

Exemplar: Capstone project - Part 1

Overview

In the first three Capstone project exercises, you were asked to help Tailwind Traders prepare and configure its data for analysis and then utilize the refined data to design and develop a data model.

Your tasks in these three exercises were to:

- Prepare Sales Excel data.
- Configure data sources.
- And design and develop the data model.

This reading provides you with a step-by-step guide for completing these tasks. It also includes screenshots that you can compare against your work.

You can also review the learning materials provided in this course for more guidance.

Exercise 1: Prepare the Sales Excel data

Step 1: Download the file

- Launch Power BI desktop and open the **Sales** worksheet from the Excel workbook **Tailwind Traders Sales.xlsx**.

Locate the file named **Tailwind Traders Sales.xlsx** and download it to your working directory. Once opened, verify that you're on the **Sales** worksheet, which will be the source of the data you'll be working with.

A	B	C	D	E	F	G	H	I	J	
1	OrderID	Customer Name	Product Name	Product Description	Gross Product Price	Tax Per Product	Quantity Purchased	Product Category	SKU Number	Weight
2	1024	Jane Smith	UltraGrip Hammer	A sturdy hammer with an ergonomic handle.	60	8.4	2	Tools	TWH-024	0.1
3	1025	Darren White	Luminous Bulb 60W	Energy-saving 60W bulb with a brig	35	2.45	3	Lighting	TWF-025	0.2
4	1026	Lucy Roberts	Oakwood Shelf	A durable oakwood shelf for home	250	17.5	1	Furniture	TWK-026	2.5
5	1027	Mark Lewis	ProTile Cutter	High precision tile cutter for profes	15	1.05	5	Tools	TWF-027	8.0
6	1028	Olivia Graham	Garden Glove Set	Comfortable gloves for gardening t	55	3.85	4	Gardening	TWT-028	1.2
7	1029	Jack Thompson	Steel Nails (1inch)	Rust-resistant steel nails for constr	75	5.25	2	Hardware	TWH-029	1.5
8	1030	Mia Hughes	Luxury Paint (Blue)	Premium quality blue paint for inte	50	14.7	1	Paint & De	TWS-030	0.8
9	1031	Aaron Walker	Kitchen Sink (Steel)	Stainless steel kitchen sink with a r	90	6.3	3	Plumbing	TWF-031	0.1
10	1032	Lily Peterson	Power Drill Set	A complete drill set with multiple b	180	12.6	2	Tools	TWG-032	0.5
11	1033	Ben Foster	Floral Wallpaper	Beautiful floral design wallpaper fo	3	1.4	6	Paint & De	TWT-033	0.2
12	1034	Owen Gray	Brass Door Knob	Elegant brass doorknob for interior	300	21	1	Hardware	TWS-034	0.05
13	1035	Amelia Carter	LED Garden Lights	Set of 6 LED lights for garden or pa	50	3.5	4	Lighting	TWH-035	2.0
14	1036	Liam Clark	Compost Bin	Durable compost bin for organic w	60	4.2	5	Gardening	TWK-036	4.0
15	1037	Sophia Turner	Ceramic Vase (Red)	Red ceramic vase for home decor a	40	2.8	3	Home Dec	TWT-037	0.05
16	1038	Jacob Moore	Patio Chair Set	Set of 2 chairs for patio or balcony	45	3.15	4	Furniture	TWO-038	6.0
17	1039	Ava Lee	Electric Lawnmower	Efficient electric lawnmower for m	80	5.6	2	Gardening	TWB-039	0.3
18	1040	Ethan Wilson	Kitchen Faucet	Modern kitchen faucet with a chro	200	14	1	Plumbing	TWT-040	0.2
19	1041	Charlotte Adams	Designer Wall Clock	Stylish wall clock with quartz move	65	4.55	3	Home Dec	TWF-041	1.0
20	1042	Lucas Taylor	Granite Countertop	Durable granite countertop for kitc	110	7.7	2	Furniture	TWB-042	0.3
21	1043	Mia Roberts	Teakwood Desk	Spacious teakwood desk for office	95	6.65	1	Furniture	TWH-043	1.5
22	1044	Noah White	Marble Floor Tile	Elegant marble tiles for luxurious fl	130	9.1	3	Flooring	TWT-044	0.2
23	1045	Harper Smith	Solar Outdoor Lantern	Solar-powered lantern for garden c	40	2.8	4	Lighting	TWS-045	1.0

Step 2: Calculate Gross Revenue

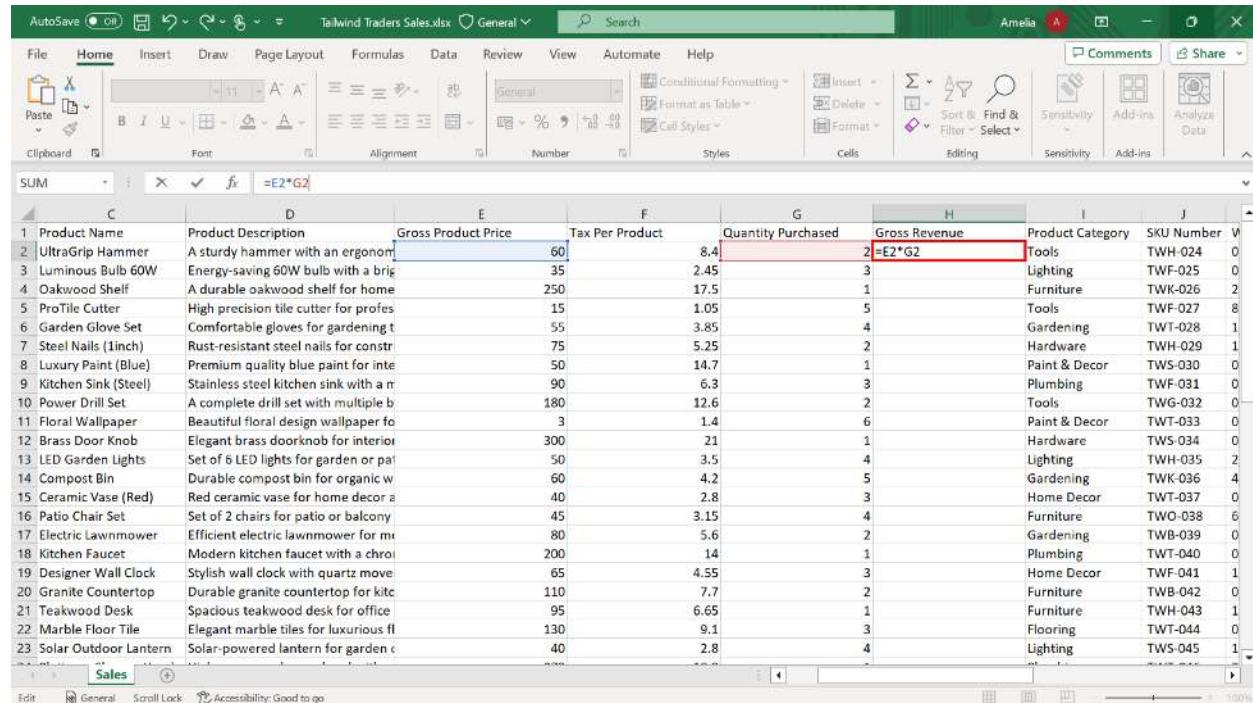
1. Insert a column after **Quantity Purchased** and label it **Gross Revenue**.

Identify the **Quantity Purchased** column. Right-click on the column header immediately to the right of the **Quantity Purchased** column to insert a new column. Label this new column as **Gross Revenue**. This will serve as the placeholder for your calculations.

C	D	E	F	G	H	I	J		
1	Product Name	Product Description	Gross Product Price	Tax Per Product	Quantity Purchased	Gross Revenue	Product Category	SKU Number	V
2	UltraGrip Hammer	A sturdy hammer with an ergonomic handle.	60	8.4	2	16.8	Tools	TWH-024	0
3	Luminous Bulb 60W	Energy-saving 60W bulb with a brig	35	2.45	3	8.35	Lighting	TWF-025	0
4	Oakwood Shelf	A durable oakwood shelf for home	250	17.5	1	4.375	Furniture	TWK-026	2
5	ProTile Cutter	High precision tile cutter for profes	15	1.05	5	5.25	Tools	TWF-027	8
6	Garden Glove Set	Comfortable gloves for gardening t	55	3.85	4	15.4	Gardening	TWT-028	1
7	Steel Nails (1inch)	Rust-resistant steel nails for constr	75	5.25	2	3.9	Hardware	TWH-029	1
8	Luxury Paint (Blue)	Premium quality blue paint for inte	50	14.7	1	14.7	Paint & Decor	TWS-030	0
9	Kitchen Sink (Steel)	Stainless steel kitchen sink with a r	90	6.3	3	18.9	Plumbing	TWF-031	0
10	Power Drill Set	A complete drill set with multiple b	180	12.6	2	25.2	Tools	TWG-032	0
11	Floral Wallpaper	Beautiful floral design wallpaper fo	3	1.4	6	8.4	Paint & Decor	TWT-033	0
12	Brass Door Knob	Elegant brass doorknob for interior	300	21	1	21	Hardware	TWS-034	0
13	LED Garden Lights	Set of 6 LED lights for garden or pa	50	3.5	4	14	Lighting	TWH-035	2
14	Compost Bin	Durable compost bin for organic w	60	4.2	5	21	Gardening	TWK-036	4
15	Ceramic Vase (Red)	Red ceramic vase for home decor a	40	2.8	3	8.4	Home Decor	TWT-037	0
16	Patio Chair Set	Set of 2 chairs for patio or balcony	45	3.15	4	12.6	Furniture	TWO-038	6
17	Electric Lawnmower	Efficient electric lawnmower for m	80	5.6	2	11.2	Gardening	TWB-039	0
18	Kitchen Faucet	Modern kitchen faucet with a chro	200	14	1	14	Plumbing	TWT-040	0
19	Designer Wall Clock	Stylish wall clock with quartz move	65	4.55	3	13.65	Home Decor	TWF-041	1
20	Granite Countertop	Durable granite countertop for kitc	110	7.7	2	15.4	Furniture	TWB-042	0
21	Teakwood Desk	Spacious teakwood desk for office	95	6.65	1	9.975	Furniture	TWH-043	1
22	Marble Floor Tile	Elegant marble tiles for luxurious fl	130	9.1	3	27.3	Flooring	TWT-044	0
23	Solar Outdoor Lantern	Solar-powered lantern for garden c	40	2.8	4	11.2	Lighting	TWS-045	1

