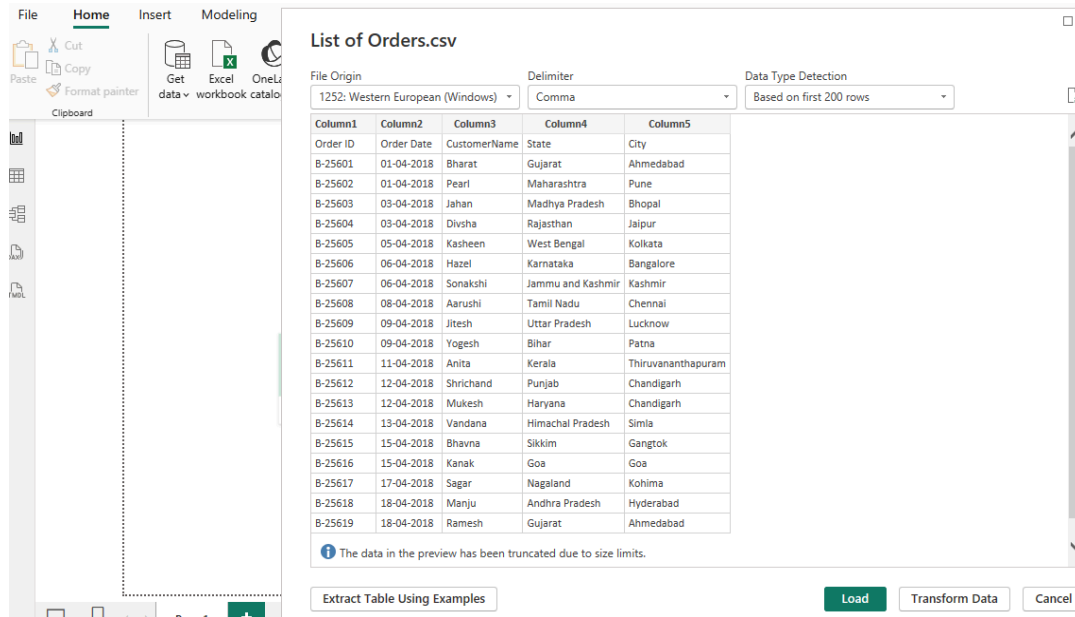


## Assignment Power BI-1

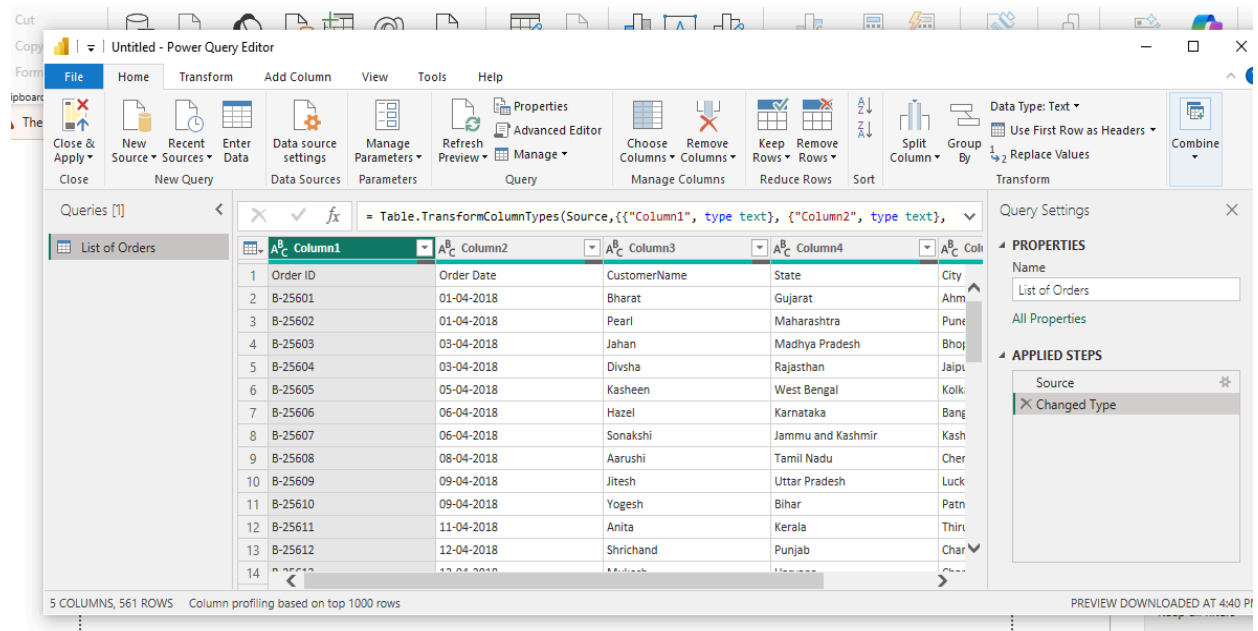
I.

