Advanced Product Customer Grouping Analysis Project

Power Query Project

Project Overview

- Real-world customer-product analysis using Microsoft Power Query
- Worked on transactional dataset with key fields:
  -Product Name, Customer Name, Quantity, Price, Purchase Date, City, Payment Mode
- Focused on handling repeated customer names and summarizing purchase behavior

	A	B	C	D	E	F	G
1	Product Name	Customer Name	Quantity	Price	Purchase Date	City	Payment Mode
2	Water Bottle	Manish Kumar	1	15891.97	02-08-2025	Chennai	Net Banking
3	Mixer Grinder	Suresh Reddy	4	52458.23	30-04-2024	Hyderabad	Net Banking
4	Desk Lamp	Pooja Patel	2	19182.6	21-04-2025	Jaipur	Cash
5	Wall Clock	Pooja Patel	3	65840.89	28-06-2024	Hyderabad	Debit Card
6	Mixer Grinder	Kavita Das	2	67314.95	07-03-2024	Pune	Credit Card
7	T-shirt	Rekha Soni	4	40600.16	14-07-2024	Pune	Cash
8	Bedsheet	Simran Kaur	5	76581.26	05-03-2024	Delhi	Debit Card
9	Coffee Maker	Simran Kaur	5	66953.47	20-01-2025	Delhi	UPI
10	Washing Machine	Simran Kaur	2	60224.29	28-01-2024	Chennai	Net Banking
11	Smartphone	Neha Gupta	4	98679.66	29-01-2025	Mumbai	Cash
12	Wireless Mouse	Kavita Das	1	620.94	11-08-2025	Jaipur	Credit Card
13	Washing Machine	Sneha Kapoor	2	51089.66	01-01-2025	Ahmedabad	UPI
14	Gaming Console	Vikas Joshi	4	15514.36	30-06-2024	Kolkata	Net Banking
15	Water Bottle	Suresh Reddy	3	74762.55	28-07-2025	Pune	Credit Card
16	Smartphone	Sneha Kapoor	2	78591.5	08-09-2025	Pune	UPI
17	Smartwatch	Arjun Malhotra	4	54975.23	23-11-2024	Bengaluru	Net Banking
18	Washing Machine	Neha Gupta	2	70717.21	02-07-2024	Delhi	UPI
19	Cookware Set	Nidhi Bansal	3	34622.87	16-01-2025	Chandigarh	Debit Card
20	Sneakers	Simran Kaur	4	77984.12	19-06-2025	Chandigarh	Debit Card
21	Pillow	Rahul Mehta	4	4903.48	13-03-2024	Bengaluru	Credit Card
22	Microwave Oven	Pooja Patel	5	23903.97	20-09-2024	Mumbai	Debit Card
23	Headphones	Vikas Joshi	5	96425.62	03-01-2024	Kolkata	Cash
24	Photo Frame	Rahul Mehta	5	9501.95	08-03-2024	Pune	Debit Card
25	Refrigerator	Swati Mishra	5	64030.22	02-04-2024	Kolkata	Net Banking
26	Backpack	Ankit Yadav	3	28533.74	23-03-2025	Ahmedabad	UPI
27	Smartwatch	Ritu Jain	4	71108.73	19-07-2025	Ahmedabad	UPI
28	Washing Machine	Deepak Nair	2	41699.64	18-08-2024	Delhi	Cash
29	Desk Lamp	Arjun Malhotra	1	83748.64	01-09-2025	Kolkata	Debit Card
30	Jacket	Nidhi Bansal	2	52257.16	24-11-2024	Delhi	UPI
31	Sneakers	Vikas Joshi	3	95707.09	26-09-2024	Chandigarh	Credit Card
32	Keyboard	Arjun Malhotra	3	85204.16	18-06-2025	Bengaluru	Cash