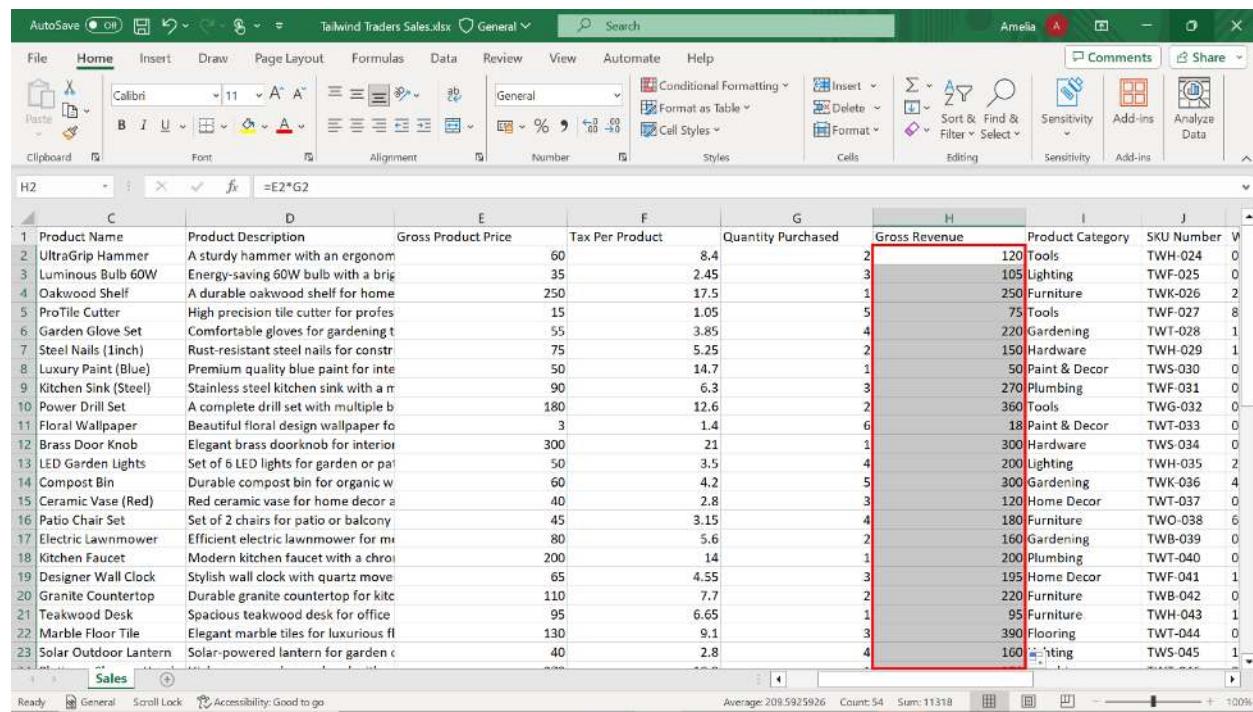
1. Use the formula =E2*G2 to calculate the revenue from each product.

Select the first cell under the **Gross Revenue** column. Enter the formula =E2*G2 and press **Enter** to apply the formula to this first cell.



C	D	E	F	G	H	I	J
Product Name	Product Description	Gross Product Price	Tax Per Product	Quantity Purchased	Gross Revenue	Product Category	SKU Number
1 UltraGrip Hammer	A sturdy hammer with an ergonomic handle	60	8.4	2	=E2*G2	Tools	TWH-024
2 Luminous Bulb 60W	Energy-saving 60W bulb with a bright white light	35	2.45	3		Lighting	TWF-025
3 Oakwood Shelf	A durable oakwood shelf for home storage	250	17.5	1		Furniture	TWK-026
4 ProTilt Cutter	High precision tile cutter for professionals	15	1.05	5		Tools	TWF-027
5 Garden Glove Set	Comfortable gloves for gardening tasks	55	3.85	4		Gardening	TWT-028
6 Steel Nails (1inch)	Rust-resistant steel nails for construction	75	5.25	2		Hardware	TWH-029
7 Luxury Paint (Blue)	Premium quality blue paint for interior walls	50	14.7	1		Paint & Decor	TWS-030
8 Kitchen Sink (Steel)	Stainless steel kitchen sink with a modern design	90	6.3	3		Plumbing	TWF-031
9 Power Drill Set	A complete drill set with multiple bits	180	12.6	2		Tools	TWG-032
10 Floral Wallpaper	Beautiful floral design wallpaper for walls	3	1.4	6		Paint & Decor	TWT-033
11 Brass Door Knob	Elegant brass doorknob for interior doors	300	21	1		Hardware	TWS-034
12 LED Garden Lights	Set of 6 LED lights for garden or patio	50	3.5	4		Lighting	TWH-035
13 Compost Bin	Durable compost bin for organic waste	60	4.2	5		Gardening	TWK-036
14 Ceramic Vase (Red)	Red ceramic vase for home decor accents	40	2.8	3		Home Decor	TWT-037
15 Patio Chair Set	Set of 2 chairs for patio or balcony	45	3.15	4		Furniture	TWO-038
16 Electric Lawnmower	Efficient electric lawnmower for maintenance	80	5.6	2		Gardening	TWB-039
17 Kitchen Faucet	Modern kitchen faucet with a chrome finish	200	14	1		Plumbing	TWT-040
18 Designer Wall Clock	Stylish wall clock with quartz movement	65	4.55	3		Home Decor	TWF-041
19 Granite Countertop	Durable granite countertop for kitchen	110	7.7	2		Furniture	TWB-042
20 Teakwood Desk	Spacious teakwood desk for office work	95	6.65	1		Furniture	TWH-043
21 Marble Floor Tile	Elegant marble tiles for luxurious floors	130	9.1	3		Flooring	TWT-044
22 Solar Outdoor Lantern	Solar-powered lantern for garden lighting	40	2.8	4		Lighting	TWS-045

Then, using either the fill handle or the double-click shortcut, extend the formula to the entire column to calculate the revenue for each product.



C	D	E	F	G	H	I	J
Product Name	Product Description	Gross Product Price	Tax Per Product	Quantity Purchased	Gross Revenue	Product Category	SKU Number
1 UltraGrip Hammer	A sturdy hammer with an ergonomic handle	60	8.4	2	120	Tools	TWH-024
2 Luminous Bulb 60W	Energy-saving 60W bulb with a bright white light	35	2.45	3	105	Lighting	TWF-025
3 Oakwood Shelf	A durable oakwood shelf for home storage	250	17.5	1	250	Furniture	TWK-026
4 ProTilt Cutter	High precision tile cutter for professionals	15	1.05	5	75	Tools	TWF-027
5 Garden Glove Set	Comfortable gloves for gardening tasks	55	3.85	4	220	Gardening	TWT-028
6 Steel Nails (1inch)	Rust-resistant steel nails for construction	75	5.25	2	150	Hardware	TWH-029
7 Luxury Paint (Blue)	Premium quality blue paint for interior walls	50	14.7	1	50	Paint & Decor	TWS-030
8 Kitchen Sink (Steel)	Stainless steel kitchen sink with a modern design	90	6.3	3	270	Plumbing	TWF-031
9 Power Drill Set	A complete drill set with multiple bits	180	12.6	2	360	Tools	TWG-032
10 Floral Wallpaper	Beautiful floral design wallpaper for walls	3	1.4	6	18	Paint & Decor	TWT-033
11 Brass Door Knob	Elegant brass doorknob for interior doors	300	21	1	300	Hardware	TWS-034
12 LED Garden Lights	Set of 6 LED lights for garden or patio	50	3.5	4	200	Lighting	TWH-035
13 Compost Bin	Durable compost bin for organic waste	60	4.2	5	300	Gardening	TWK-036
14 Ceramic Vase (Red)	Red ceramic vase for home decor accents	40	2.8	3	120	Home Decor	TWT-037
15 Patio Chair Set	Set of 2 chairs for patio or balcony	45	3.15	4	180	Furniture	TWO-038
16 Electric Lawnmower	Efficient electric lawnmower for maintenance	80	5.6	2	160	Gardening	TWB-039
17 Kitchen Faucet	Modern kitchen faucet with a chrome finish	200	14	1	200	Plumbing	TWT-040
18 Designer Wall Clock	Stylish wall clock with quartz movement	65	4.55	3	195	Home Decor	TWF-041
19 Granite Countertop	Durable granite countertop for kitchen	110	7.7	2	220	Furniture	TWB-042
20 Teakwood Desk	Spacious teakwood desk for office work	95	6.65	1	95	Furniture	TWH-043
21 Marble Floor Tile	Elegant marble tiles for luxurious floors	130	9.1	3	390	Flooring	TWT-044
22 Solar Outdoor Lantern	Solar-powered lantern for garden lighting	40	2.8	4	160	Lighting	TWS-045

Step 3: Calculate Total Tax:

1. Create a **Total Tax** column next to **Gross Revenue**.

Insert a new column to the right of **Gross Revenue** and label it **Total Tax**.

