

Lesson 3

Topic: Data Transformation with Power Query (Part 1)

Prerequisites: Download Customer_Orders.txt, Orders.txt

Theory Questions

1. **What is the purpose of the "Applied Steps" pane in Power Query?**

It records every transformation you apply (remove columns, filter, split, etc.). It works like a history list of steps, which you can edit, reorder, or delete.

2. **How do you remove duplicate rows in Power Query?**

- Select the column(s) you want to check for duplicates.
- Go to **Home** → **Remove Rows** → **Remove Duplicates**.

3. **What does the "Filter" icon do in Power Query?**

It allows you to filter rows based on values (text, number ranges, dates, etc.), just like filtering in Excel.

4. **How would you rename a column from "CustID" to "CustomerID"?**

- Right-click the column header → **Rename** → type CustomerID.
- Or use **Transform** → **Rename**.

5. **What happens if you click "Close & Apply" in Power Query?**

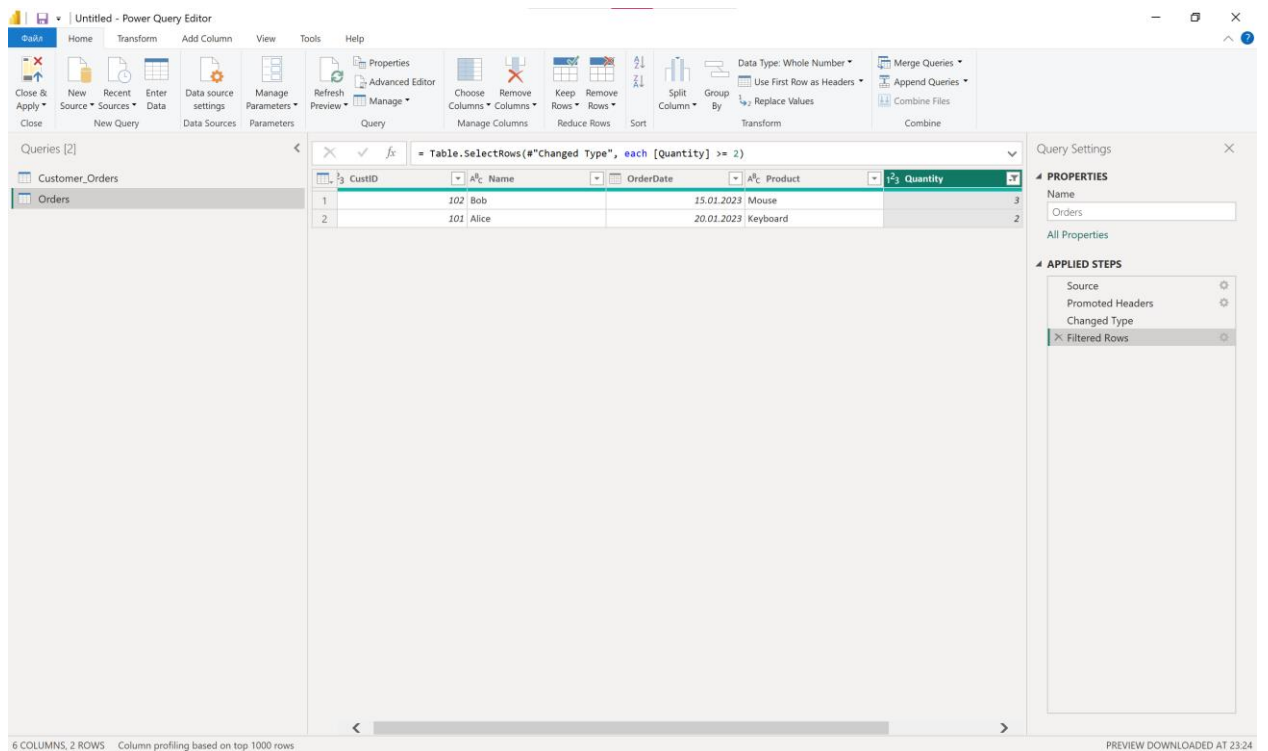
→ All transformations are saved and loaded into Power BI's Data Model.