Product Customer Sales Data

Project Overview

Project Challenge & Goal

Ensure each unique product appears once

Count how many times each product was purchased

Combine all customer names who bought that product into one cell

Build a clean summary table for analytics

Project Goal

	Product Name	Product Count	List of Customer	List of Customer.1
	Valid 100% Error 0% Empty 0%	Valid 100% Error 0% Empty 0%	Valid 100% Error 0% Empty 0%	Valid 100% Error 0% Empty 0%
1	Water Bottle	6	Table	Manish Kumar, Suresh Reddy, Rahul Mehta, Deepak Nair, Rekha Soni, ...
2	Mixer Grinder	7	Table	Suresh Reddy, Kavita Das, Arjun Malhotra, Aditya Chauhan, Rekha Soni...
3	Desk Lamp	9	Table	Pooja Patel, Arjun Malhotra, Sneha Kapoor, Vikas Joshi, Deepak Nair, S...
4	Wall Clock	4	Table	Pooja Patel, Amit Sharma, Arjun Malhotra, Ritu Jain
5	T-shirt	4	Table	Rekha Soni, Aditya Chauhan, Rahul Mehta, Arjun Malhotra
6	Bedsheet	3	Table	Simran Kaur, Vikas Joshi, Rahul Mehta
7	Coffee Maker	5	Table	Simran Kaur, Ankit Yadav, Aditya Chauhan, Kavita Das, Deepak Nair
8	Washing Machine	7	Table	Simran Kaur, Sneha Kapoor, Neha Gupta, Deepak Nair, Priya Singh, Re...
9	Smartphone	6	Table	Neha Gupta, Sneha Kapoor, Manish Kumar, Nidhi Bansal, Swati Mishra...
10	Wireless Mouse	6	Table	Kavita Das, Rahul Mehta, Ritu Jain, Amit Sharma, Vikas Joshi, Ankit Yad...
11	Gaming Console	2	Table	Vikas Joshi, Pooja Patel
12	Smartwatch	5	Table	Arjun Malhotra, Ritu Jain, Amit Sharma, Sneha Kapoor, Aditya Chauhan
13	Cookware Set	8	Table	Nidhi Bansal, Kavita Das, Vikas Joshi, Aditya Chauhan, Suresh Reddy, A...
14	Sneakers	8	Table	Simran Kaur, Vikas Joshi, Ankit Yadav, Manish Kumar, Kavita Das, Rekh...
15	Pillow	5	Table	Rahul Mehta, Deepak Nair, Vikas Joshi, Manish Kumar, Swati Mishra
16	Microwave Oven	3	Table	Pooja Patel, Ankit Yadav, Aditya Chauhan
17	Headphones	4	Table	Vikas Joshi, Ritu Jain, Suresh Reddy, Sneha Kapoor
18	Photo Frame	5	Table	Rahul Mehta, Manish Kumar, Sneha Kapoor, Amit Sharma, Swati Mishra
19	Refrigerator	5	Table	Swati Mishra, Simran Kaur, Manish Kumar, Aditya Chauhan, Deepak N...
20	Backpack	3	Table	Ankit Yadav, Kavita Das, Amit Sharma
21	Jacket	5	Table	Nidhi Bansal, Rohit Verma, Suresh Reddy, Pooja Patel, Neha Gupta
22	Keyboard	6	Table	Arjun Malhotra, Sneha Kapoor, Ankit Yadav, Suresh Reddy, Pooja Patel

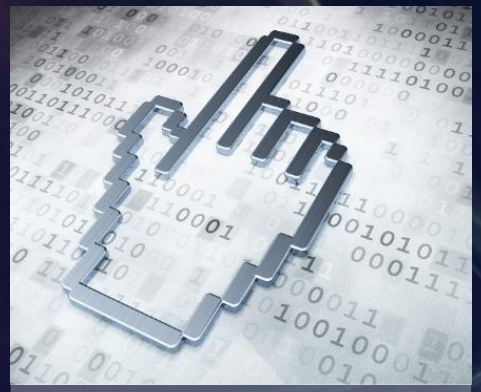
Learning Scope

What This Project Demonstrates

- Real-world data aggregation and transformation
- Hands-on use of Advanced Group By in Power Query
- Customer segmentation and product insight generation
- End-to-end ETL workflow (Extract → Transform → Load)