### Import Data:

#### 1.Import “List of Orders.csv” into Power BI.



#### 2.Open “List of Orders” in Power Query Editor by clicking on ‘Transform’.



#### 3.Import “Order Details.csv” and “Sales target.csv” into Power Query Editor.

File	Home	Transform	Add Column	View	Tools	Help
Close & Apply	New Source	Recent Sources	Enter Data	Data source settings	Manage Parameters	Refresh Preview
					Advanced Editor	Manage
						Choose Columns
						Remove Columns
						Keep Rows
						Remove Rows
						Reduce Rows
						Sort
						Split Column
						Group By
						Replace Values
						Transform

Order ID	Amount	Profit	Quantity	Category	Sub-category
B-25603	116	16	4	Clothing	Stole
B-25603	107	36	6	Clothing	Stole
B-25603	12	1	2	Clothing	Hanki
B-25603	38	18	1	Clothing	Kurti
B-25604	65	17	2	Clothing	T-shirt
B-25604	157	5	9	Clothing	Saree
B-25605	75	0	7	Clothing	Saree
B-25606	87	4	2	Clothing	Shirt
B-25607	50	15	4	Clothing	Leggins
B-25608	1364	-1864	5	Furniture	Table
B-25608	476	0	3	Furniture	Chair
B-25608	257	23	5	Clothing	Hanki
B-25608	856	385	6	Electronics	Printer
B-25609	485	29	4	Electronics	Electronics

II.

Data Transformation:

- Restrict the "List of Orders" table to only the first 500 rows.
- Ensure the “Order Date” column in the “List of Orders” table is set to data type 'Date'.
- Change the data type of “Amount” and “Target” columns to ‘Fixed Decimal Number’.

File	Home	Help	Table tools	Column tools
Name	Target	Format	Whole number	
Data type	Fixed decimal num...	\$ %	0	

Month of Order Date	Category	Target
Friday, April 18, 2025	Furniture	10400
Sunday, May 18, 2025	Furniture	10500
Wednesday, June 18, 2025	Furniture	10600
Friday, July 18, 2025	Furniture	10800
Monday, August 18, 2025	Furniture	10900
Thursday, September 18, 2025	Furniture	11000
Saturday, October 18, 2025	Furniture	11100
Tuesday, November 18, 2025	Furniture	11300
Thursday, December 18, 2025	Furniture	11400
Sunday, January 19, 2025	Furniture	11500
Wednesday, February 19, 2025	Furniture	11600
Wednesday, March 19, 2025	Furniture	11800
Friday, April 18, 2025	Clothing	12000
Sunday, May 18, 2025	Clothing	12000
Wednesday, June 18, 2025	Clothing	12000
Friday, July 18, 2025	Clothing	14000
Monday, August 18, 2025	Clothing	14000
Thursday, September 18, 2025	Clothing	14000
Saturday, October 18, 2025	Clothing	16000
Tuesday, November 18, 2025	Clothing	16000
Thursday, December 18, 2025	Clothing	16000

File	Home	Help	Tab
Name	Amount		
Data type	Decimal number		
Structure			
Order ID	Amount	Profi	
B-25604	65		
B-25606	87		
B-25607	50		
B-25615	68		
B-25616	42		
B-25619	353		
B-25623	53		
B-25624	26		
B-25625	97		
B-25628	45		
B-25629	1560		
B-25630	133		
B-25635	40		
B-25636	637		
B-25637	117		

- Format the "CustomerName" column into proper case, ensuring consistent capitalization for each word.

