Grouping or summarizing rows

Article • 07/30/2022 • 6 minutes to read

In Power Query, you can group values in various rows into a single value by grouping the rows according to the values in one or more columns. You can choose from two types of grouping operations:

- Column groupings.
- Row groupings.

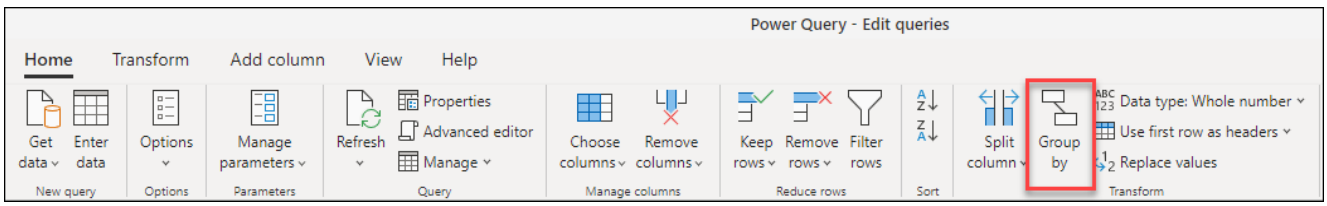
For this tutorial, you'll be using the following sample table.

	Year	Country	Product	Sales Channel	Units
1	2020	USA	Shirt	Online	5000
2	2020	USA	Shorts	Online	4000
3	2020	USA	Shirt	Reseller	7500
4	2020	USA	Shorts	Reseller	4500
5	2020	Panama	Shirt	Online	55
6	2020	Panama	Shorts	Online	70
7	2020	Panama	Shirt	Reseller	200
8	2020	Panama	Shorts	Reseller	150
9	2020	Canada	Shirt	Online	1200
10	2020	Canada	Shorts	Online	1450
11	2020	Canada	Shirt	Reseller	700
12	2020	Canada	Shorts	Reseller	800

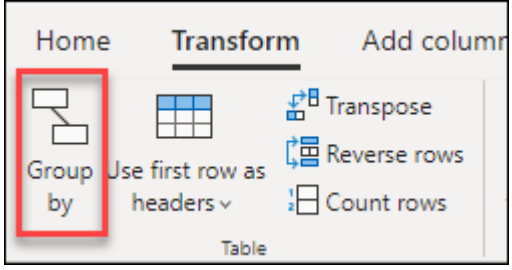
Where to find the Group by button

You can find the **Group by** button in three places:

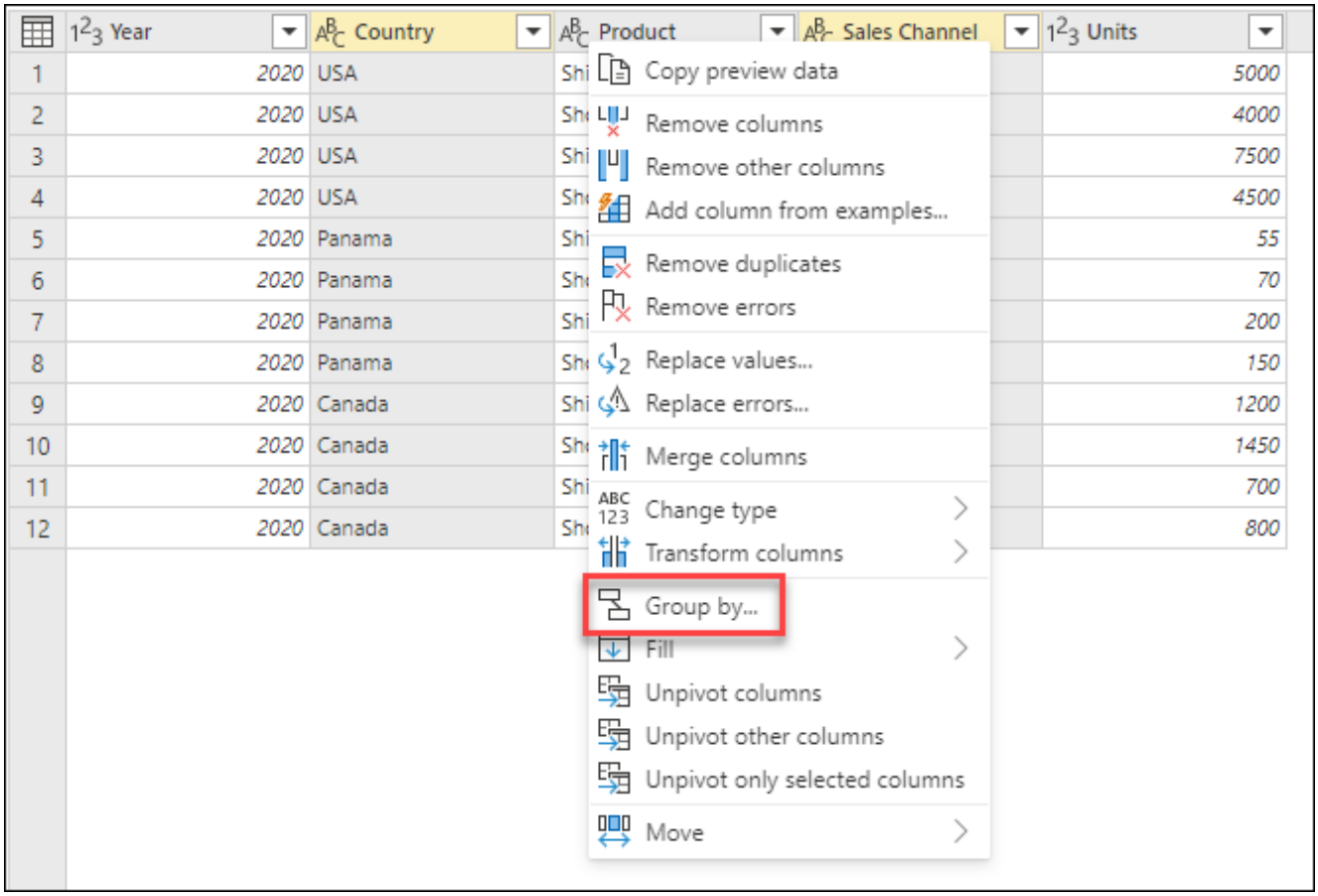
- On the **Home** tab, in the **Transform** group.



- On the **Transform** tab, in the **Table** group.