The screenshot shows a Microsoft Excel spreadsheet titled "Tailwind Traders Sales.xlsx". The "Home" tab is selected. The data starts at row 1 and includes columns for Product Description, Gross Product Price, Tax Per Product, Quantity Purchased, Gross Revenue, and Total Tax. The Total Tax column is highlighted with a red border. The "Sales" tab is visible at the bottom.

	D	E	F	G	H	I	J	K
1	Product Description	Gross Product Price	Tax Per Product	Quantity Purchased	Gross Revenue	Total Tax	Product Category	SKU Number
2	A sturdy hammer with an ergonomic handle	60	8.4	2	120		Tools	TWH-024
3	Energy-saving 60W bulb with a brig	35	2.45	3	105		Lighting	TWF-025
4	A durable oakwood shelf for home	250	17.5	1	250		Furniture	TWK-026
5	High precision tile cutter for profes	15	1.05	5	75		Tools	TWF-027
6	Comfortable gloves for gardening t	55	3.85	4	220		Gardening	TWT-028
7	Rust-resistant steel nails for constr	75	5.25	2	150		Hardware	TWH-029
8	Premium quality blue paint for inte	50	14.7	1	50		Paint & Decor	TWS-030
9	Stainless steel kitchen sink with a n	90	6.3	3	270		Plumbing	TWF-031
10	A complete drill set with multiple b	180	12.6	2	360		Tools	TWG-032
11	Beautiful floral design wallpaper fo	3	1.4	6	18		Paint & Decor	TWT-033
12	Elegant brass doorknob for interior	300	21	1	300		Hardware	TWS-034
13	Set of 6 LED lights for garden or pat	50	3.5	4	200		Lighting	TWH-035
14	Durable compost bin for organic w	60	4.2	5	300		Gardening	TWK-036
15	Red ceramic vase for home decor a	40	2.8	3	120		Home Decor	TWT-037
16	Set of 2 chairs for patio or balcony	45	3.15	4	180		Furniture	TWO-038
17	Efficient electric lawnmower for me	80	5.6	2	160		Gardening	TWB-039
18	Modern kitchen faucet with a chro	200	14	1	200		Plumbing	TWT-040
19	Stylish wall clock with quartz move	65	4.55	3	195		Home Decor	TWF-041
20	Durable granite countertop for kitc	110	7.7	2	220		Furniture	TWB-042
21	Spacious teakwood desk for office	95	6.65	1	95		Furniture	TWH-043
22	Elegant marble tiles for luxurious fl	130	9.1	3	390		Flooring	TWT-044
23	Solar-powered lantern for garden c	40	2.8	4	160		Lighting	TWS-045

1. Input the formula $=F2*G2$ to calculate the tax for each product.

Select the first cell under **Total Tax**. Input the formula $=F2*G2$ and press **Enter** to confirm the formula.

D	E	F	G	H	I	J	K
Product Description	Gross Product Price	Tax Per Product	Quantity Purchased	Gross Revenue	Total Tax	Product Category	SKU Number
A sturdy hammer with an ergonomic handle	60	8.4	2	120	=F2*G2	Tools	TWH-024
Energy-saving 60W bulb with a brig	35	2.45	3	105		Lighting	TWF-025
A durable oakwood shelf for home	250	17.5	1	250		Furniture	TKW-026
High precision tile cutter for profes	15	1.05	5	75		Tools	TWF-027
Comfortable gloves for gardening t	55	3.85	4	220		Gardening	TWT-028
Rust-resistant steel nails for constr	75	5.25	2	150		Hardware	TWH-029
Premium quality blue paint for inte	50	14.7	1	50		Paint & Decor	TWS-030
Stainless steel kitchen sink with a n	90	6.3	3	270		Plumbing	TWF-031
A complete drill set with multiple b	180	12.6	2	360		Tools	TWG-032
Beautiful floral design wallpaper fo	3	1.4	6	18		Paint & Decor	TWT-033
Elegant brass doorknob for interior	300	21	1	300		Hardware	TWS-034
Set of 6 LED lights for garden or pa	50	3.5	4	200		Lighting	TWH-035
Durable compost bin for organic w	60	4.2	5	300		Gardening	TKW-036
Red ceramic vase for home decor a	40	2.8	3	120		Home Decor	TWT-037
Set of 2 chairs for patio or balcony	45	3.15	4	180		Furniture	TWB-038
Efficient electric lawnmower for m	80	5.6	2	160		Gardening	TWB-039
Modern kitchen faucet with a chro	200	14	1	200		Plumbing	TWT-040
Stylish wall clock with quartz move	65	4.55	3	195		Home Decor	TWF-041
Durable granite countertop for kitc	110	7.7	2	220		Furniture	TWB-042
Spacious teakwood desk for office	95	6.65	1	95		Furniture	TWH-043
Elegant marble tiles for luxurious fl	130	9.1	3	390		Flooring	TWT-044
Solar-powered lantern for garden c	40	2.8	4	160		Lighting	TWS-045

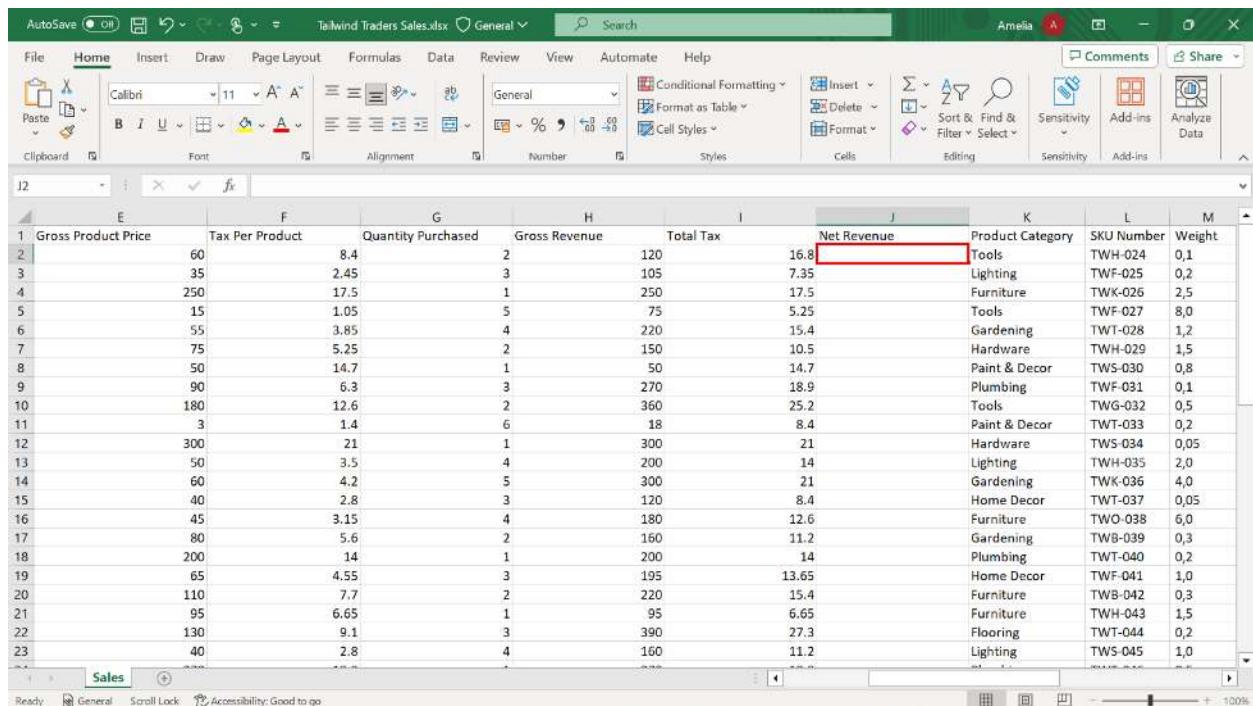
Drag down or double-click the fill handle to copy the formula down the column, calculating the tax for each item.