From Number	From Date & Time	
moved Duplicates",{{"CustomerName", Text.Proper, type text}})		
A <sup>B</sup> <sub>C</sub> CustomerName	A <sup>B</sup> <sub>C</sub> State	A <sup>B</sup> <sub>C</sub> City
Bharat	Gujarat	Ahmedabad
Pearl	Maharashtra	Pune
Jahan	Madhya Pradesh	Bhopal
Divsha	Rajasthan	Jaipur
Kasheen	West Bengal	Kolkata
Hazel	Karnataka	Bangalore
Sonakshi	Jammu and Kashmir	Kashmir
Aarushi	Tamil Nadu	Chennai
Jitesh	Uttar Pradesh	Lucknow
Yogesh	Bihar	Patna
Anita	Kerala	Thiruvananthapuram
Shrichand	Punjab	Chandigarh
Mukesh	Haryana	Chandigarh
Vandana	Himachal Pradesh	Simla
Bhavna	Sikkim	Gangtok

Query Settings

PROPERTIES

Name

List of Orders

All Properties

APPLIED STEPS

Source

Changed Type

Promoted Headers

Changed Type1

Removed Duplicates

Capitalized Each Word

Merged Columns

- Merge the "State" and "City" columns to create a new column named "Location" in the format 'City, State'.

### Steps:

Go to power query - transform tab then select the two columns. click merge column to combine the city and state separated by ,

Power Query Editor interface showing a table with columns: Order ID, Order Date, CustomerName, and Location. The formula bar shows: `= Table.CombineColumns(#"Capitalized Each Word",{"City", "State"},Combiner.CombineTextByDelimiter(",",""))`. The Query Settings pane on the right shows the query name "List of Orders" and the applied steps: Source, Changed Type, Promoted Headers, Changed Type1, Removed Duplicates, Capitalized Each Word, and Merged Columns.

Order ID	Order Date	CustomerName	Location
1	B-25601	01-04-2018	Bharat
2	B-25602	01-04-2018	Pearl
3	B-25603	03-04-2018	Jahan
4	B-25604	03-04-2018	Divsha
5	B-25605	05-04-2018	Kasheen
6	B-25606	06-04-2018	Hazel
7	B-25607	06-04-2018	Sonakshi
8	B-25608	08-04-2018	Aarushi
9	B-25609	09-04-2018	Jitesh
10	B-25610	09-04-2018	Yogesh
11	B-25611	11-04-2018	Anita
12	B-25612	12-04-2018	Shrichand
13	B-25613	12-04-2018	Mukesh

• Create a new custom column named "Profit Margin" as the percentage of "Profit" divided by "Amount".

### Steps:

Go to **power query** then select the specified column in the table "order details"  
**Create the custom column** and apply the **formula** for amount and profit get **profit Margin**

Power Query Editor interface showing a table with columns: Profit, Quantity, Category, Sub-Category, and Profit Margin. The formula bar shows: `= Table.TransformColumns(#"Changed Type1",{"Profit Margin", each Number.Round(_, 1), type number})`. The Query Settings pane on the right shows the query name "Order Details" and the applied steps: Source, Promoted Headers, Changed Type, Removed Duplicates, Added Custom, Changed Type1, and Rounded Off.

Profit	Quantity	Category	Sub-Category	Profit Margin
1275	-1148	7 Furniture	Bookcases	-90
168	-111	2 Electronics	Phones	-66.1
1355	-60	5 Clothing	Trousers	-4.4
65	17	2 Clothing	T-shirt	26.2
75	0	7 Clothing	Saree	0
87	4	2 Clothing	Shirt	4.6
50	15	4 Clothing	Leggings	30
1364	-1864	5 Furniture	Tables	-136.7
485	29	4 Electronics	Electronic Games	6
1076	-38	4 Electronics	Printers	-3.5
160	-59	2 Clothing	Saree	-36.9
259	-55	2 Furniture	Chairs	-21.2
1603	0	9 Clothing	Saree	0
494	54	4 Furniture	Bookcases	10.9
68	20	5 Clothing	Hankkerchief	29.4

Add a new conditional column named "Profit Status" based on the values in the "Profit" column. The conditions are as follows: if the profit is less than 0, the label should be "Loss"; if the profit equals 0, the label should be "Break-Even"; and if the profit is greater than 0, the label should be "Profit".