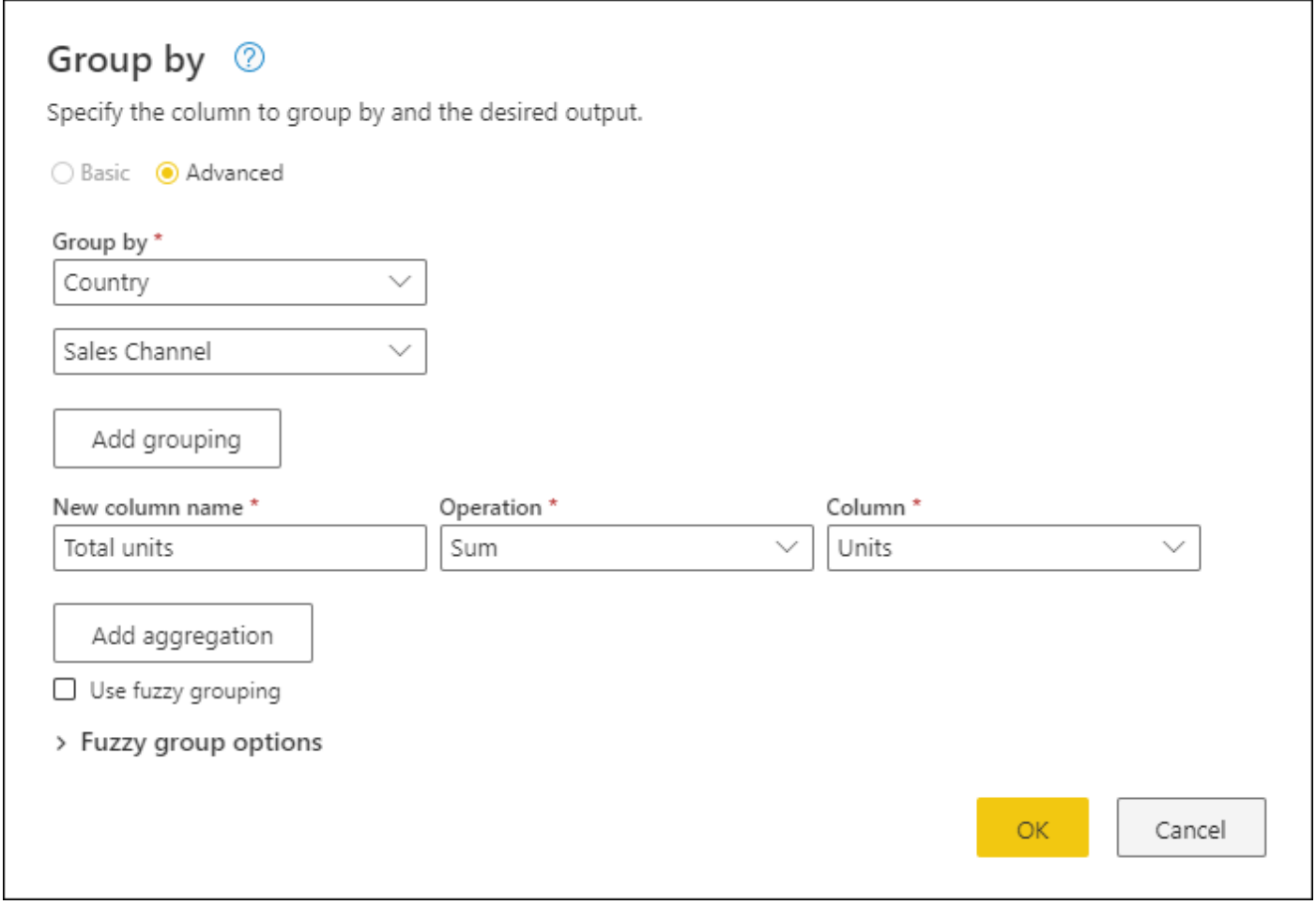
- On the shortcut menu when you right-click to select columns.



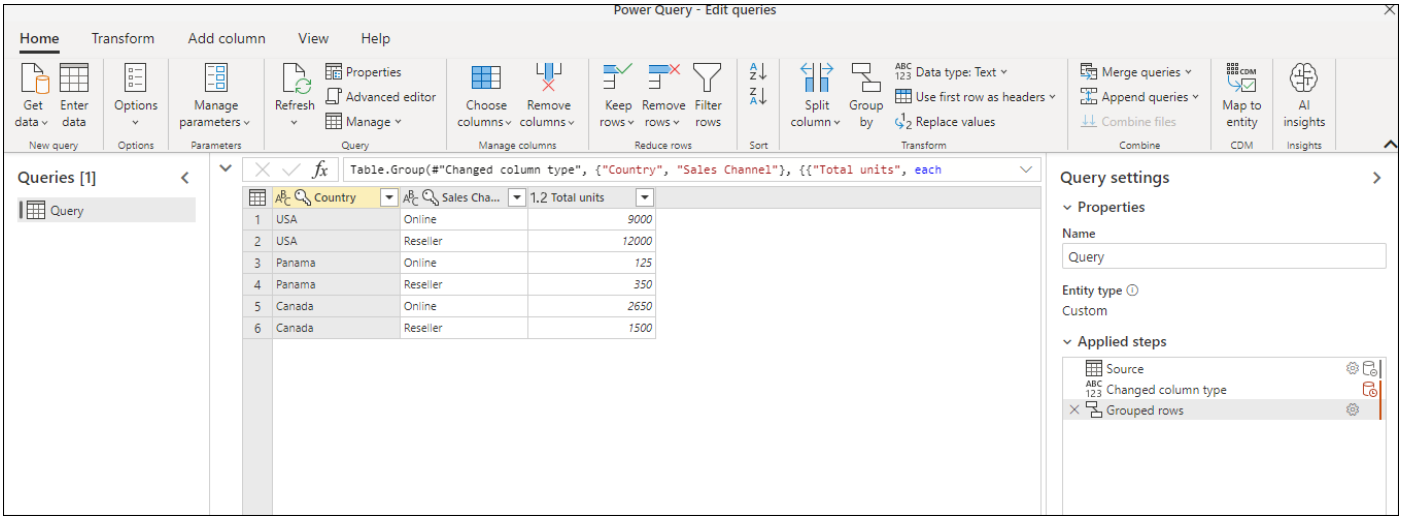
Use an aggregate function to group by one or more columns

In this example, your goal is to summarize the total units sold at the country and sales channel level. You'll use the **Country** and **Sales Channel** columns to perform the group by operation.

1. Select **Group by** on the **Home** tab.
2. Select the **Advanced** option, so you can select multiple columns to group by.
3. Select the **Country** column.
4. Select **Add grouping**.
5. Select the **Sales Channel** column.
6. In **New column name**, enter **Total units**, in **Operation**, select **Sum**, and in **Column**, select **Units**.
7. Select **OK**



This operation gives you the following table.



Operations available

With the **Group by** feature, the available operations can be categorized in two ways:

- Row level operation
- Column level operation

The following table describes each of these operations.