D	E	F	G	H	I	J	K
Product Description	Gross Product Price	Tax Per Product	Quantity Purchased	Gross Revenue	Total Tax	Product Category	SKU Number
A sturdy hammer with an ergonomic handle	60	8.4	2	120	16.8	Tools	TWH-024
Energy-saving 60W bulb with a brig	35	2.45	3	105	7.35	Lighting	TWF-025
A durable oakwood shelf for home	250	17.5	1	250	17.5	Furniture	TKW-026
High precision tile cutter for profes	15	1.05	5	75	5.25	Tools	TWF-027
Comfortable gloves for gardening t	55	3.85	4	220	15.4	Gardening	TWT-028
Rust-resistant steel nails for constr	75	5.25	2	150	10.5	Hardware	TWH-029
Premium quality blue paint for inte	50	14.7	1	50	14.7	Paint & Decor	TWS-030
Stainless steel kitchen sink with a n	90	6.3	3	270	18.9	Plumbing	TWF-031
A complete drill set with multiple b	180	12.6	2	360	25.2	Tools	TWG-032
Beautiful floral design wallpaper fo	3	1.4	6	18	8.4	Paint & Decor	TWT-033
Elegant brass doorknob for interior	300	21	1	300	21	Hardware	TWS-034
Set of 6 LED lights for garden or pa	50	3.5	4	200	14	Lighting	TWH-035
Durable compost bin for organic w	60	4.2	5	300	21	Gardening	TKW-036
Red ceramic vase for home decor a	40	2.8	3	120	8.4	Home Decor	TWT-037
Set of 2 chairs for patio or balcony	45	3.15	4	180	12.6	Furniture	TWB-038
Efficient electric lawnmower for m	80	5.6	2	160	11.2	Gardening	TWB-039
Modern kitchen faucet with a chro	200	14	1	200	14	Plumbing	TWT-040
Stylish wall clock with quartz move	65	4.55	3	195	13.65	Home Decor	TWF-041
Durable granite countertop for kitc	110	7.7	2	220	15.4	Furniture	TWB-042
Spacious teakwood desk for office	95	6.65	1	95	6.65	Furniture	TWH-043
Elegant marble tiles for luxurious fl	130	9.1	3	390	27.3	Flooring	TWT-044
Solar-powered lantern for garden c	40	2.8	4	160	11.2	Lighting	TWS-045

Step 4: Calculate Net Revenue

- Insert a Net Revenue column next to Total Tax.

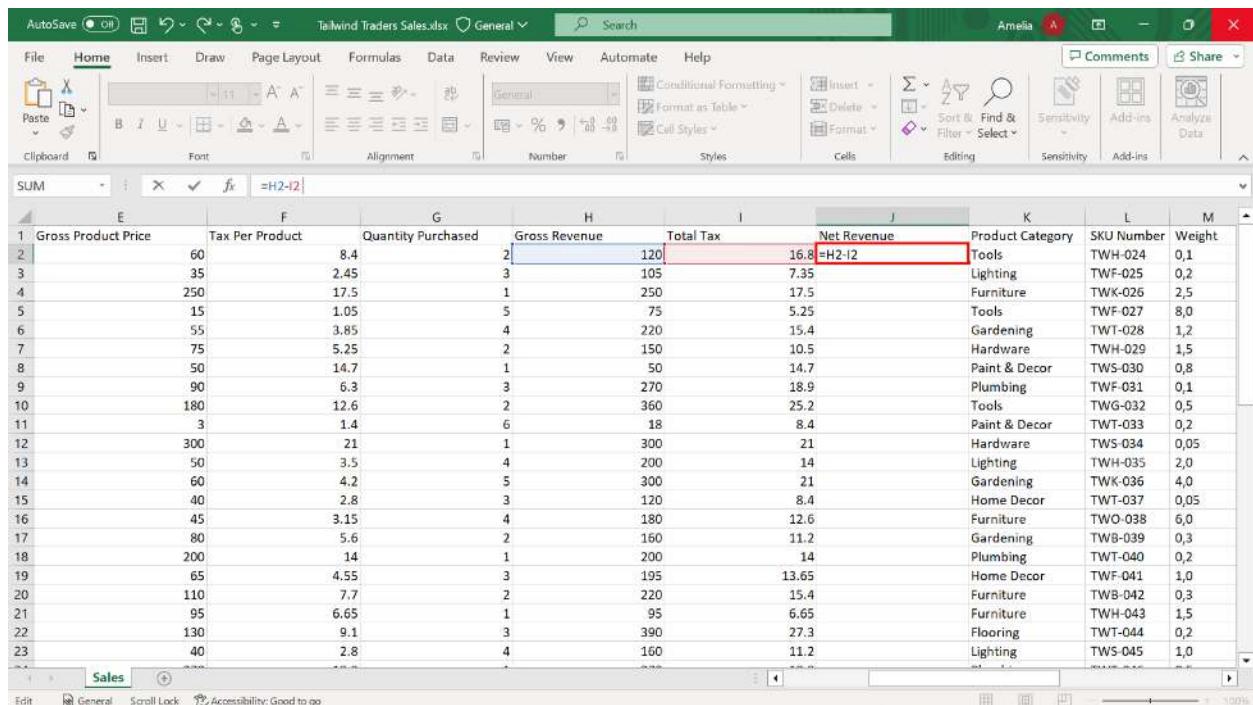
Insert a new column to the right of **Total Tax** and label it **Net Revenue**. Net Revenue is a critical metric for Tailwind Traders as it reflects the real financial contribution of each product to the company's bottom line.



	E	F	G	H	I	J	K	L	M
1	Gross Product Price	Tax Per Product	Quantity Purchased	Gross Revenue	Total Tax	Net Revenue	Product Category	SKU Number	Weight
2	60	8.4	2	120	16.8		Tools	TWH-024	0,1
3	35	2.45	3	105	7.35		Lighting	TWF-025	0,2
4	250	17.5	1	250	17.5		Furniture	TWK-026	2,5
5	15	1.05	5	75	5.25		Tools	TWF-027	8,0
6	55	3.85	4	220	15.4		Gardening	TWT-028	1,2
7	75	5.25	2	150	10.5		Hardware	TWH-029	1,5
8	50	14.7	1	50	14.7		Paint & Decor	TWS-030	0,8
9	90	6.3	3	270	18.9		Plumbing	TWF-031	0,1
10	180	12.6	2	360	25.2		Tools	TWG-032	0,5
11	3	1.4	6	18	8.4		Paint & Decor	TWT-033	0,2
12	300	21	1	300	21		Hardware	TWS-034	0,05
13	50	3.5	4	200	14		Lighting	TWH-035	2,0
14	60	4.2	5	300	21		Gardening	TWK-036	4,0
15	40	2.8	3	120	8.4		Home Decor	TWT-037	0,05
16	45	3.15	4	180	12.6		Furniture	TWO-038	6,0
17	80	5.6	2	160	11.2		Gardening	TWB-039	0,3
18	200	14	1	200	14		Plumbing	TWT-040	0,2
19	65	4.55	3	195	13.65		Home Decor	TWF-041	1,0
20	110	7.7	2	220	15.4		Furniture	TWB-042	0,3
21	95	6.65	1	95	6.65		Furniture	TWH-043	1,5
22	130	9.1	3	390	27.3		Flooring	TWT-044	0,2
23	40	2.8	4	160	11.2		Lighting	TWS-045	1,0

1. Use the formula =H2-I2 to determine the actual earnings post-tax for each product.

In the first cell under **Net Revenue**, input the formula =H2-I2 and press **Enter** to compute the net revenue for the first product.



	E	F	G	H	I	J	K	L	M
1	Gross Product Price	Tax Per Product	Quantity Purchased	Gross Revenue	Total Tax	Net Revenue	Product Category	SKU Number	Weight
2	60	8.4	2	120	16.8	=H2-I2	Tools	TWH-024	0,1
3	35	2.45	3	105	7.35		Lighting	TWF-025	0,2
4	250	17.5	1	250	17.5		Furniture	TWK-026	2,5
5	15	1.05	5	75	5.25		Tools	TWF-027	8,0
6	55	3.85	4	220	15.4		Gardening	TWT-028	1,2
7	75	5.25	2	150	10.5		Hardware	TWH-029	1,5
8	50	14.7	1	50	14.7		Paint & Decor	TWS-030	0,8
9	90	6.3	3	270	18.9		Plumbing	TWF-031	0,1
10	180	12.6	2	360	25.2		Tools	TWG-032	0,5
11	3	1.4	6	18	8.4		Paint & Decor	TWT-033	0,2
12	300	21	1	300	21		Hardware	TWS-034	0,05
13	50	3.5	4	200	14		Lighting	TWH-035	2,0
14	60	4.2	5	300	21		Gardening	TWK-036	4,0
15	40	2.8	3	120	8.4		Home Decor	TWT-037	0,05
16	45	3.15	4	180	12.6		Furniture	TWO-038	6,0
17	80	5.6	2	160	11.2		Gardening	TWB-039	0,3
18	200	14	1	200	14		Plumbing	TWT-040	0,2
19	65	4.55	3	195	13.65		Home Decor	TWF-041	1,0
20	110	7.7	2	220	15.4		Furniture	TWB-042	0,3
21	95	6.65	1	95	6.65		Furniture	TWH-043	1,5
22	130	9.1	3	390	27.3		Flooring	TWT-044	0,2
23	40	2.8	4	160	11.2		Lighting	TWS-045	1,0

- Then, double-click shortcut on cell **J2** or drag this formula down to cater to all products on your list. Repeat this action for the formulas in **H2** and **I2**.