### Steps:

Create the "profit status" column add the **conditional column** in the power query  
 Then apply the conditions **if and if else**

Column From Examples	Custom Column	Invoke Custom Function	Index Column	Duplicate Column	Format	Extract	Statistics	Standard	Scientific	Rounding	Date	Time	Duration
			General			From Text				From Number			From Date & Time

Quantity	Category	Sub-Category	Profit Margin	Profit Status
1	-1148	7 Furniture	Bookcases	-90 loss
2	-111	2 Electronics	Phones	-66.1 loss
3	-60	5 Clothing	Trousers	-4.4 loss
4	17	2 Clothing	T-shirt	26.2 profit
5	0	7 Clothing	Saree	0 Break-even
6	4	2 Clothing	Shirt	4.6 profit
7	15	4 Clothing	Leggings	30 profit
8	-1864	5 Furniture	Tables	-136.7 loss
9	29	4 Electronics	Electronic Games	6 profit
10	-38	4 Electronics	Printers	-3.5 loss
11	-59	2 Clothing	Saree	-36.9 loss
12	-55	2 Furniture	Chairs	-21.2 loss
13	0	9 Clothing	Saree	0 Break-even
14	54	4 Furniture	Bookcases	10.9 profit
15	20	5 Clothing	Hankerchief	29.4 profit
16	12	5 Clothing	Hankerchief	28.6 profit

III.1  
Merging Data (Joins):

- Merge the "List of Orders" and "Order Details" tables into a new single table named "Orders Data" based on the "Order ID" relationship.

Steps:

Go to the Home tab just Click Merge Queries in power query Choose Merge Queries as a New then perform the merge operation .

Choose the tables “List of orders” and “Orders Details” and select the fields Order ID merge done then expand the table.

FileHomeTransformAdd ColumnViewToolsHelp

Close & Apply

New Source

Recent Sources

Enter Data

Data source settings

Manage Parameters

Ref. Prev

Queries [3]

List of OrdersOrder DetailsSales target

fx

= Table.Combine

Order ID	Order Date	CustomerName	Location
B-25601	01-04-2018	Bharat	Ahmedabad,Gujarat
B-25602	01-04-2018	Pearl	Pune,Maharashtra
B-25603	03-04-2018	Jahan	Bhopal,Madhya Pradesh
B-25604	03-04-2018	Divsha	Jaipur,Rajasthan
B-25605	05-04-2018	Kasheen	Kolkata,West Bengal

Order ID	Amount	Profit	Quantity	Category	Sub-Category	Profit Margin	Profit Status
B-25601	1275	-1148	7	Furniture	Bookcases	-90	loss
B-25602	168	-111	2	Electronics	Phones	-66.1	loss
B-25603	1355	-60	5	Clothing	Trousers	-4.4	loss
B-25604	65	17	2	Clothing	T-shirt	26.2	profit
B-25605	75	0	7	Clothing	Saree	0	Break-even

Merge

Select tables and matching columns to create a merged table.

List of Orders

Order Details

Join Kind

Left Outer (all from first, matching from second)

☐ Use fuzzy matching to perform the merge

Fuzzy matching options

☒ The selection matches 500 of 501 rows from the first table.