Operation Name	Category	Description

Operation Name	Category	Description
Sum	Column operation	Sums up all values from a column
Average	Column operation	Calculates the average value from a column
Median	Column operation	Calculates the median from a column
Min	Column operation	Calculates the minimum value from a column
Max	Column operation	Calculates the maximum value from a column
Percentile	Column operation	Calculates the percentile, using an input value from 0 to 100, from a column
Count distinct values	Column operation	Calculates the number of distinct values from a column
Count rows	Row operation	Calculates the total number of rows from a given group
Count distinct rows	Row operation	Calculates the number of distinct rows from a given group
All rows	Row operation	Outputs all grouped rows in a table value with no aggregations

> **Note**
>
> The **Count distinct values** and **Percentile** operations are only available in Power Query Online.

Perform an operation to group by one or more columns

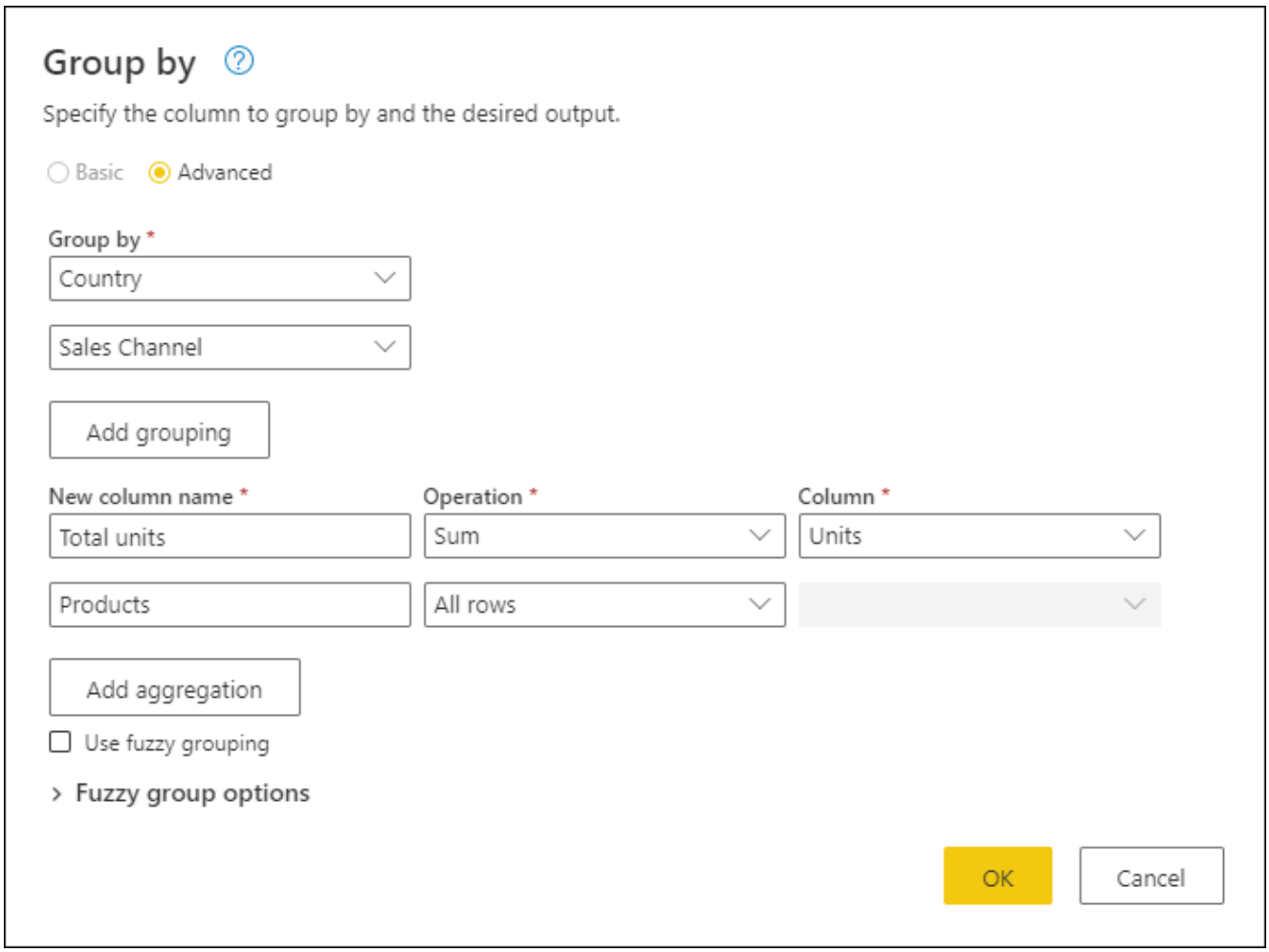
Starting from the original sample, in this example you'll a column containing the total units and two other columns that give you the name and units sold for the top-performing product, summarized at the country and sales channel level.

	Country	Sales Cha...	1.2 Total units	Top performer product.Product	Top performer product.Units
1	USA	Online	9000	Shirt	5000
2	USA	Reseller	12000	Shirt	7500
3	Panama	Online	125	Shorts	70
4	Panama	Reseller	350	Shirt	200
5	Canada	Online	2650	Shorts	1450
6	Canada	Reseller	1500	Shorts	800

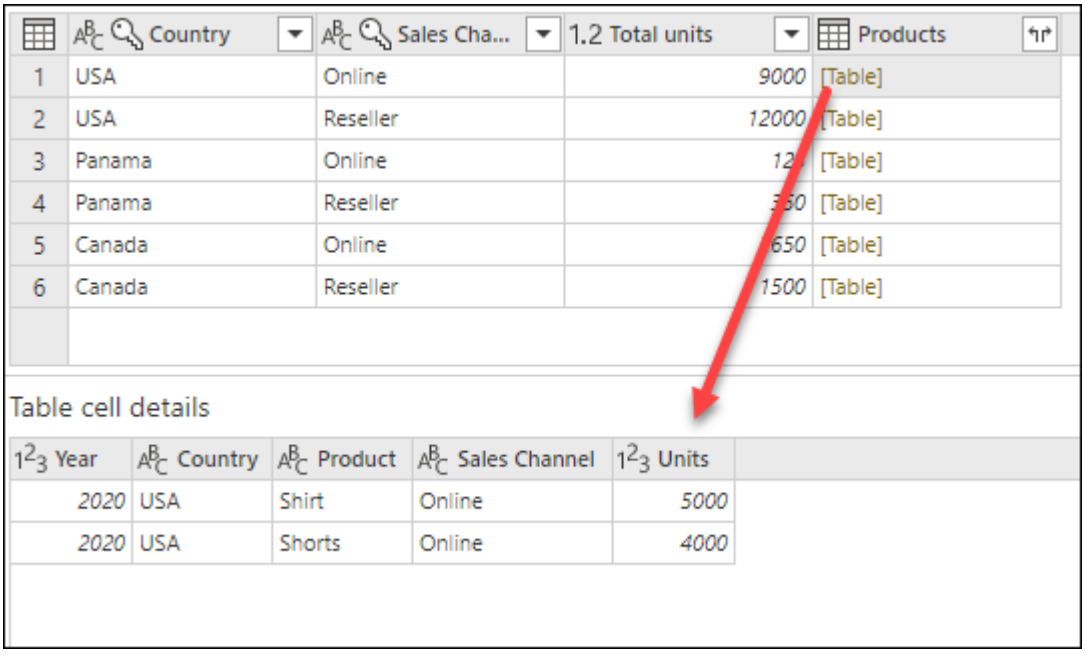
1. Use the following columns as **Group by** columns:

- Country
- Sales Channel

2. Create two new columns by doing the following:
   a. Aggregate the **Units** column by using the **Sum** operation. Name this column **Total units**.
   b. Add a new **Products** column by using the **All rows** operation.