6. **Remove all rows where Quantity is less than 2.**

 File: **Orders.txt** (column Quantity)

- Select **Quantity** → **Filter** → **Number Filters** → **Greater Than or Equal To 2**.
M-code:

Table.SelectRows(Orders, each [Quantity] >= 2)

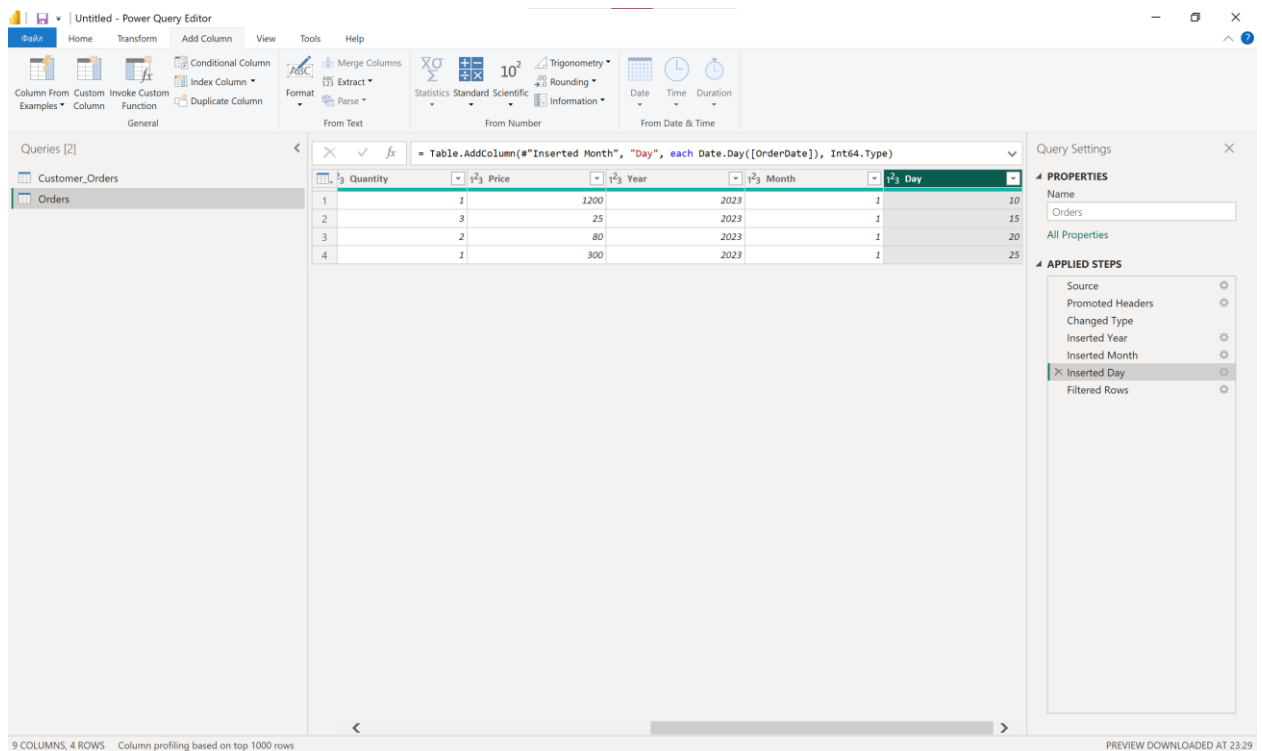


7. Split the OrderDate column into "Year," "Month," and "Day".

📁 File: **Orders.txt** (есть колонка OrderDate)

- Select **OrderDate** → Add Column → Date → Year / Month / Day.
M-code:

```
= Table.AddColumn(
    Table.AddColumn(
        Table.AddColumn(Orders, "Year", each Date.Year([OrderDate]),
            Int64.Type),
        "Month", each Date.Month([OrderDate]), Int64.Type
    ),
    "Day", each Date.Day([OrderDate]), Int64.Type
)
```