OKCancel

Merge Queries

Append Queries

Combine Files

Combine

Query Settings

PROPERTIES

Name

List of O

All Prop

APPLIED

Source

Char

Char

Prom

Char

Rem

Cap

Merge

The screenshot shows the Power BI Desktop interface. The main view is a table named 'Orders Data' with the following data:

Location	Order ID.1	Amount	Quantity	Category	Profit Margin
Ahmedabad,Gujarat	B-25601		1275	7 Furniture	
Pune,Maharashtra	B-25602		168	2 Electronics	
Bhopal,Madhya Pradesh	B-25603		1355	5 Clothing	
Jaipur,Rajasthan	B-25604		65	2 Clothing	
Kolkata,West Bengal	B-25605		75	7 Clothing	
Bangalore,Karnataka	B-25606		87	2 Clothing	
Kashmir,Jammu and Kashmir	B-25607		50	4 Clothing	
Chennai,Tamil Nadu	B-25608		1364	5 Furniture	
Lucknow,Uttar Pradesh	B-25609		485	4 Electronics	
Patna,Bihar	B-25610		1076	4 Electronics	
Thiruvananthapuram,Kerala	B-25611		160	2 Clothing	
Chandigarh,Punjab	B-25612		259	2 Furniture	
Chandigarh,Haryana	B-25613		1603	9 Clothing	
Simla,Himachal Pradesh	B-25614		494	4 Furniture	
Gangtok,Sikkim	B-25615		68	5 Clothing	
Goa,Goa	B-25616		42	5 Clothing	
Kohima,Nagaland	B-25617		305	5 Electronics	

The right-hand pane shows the 'Query Settings' for 'Expanded Order Details'.

### III.2

#### Sorting and Filtering Data:

- In the 'Orders Data' table, utilize sorting and filtering techniques on columns like Order Date, State or Category to analyze data based on specific criteria:
- ◆ Sort the orders by Order Date in descending order to analyze recent trends.
- ◆ Filter the orders to focus only on a specific state (e.g., Tamil Nadu) for regional analysis.

#### Steps:

In "orders data" table Got to select the **Orders Date** in the table perform the filters operation based on the states.

The screenshot shows the Power BI Desktop interface. The main view is a table named 'Orders Data' with the following data:

Order ID	Order Date	CustomerName	Location	Order ID.1	Amount
B-25698	23-06-2018	Amisha	Chennai,Tamil Nadu	B-25698	
B-26081	22-03-2019	Aarushi	Chennai,Tamil Nadu	B-26081	
B-25788	21-09-2018	Dinesh	Chennai,Tamil Nadu	B-25788	
B-25860	15-11-2018	Akshay	Chennai,Tamil Nadu	B-25860	
B-26018	14-02-2019	Aarushi	Chennai,Tamil Nadu	B-26018	
B-25716	11-07-2018	Surabhi	Chennai,Tamil Nadu	B-25716	
B-26008	09-02-2019	Kalyani	Chennai,Tamil Nadu	B-26008	
B-25608	08-04-2018	Aarushi	Chennai,Tamil Nadu	B-25608	

The right-hand pane shows the 'Query Settings' for 'Filtered Rows'.

### III.3

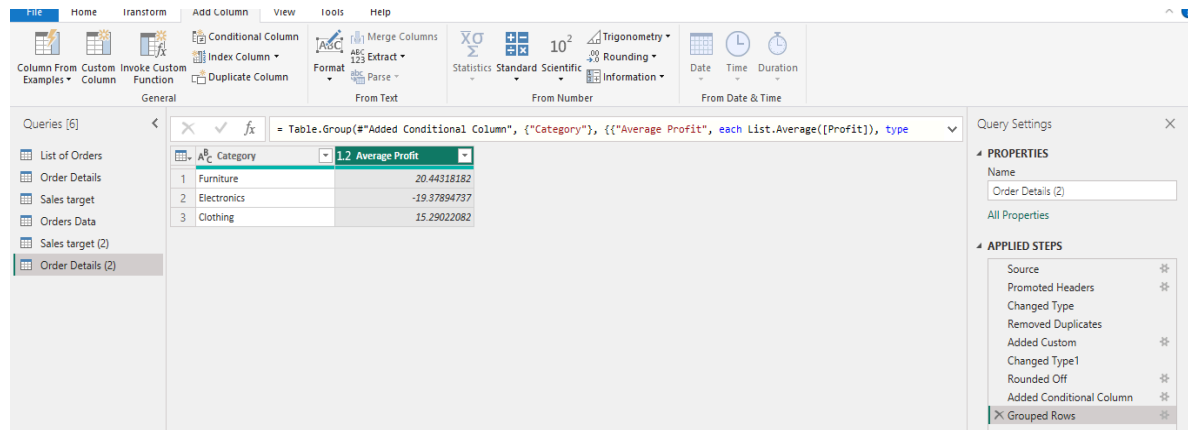
#### Grouping and Aggregating Data:

- Duplicate the "Order Details" table and calculate the count of each Order ID, average profit by Category or total amount by Sub-Category.