After that operation is complete, notice how the **Products** column has [Table] values inside each cell. Each [Table] value contains all the rows that were grouped by the **Country** and **Sales Channel** columns from your original table. You can select the white space inside the cell to see a preview of the contents of the table at the bottom of the dialog box.



	Country	Sales Cha...	1.2 Total units	Products
1	USA	Online	9000	[Table]
2	USA	Reseller	12000	[Table]
3	Panama	Online	12	[Table]
4	Panama	Reseller	50	[Table]
5	Canada	Online	650	[Table]
6	Canada	Reseller	1500	[Table]

Table cell details

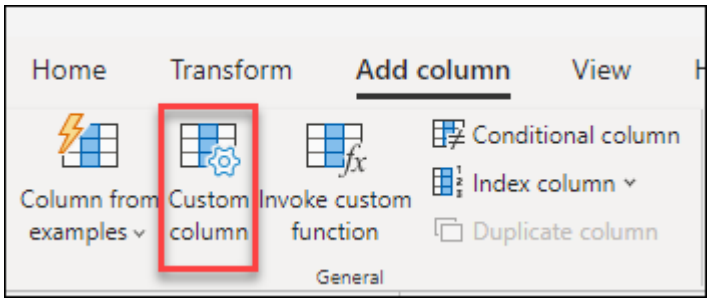
Year	Country	Product	Sales Channel	Units
2020	USA	Shirt	Online	5000
2020	USA	Shorts	Online	4000

> **Note**
>
> The details preview pane might not show all the rows that were used for the group-by operation. You can select the [Table] value to see all rows pertaining to the corresponding group-by operation.

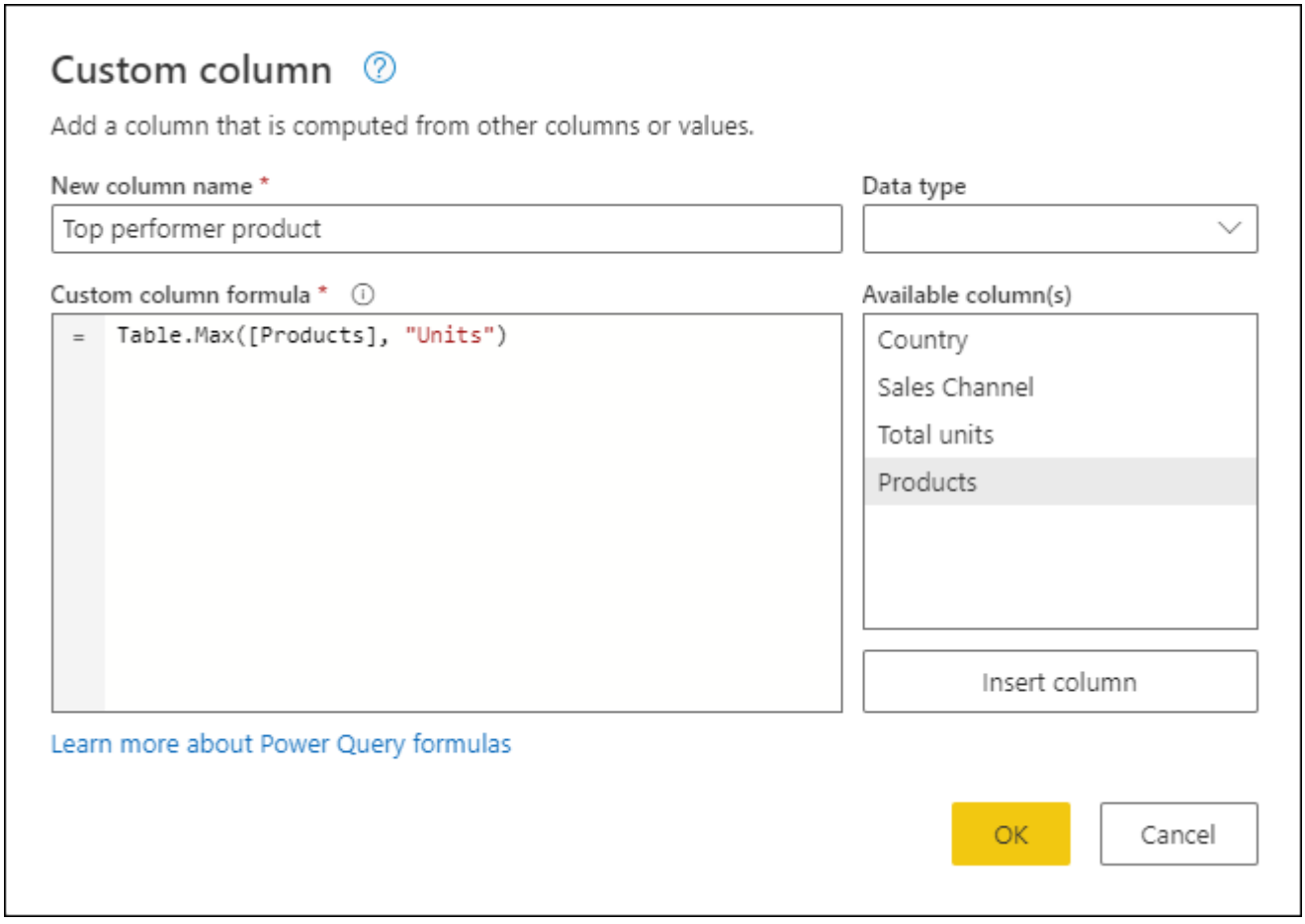
Next, you need to extract the row that has the highest value in the **Units** column of the tables inside the new **Products** column, and call that new column **Top performer product**.