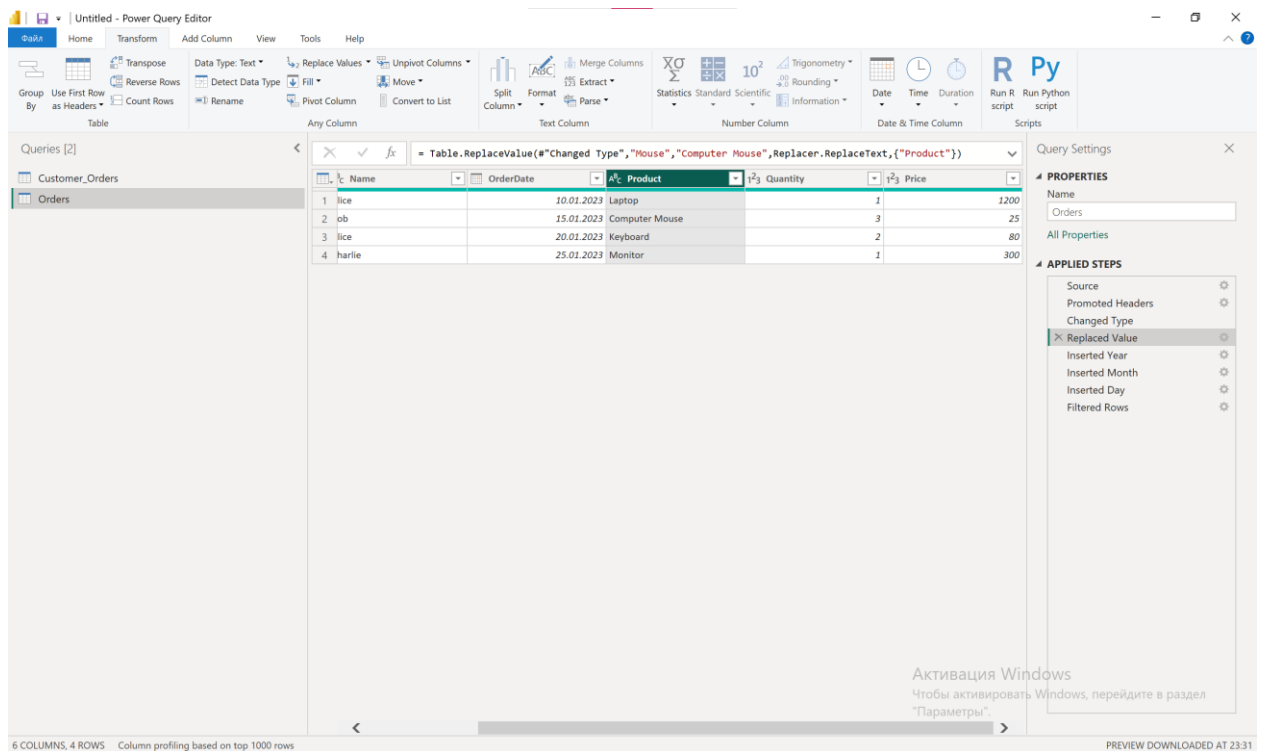


8. Replace all "Mouse" entries in the Product column with "Computer Mouse".

File: **Orders.txt** (есть колонка Product)

- Select **Product** → Transform → Replace Values.
M-code:

Table.ReplaceValue(Orders, "Mouse", "Computer Mouse", Replacer.ReplaceText, {"Product"})