Dataset Preparation

Dataset generated via ChatGPT in CSV format



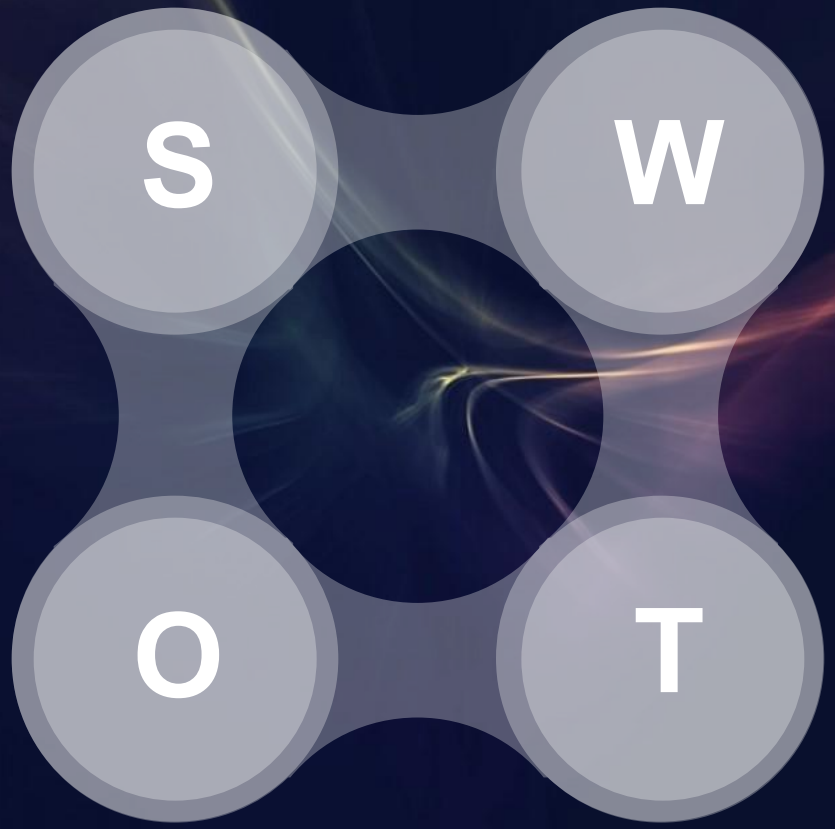
Contained: Product, Customer, Quantity, Price, Purchase Date, City, Payment Mode

