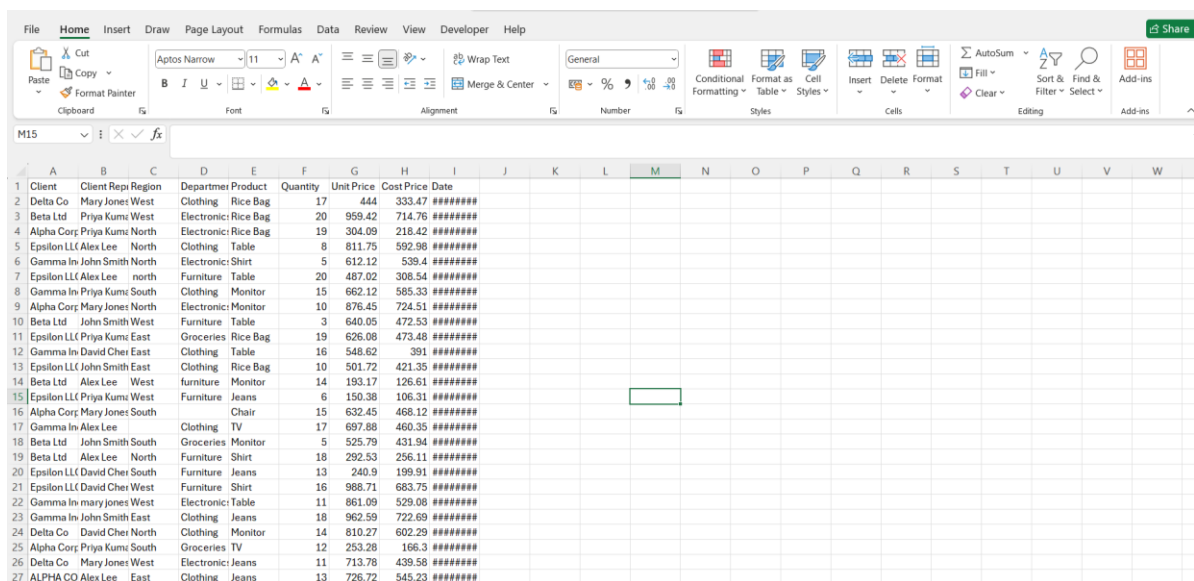# Excel Power Query – Data Cleaning & Transformation Steps
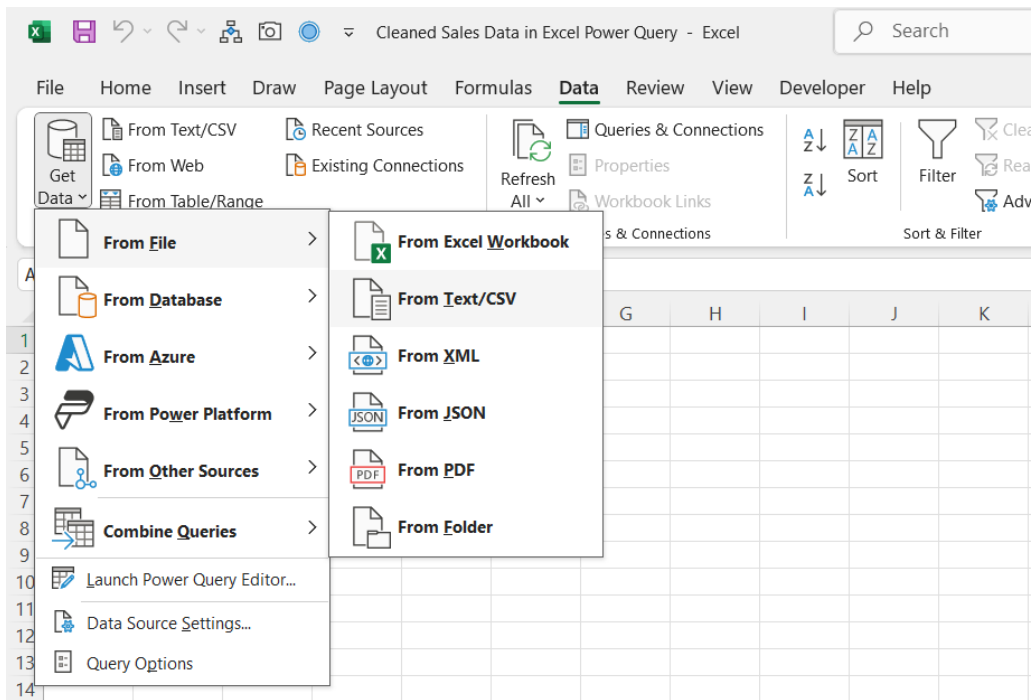
Project Overview

- **Dataset:** Messy sales dataset

- **Columns:** Client, Client Representative, Region, Department, Product, Quantity, Unit Price, Cost Price, Date

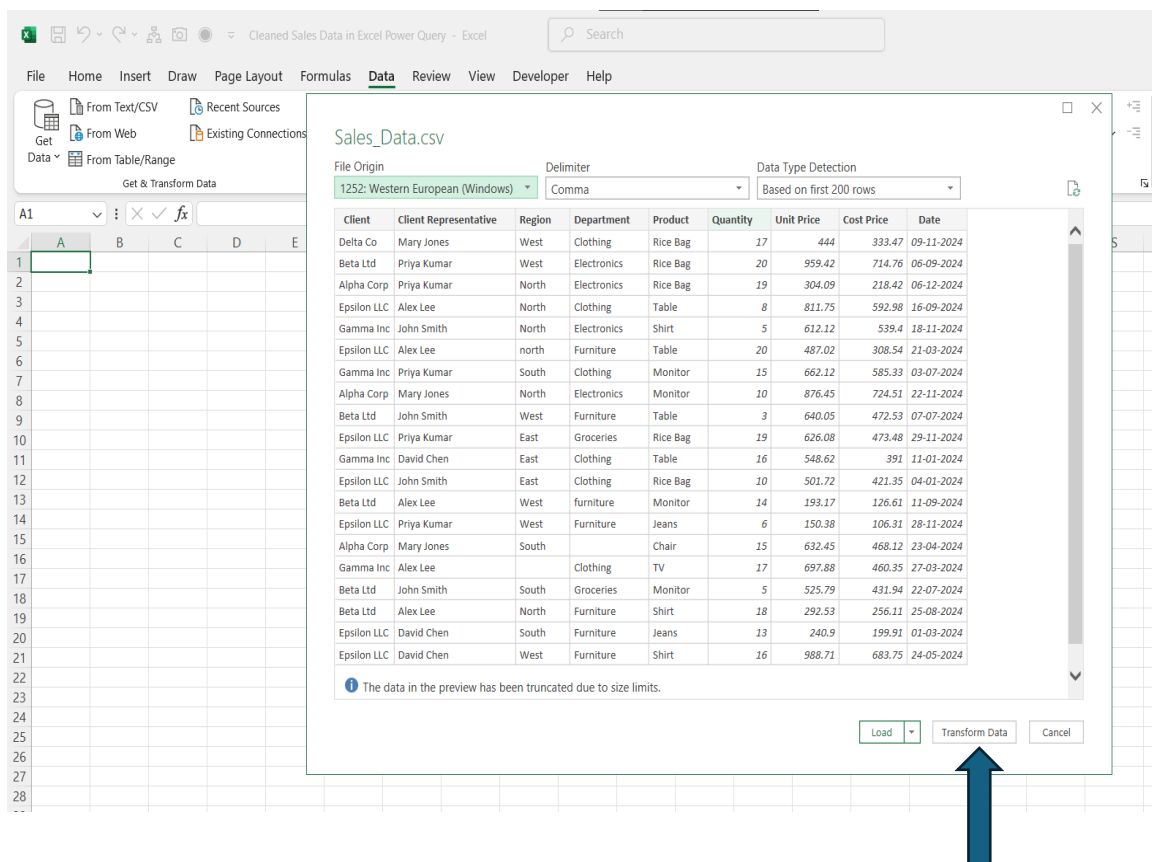- **Purpose:** Demonstrate data cleaning, transformation, and analysis in Excel.