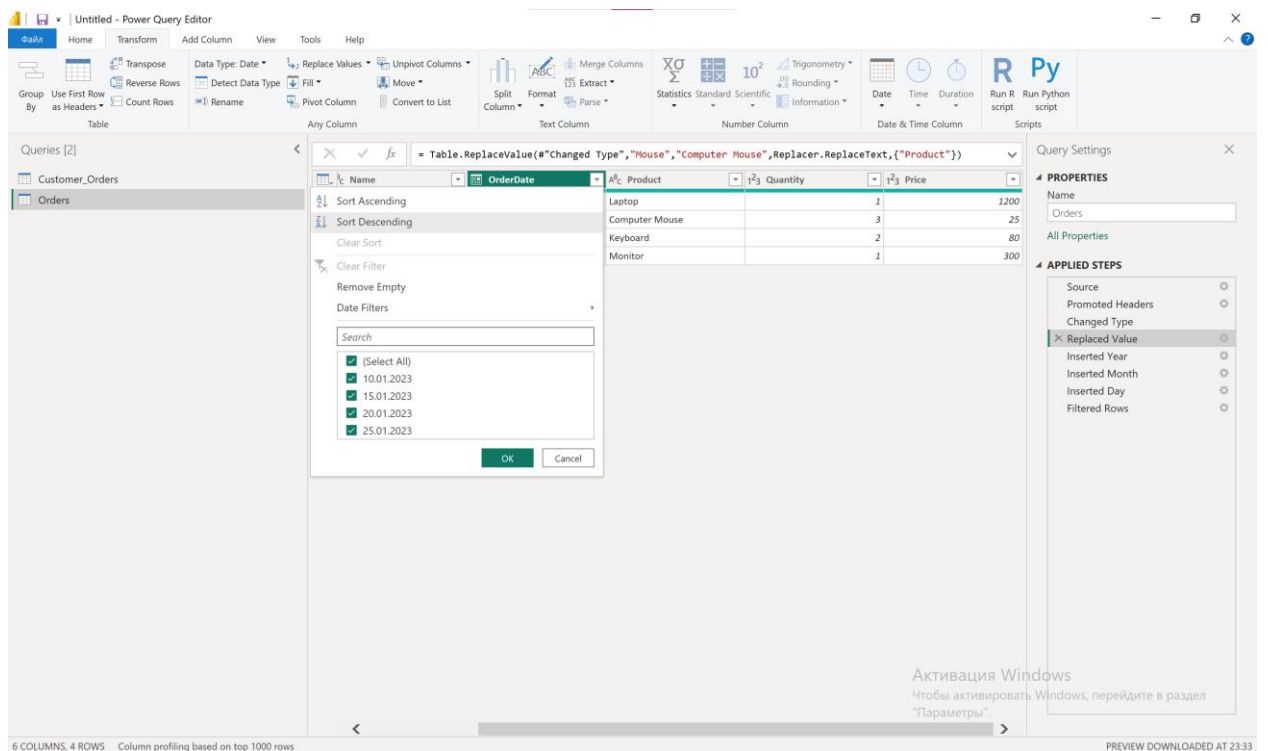


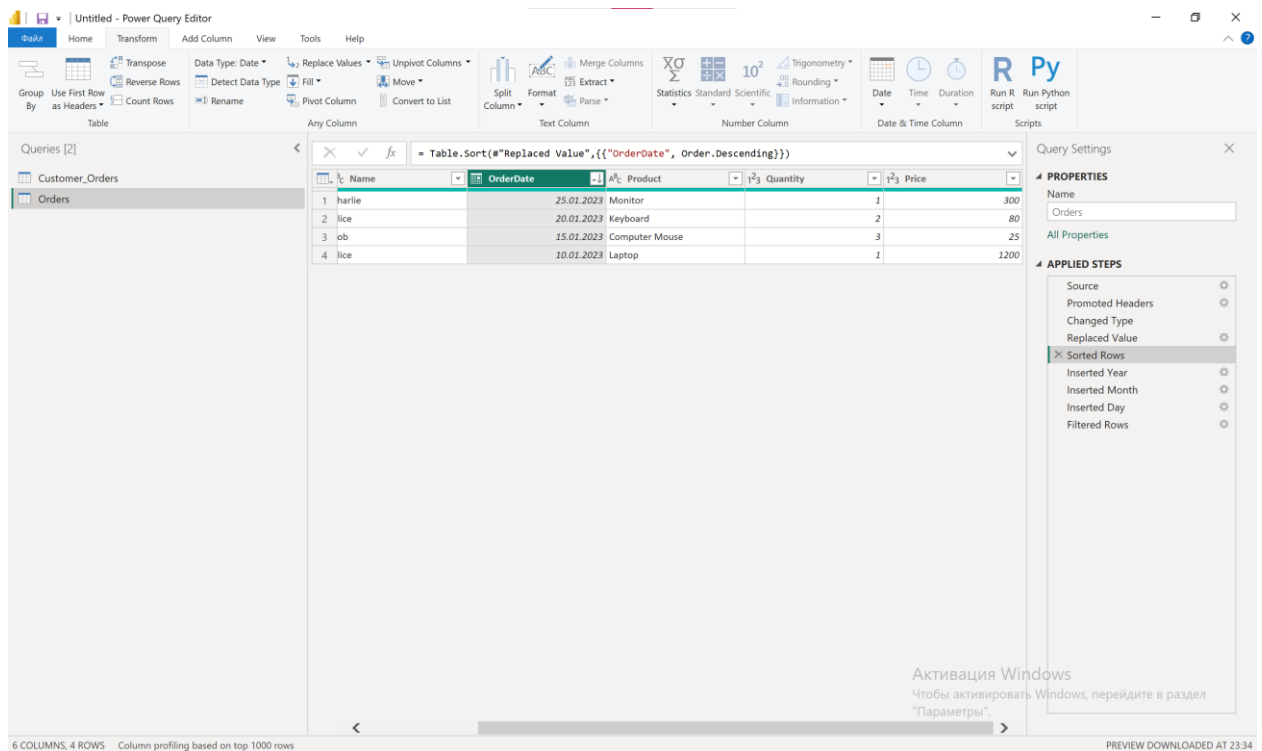
9. Sort the table by OrderDate (newest first).

File: **Orders.txt**

- Select **OrderDate** → Sort Descending.
- M-code:

`Table.Sort(Orders, {{"OrderDate", Order.Descending}})`





10. How would you handle null values in the Price column?

File: **Orders.txt** (есть колонка Price)

- Replace nulls with 0 → Transform → Replace Values → null → 0.
- Or remove null rows → Remove Rows → Remove Blank Rows.
- Or fill down/up.

Untitled - Power Query Editor

Queries [2]

Customer_Orders

Orders

fx

= Table.TransformColumnTypes(#"Promoted Headers",{{"CustID", Int64.Type}, {"Name", type text},

	Name	OrderDate	Product	Quantity	Price
1	lice	10.01.2023	Laptop	1	1200
2	ob	15.01.2023	Mouse	3	25
3	lice	20.01.2023	Keyboard	2	80
4	harlie	25.01.2023	Monitor	1	300

Replace Values

Replace one value with another in the selected columns.

Value To Find

1.2 null

Replace With

1.2 d

OK Cancel

Query Settings

PROPERTIES

Name

Orders

APPLIED STEPS

Source

Promoted Headers

Changed Type

Replaced Value

Sorted Rows

Inserted Year

Inserted Month

Inserted Day

Filtered Rows

6 COLUMNS, 4 ROWS Column profiling based on top 1000 rows

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Untitled - Power Query Editor

Queries [2]

Customer_Orders

Orders

fx

= Table.ReplaceValue(#"Changed Type",null,0,Replacer.ReplaceValue,{"Price"})

	Name	OrderDate	Product	Quantity	1.2 Price
1	lice	10.01.2023	Laptop	1	1200
2	ob	15.01.2023	Mouse	3	25
3	lice	20.01.2023	Keyboard	2	80
4	harlie	25.01.2023	Monitor	1	300

Query Settings

PROPERTIES

Name

Orders

APPLIED STEPS

Source

Promoted Headers

Changed Type

Replaced Value1

Replaced Value

Sorted Rows

Inserted Year

Inserted Month

Inserted Day

Filtered Rows

6 COLUMNS, 4 ROWS Column profiling based on top 1000 rows

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11. Write custom M-code to add a column calculating TotalSpent = Quantity * Price.