Extract the top performer product information

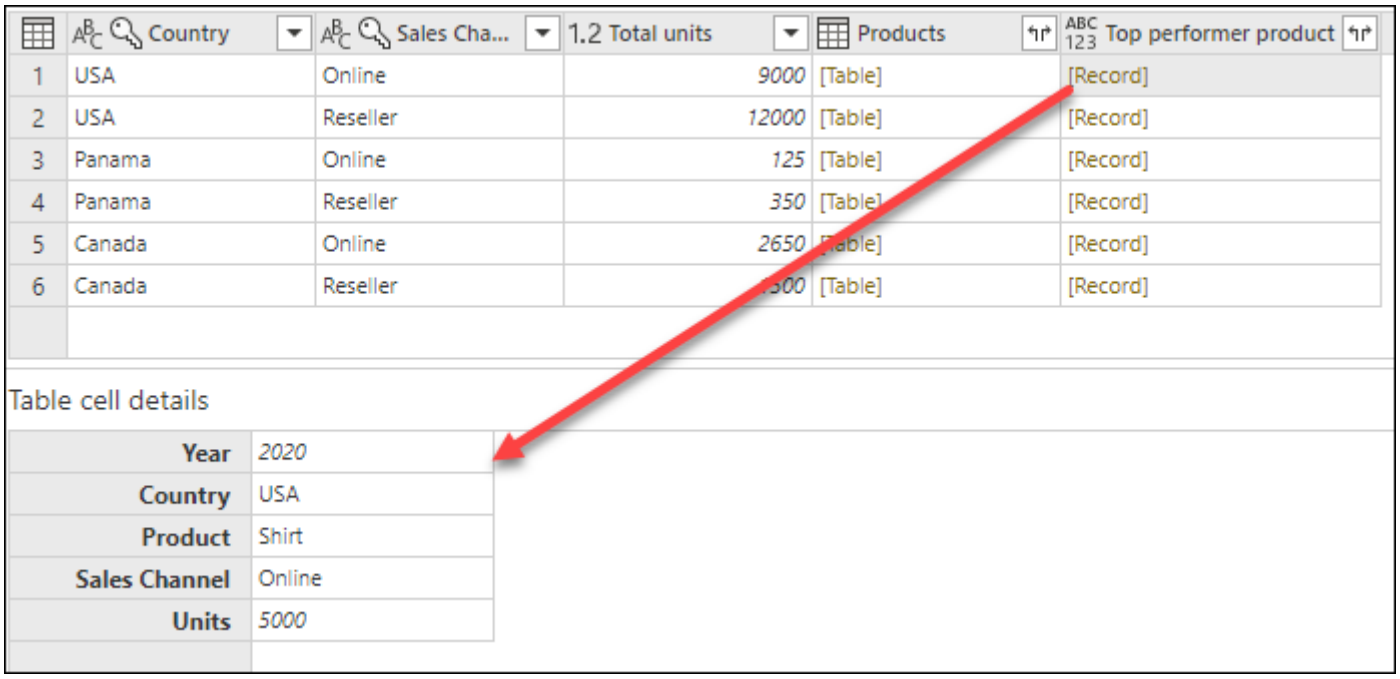
With the new **Products** column with [Table] values, you create a new custom column by going to the **Add Column** tab on the ribbon and selecting **Custom column** from the **General** group.



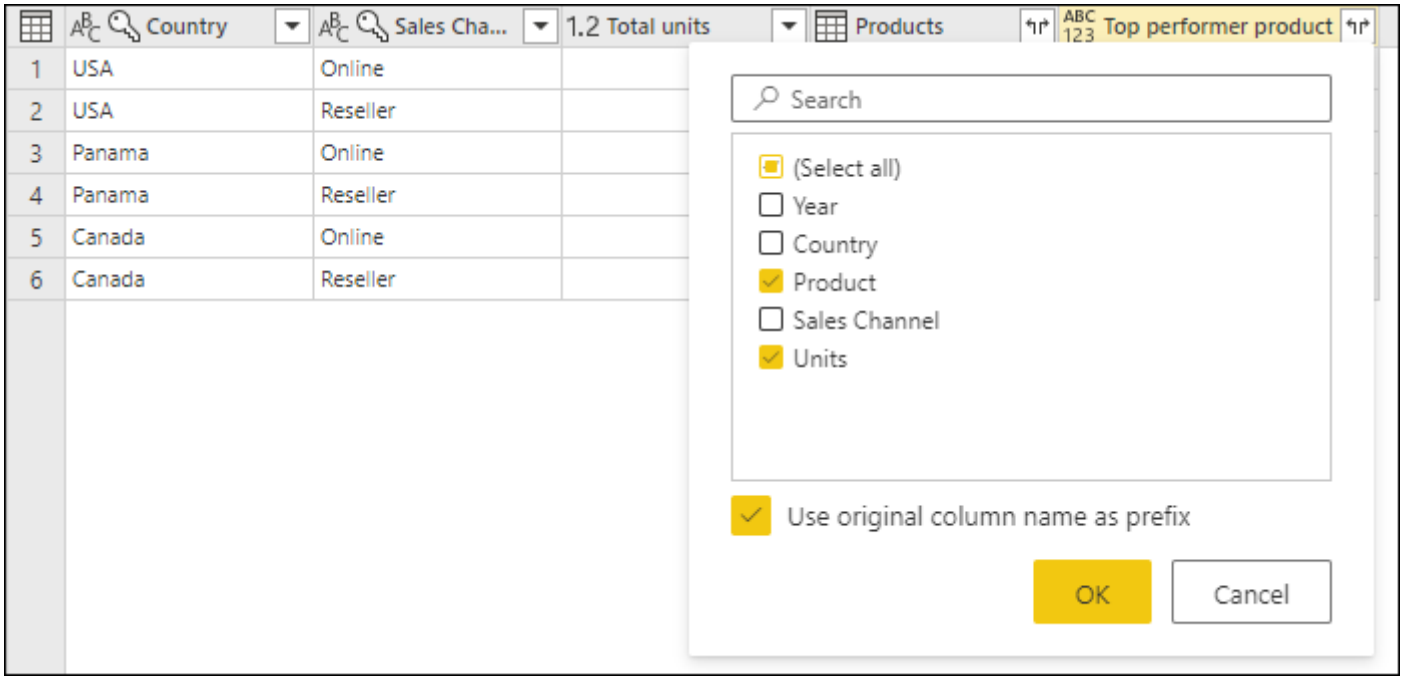
Name your new column **Top performer product**. Enter the formula `Table.Max([Products], "Units")` under **Custom column formula**.