Step 1: Import Data into Power Query

1. Open a new Excel Workbook.
2. Go to Data tab → click Get Data → From File → From Text/CSV.

3. Select the raw CSV file and click Import.
4. In the preview window, click **Transform Data** to open Power Query Editor.
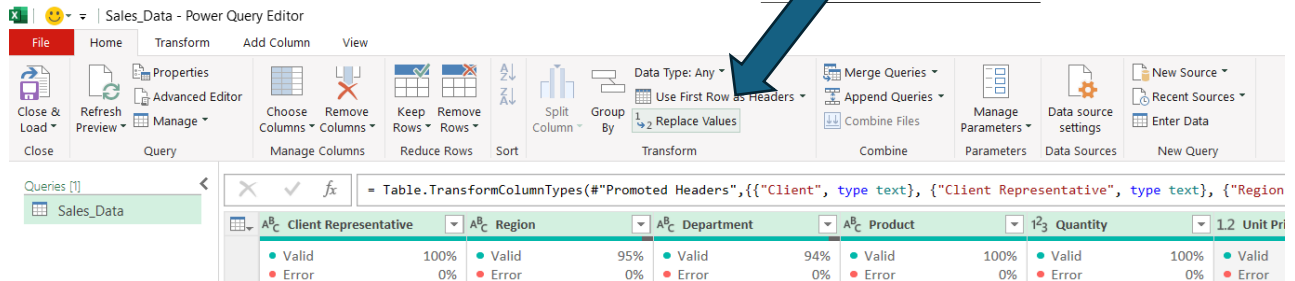
Step 2: Review & Understand Raw Data

- Checked column data types and identified inconsistencies like:

  o Mixed casing in text columns

  o Blank values

  o Incorrect data types
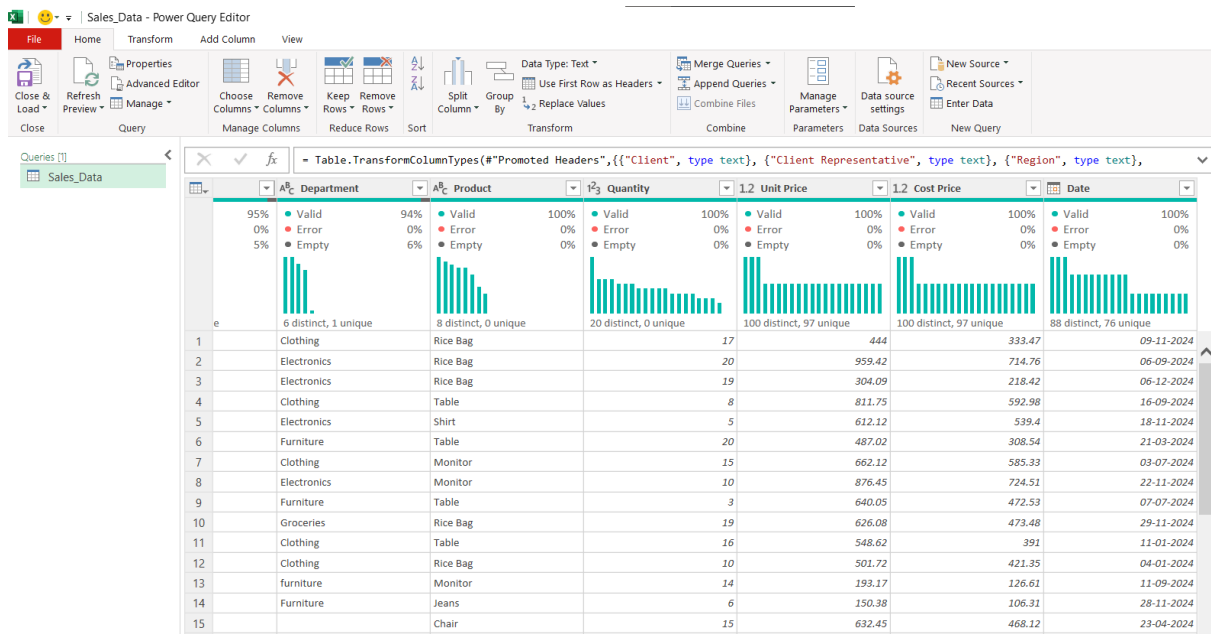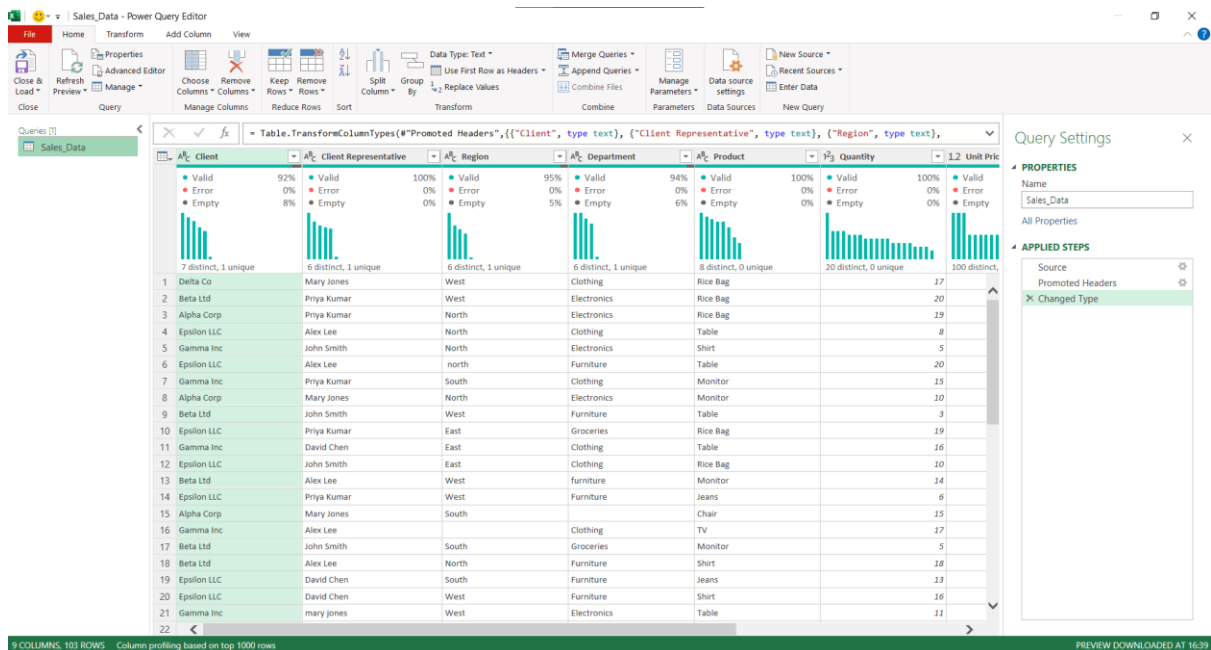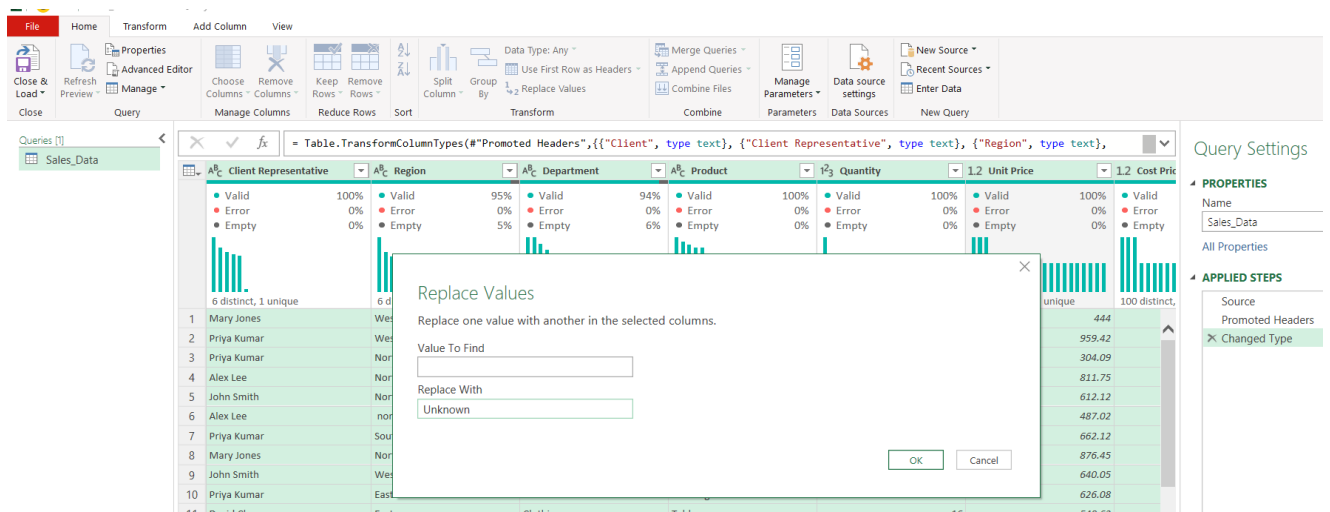
Step 3: **Remove Blank & Null Values**