File: Orders.txt

- Add Column → Custom Column.
M-code:

`Table.AddColumn(Orders, "TotalSpent", each [Quantity] * [Price], type number)`

Power Query Editor - Custom Column dialog

Custom column formula: `= [Quantity] * [Price]`

New column name: `TotalSpent`

Available columns: CustID, Name, OrderDate, Product, Quantity, Price

Status: 6 COLUMNS, 4 ROWS



Power Query Editor - Final Data Table

OrderDate	Product	Quantity	Price	TotalSpent
10.01.2023	Laptop	1	1200	1200
15.01.2023	Mouse	3	25	75
20.01.2023	Keyboard	2	80	160
25.01.2023	Monitor	1	300	300

Status: 7 COLUMNS, 4 ROWS



The screenshot shows the Power Query Editor interface. The main area displays a table with the following data:

	CustID	TotalSpending
1	101	1360
2	102	75
3	103	300

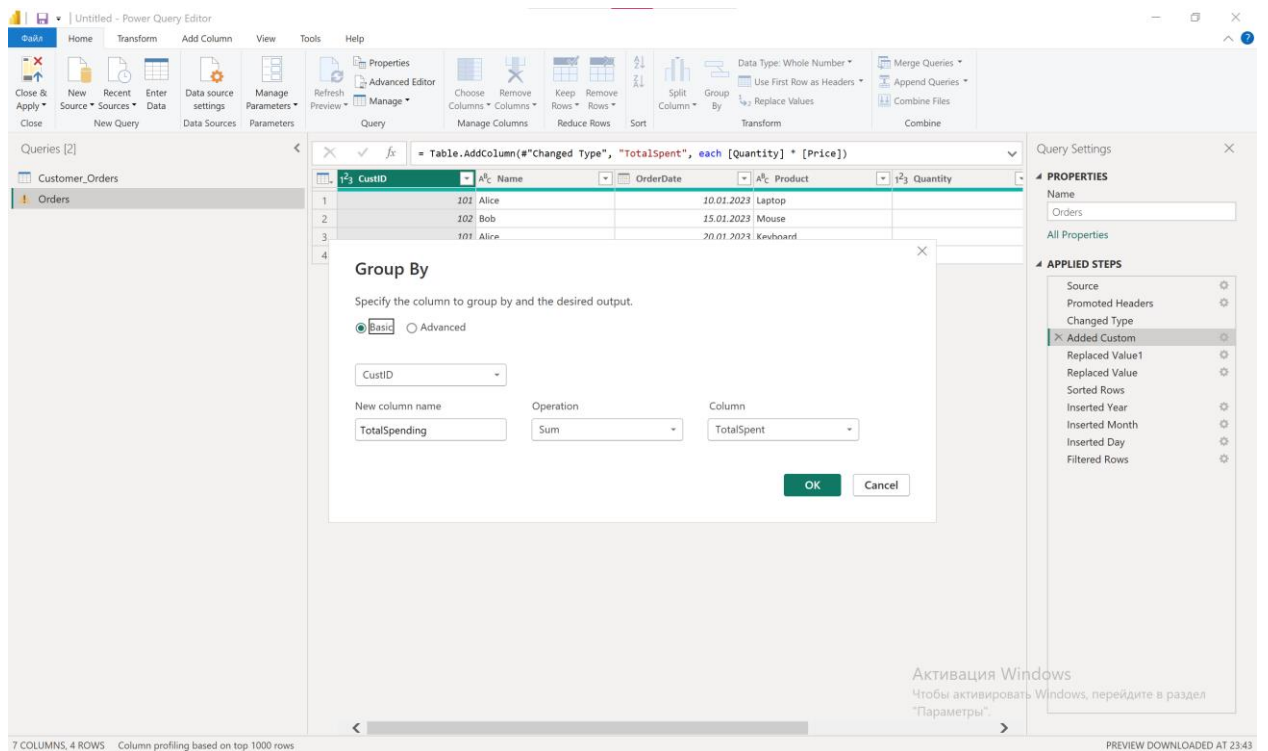
The formula bar at the top shows the M-code: `= Table.Group(#"Added Custom", "CustID", {{ "TotalSpending", each List.Sum([TotalSpent]), type number }})`. The right-hand pane shows the 'APPLIED STEPS' list, which includes 'Grouped Rows' as the current step.