Simulated real-world purchasing patterns

Included duplicate customer entries

Importing Data into Power Query

Opened CSV in Excel using Get Data → From Text/CSV

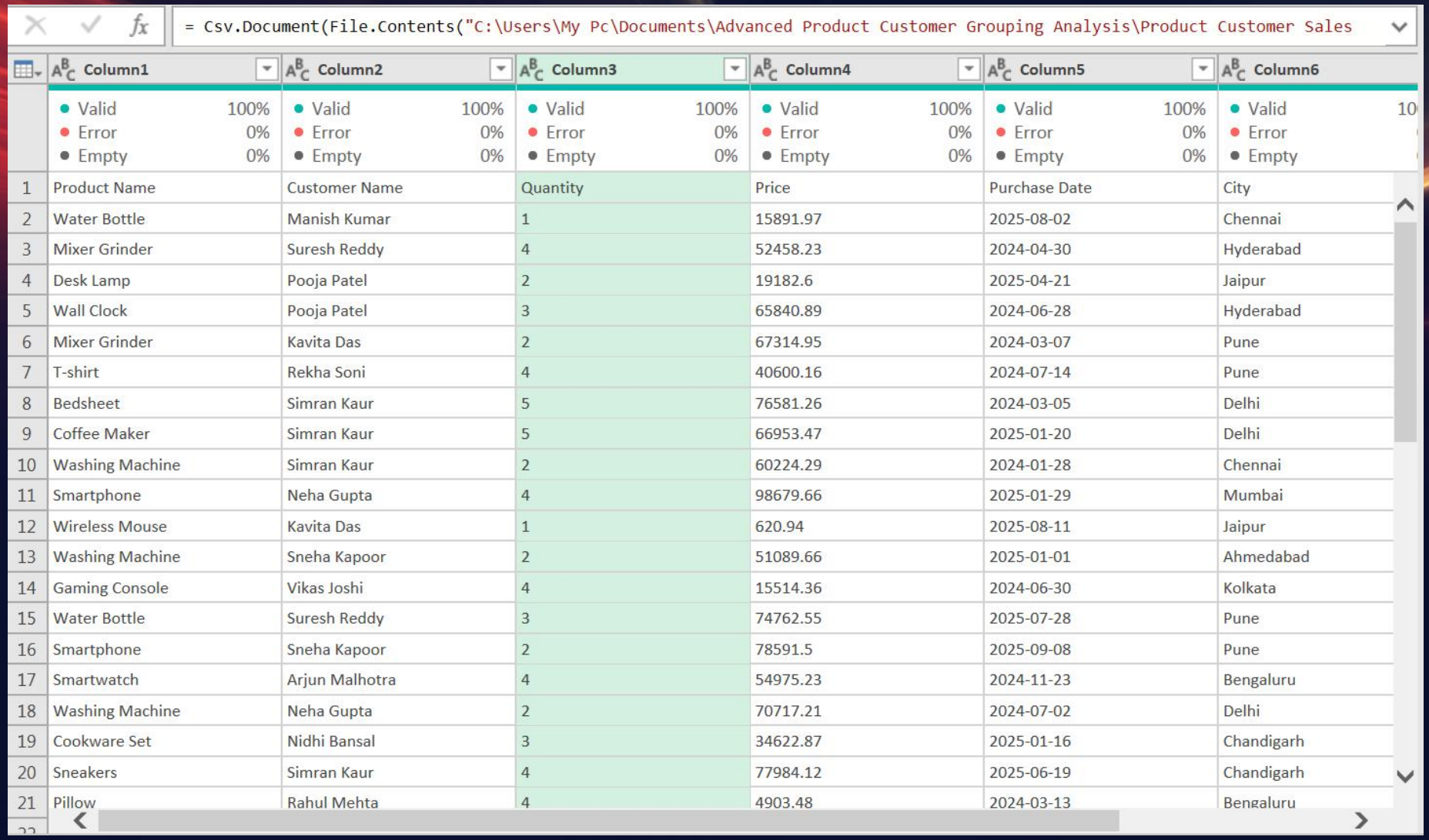


Loaded into Power Query Editor

Verified column types and headers

Ensured dataset consistency before transformation

Importing Data into Power Query



```
= Csv.Document(File.Contents("C:\Users\My Pc\Documents\Advanced Product Customer Grouping Analysis\Product Customer Sales
```

	Column1	Column2	Column3	Column4	Column5	Column6
	Valid 100% Error 0% Empty 0%	Valid 100% Error 0% Empty 0%	Valid 100% Error 0% Empty 0%	Valid 100% Error 0% Empty 0%	Valid 100% Error 0% Empty 0%	Valid 10 Error Empty
1	Product Name	Customer Name	Quantity	Price	Purchase Date	City
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4	Desk Lamp	Pooja Patel	2	19182.6	2025-04-21	Jaipur
5	Wall Clock	Pooja Patel	3	65840.89	2024-06-28	Hyderabad
6	Mixer Grinder	Kavita Das	2	67314.95	2024-03-07	Pune
7	T-shirt	Rekha Soni	4	40600.16	2024-07-14	Pune
8	Bedsheet	Simran Kaur	5	76581.26	2024-03-05	Delhi
9	Coffee Maker	Simran Kaur	5	66953.47	2025-01-20	Delhi
10	Washing Machine	Simran Kaur	2	60224.29	2024-01-28	Chennai
11	Smartphone	Neha Gupta	4	98679.66	2025-01-29	Mumbai
12	Wireless Mouse	Kavita Das	1	620.94	2025-08-11	Jaipur
13	Washing Machine	Sneha Kapoor	2	51089.66	2025-01-01	Ahmedabad
14	Gaming Console	Vikas Joshi	4	15514.36	2024-06-30	Kolkata
15	Water Bottle	Suresh Reddy	3	74762.55	2025-07-28	Pune
16	Smartphone	Sneha Kapoor	2	78591.5	2025-09-08	Pune
17	Smartwatch	Arjun Malhotra	4	54975.23	2024-11-23	Bengaluru
18	Washing Machine	Neha Gupta	2	70717.21	2024-07-02	Delhi
19	Cookware Set	Nidhi Bansal	3	34622.87	2025-01-16	Chandigarh
20	Sneakers	Simran Kaur	4	77984.12	2025-06-19	Chandigarh
21	Pillow	Rahul Mehta	4	4903.48	2024-03-13	Bengaluru