1. Select the table

2. Go to **Home → Replace Values**
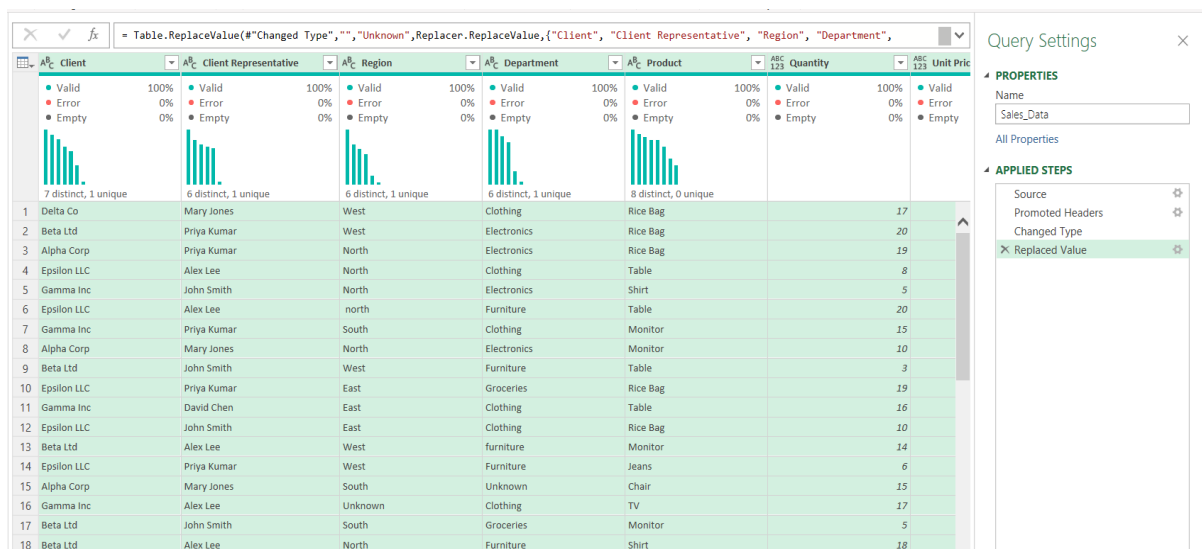
3. Replace null with "Unknown"

Step 4: Remove Duplicates

1. Select all columns

2. Go to Home → Remove Rows → Remove Duplicates
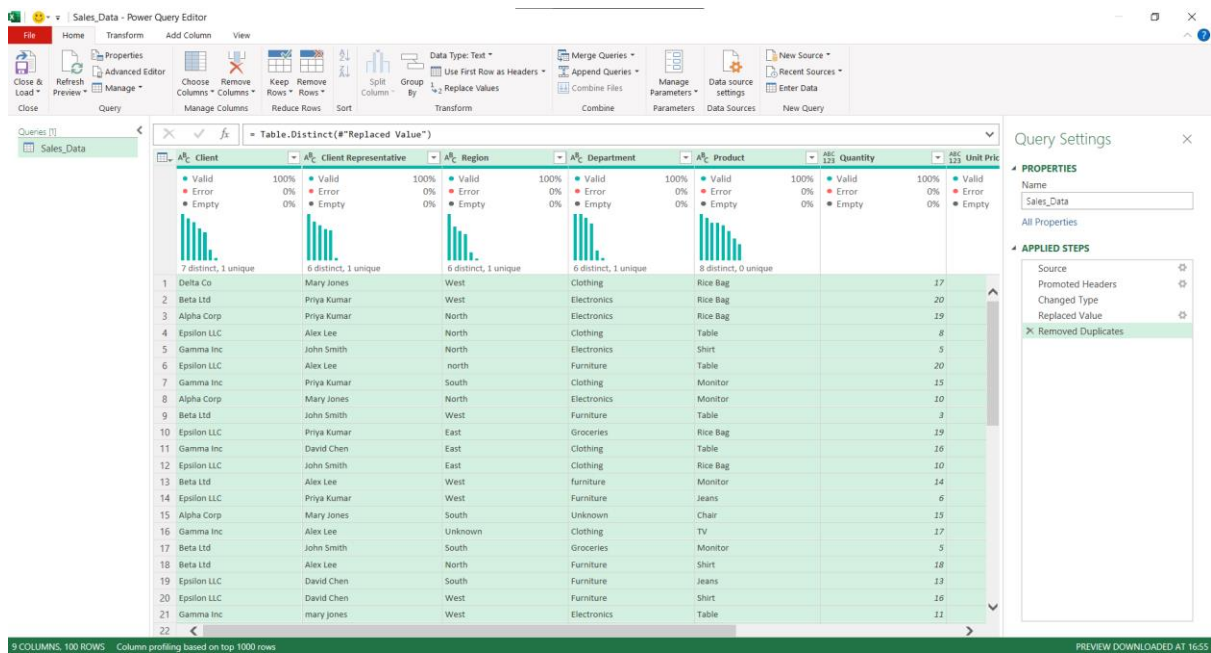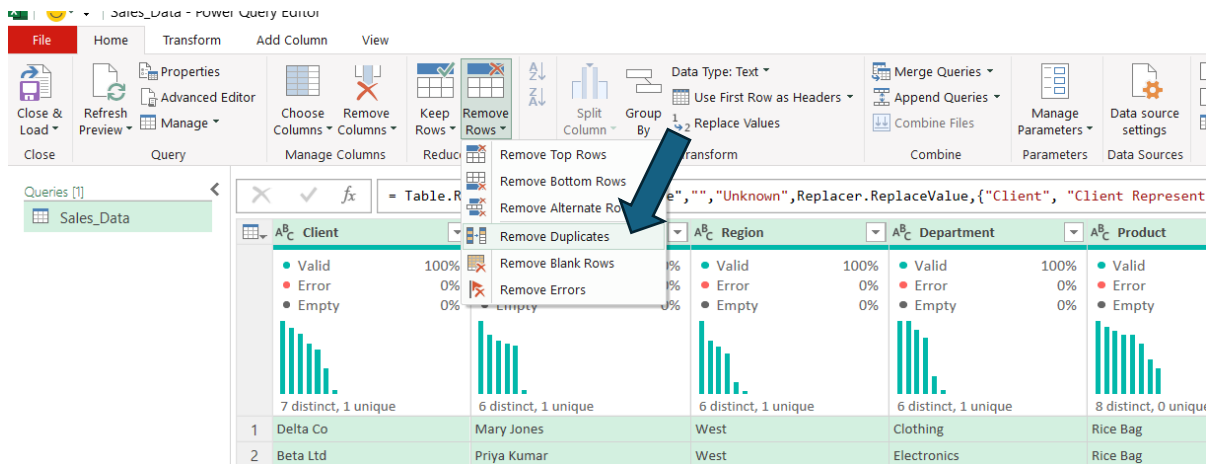
Step 5: Clean Text Columns

a) Client Column

"ALPHA CORP" → "Alpha Corp"
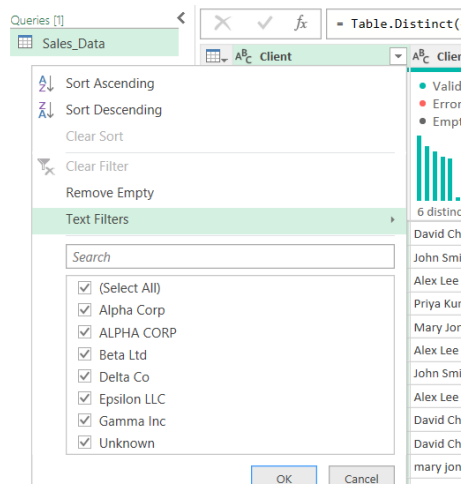
1. Go to **Home → Replace Values**