12. Group the table by CustID to show total spending per customer.

File: **Customer_Orders.txt** (там есть CustID → связь с Orders)

- Merge Orders + Customer_Orders (если нужно).
- Select **CustID** → Home → Group By → Sum on TotalSpent.
M-code:

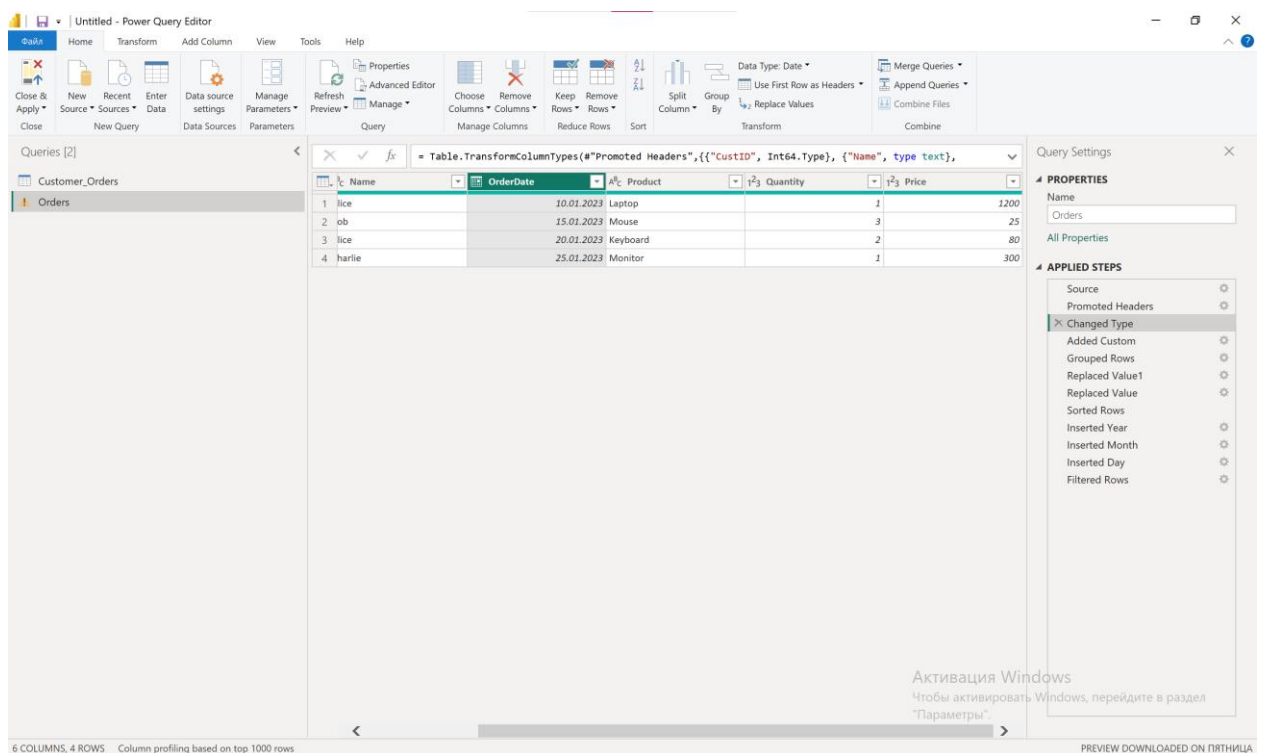
`Table.Group(Customer_Orders, {"CustID"}, {{ "TotalSpending", each List.Sum([TotalSpent]), type number }})`



13. Fix inconsistent date formats in OrderDate.

File: Orders.txt

- Select **OrderDate** → Change Type → Date.
- If needed → Change Type → Using Locale.