Grouping and Aggregation

Used Advanced Group By in Power Query

Grouped by Product Name

Created 2 new aggregations:

Product Count → Count Rows

List of Customers → All Rows

Grouping and Aggregation

```
= Table.Group(#"Changed Type", {"Product Name"}, {{"Product
```

	Product Name	Product Count	List of Customer
	Valid 100% Error 0% Empty 0%	Valid 100% Error 0% Empty 0%	Valid 100% Error 0% Empty 0%
1	Water Bottle	6	Table
2	Mixer Grinder	7	Table
3	Desk Lamp	9	Table
4	Wall Clock	4	Table
5	T-shirt	4	Table
6	Bedsheet	3	Table
7	Coffee Maker	5	Table
8	Washing Machine	7	Table
9	Smartphone	6	Table
10	Wireless Mouse	6	Table
11	Gaming Console	2	Table
12	Smartwatch	5	Table
13	Cookware Set	8	Table
14	Sneakers	8	Table
15	Pillow	5	Table
16	Microwave Oven	3	Table
17	Headphones	4	Table
18	Photo Frame	5	Table
19	Refrigerator	5	Table
20	Backpack	3	Table
21	Jacket	5	Table
22	Keyboard	6	Table

Group By

Specify the columns to group by and one or more outputs.

Basic Advanced

Product Name

Add grouping

New column name	Operation	Column
Product Count	Count Rows	
List of Customer	All Rows	

Add aggregation

OK Cancel

Creating Custom Column

Used formula to combine all customers into one cell:

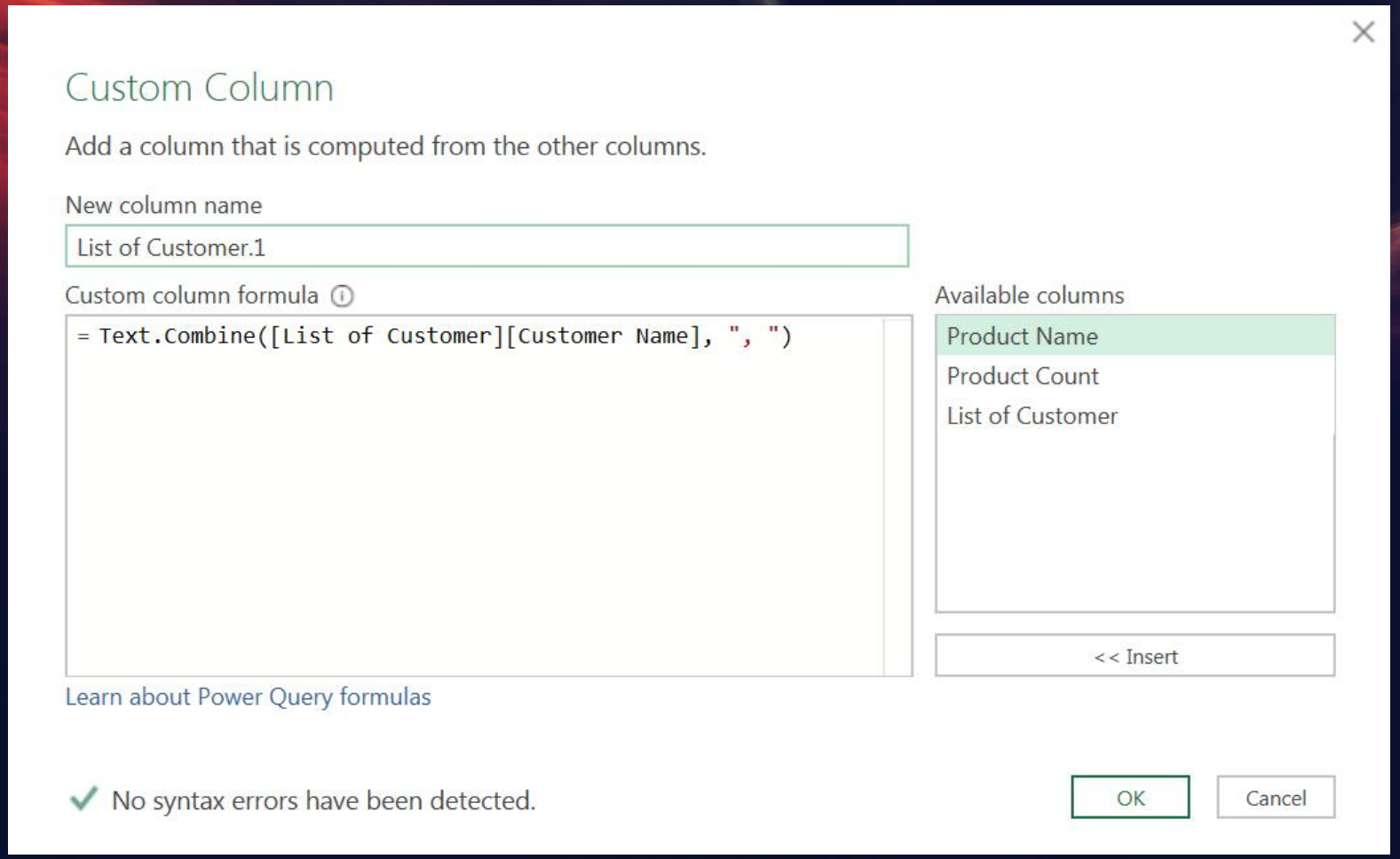
custom column

= Text.Combine([List of Customers][Customer Name], ", ")

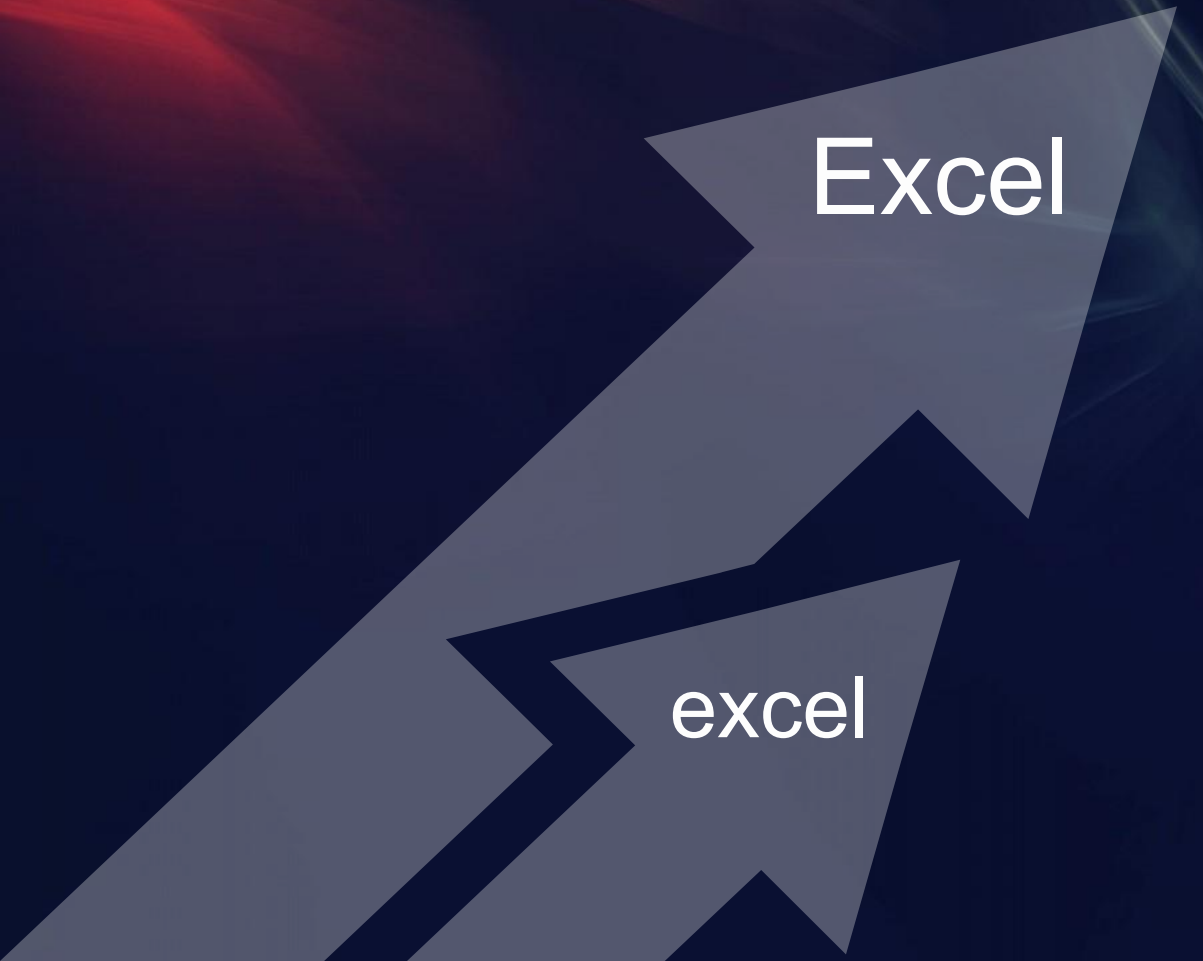
-Converts nested list into a single text value