2. Replace "ALPHA CORP" with "Alpha Corp"
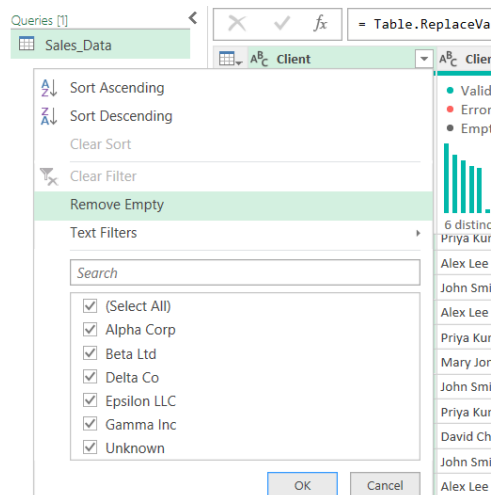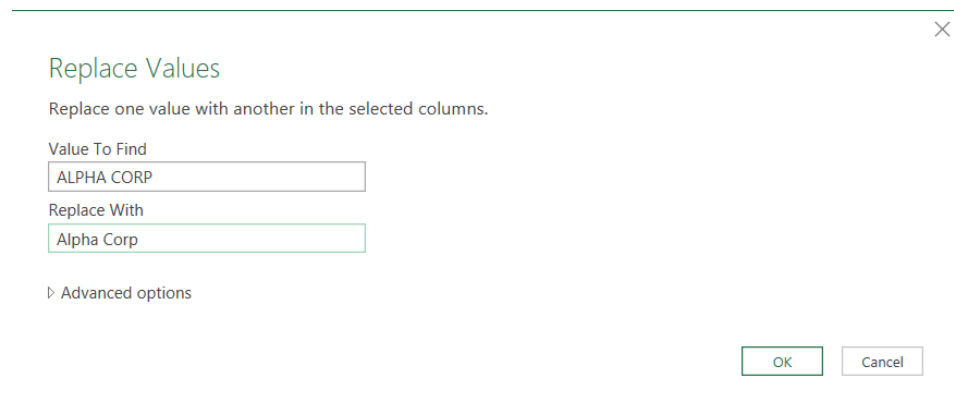
b) Client Representative Column
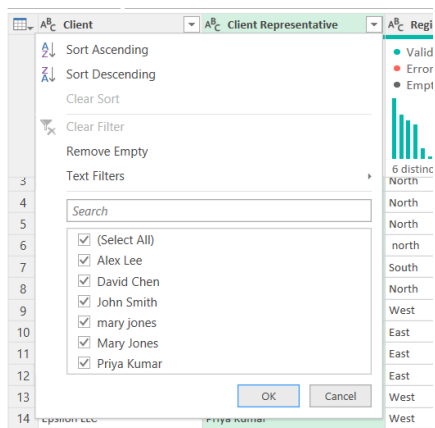
1. Select the column
2. Go to Transform → Format → Trim
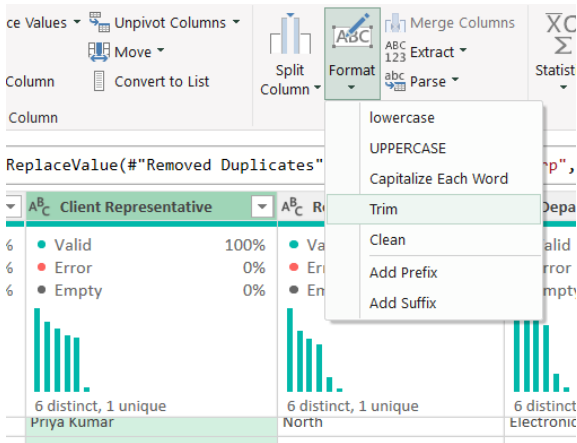
3. Go to Transform → Format → Capitalize Each Word
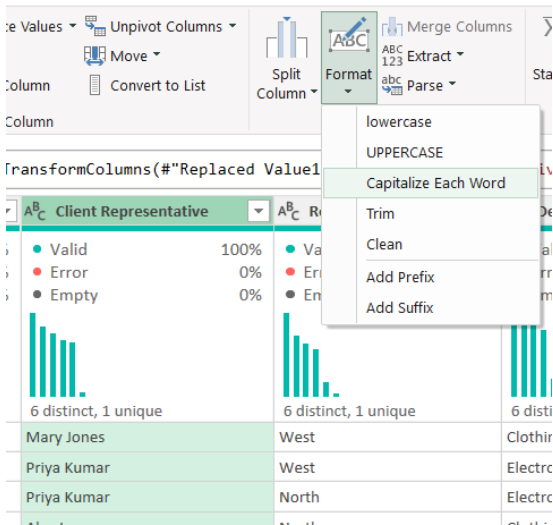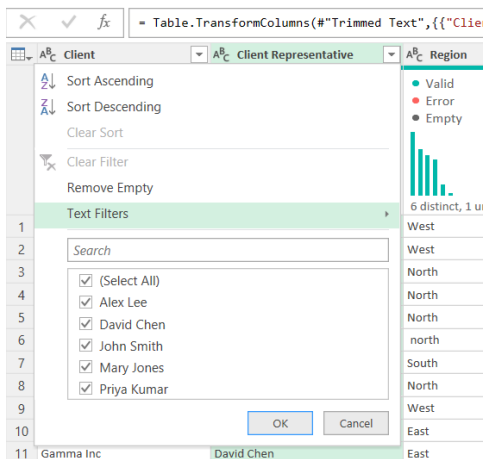
C) Region Column
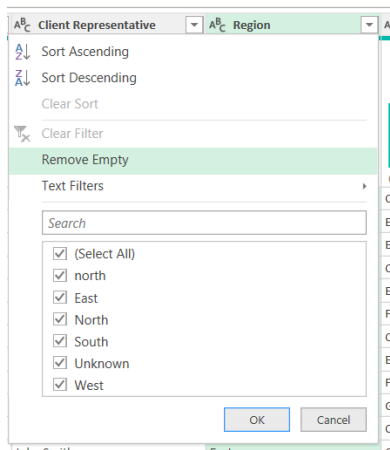
1. Select the column
2. Go to **Transform → Format → Trim**
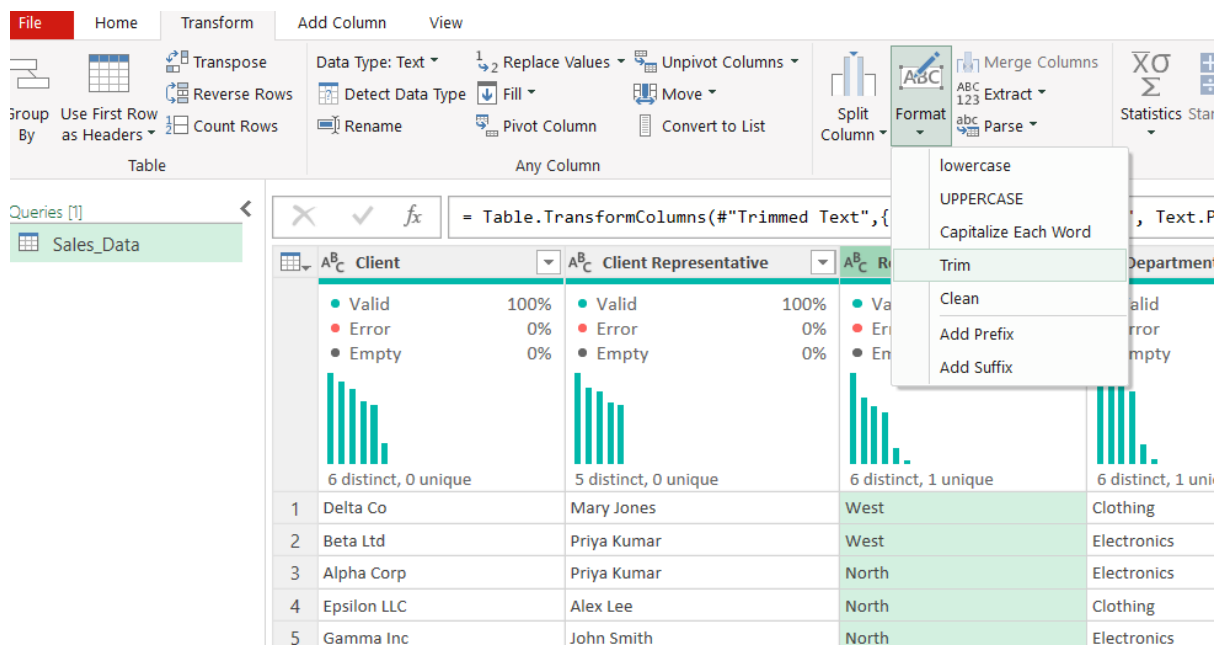
3. Go to **Transform → Format → Capitalize Each Word**