14. Create a conditional column: Label orders as "High Value" if Price > 100.

File: Orders.txt

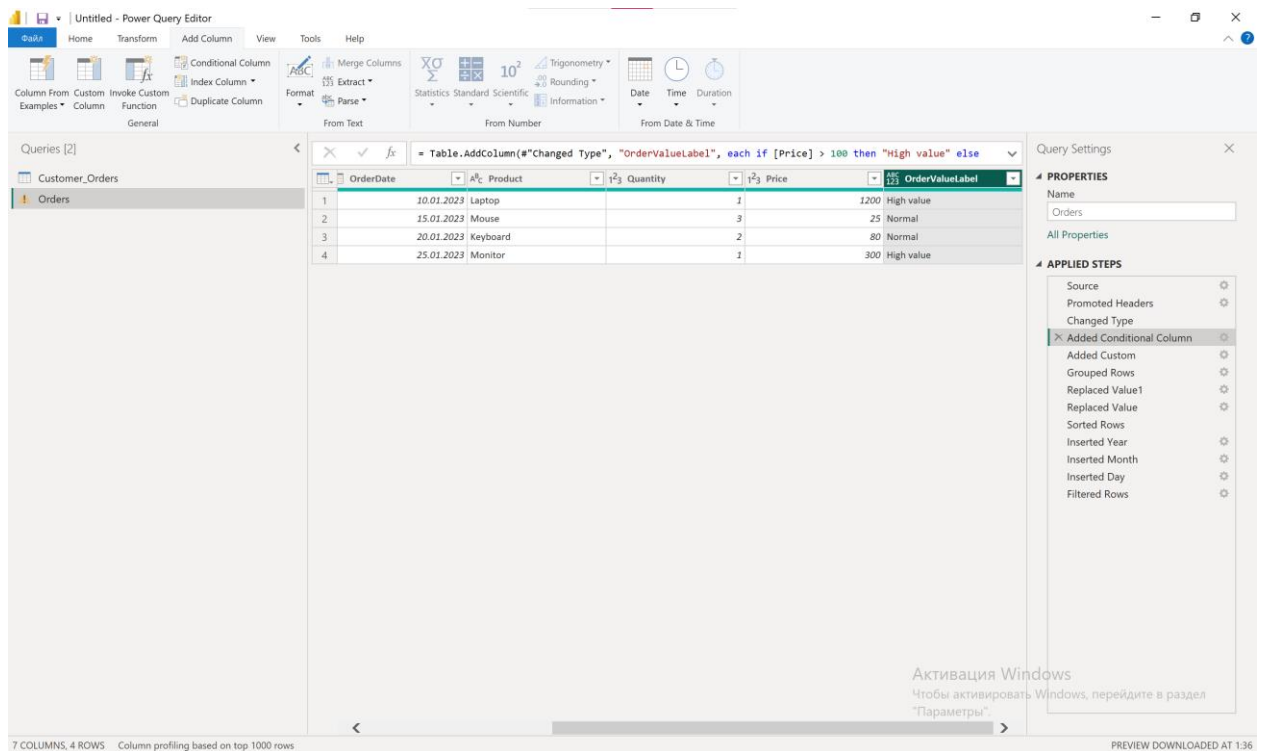
- Add Column → Conditional Column.

M-code:

```
Table.AddColumn(Orders, "OrderValueLabel", each if [Price] > 100 then "High Value" else "Normal")
```

The screenshot displays the Power Query Editor interface. A dialog box titled "Add Conditional Column" is open, allowing the user to create a new conditional column. The "New column name" field is set to "OrderValueLabel". The "If" clause is configured with the column "Price", the operator "is greater than", and the value "100". The "Then" clause is set to "High value". The "Else" clause is set to "Normal". The background shows the Power Query Editor with a table of orders. The table has columns: Name, OrderDate, Product, Quantity, and Price. The data row shows: 1, lice, 10.01.2023, Laptop, 1, 1200. The "APPLIED STEPS" pane on the right shows the steps: Source, Promoted Headers, and Changed Type.





15. Optimize the query to reduce refresh time.

work with 2 files: **Orders.txt** и **Customer_Orders.txt**

- Remove unused columns early.
- Filter before merging.
- Avoid multiple data type changes.
- Disable load for intermediate queries.