-Enhances readability and summary clarity

Creating Custom Column



Loading Clean Data



- Used Close & Load To → Excel Sheet
- Exported summarized data into Excel
- Final dataset ready for dashboards and reporting

Loading Clean Data

Step Apply in Power Query

	A	B	C
1	Product Name	Product Count	List of Customer.1
2	Water Bottle	6	Manish Kumar, Suresh Reddy, Rahul Mehta, Deepak Nair, Rekha Soni, Neha Gupta
3	Mixer Grinder	7	Suresh Reddy, Kavita Das, Arjun Malhotra, Aditya Chauhan, Rekha Soni, Priya Singh, Neha Gupta
4	Desk Lamp	9	Pooja Patel, Arjun Malhotra, Sneha Kapoor, Vikas Joshi, Deepak Nair, Swati Mishra, Kavita Das, Ritu Jain, Neha Gupta
5	Wall Clock	4	Pooja Patel, Amit Sharma, Arjun Malhotra, Ritu Jain
6	T-shirt	4	Rekha Soni, Aditya Chauhan, Rahul Mehta, Arjun Malhotra
7	Bedsheet	3	Simran Kaur, Vikas Joshi, Rahul Mehta
8	Coffee Maker	5	Simran Kaur, Ankit Yadav, Aditya Chauhan, Kavita Das, Deepak Nair
9	Washing Machine	7	Simran Kaur, Sneha Kapoor, Neha Gupta, Deepak Nair, Priya Singh, Rekha Soni, Amit Sharma
10	Smartphone	6	Neha Gupta, Sneha Kapoor, Manish Kumar, Nidhi Bansal, Swati Mishra, Vikas Joshi
11	Wireless Mouse	6	Kavita Das, Rahul Mehta, Ritu Jain, Amit Sharma, Vikas Joshi, Ankit Yadav
12	Gaming Console	2	Vikas Joshi, Pooja Patel
13	Smartwatch	5	Arjun Malhotra, Ritu Jain, Amit Sharma, Sneha Kapoor, Aditya Chauhan
14	Cookware Set	8	Nidhi Bansal, Kavita Das, Vikas Joshi, Aditya Chauhan, Suresh Reddy, Arjun Malhotra, Priya Singh, Rahul Mehta
15	Sneakers	8	Simran Kaur, Vikas Joshi, Ankit Yadav, Manish Kumar, Kavita Das, Rekha Soni, Ritu Jain, Amit Sharma
16	Pillow	5	Rahul Mehta, Deepak Nair, Vikas Joshi, Manish Kumar, Swati Mishra
17	Microwave Oven	3	Pooja Patel, Ankit Yadav, Aditya Chauhan
18	Headphones	4	Vikas Joshi, Ritu Jain, Suresh Reddy, Sneha Kapoor
19	Photo Frame	5	Rahul Mehta, Manish Kumar, Sneha Kapoor, Amit Sharma, Swati Mishra
20	Refrigerator	5	Swati Mishra, Simran Kaur, Manish Kumar, Aditya Chauhan, Deepak Nair
21	Backpack	3	Ankit Yadav, Kavita Das, Amit Sharma
22	Jacket	5	Nidhi Bansal, Rohit Verma, Suresh Reddy, Pooja Patel, Neha Gupta
23	Keyboard	6	Arjun Malhotra, Sneha Kapoor, Ankit Yadav, Suresh Reddy, Pooja Patel, Kavita Das
24	Curtain	6	Manish Kumar, Rekha Soni, Aditya Chauhan, Kavita Das, Sneha Kapoor, Vikas Joshi
25	Ceiling Fan	5	Rekha Soni, Vikas Joshi, Priya Singh, Arjun Malhotra, Aditya Chauhan
26	Handbag	6	Deepak Nair, Sneha Kapoor, Ankit Yadav, Amit Sharma, Rahul Mehta, Simran Kaur
27	Wrist Watch	4	Simran Kaur, Pooja Patel, Amit Sharma, Aditya Chauhan
28	Iron	4	Rekha Soni, Sneha Kapoor, Deepak Nair, Kavita Das
29	Vacuum Cleaner	6	Rohit Verma, Suresh Reddy, Vikas Joshi, Amit Sharma, Deepak Nair, Simran Kaur
30	Laptop	5	Deepak Nair, Vikas Joshi, Suresh Reddy, Ritu Jain, Arjun Malhotra
31	Sunglasses	5	Pooja Patel, Neha Gupta, Amit Sharma, Manish Kumar, Simran Kaur
32	Bluetooth Speaker	3	Rahul Mehta, Rohit Verma, Aditya Chauhan