d) Department Column

1. Select the column
2. Go to **Transform → Format → Trim**
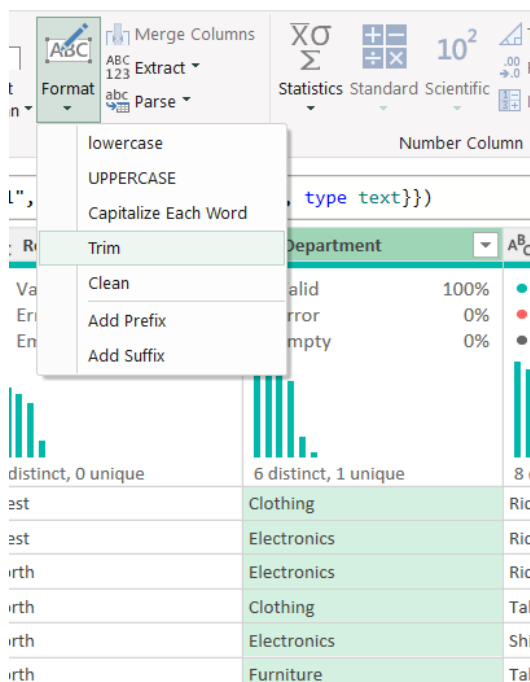
3. Go to **Transform → Format → Capitalize Each Word**

Format	Merge Columns	XΣ	10²
	ABC 123 Extract ▾	Statistics	Standard Scientific
	abc Parse ▾		

Number Colun

lowercase	
UPPERCASE	
Capitalize Each Word	Text.Trim, type tex
Trim	
Clean	Department
Add Prefix	alid 100%
Add Suffix	rror 0%
	mpty 0%

distinct, 0 unique | 6 distinct, 1 unique

st	Clothing
st	Electronics
rth	Electronics
rth	Clothing
rth	Electronics

mmed Text2",{{"Department", Text.Proper, type text}})

	AᴮC Region	AᴮC Department	AᴮC

- Sort Ascending
- Sort Descending
- Clear Sort
- Clear Filter
- Remove Empty
- Text Filters ▸

Search

- ☑ (Select All)
- ☑ Clothing
- ☑ Electronics
- ☑ Furniture
- ☑ Groceries
- ☑ Unknown

OK Cancel

| East | Clothing | Tab |

Step 6: Change Data Types

Updated data types for each column:

Column	Data Type Applied
Quantity	Whole Number
Unit Price	Decimal Number
Cost Price	Decimal Number
Date	Date

Quantity Column

1. Select the column

2. Go to **Transform → Data Type**

3. Choose appropriate data type

Unit Price Column

1. Select the column

2. Go to **Transform → Data Type**

3. Choose appropriate data type

Cost Price Column

1. Select the column

2. Go to **Transform → Data Type**

3. Choose appropriate data type

Date Column

1. Select the column

2. Go to **Transform → Data Type**

3. Choose appropriate data type

Step 7: Create New Calculated Columns

- Go to **Add Column → Custom Column**

Revenue

Change Data Type:

1. Select the column

2. Go to **Transform → Data Type**

3. Choose appropriate data type

Profit

Change Data Type:

1. Select the column

2. Go to **Transform → Data Type**

3. Choose appropriate data type

File Home Transform Add Column View

Group By | Use First Row as Headers | Transpose | Reverse Rows | Count Rows | Data Type: Any ▾ | Replace Values ▾ | Unpivot Columns ▾ | Move ▾ | Convert to List | Split Column ▾ | Format ▾ | Merge Columns | ABC123 Extract ▾ | abc Parse ▾ | Statistics ▾ | Standard ▾ | Scientific ▾ | 10² | Trigonometry ▾ | Rounding ▾ | Information ▾ | Date ▾ | Time ▾ | Duration ▾ | Expand | Aggregate | Extract Values

Table | Text Column | Number Column | Date & Time Column | Structured Colu

Data Type dropdown options:
- Decimal Number
- Currency
- Whole Number
- Percentage
- Date/Time
- Date
- Time
- Date/Time/Timezone
- Duration
- Text
- True/False
- Binary

Queries [1]
- Sales_Data

AddColumn(#"Changed Type2", "Profit", each [Revenue] - [Quantity] * [Cost Price])

	1.2 Unit Price	1.2 Cost Price	Date	1.2 Revenue	ABC123 Profit
	Valid 100%	Valid 100%	Valid 100%	Valid 100%	Valid
	Error 0%	Error 0%	Error 0%	Error 0%	Error
	Empty 0%	Empty 0%	Empty 0%	Empty 0%	Empty
	100 distinct, 100 unique	100 distinct, 100 unique	88 distinct, 77 unique	100 distinct, 100 unique	
1	17	444	333.47	09-11-2024	7548	1
2	20	959.42	714.76	06-09-2024	19188.4
3	19	304.09	218.42	06-12-2024	5777.71	1
4	8	811.75	592.98	16-09-2024	6494	1
5	5	612.12	539.4	18-11-2024	3060.6

	1.2 Revenue	1.2 Profit
	Valid 100%	Valid 100%
	Error 0%	Error 0%
	Empty 0%	Empty 0%
	100 distinct, 100 unique	100 distinct, 100 unique
2024	7548	1879.01
2024	19188.4	4893.2
2024	5777.71	1627.73
2024	6494	1750.16

Profit Margin

Custom Column

Add a column that is computed from the other columns.

New column name

Profit Margin

Custom column formula ⓘ

= [Profit] / [Revenue] * 100

Available columns
- Department
- Product
- Quantity
- Unit Price
- Cost Price
- Date
- Revenue
- Profit

<< Insert

Learn about Power Query formulas

✓ No syntax errors have been detected.

OK   Cancel

Change Data Type:

1. Select the column

2. Go to **Transform → Data Type**

3. Choose appropriate data type

4. select the Profit Margin column.
5. Go to the Transform tab.
6. Click Standard (under the "Number Column" group).
7. Select Divide.
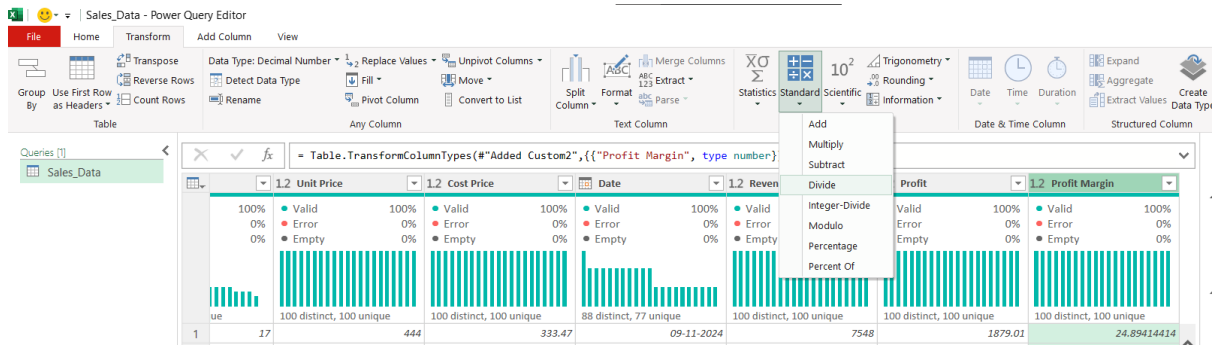
8. In the dialog box, enter the value 100.
9. Click OK.
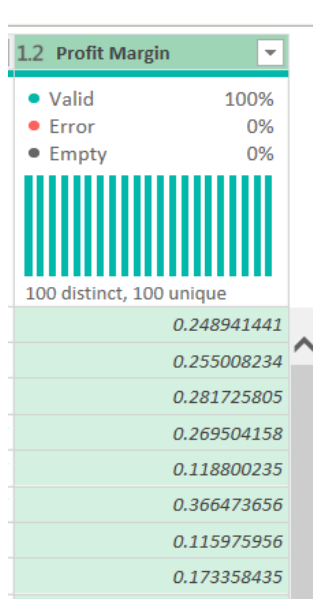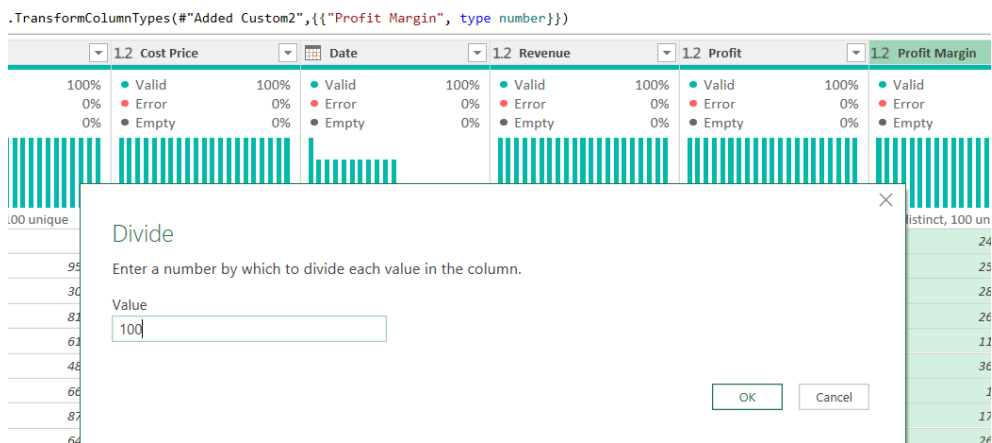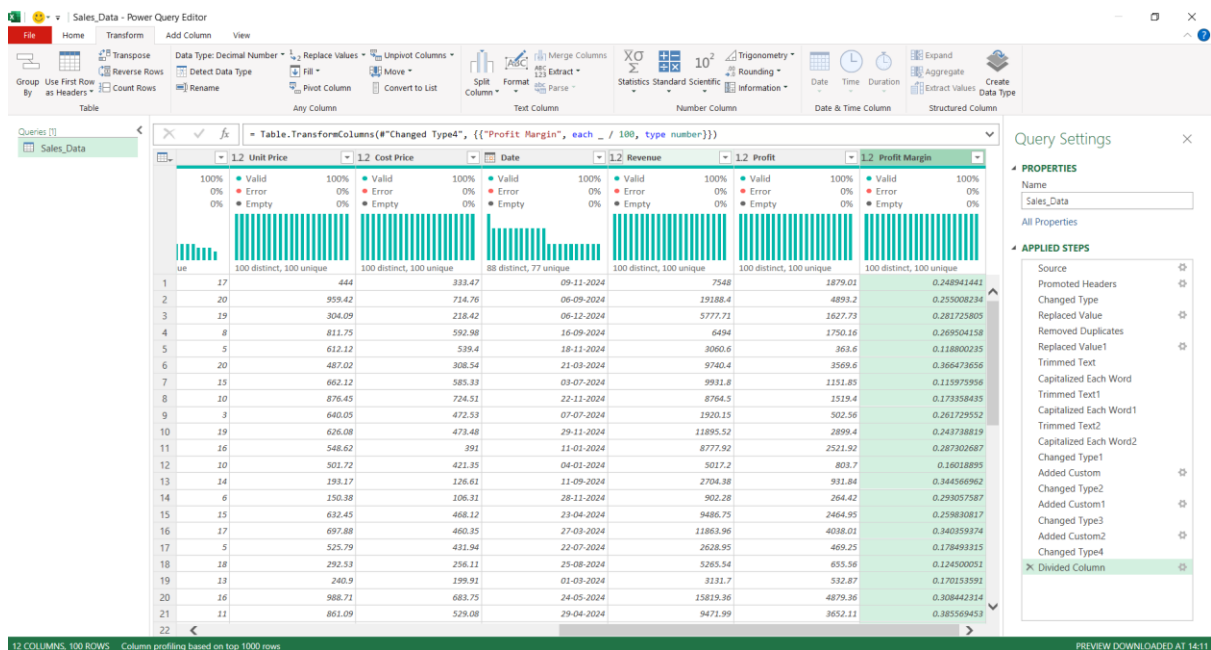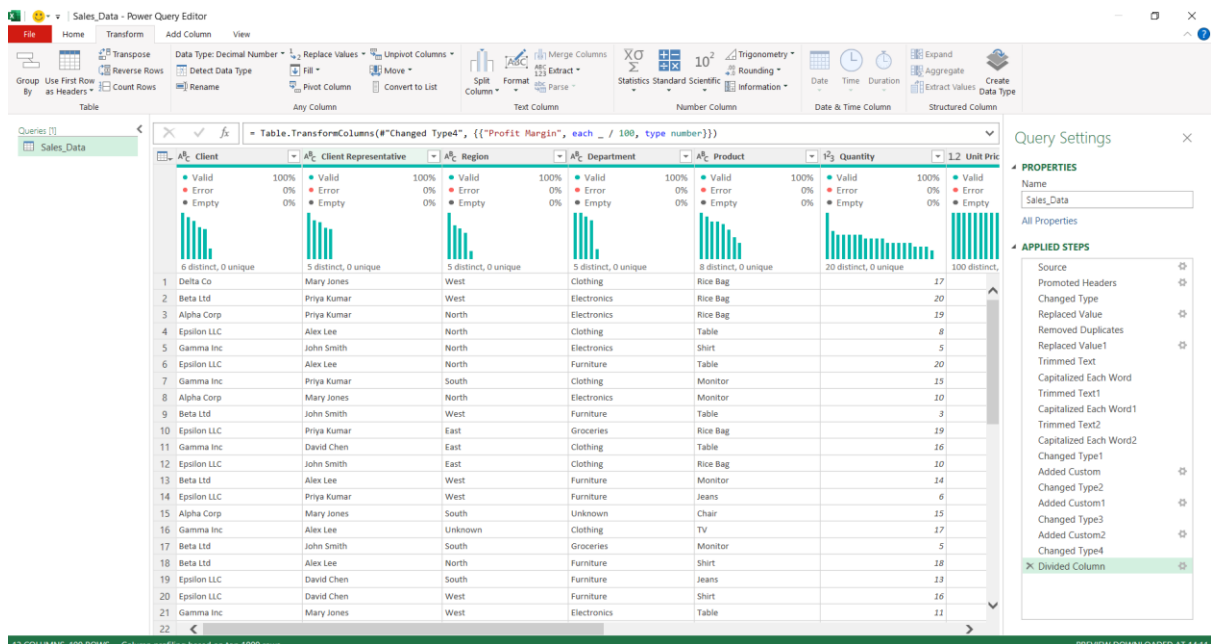
Step 8: **Load Cleaned Data to Excel**

1. Go to **Home → Close & Load**

2. Select **Close & Load To...**

3. Choose **Table** and load to a new worksheet
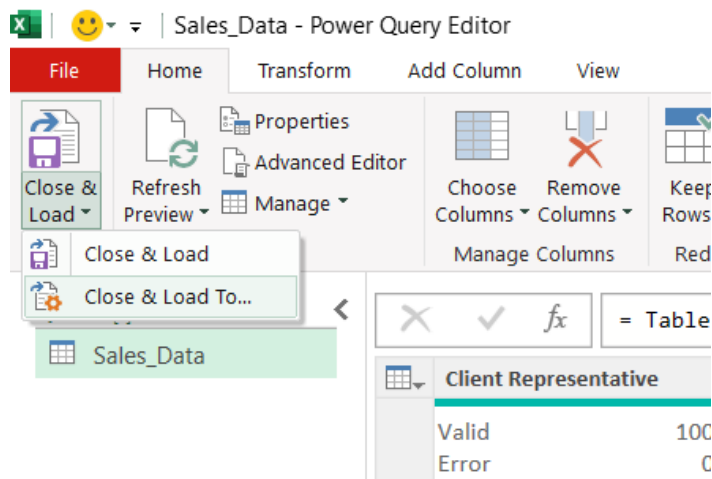
Step 9: **Post-Load Formatting in Excel (After Power Query)**

After the cleaned data is loaded into Excel, apply proper number formatting for better readability and presentation.