Drag down or double-click the fill handle to copy the formula down the column, calculating the net revenue for each product.

	E	F	G	H	I	J	K	L	M
1	Gross Product Price	Tax Per Product	Quantity Purchased	Gross Revenue	Total Tax	Net Revenue	Product Category	SKU Number	Weight
2	60	8.4	2	120	16.8	103.2	Tools	TWH-024	0,1
3	35	2.45	3	105	7.35	97.65	Lighting	TWF-025	0,2
4	250	17.5	1	250	17.5	232.5	Furniture	TKW-026	2,5
5	15	1.05	5	75	5.25	69.75	Tools	TWF-027	8,0
6	55	3.85	4	220	15.4	204.6	Gardening	TWT-028	1,2
7	75	5.25	2	150	10.5	139.5	Hardware	TWH-029	1,5
8	50	14.7	1	50	14.7	35.3	Paint & Decor	TWS-030	0,8
9	90	6.3	3	270	18.9	251.1	Plumbing	TFW-031	0,1
10	180	12.6	2	360	25.2	334.8	Tools	TWG-032	0,5
11	3	1.4	6	18	8.4	9.6	Paint & Decor	TWT-033	0,2
12	300	21	1	300	21	279	Hardware	TWS-034	0,05
13	50	3.5	4	200	14	186	Lighting	TKW-035	2,0
14	60	4.2	5	300	21	279	Gardening	TKW-036	4,0
15	40	2.8	3	120	8.4	111.6	Home Decor	TWT-037	0,05
16	45	3.15	4	180	12.6	167.4	Furniture	TWO-038	6,0
17	80	5.6	2	160	11.2	148.8	Gardening	TWB-039	0,3
18	200	14	1	200	14	186	Plumbing	TWT-040	0,2
19	65	4.55	3	195	13.65	181.35	Home Decor	TWF-041	1,0
20	110	7.7	2	220	15.4	204.6	Furniture	TWB-042	0,3
21	95	6.65	1	95	6.65	88.35	Furniture	TWH-043	1,5
22	130	9.1	3	390	27.3	362.7	Flooring	TWT-044	0,2
23	40	2.8	4	160	11.2	148.8	Lighting	TWS-045	1,0

- Observe the first ten records and note the highest and lowest values for **Net Revenue**, **Quantity Purchased**, and **Total Tax**. In conjunction, observe neighboring columns like **Sales Rep** for trends.

The product **Power Drill Set** priced at **334.8USD**, is the highest among the first ten listed orders. **Floral Wallpaper**, priced at **3 USD** and with a quantity of **6**, generated the lowest net revenue of **9.6 USD**.

C	D	E	F	G	H	I	J	K
Product Name	Product Description	Gross Product Price	Tax Per Product	Quantity Purchased	Gross Revenue	Total Tax	Net Revenue	Product Cat
UltraGrip Hammer	A sturdy hammer with an ergonomic handle.	60	8.4	2	120	16.8	103.2	Tools
Luminous Bulb 60W	Energy-saving 60W bulb with a bri	35	2.45	3	105	7.35	97.65	Lighting
Oakwood Shelf	A durable oakwood shelf for home decor.	250	17.5	1	250	17.5	232.5	Furniture
ProTilt Cutter	High precision tile cutter for profes	15	1.05	5	75	5.25	69.75	Tools
Garden Glove Set	Comfortable gloves for gardening tasks.	55	3.85	4	220	15.4	204.6	Gardening
Steel Nails (1inch)	Rust-resistant steel nails for construction.	75	5.25	2	150	10.5	139.5	Hardware
Luxury Paint (Blue)	Premium quality blue paint for interior walls.	50	14.7	1	50	14.7	35.3	Paint & Deco
Kitchen Sink (Steel)	Stainless steel kitchen sink with a drain.	90	6.3	3	270	18.9	251.1	Plumbing
Power Drill Set	A complete drill set with multiple bits.	180	12.6	2	360	25.2	334.8	Tools
Floral Wallpaper	Beautiful floral design wallpaper for walls.	3	1.4	6	18	8.4	9.6	Paint & Deco
Brass Door Knob	Elegant brass doorknob for interior doors.	300	21	1	300	21	279	Hardware
LED Garden Lights	Set of 6 LED lights for garden or patio.	50	3.5	4	200	14	186	Lighting
Compost Bin	Durable compost bin for organic waste.	60	4.2	5	300	21	279	Gardening
Ceramic Vase (Red)	Red ceramic vase for home decor.	40	2.8	3	120	8.4	111.6	Home Decor
Patio Chair Set	Set of 2 chairs for patio or balcony.	45	3.15	4	180	12.6	167.4	Furniture
Electric Lawnmower	Efficient electric lawnmower for yards.	80	5.6	2	160	11.2	148.8	Gardening
Kitchen Faucet	Modern kitchen faucet with a chrome finish.	200	14	1	200	14	186	Plumbing
Designer Wall Clock	Stylish wall clock with quartz movement.	65	4.55	3	195	13.65	181.35	Home Decor
Granite Counter top	Durable granite countertop for kitchens.	110	7.7	2	220	15.4	204.6	Furniture
Teakwood Desk	Spacious teakwood desk for office use.	95	6.65	1	95	6.65	88.35	Furniture
Marble Floor Tile	Elegant marble tiles for luxurious floors.	130	9.1	3	390	27.3	362.7	Flooring
Solar Outdoor Lantern	Solar-powered lantern for garden lighting.	40	2.8	4	160	11.2	148.8	Lighting

Alice, the sales rep, managed sales transactions for the **UltraGrip Hammer**, **Oakwood Shelf**, **Garden Glove Set**, and **Kitchen Sink (Steel)**, making 4 transactions, the most among the listed orders.

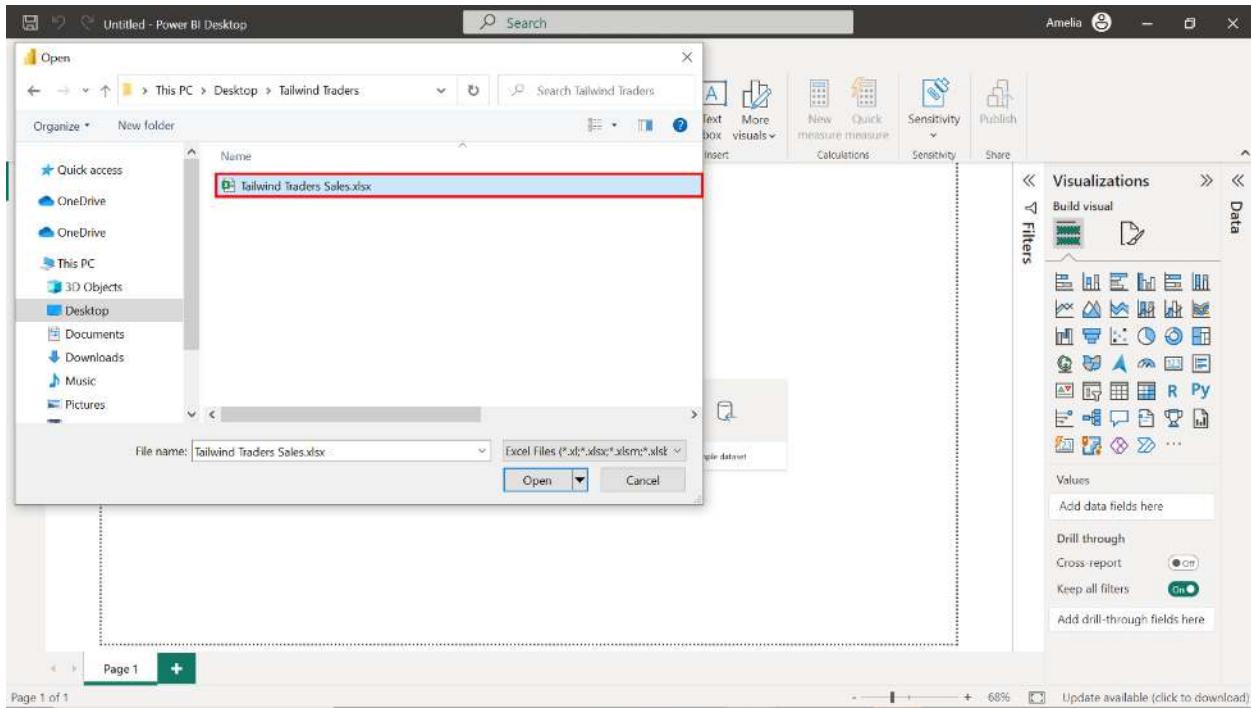
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
OrderID	Per Product	Quantity Purchased	Gross Revenue	Total Tax	Net Revenue	Product Category	SKU Number	Weight	Color	Size	Rating	Stock	Country ID	Sales Rep	Customer ID				
2	8.4	2	120	16.8	103.2	Tools	TWH-024	0.1	Red	Small	4.5	320	1	Alice	C024				
3	2.45	3	105	7.35	97.65	Lighting	TWF-025	0.2	Blue	Medium	4.8	150	5	Bob	C025				
4	17.5	1	250	17.5	232.5	Furniture	TWK-026	2.5	Green	Large	5.0	85	1	Alice	C026				
5	1.05	5	75	5.25	69.75	Tools	TWF-027	0.8	Red	XL	4.4	190	2	Charlie	C027				
6	3.85	4	220	15.4	204.6	Gardening	TWT-028	1.2	Black	Small	4.9	310	1	Alice	C028				
7	5.25	2	150	10.5	139.5	Hardware	TWH-029	1.5	White	Medium	4.2	210	2	David	C029				
8	14.7	1	50	14.7	35.3	Paint & Decor	TWS-030	0.8	Red	Large	4.7	255	3	Charlie	C030				
9	6.3	3	270	18.9	251.1	Plumbing	TWF-031	0.1	Blue	Small	4.6	265	2	Alice	C031				
10	12.6	2	360	25.2	334.8	Tools	TWG-032	0.5	Green	XL	4.0	330	1	Bob	C032				
11	1.4	6	18	8.4	9.6	Paint & Decor	TWT-033	0.2	Yellow	Small	4.8	500	1	David	C033				
12	21	1	300	21	279	Hardware	TWS-034	0.05	Black	Medium	4.7	220	2	Alice	C034				
13	3.5	4	200	14	186	Lighting	TWH-035	2.0	White	Large	4.9	150	4	Charlie	C035				
14	4.2	5	300	21	279	Gardening	TWK-036	4.0	Yellow	XL	5.0	90	1	Bob	C036				
15	2.8	3	120	8.4	111.6	Home Decor	TWT-037	0.05	Red	Medium	4.8	320	5	David	C037				
16	3.15	4	180	12.6	167.4	Furniture	TWO-038	6.0	Blue	XL	4.6	185	5	Alice	C038				
17	5.6	2	160	11.2	148.8	Gardening	TWB-039	0.3	Green	Small	4.5	215	1	Charlie	C039				
18	14	1	200	14	186	Plumbing	TWT-040	0.2	Red	Small	4.7	240	5	David	C040				
19	4.55	3	195	13.65	181.35	Home Decor	TWF-041	1.0	Blue	Medium	4.8	165	5	Bob	C041				
20	7.7	2	220	15.4	204.6	Furniture	TWB-042	0.3	Green	Large	4.9	300	1	David	C042				
21	6.65	1	95	6.65	88.35	Furniture	TWH-043	1.5	Red	XL	4.4	270	2	Alice	C043				
22	9.1	3	390	27.3	362.7	Flooring	TWT-044	0.2	Black	Small	4.6	315	3	Bob	C044				
23	2.8	4	160	11.2	148.8	Lighting	TWS-045	1.0	White	Medium	4.7	340	2	Charlie	C045				