## steps:

Duplicate “Orders Details” Table. once created then

Select Category Column - Using **groupby** aggregate function to calculate the **Average** to generate the Average profit of category



Query Settings

PROPERTIES

Name

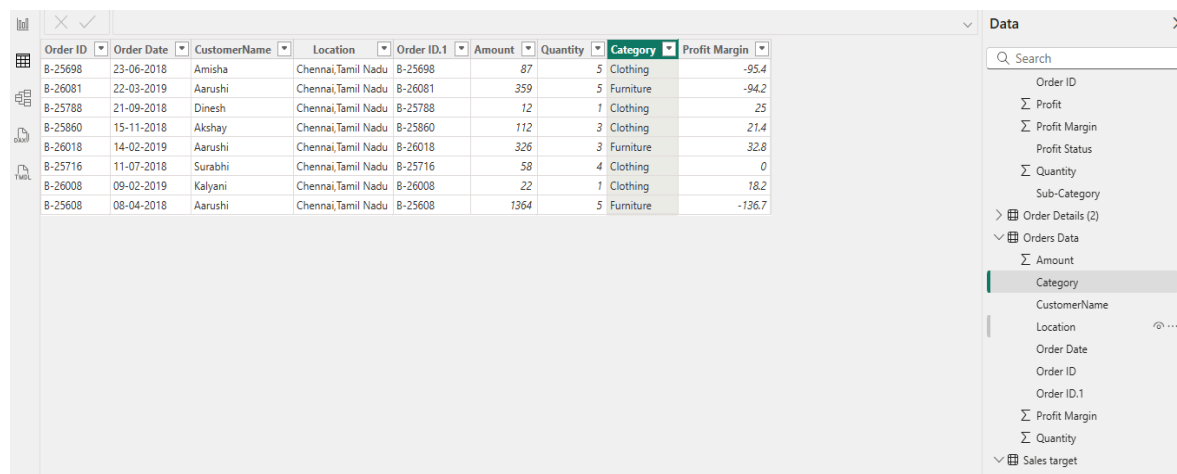
Order Details (2)

All Properties

APPLIED STEPS

- Source
- Promoted Headers
- Changed Type
- Removed Duplicates
- Added Custom
- Changed Type1
- Rounded Off
- Added Conditional Column
- Grouped Rows

Category	1.2 Average Profit
Furniture	20.44318182
Electronics	-19.37894737
Clothing	15.29022082



Data

Search

- Order ID
- Profit
- Profit Margin
- Profit Status
- Quantity
- Sub-Category
- Order Details (2)
- Orders Data
  - Amount
  - Category
  - CustomerName
  - Location
  - Order Date
  - Order ID
  - Order ID.1
  - Profit Margin
  - Quantity
- Sales target

Order ID	Order Date	CustomerName	Location	Order ID.1	Amount	Quantity	Category	Profit Margin
B-25698	23-06-2018	Amisha	Chennai,Tamil Nadu	B-25698	87	5	Clothing	-95.4
B-26081	22-03-2019	Aarushi	Chennai,Tamil Nadu	B-26081	359	5	Furniture	-94.2
B-25788	21-09-2018	Dinesh	Chennai,Tamil Nadu	B-25788	12	7	Clothing	25
B-25860	15-11-2018	Akshay	Chennai,Tamil Nadu	B-25860	112	3	Clothing	21.4
B-26018	14-02-2019	Aarushi	Chennai,Tamil Nadu	B-26018	326	3	Furniture	32.8
B-25716	11-07-2018	Surabhi	Chennai,Tamil Nadu	B-25716	58	4	Clothing	0
B-26008	09-02-2019	Kalyani	Chennai,Tamil Nadu	B-26008	22	1	Clothing	18.2
B-25608	08-04-2018	Aarushi	Chennai,Tamil Nadu	B-25608	1364	5	Furniture	-136.7

• Duplicate the “Sales Target” table and aggregate the total target amount by Month of Order Date.