1. Format Unit Price

1. Select the **Unit Price** column.

2. Right-click → **Format Cells**.

3. Choose **Number**.

4. Set **Decimal Places = 2**.

5. Click **OK**.

Product	Quantity	Unit Price
Rice Bag	17	444.00
Rice Bag	20	959.42
Rice Bag	19	304.09
Table	8	811.75
Shirt	5	612.12
Table	20	487.02
Monitor	15	662.12
Monitor	10	876.45
Table	3	640.05
Rice Bag	19	626.08
Table	16	548.62
Rice Bag	10	501.72
Monitor	14	193.17
Jeans	6	150.38
Chair	15	632.45
TV	17	697.88

2. Format Cost Price

1. Select the **Cost Price** column.

2. Right-click → **Format Cells**.

3. Choose **Number** and set:

   - **Decimal Places = 2**

4. Click **OK**.

Format Cells dialog

Format Cells	? ✕

Tabs: **Number** | Alignment | Font | Border | Fill | Protection

Category:
- General
- **Number**
- Currency
- Accounting
- Date
- Time
- Percentage
- Fraction
- Scientific
- Text
- Special
- Custom

Sample: Cost Price

Decimal places: 2

☐ Use 1000 Separator (,)

Negative numbers:
- -1234.10
- 1234.10
- -1234.10
- -1234.10

Number is used for general display of numbers. Currency and Accounting offer specialized formatting for monetary value.

OK   Cancel

	A	B	C	D	E	F	G	H
1	Client	Client Representative	Region	Department	Product	Quantity	Unit Price	Cost Price
2	Delta Co	Mary Jones	West	Clothing	Rice Bag	17	444.00	333.47
3	Beta Ltd	Priya Kumar	West	Electronics	Rice Bag	20	959.42	714.76
4	Alpha Corp	Priya Kumar	North	Electronics	Rice Bag	19	304.09	218.42
5	Epsilon LLC	Alex Lee	North	Clothing	Table	8	811.75	592.98
6	Gamma Inc	John Smith	North	Electronics	Shirt	5	612.12	539.40
7	Epsilon LLC	Alex Lee	North	Furniture	Table	20	487.02	308.54
8	Gamma Inc	Priya Kumar	South	Clothing	Monitor	15	662.12	585.33
9	Alpha Corp	Mary Jones	North	Electronics	Monitor	10	876.45	724.51
10	Beta Ltd	John Smith	West	Furniture	Table	3	640.05	472.53
11	Epsilon LLC	Priya Kumar	East	Groceries	Rice Bag	19	626.08	473.48
12	Gamma Inc	David Chen	East	Clothing	Table	16	548.62	391.00
13	Epsilon LLC	John Smith	East	Clothing	Rice Bag	10	501.72	421.35
14	Beta Ltd	Alex Lee	West	Furniture	Monitor	14	193.17	126.61
15	Epsilon LLC	Priya Kumar	West	Furniture	Jeans	6	150.38	106.31
16	Alpha Corp	Mary Jones	South	Unknown	Chair	15	632.45	468.12
17	Gamma Inc	Alex Lee	Unknown	Clothing	TV	17	697.88	460.35

3. Format Revenue

1. Select the **Revenue** column.

2. Right-click → **Format Cells**.

Cost Price	Date	Reve
333.47	09-11-2024	
714.76	06-09-2024	19
218.42	06-12-2024	51
592.98	16-09-2024	
539.40	18-11-2024	3
308.54	21-03-2024	9
585.33	03-07-2024	9
724.51	22-11-2024	8
472.53	07-07-2024	19
473.48	29-11-2024	118
391.00	11-01-2024	87
421.35	04-01-2024	5
126.61	11-09-2024	27
106.31	28-11-2024	9
468.12	23-04-2024	94
460.35	27-03-2024	118
431.94	22-07-2024	26
256.11	25-08-2024	52
199.91	01-03-2024	3
683.75	24-05-2024	156

Context menu options:
- Cut
- Copy
- **Paste Options:**
- Paste Special...
- Insert
- Delete
- Clear Contents
- Format Cells...
- Column Width...
- Hide
- Unhide

3. Choose **Number**.

4. Set **Decimal Places = 2**.

5. Click **OK**.

Format Cells

| Number | Alignment | Font | Border | Fill | Protection |

Category:

General
Number
Currency
Accounting
Date
Time
Percentage
Fraction
Scientific
Text
Special
Custom

Sample

Revenue

Decimal places: 2

☐ Use 1000 Separator (,)

Negative numbers:

-1234.10
1234.10
-1234.10
-1234.10

Number is used for general display of numbers. Currency and Accounting offer specialized formatting for monetary value.

OK   Cancel

ice	Date	Revenue
33.47	09-11-2024	7548.00
14.76	06-09-2024	19188.40
18.42	06-12-2024	5777.71
92.98	16-09-2024	6494.00
39.40	18-11-2024	3060.60
08.54	21-03-2024	9740.40
85.33	03-07-2024	9931.80
24.51	22-11-2024	8764.50
72.53	07-07-2024	1920.15
73.48	29-11-2024	11895.52
91.00	11-01-2024	8777.92
21.35	04-01-2024	5017.20
26.61	11-09-2024	2704.38
06.31	28-11-2024	902.28
68.12	23-04-2024	9486.75

4. Format Profit

1. Select the **Profit** column.

2. Right-click → **Format Cells**.
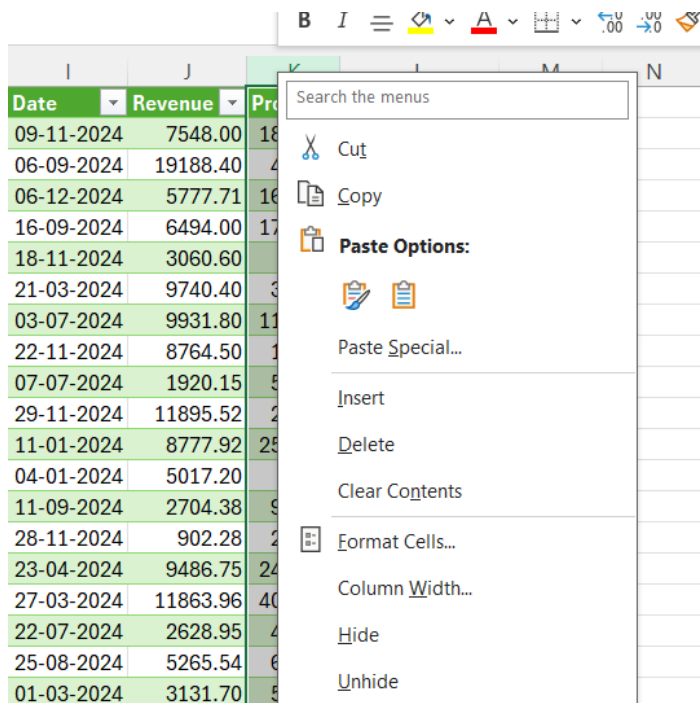
3. Choose **Number**.

4. Set **Decimal Places = 2**.

5. Click **OK**.

Format Cells

Number | Alignment | Font | Border | Fill | Protection

Category:

General
Number
Currency
Accounting
Date
Time
Percentage
Fraction
Scientific
Text
Special
Custom

Sample

Profit

Decimal places: 2

☐ Use 1000 Separator (,)

Negative numbers:

-1234.10
1234.10
-1234.10
-1234.10

Number is used for general display of numbers. Currency and Accounting offer specialized formatting for monetary value.