Exercise 2: Configure data sources

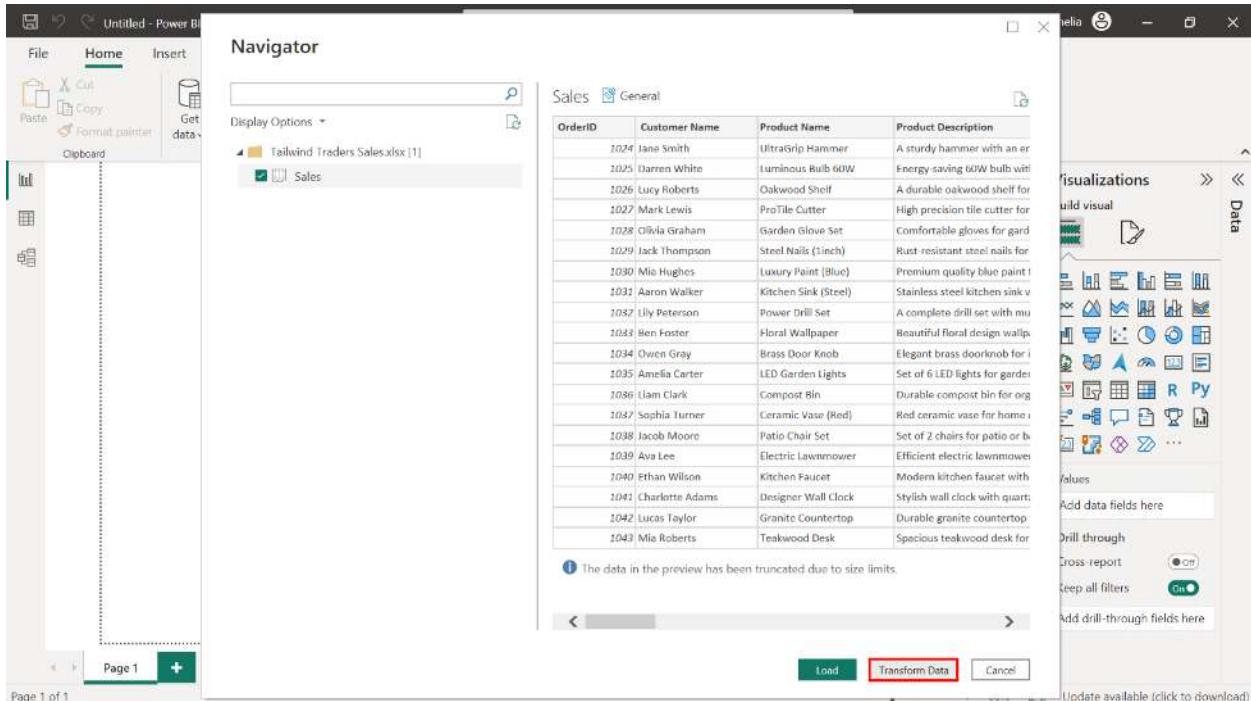
Step 1: Load the Sales data

1. Load the Tailwind Traders Sales file into Power BI and select Transform.

Begin by loading the Tailwind Traders Sales data file into Power BI.



Once loaded, select the **Transform Data** option to enter the Power Query Editor.



1. Within Power Query, find the **OrderID** column and set the data type to **Whole Number**.

In Power Query, locate the **OrderID** column and set its data type to **Whole Number**. This ensures that transactions are treated as unique numeric values, not as text or any other format, which could lead to incorrect sorting or calculations.

The screenshot shows the Microsoft Power Query Editor interface. The 'Transform' tab is active. A dropdown menu is open over the 'OrderID' column, listing various data types: Decimal Number, Fixed decimal number, Whole Number, Percentage, Date/Time, Date, Time, Date/Time/Timezone, Duration, Text, True/False, Binary, Using Locale..., and Int64.Type. The 'Whole Number' option is highlighted with a red border. To the right, the 'Applied Steps' pane shows a single step named 'Changed Type'.

1. To complete optimization, assign the following data types for the columns:

- **Gross Product Price = Fixed Decimal Number**
- **Tax Per Product = Fixed Decimal Number**
- **Quantity Purchased = Whole Number**
- **Loyalty Points = Whole Number**
- **Stock = Whole Number**
- **Product Category = Text**
- **Rating = Fixed Decimal Number**

Select the title of each column to view the list of available data types. Select the required data type to assign it to its respective column.

The screenshot shows the Power Query Editor interface. The ribbon at the top has 'Transform' selected. A context menu is open over the 'Gross Product Price' column, with 'Fixed decimal number' highlighted. The 'Sales' query is listed in the Queries pane. The main area displays a table with columns: description, Gross Product Price, Tax Per Product, and Quantity Purchased.

1. In the View tab, upon selecting the **Column Quality**, **Column Distribution**, and **Column Profile** boxes, ensure the **Valid** percentage is 100% for the OrderID column.

Navigate to the **View** tab. Select the **Column Quality**, **Column Distribution**, and **Column Profile** checkboxes. Examining column quality, distribution, and profiles helps assess the data's health. It also allows for the early detection of issues, saving time and preventing errors in later stages of the analysis.

The screenshot shows the Power Query Editor interface with the 'View' tab selected. The 'Column quality' checkbox is checked. The Data Preview pane shows histograms for columns like Weight, Color, Size, Rating, and Stock. The 'Sales' query is listed in the Queries pane. The main area displays a table with columns: Weight, Color, Size, Rating, and Stock.

Validate that the **OrderID** column achieves a 100% **Valid** rate, reflecting its data integrity. This confirms that there are no nulls, duplicates, or erroneous entries in this crucial column, which is vital for tracking individual sales accurately.

Power Query Editor - Untitled - Sales

Query Settings

- Properties**: Name = Sales
- Applied Steps**: Changed Type

Data Preview

OrderID	Customer Name	Product Name	Product Description
1	Jane Smith	UltraGrip Hammer	A sturdy hammer with an ergonomic grip for carpentry work.
2	Darren White	Luminous Bulb 60W	Energy-saving 60W bulb with a bright luminous output.
3	Lucy Roberts	Oakwood Shelf	A durable oakwood shelf for home and office use.
4	Mark Lewis	ProTile Cutter	High precision tile cutter for professional use.
5	Olivia Graham	Garden Glove Set	Comfortable gloves for gardening tasks.
6	Jack Thompson	Steel Nails (1inch)	Rust-resistant steel nails for construction.
7	Mia Hughes	Luxury Paint (Blue)	Premium quality blue paint for interior walls.
8	Aaron Walker	Kitchen Sink (Stainless)	Stainless steel kitchen sink with a modern design.
9	Lily Peterson	Power Drill Set	A complete drill set with multiple bits for various tasks.
10	Ben Foster	Floral Wallpaper	Beautiful floral design wallpaper for home decor.
11	Oliver Green	Power Phone Charger	Efficient power charger for mobile devices.