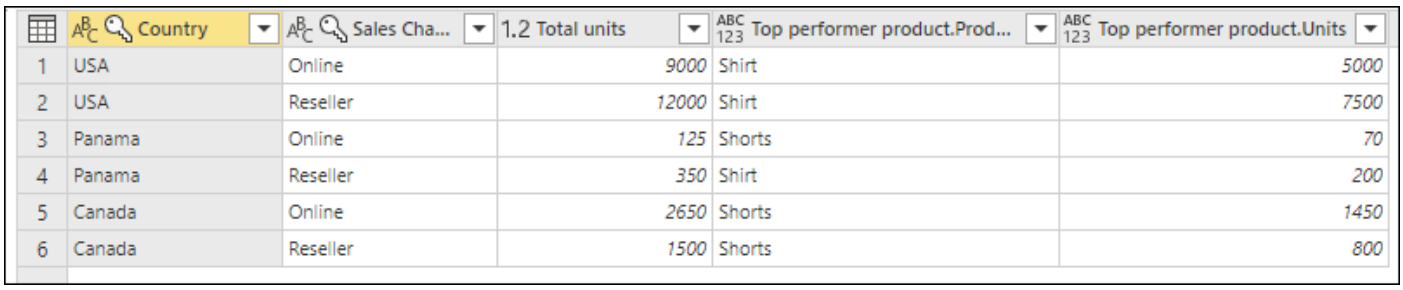
The result of that formula creates a new column with [Record] values. These record values are essentially a table with just one row. These records contain the row with the maximum value for the **Units** column of each [Table] value in the **Products** column.



With this new **Top performer product** column that contains [Record] values, you can select the expand icon, select the **Product** and **Units** fields, and then select **OK**.



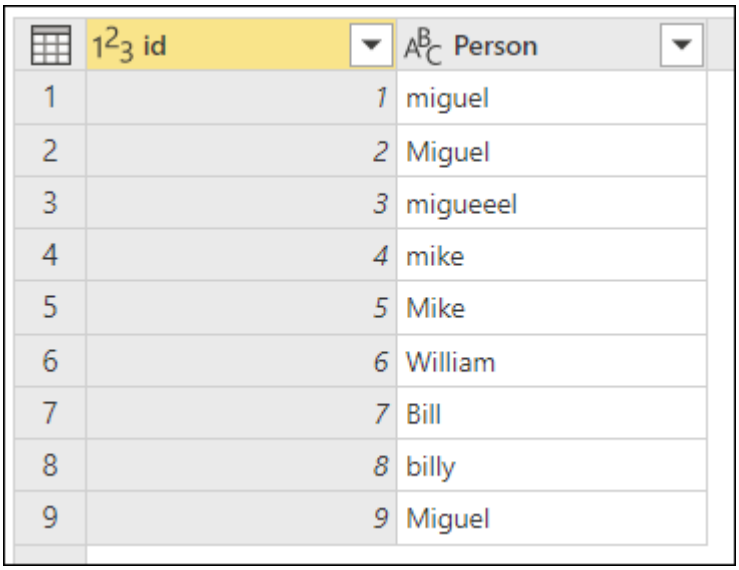
After removing your **Products** column and setting the data type for both newly expanded columns, your result will resemble the following image.



Fuzzy grouping

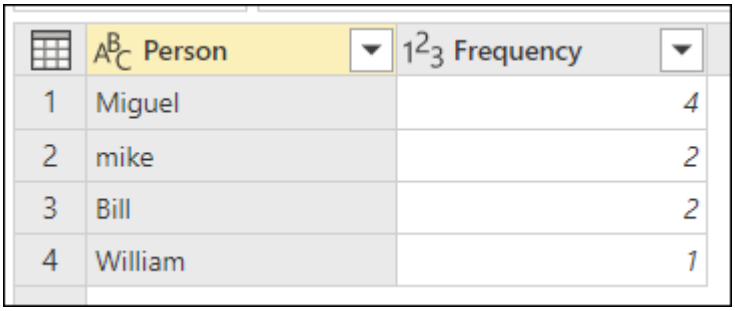
> **Note**
>
> The following feature is only available in Power Query Online.

To demonstrate how to do "fuzzy grouping," consider the sample table shown in the following image.



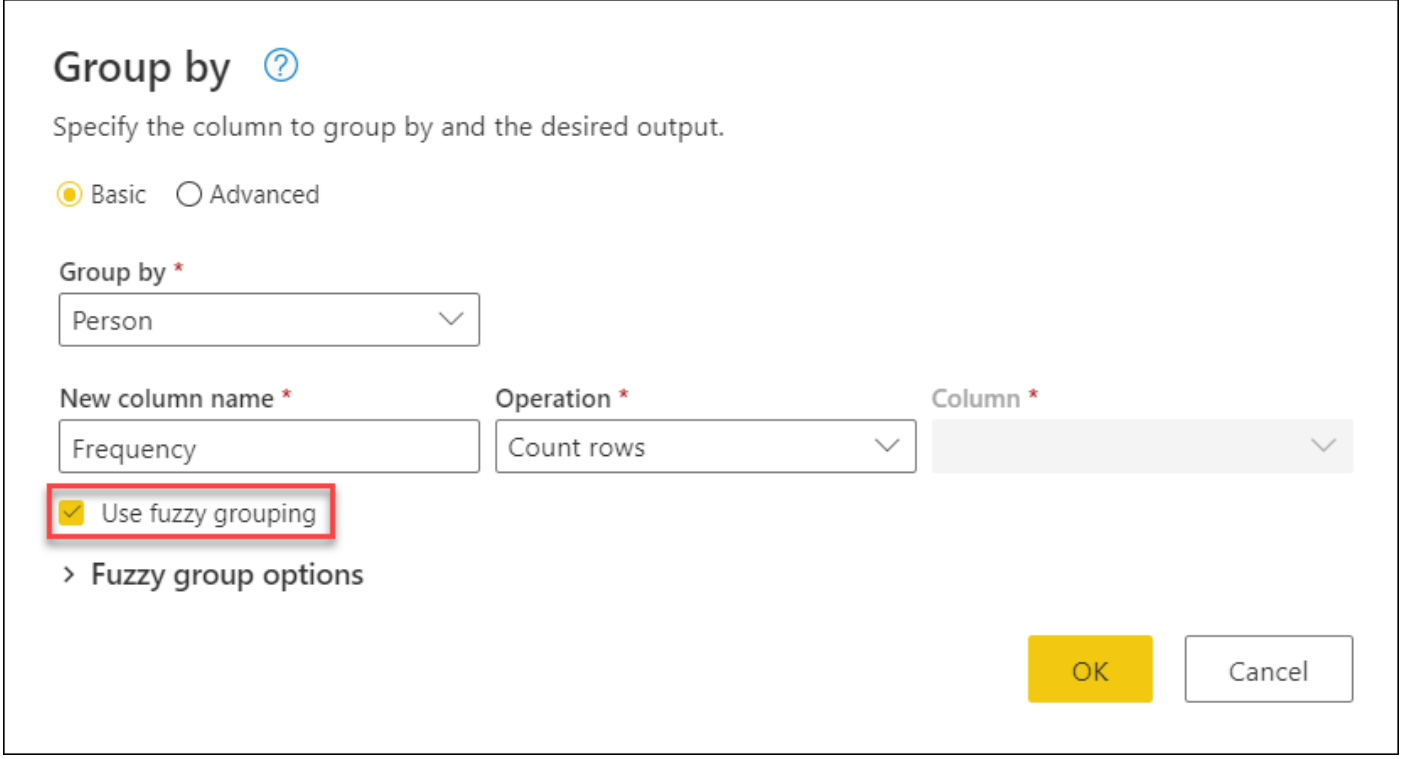
	id	Person
1	1	miguel
2	2	Miguel
3	3	migueeel
4	4	mike
5	5	Mike
6	6	William
7	7	Bill
8	8	billy
9	9	Miguel