Product Customer Sales Data | Sheet1

Query Settings

PROPERTIES

Name

Product Customer Sales Data

All Properties

APPLIED STEPS

- Source
- Promoted Headers
- Changed Type
- Grouped Rows
- Added Custom

Key Skills Demonstrated

Data Aggregation & Grouping

Power Query ETL Process

Custom Column Logic with Text.Combine

Analytical Thinking & Problem Solving

Advanced Group By Implementation

Excel Integration for Reporting

Tools Used

- Microsoft Power Query → Data Transformation
- Microsoft Excel → Result Presentation
- ChatGPT → Dataset Generation

Project Outcome

- Clean summary of unique products
- Automated purchase frequency calculation
- Combined customer names in one field
- Insightful data ready for BI dashboards
- Improved understanding of real corporate data cleaning

Future Enhancements

Integrate Power BI dashboards

Add filters for date, city, and payment mode

Include trend and segmentation visuals

Automate refresh for live data updates

Learning Outcomes from This Project

Hands-on experience with Power Query transformations

Managed repeated & messy data efficiently

Understood aggregation, grouping, and text combining logic

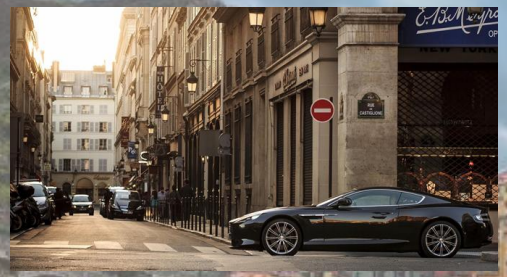
Built end-to-end ETL workflows (Extract → Transform → Load)

Strengthened Excel-based data analysis approach

Improved analytical & problem-solving mindset

Real-World Relevance

- Automation: Saved hours of manual work
- Retail & Sales: Customer-product purchase tracking
- E-Commerce: Combining customer orders across platforms
- Healthcare: Patient-test mapping & frequency analysis
- Corporate BI: Data cleaning for Power BI dashboards
- Foundation for roles in Data Analytics, BI & Excel Automation



Thank You

Every great presentation is complete with a great audience

— and that’s you!