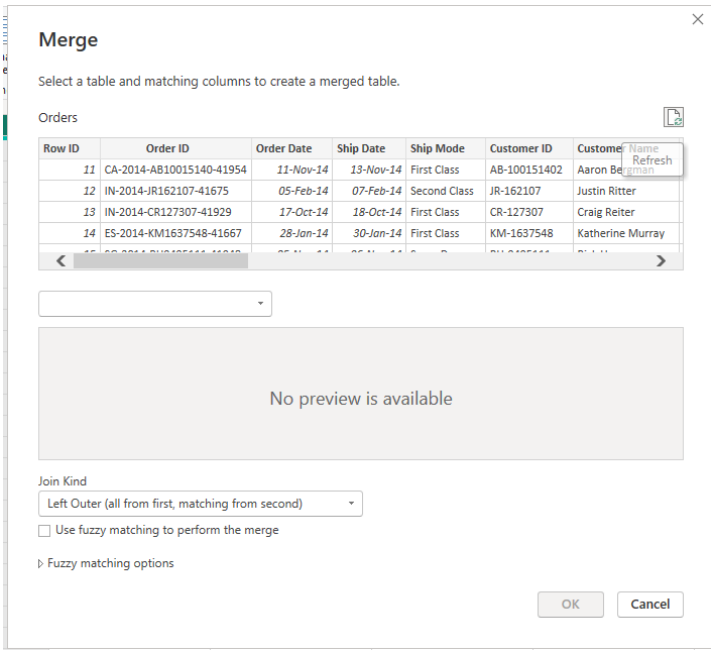
Chapter-6 Creating a Merge Query in Power BI

Merging queries in Power BI allows you to combine data from two or more tables into a single table based on a common column (key). This operation is performed in the **Power Query Editor** and is useful for joining related data, such as combining customer information with their purchase history.

Types of Merge Operations



Power BI supports the following types of joins for merging queries:

1. **Inner Join**
    - Returns only matching rows from both tables.
2. **Left Outer Join**
    - Returns all rows from the left table and matching rows from the right table.
3. **Right Outer Join**
    - Returns all rows from the right table and matching rows from the left table.
4. **Full Outer Join**
    - Returns all rows from both tables, with nulls where no match is found.
5. **Anti Join**

- Left Anti: Rows from the left table that don’t match the right table.
- Right Anti: Rows from the right table that don’t match the left table.

Steps to Create a Merge Query in Power BI

1. **Open Power Query Editor**
   - In Power BI Desktop, click on **Transform Data** to launch the Power Query Editor.
2. **Select Merge Queries**
   - In the **Home** tab, click **Merge Queries** or **Merge Queries as New** (to create a new table).
3. **Choose Tables to Merge**
   - Select the two tables you want to merge:
     - The **primary table** (base table).
     - The **secondary table** (table to append data from).
4. **Define the Join Condition**
   - Select the column(s) that act as the key in both tables (e.g., CustomerID in both a "Customers" and an "Orders" table).
   - Ensure the key columns have the same data type in both tables.
5. **Choose Join Type**
   - Select the appropriate join type from the drop-down menu (e.g., Left Outer Join).
6. **Expand Merged Table Columns**
   - After merging, the new column contains a nested table.
   - Click the **expand icon** (next to the new column header) to select which columns to include from the merged table.
   - Uncheck "Use original column name as prefix" for clarity.
7. **Apply Changes**
   - Review the merged data and click **Close & Apply** to save the changes and load the data into Power BI.

Example: Merging Customer and Order Data

Tables:

1. **Customers Table**

CustomerID	Name	Region
1	John Doe	East
2	Jane Doe	West

2. **Orders Table**

OrderID	CustomerID	Amount

101	1	500
102	2	300

Steps:

1. Open Power Query Editor and select **Merge Queries**.
2. Use CustomerID as the key column in both tables.
3. Choose a **Left Outer Join** to include all customers with their corresponding orders.
4. Expand the merged table to include OrderID and Amount.

Result:

CustomerID	Name	Region	OrderID	Amount
1	John Doe	East	101	500
2	Jane Doe	West	102	300

Best Practices for Merge Queries

1. **Optimize Key Columns**
   - Ensure the key columns used for merging are clean, unique, and have consistent data types.
2. **Choose Appropriate Join Types**
   - Use an **Inner Join** to limit the result to matching rows or a **Left Outer Join** to preserve all rows from the primary table.
3. **Filter Unnecessary Data**
   - Remove irrelevant columns from both tables before merging to reduce data size and improve performance.
4. **Check for Duplicates**
   - Verify that the key column in the secondary table does not contain duplicates, which can inflate the merged data.
5. **Use Relationships Instead**
   - If possible, use relationships in the Data Model instead of merging to maintain flexibility and optimize performance.

Troubleshooting Merge Queries

1. **Null Values in Merged Columns**
   - Ensure that the key columns in both tables have matching values and data types.
2. **Performance Issues**
   - Reduce the size of tables before merging by filtering rows or removing unnecessary columns.
3. **Incorrect Join Results**

- Verify that the join type and key column(s) are correctly defined.

By mastering merge queries in Power BI, you can efficiently combine and prepare data for comprehensive analysis and reporting.