The goal of fuzzy grouping is to do a group-by operation that uses an approximate match algorithm for text strings. Power Query uses the Jaccard similarity algorithm to measure the similarity between pairs of instances. Then it applies agglomerative hierarchical clustering to group instances together. The following image shows the output that you expect, where the table will be grouped by the **Person** column.



	Person	Frequency
1	Miguel	4
2	mike	2
3	Bill	2
4	William	1

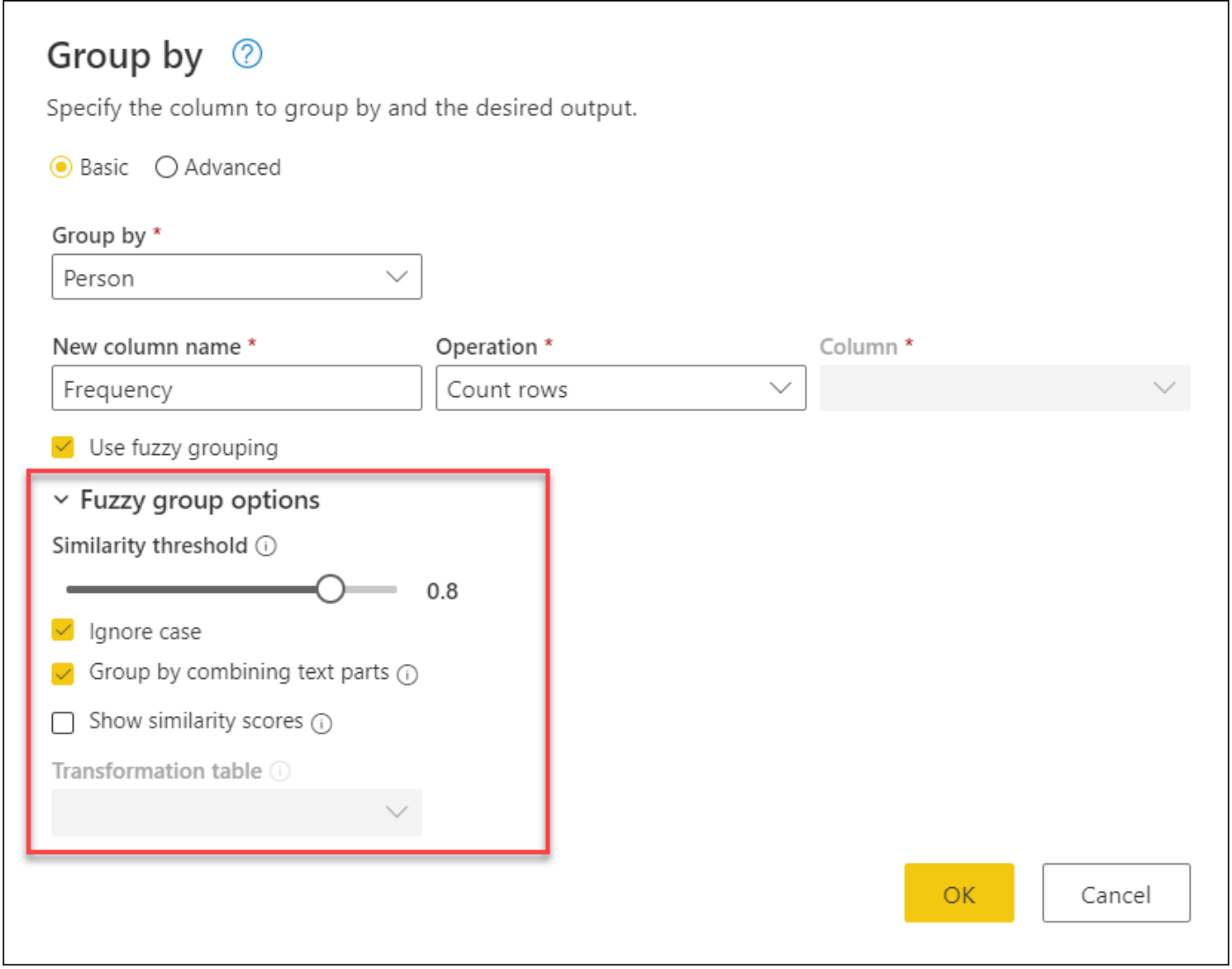
To do the fuzzy grouping, you perform the same steps previously described in this article. The only difference is that this time, in the **Group by** dialog box, you select the **Use fuzzy grouping** check box.



For each group of rows, Power Query will pick the most frequent instance as the "canonical" instance. If multiple instances occur with the same frequency, Power Query will pick the first one. After you select **OK** in the **Group by** dialog box, you'll get the result that you were expecting.

	Person	Frequency
1	Miguel	4
2	mike	2
3	Bill	2
4	William	1

However, you have more control over the fuzzy grouping operation by expanding **Fuzzy group options**.



The following options are available for fuzzy grouping:

- **Similarity threshold (optional)**: This option indicates how similar two values must be to be grouped together. The minimum setting of 0 will cause all values to be grouped together. The maximum setting of 1 will only allow values that match exactly to be grouped together. The default is 0.8.
- **Ignore case**: When comparing text strings, case will be ignored. This option is enabled by default.
- **Group by combining text parts**: The algorithm will try to combine text parts (such as combining **Micro** and **soft** into **Microsoft**) to group values.
- **Show similarity scores**: Show similarity scores between the input values and the computed representative values after fuzzy grouping. Requires the addition of an operation such as **All rows** to showcase this information on a row-by-row level.
- **Transformation table (optional)**: You can select a transformation table that will map values (such as mapping **MSFT** to **Microsoft**) to group them together.