25 COLUMNS, 54 ROWS Column profiling based on top 1000 rows PREVIEW DOWNLOADED AT 13:35

- Select the **Gross Product Price** column and note down the histogram frequency of distinct and unique values.

Tailwind Traders offers products at 50 distinct price points for the **Gross Product Price** column.

Power Query Editor - Untitled - Sales

Query Settings

- Properties**: Name = Sales
- Applied Steps**: Changed Type

Data Preview

Gross Product Price	Tax Per Product	Quantity Purchased	Gross Re
60.00	8.40	2	128.00
35.00	2.45	3	106.50
325			

Column statistics

Count	54
Error	0
Empty	0
Distinct	50
Unique	46
Nan	0
Zero	0
Min	3
Max	325
Average	107.648...

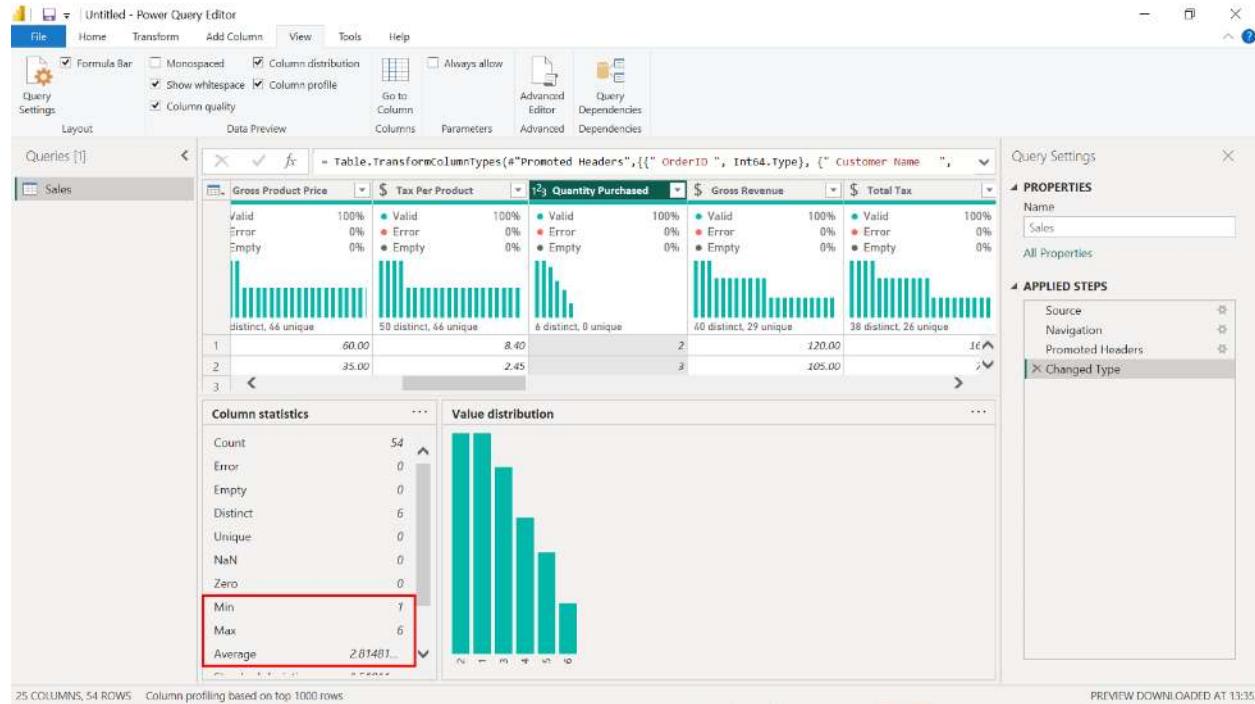
Value distribution

50 distinct, 46 unique

PREVIEW DOWNLOADED AT 13:35

- Select the **Quantity Purchased** column and note down the **MIN**, **MAX** and **AVERAGE** values displayed on the additional statistical pane.

In the Quantity Purchased column, the minimum value is **1**, the maximum value is **6**, and the average value is **2.8148**. These statistics are fundamental to understanding sales volumes.



Step 2: Load the Purchases data

- Load the **Purchases** file into Power BI and select **Transform**.

Select the **Purchases** data file and then select **Load** to load it into Power BI. Select **Transform Data** to access Power Query.

The screenshot shows the Microsoft Power BI Data Get & Transform interface. On the left, the 'Navigator' pane displays a file named 'Purchases.xlsx [1]' containing a single table named 'Purchases'. The main area shows a preview of the 'Purchases' table with the following data:

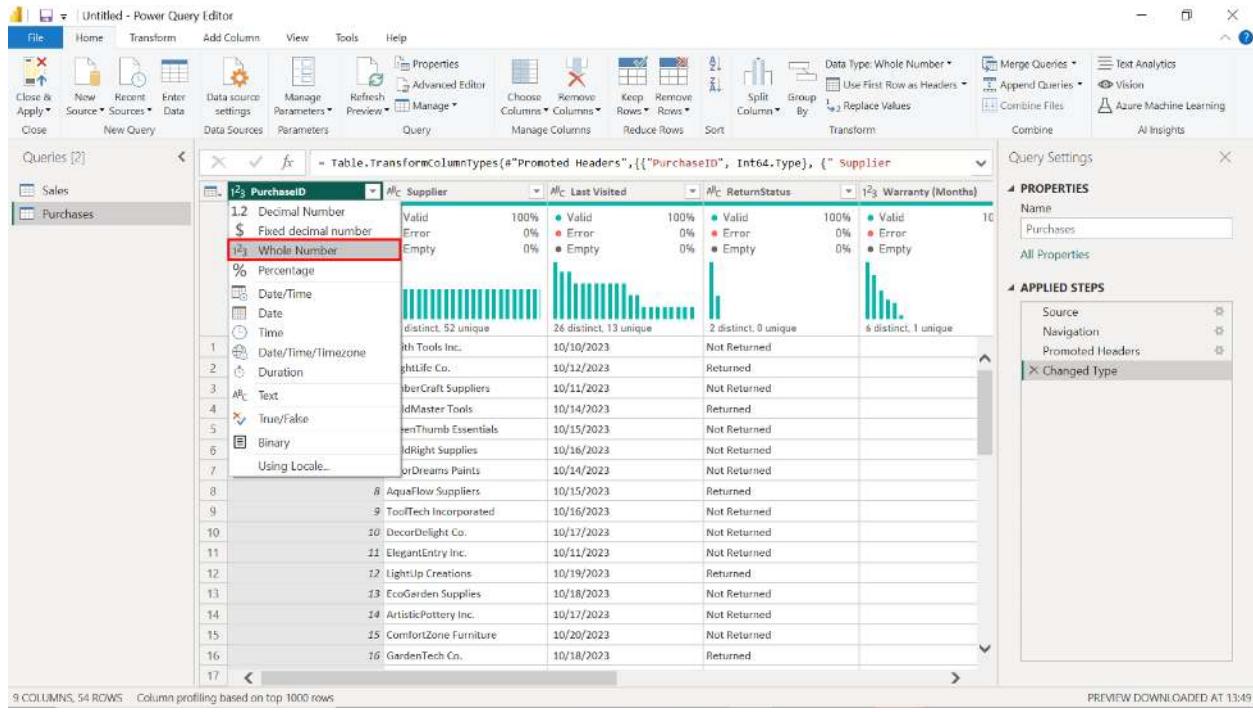
PurchaseID	Supplier	Last Visited	ReturnStatus	Warranty
1	Smith Tools Inc.	10/10/2023	Not Returned	
2	BrightLife Co.	10/12/2023	Returned	
3	TimberCraft Supplies	10/11/2023	Not Returned	
4	BuildMaster Tools	10/14/2023	Returned	
5	GreenThumb Essentials	10/15/2023	Not Returned	
6	BuildRight Supplies	10/16/2023	Not Returned	
7	ColorDreams Paints	10/14/2023	Not Returned	
8	AquaFlow Suppliers	10/15/2023	Returned	
9	ToolTech Incorporated	10/16/2023	Not Returned	
10	DecorDelight Co.	10/17/2023	Not Returned	
11	ElegantEntry Inc.	10/11/2023	Not Returned	
12	LightUp Creations	10/19/2023	Returned	
13	EcoGardens Supplies	10/18/2023	Not Returned	
14	ArtisticPottery Inc.	10/17/2023	Not Returned	
15	ComfortZone Furniture	10/20/2023	Not Returned	
16	GardenTech Co.	10/18/2023	Returned	
17	AquaDesigns Ltd.	10/22/2023	Not Returned	
18	Timeless Decor	10/23/2023	Not Returned	
19	StoneCrafters Inc.	10/16/2023	Not Returned	
20	TimberCraft Suppliers	10/24/2023	Returned	
21	StoneMarvel Inc.	10/18/2023	Not Returned	
22	Sunlight Creations	10/25/2023	Returned	
23	Aquatux Suppliers	10/19/2023	Not Returned	

At the bottom right of the interface, there are three buttons: 'Load', 'Transform Data' (which is highlighted with a red box), and 'Cancel'. A status message 'Update available (click to download)' is also visible.