## Steps:

I have to create the new month column in the Sale Target Table. once created then

## Select MONTH Column - Using **groupby** aggregate function to calculate the **SUM** in the Month wise Total Target

The screenshot shows the Power BI Desktop interface. The DAX formula bar contains the following formula:

```
Table.Group(*"Inserted Month Name", {"Month Name"}, {"Total Target", each List.Sum([Target]), type nullable
```

The table below shows the resulting data:

Month Name	Total Target
1 April	31400
2 May	31500
3 June	31600
4 July	31800
5 August	31900
6 September	34000
7 October	36100
8 November	36300
9 December	36400
10 January	43500
11 February	43600
12 March	43800

## IV.

### Data Modeling:

- Establish a relationship between the “List of Orders” and “Order Details” tables using the ‘Order ID’ column.

### steps:

Go to powerbi click on **Model icon** then Create the relation between Oder ID to order ID between two Tables

The screenshot shows the Power BI Desktop interface with the 'Model' view selected. Two tables, 'List of Orders' and 'Order Details', are connected by a relationship line. The 'List of Orders' table has columns: CustomerName, Location, Order Date, Order ID. The 'Order Details' table has columns: Amount, Category, Order ID, Profit, Profit Margin, Profit Status. The relationship is defined by the 'Order ID' column in both tables. The 'Properties' pane on the right shows the relationship settings:

- Relationship: List of Orders (Table) to Order ID (Column)
- Cardinality: Many to one (\*:1)
- Make this relationship active: Yes
- Cross-filter direction: Both
- Apply security filter in both directions: No

The 'Data' pane on the right shows the list of tables: List of Orders, Order Details, Order Details (2), Orders Data, Sales target, and Sales target (2).



**Edit relationship**

Select tables and columns that are related.

From table: List of Orders

CustomerName	Location	Order Date	Order ID
Hitika	Indore,Madhy...	23-04-2018	B-25627
Ashmi	Indore,Madhy...	26-04-2018	B-25637
Yaanvi	Indore,Madhy...	01-05-2018	B-25645

To table: Order Details

Amount	Category	Order ID	Profit	Profit Margin	Profit Status	Quantity
65	Clothing	B-25604	17	2620.0%	profit	2
87	Clothing	B-25606	4	460.0%	profit	2
50	Clothing	B-25607	15	3000.0%	profit	4

Cardinality: One to many (1:\*)

Cross-filter direction: Single

☒ Make this relationship active

☐ Assume referential integrity

☐ Apply security filter in both directions

Save Cancel

● Build a relationship between the “Order Details” and “Sales Target” tables based on the ‘Category’ column. Click "Manage relationships" and ensure this relationship is active.

### Steps:

Go to Power bi click the Model icon then create the relationship between the two table just drag and drop the specified column and choose the relationship Save and apply .

**Edit relationship**

Select tables and columns that are related.

From table: Order Details

Amount	Category	Order ID	Profit	Profit Margin	Profit Status	Quantity
65	Clothing	B-25604	17	2620.0%	profit	2
87	Clothing	B-25606	4	460.0%	profit	2
50	Clothing	B-25607	15	3000.0%	profit	4

To table: Sales target

Category	Month of Ord...
Furniture	Friday, April 1...
Furniture	Sunday, May ...
Furniture	Wednesday, J...

Cardinality: Many to many (\*:\*)

Cross-filter direction: Both

☐ Make this relationship active

☐ Assume referential integrity

☐ Apply security filter in both directions

Apply changes

**Verification:**

Go and check with manage relationship in the powerbi

<input type="checkbox"/>	Order Details (Category)		Sales target (Category)	Active	...
<input type="checkbox"/>	Orders Data (Order ID)		List of Orders (Order ID)	Active	...