For this example, a transformation table will be used to demonstrate how values can be mapped. The transformation table has two columns:

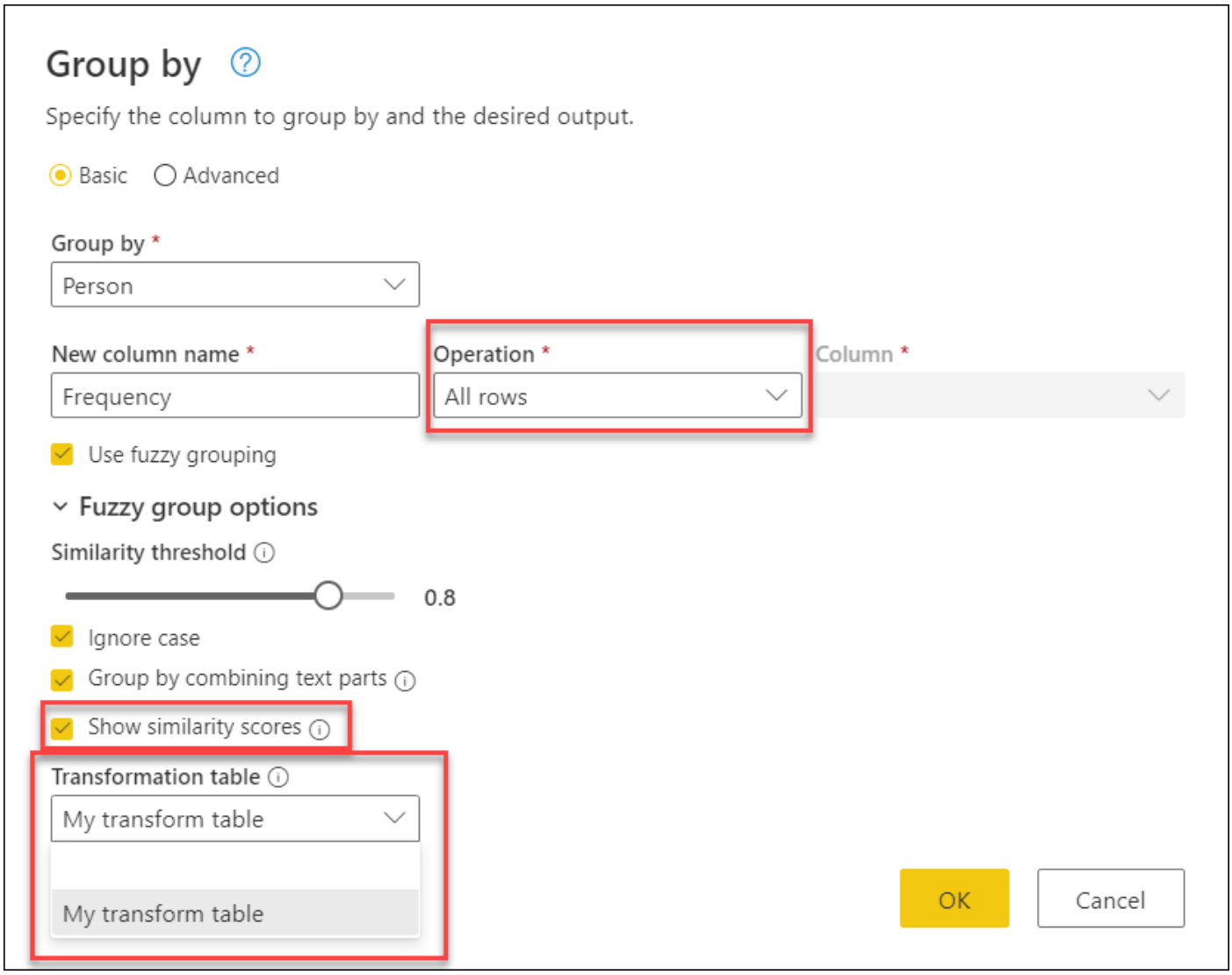
- **From**: The text string to look for in your table.
- **To**: The text string to use to replace the text string in the **From** column.

The following image shows the transformation table used in this example.

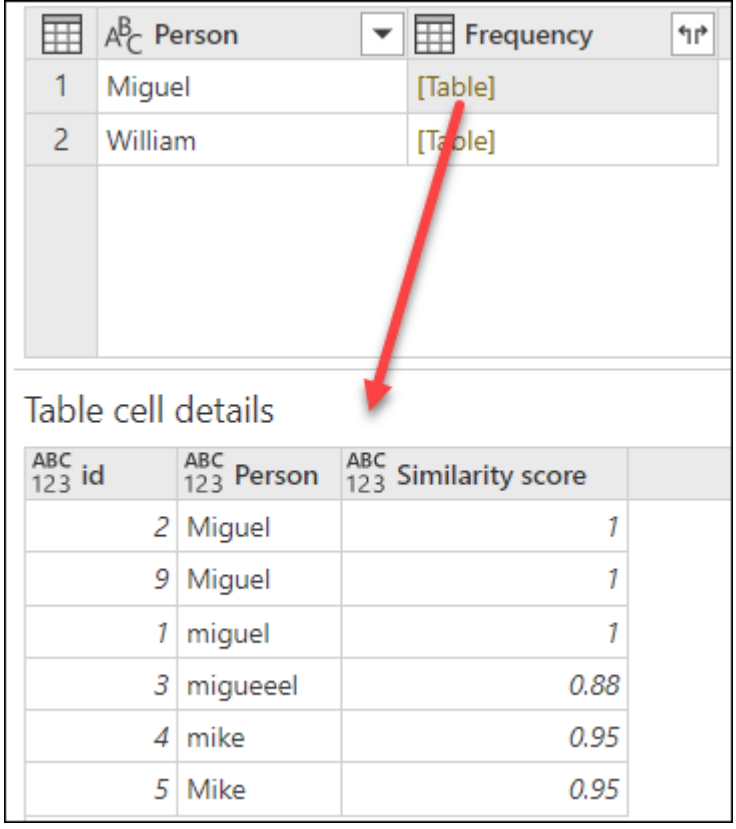
	From	To
1	mike	Miguel
2	William	Bill

> **Important**
>
> It's important that the transformation table has a the same columns and column names as shown above (they have to be "From" and "To"), otherwise Power Query will not recognize these.

Return to the **Group by** dialog box, expand **Fuzzy group options**, change the operation from **Count rows** to **All rows**, enable the **Show similarity scores** option, and then select the **Transformation table** drop-down menu.



After selecting your transformation table, select **OK**. The result of that operation gives you the the following information.



In this example, the **Ignore case** option was enabled, so the values in the **From** column of the **Transformation table** are used to look for the text string without considering the case of the string. This transformation operation occurs first, and then the fuzzy grouping operation is performed.

The similarity score is also shown in the table value next to the person column, which reflects exactly how the values were grouped and their respective similarity scores. You have the option to expand this column if needed or use the values from the new Frequency columns for other sorts of transformations.

> **Note**
>
> When grouping by multiple columns, the transformation table performs the replace operation in all columns if replacing the value increases the similarity score.

See also

Add a custom column
Remove duplicates