OK | Cancel

Date	Revenue	Profit
09-11-2024	7548.00	1879.01
06-09-2024	19188.40	4893.20
06-12-2024	5777.71	1627.73
16-09-2024	6494.00	1750.16
18-11-2024	3060.60	363.60
21-03-2024	9740.40	3569.60
03-07-2024	9931.80	1151.85
22-11-2024	8764.50	1519.40
07-07-2024	1920.15	502.56
29-11-2024	11895.52	2899.40
11-01-2024	8777.92	2521.92
04-01-2024	5017.20	803.70
11-09-2024	2704.38	931.84
28-11-2024	902.28	264.42
23-04-2024	9486.75	2464.95
27-03-2024	11863.96	4038.01
22-07-2024	2628.95	469.25
25-08-2024	5265.54	655.56
01-03-2024	3131.70	532.87
24-05-2024	15819.36	4879.36

5. Format Profit Margin

Profit Margin was kept as **Decimal Number** in Power Query. Now convert it into a percentage for display:

1. Select the **Profit Margin** column.

2. Right-click → **Format Cells**.
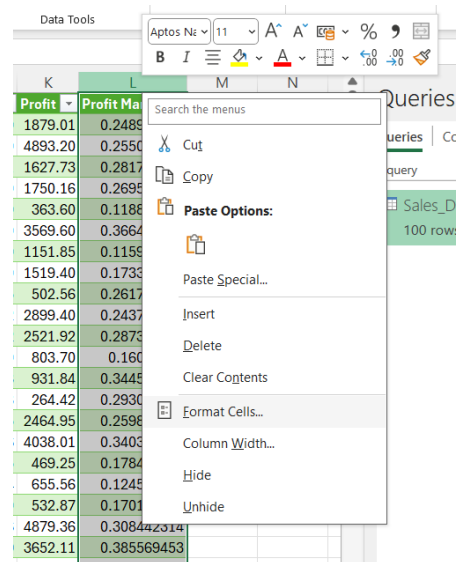
3. Choose **Percentage**.
4. Set **Decimal Places = 2**.
5. Click **OK**.

Profit Margin (filtered column view)

Profit Margin
24.89%
25.50%
28.17%
26.95%
11.88%
36.65%
11.60%
17.34%
26.17%
24.37%

Data Table

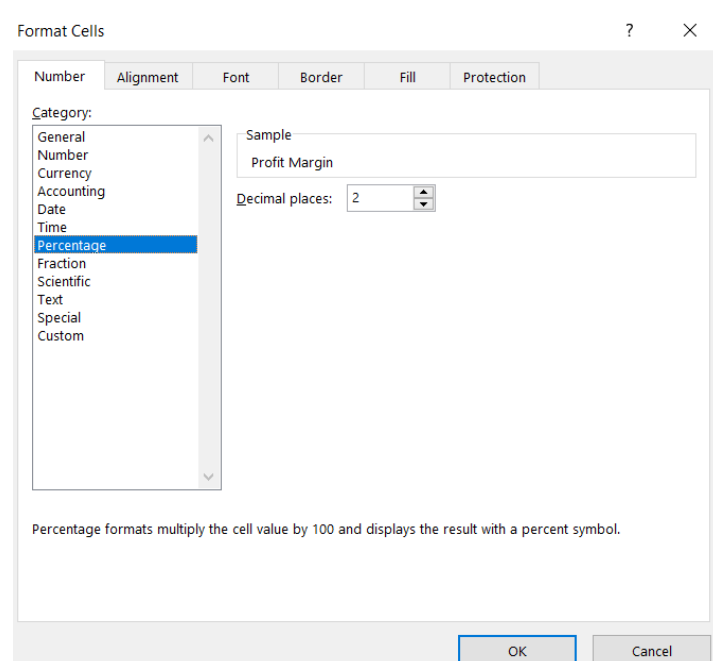|	Client	Client Representative	Region	Department	Product	Quantity	Unit Price	Cost Price	Date	Revenue	Profit	Profit Margin
2	Delta Co	Mary Jones	West	Clothing	Rice Bag	17	444.00	333.47	09-11-2024	7548.00	1879.01	24.89%
3	Beta Ltd	Priya Kumar	West	Electronics	Rice Bag	20	959.42	714.76	06-09-2024	19188.40	4893.20	25.50%
4	Alpha Corp	Priya Kumar	North	Electronics	Rice Bag	19	304.09	218.42	06-12-2024	5777.71	1627.73	28.17%
5	Epsilon LLC	Alex Lee	North	Clothing	Table	8	811.75	592.98	16-09-2024	6494.00	1750.16	26.95%
6	Gamma Inc	John Smith	North	Electronics	Shirt	5	612.12	539.40	18-11-2024	3060.60	363.60	11.88%
7	Epsilon LLC	Alex Lee	North	Furniture	Table	20	487.02	308.54	21-03-2024	9740.40	3569.60	36.65%
8	Gamma Inc	Priya Kumar	South	Clothing	Monitor	15	662.12	585.33	03-07-2024	9931.80	1151.85	11.60%
9	Alpha Corp	Mary Jones	North	Electronics	Monitor	10	876.45	724.51	22-11-2024	8764.50	1519.40	17.34%
10	Beta Ltd	John Smith	West	Furniture	Table	3	640.05	472.53	07-07-2024	1920.15	502.56	26.17%
11	Epsilon LLC	Priya Kumar	East	Groceries	Rice Bag	19	626.08	473.48	29-11-2024	11895.52	2899.40	24.37%
12	Gamma Inc	David Chen	East	Clothing	Table	16	548.62	391.00	11-01-2024	8777.92	2521.92	28.73%
13	Epsilon LLC	John Smith	East	Clothing	Rice Bag	10	501.72	421.35	04-01-2024	5017.20	803.70	16.02%
14	Beta Ltd	Alex Lee	West	Furniture	Monitor	14	193.17	126.61	11-09-2024	2704.38	931.84	34.46%
15	Epsilon LLC	Priya Kumar	West	Furniture	Jeans	6	150.38	106.31	28-11-2024	902.28	264.42	29.31%
16	Alpha Corp	Mary Jones	South	Unknown	Chair	15	632.45	468.12	23-04-2024	9486.75	2464.95	25.98%
17	Gamma Inc	Alex Lee	Unknown	Clothing	TV	17	697.88	460.35	27-03-2024	11863.96	4038.01	34.04%
18	Beta Ltd	John Smith	South	Groceries	Monitor	5	525.79	431.94	22-07-2024	2628.95	469.25	17.85%
19	Beta Ltd	Alex Lee	North	Furniture	Shirt	18	292.53	256.11	25-08-2024	5265.54	655.56	12.45%
20	Epsilon LLC	David Chen	South	Furniture	Jeans	13	240.90	199.91	01-03-2024	3131.70	532.87	17.02%
21	Epsilon LLC	David Chen	West	Furniture	Shirt	16	988.71	683.75	24-05-2024	15819.36	4879.36	30.84%
22	Gamma Inc	Mary Jones	West	Electronics	Table	11	861.09	529.08	29-04-2024	9471.99	3652.11	38.56%
23	Gamma Inc	John Smith	East	Clothing	Jeans	18	962.59	722.69	16-07-2024	17326.62	4318.20	24.92%
24	Delta Co	David Chen	North	Clothing	Monitor	14	810.27	602.29	01-11-2024	11343.78	2911.72	25.67%
25	Alpha Corp	Priya Kumar	South	Groceries	TV	12	253.28	166.30	10-08-2024	3039.36	1043.76	34.34%
26	Delta Co	Mary Jones	West	Electronics	Jeans	11	713.78	439.58	18-08-2024	7851.58	3016.20	38.42%
27	Alpha Corp	Alex Lee	East	Clothing	Jeans	13	726.72	545.23	18-02-2024	9447.36	2359.37	24.97%
28	Epsilon LLC	Priya Kumar	North	Electronics	Shirt	1	466.34	384.36	16-04-2024	466.34	81.98	17.58%