1. To complete optimization, assign the following data types for the columns:

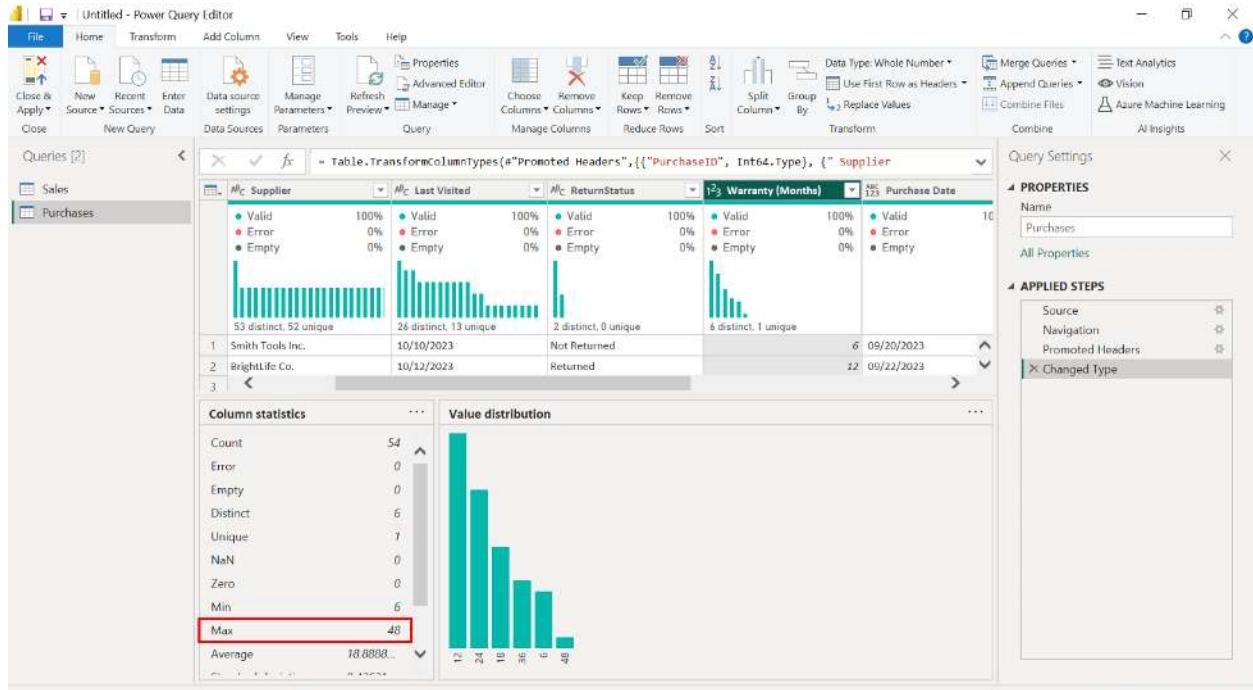
- **PurchaseID = Whole Number**
- **OrderID = Whole Number**
- **Return Policy (Days) = Whole Number**
- **Purchase Date = Date**
- **Warranty (Months) = Whole Number**
- **Supplier = Text**
- **Last Visited = Date**
- **ReturnStatus = Text**

Carefully assign the appropriate data types for each column by selecting the column header and the correct data type from the list.



1. Select the **Warranty (Months)** column and note down the **MIN**, **MAX** and **AVERAGE** values displayed on the additional statistical pane.

Tailwind Traders offers a minimum warranty duration of **6 months**, a maximum of **48 months**, and an average of **18.88 months**.



1. Select the **ReturnStatus** column and observe the **Column Quality** pane to ensure the **Valid** percentage is **100%**.

Observe the **ReturnStatus** column and confirm a 100% Valid rate via the **Column Quality** pane, indicating clean data. This is vital for financial reporting and understanding customer satisfaction.

The screenshot shows the Power Query Editor interface with the 'Purchases' query selected. In the main grid, there are four columns: 'Supplier', 'Last Visited', 'ReturnStatus', and 'Purchase Date'. The 'ReturnStatus' column is highlighted with a red border. The Column Quality pane on the right shows a 100% Valid rate for the 'ReturnStatus' column, with a green bar indicating a high quality level. The 'APPLIED STEPS' pane shows a step named 'Changed Type'.

1. Filter the **ReturnStatus** column to ensure that only records with **Not Returned** are visible.

Select the **ReturnStatus** column header to access the filter options. Select **Not Returned** from the list of filter options to ensure visibility of only those records.

The screenshot shows the Power Query Editor with the 'Purchases' query. A filter dialog is open over the main grid, specifically targeting the 'ReturnStatus' column. The 'Text Filters' section is visible, and the 'Not Returned' option is selected, highlighted with a red border. Other filter options like 'Select All' and 'Returned' are also shown. The rest of the interface, including the Column Quality pane and Applied Steps pane, remains visible.

Step 3: Load the Countries data

1. Load the **Countries** file into Power BI and select **Transform**.

Load the **Countries** data file into Power BI. Choose **Transform Data** to access the data manipulation tools in Power Query.

The screenshot shows the Power BI desktop interface. The 'Home' tab is selected in the ribbon. On the left, the 'Navigator' pane shows a file named 'Countries.xlsx [1]' containing a single table named 'Countries'. The main area displays the 'Countries' table with three columns: 'Country ID', 'Country', and 'Exchange ID'. The data is as follows:

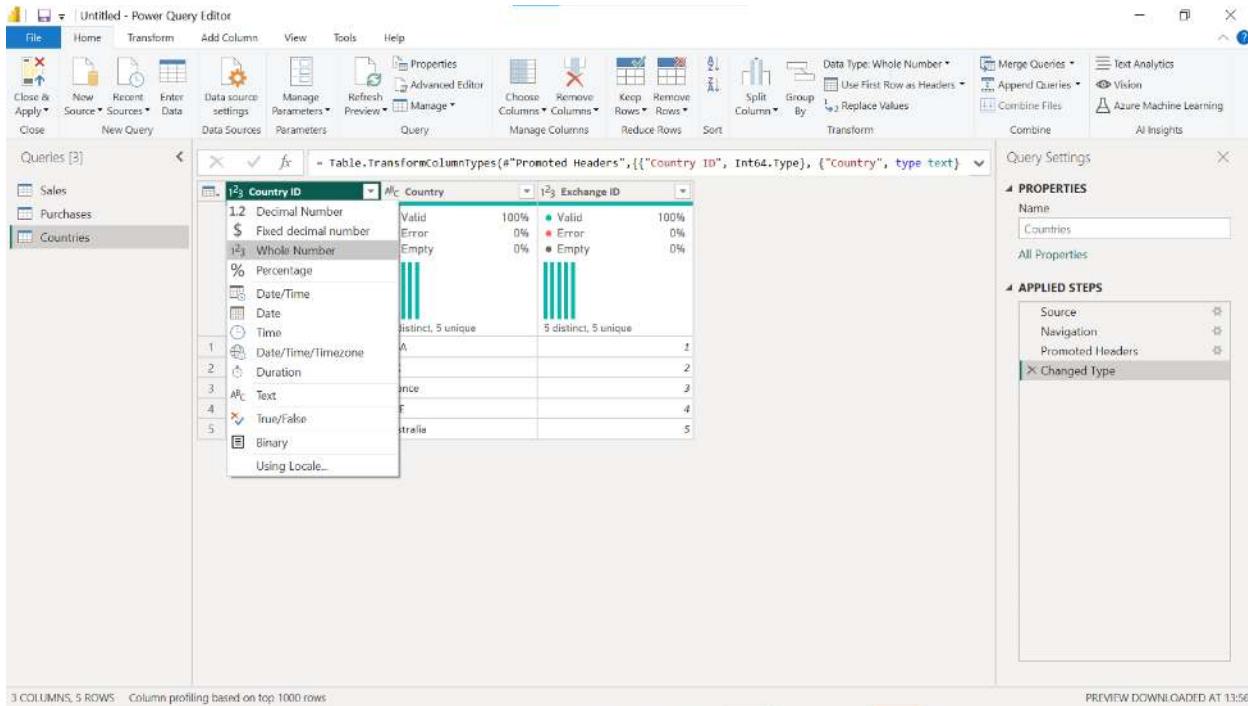
Country ID	Country	Exchange ID
1	USA	1
2	UK	2
3	France	3
4	UAE	4
5	Australia	5

On the right, the 'Data' pane shows sections for 'Purchases' and 'Sales'. At the bottom of the screen, there are 'Load', 'Transform Data' (which is highlighted with a red box), and 'Cancel' buttons. A status bar at the bottom right indicates 'Update available (click to download)'.

1. To complete optimization, assign the following data types for the columns:

- **Country ID = Whole Number**
- **Exchange ID = Whole Number**
- **Country = Text**

To assign data types, select each column header to open the list of options. Then, select the correct data type from the list.



Step 4: Load the Historical Currency Exchange data

1. Select **Get Data**, choose **Python script**, and then paste the following code into the script window in Power BI:

```

1
2
3
4
5
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9
10
11
12
13

import pandas as pd
from io import StringIO

data = """Exchange ID;ExchangeRate;Exchange Currency
1;1;USD
2;0,75;GBP
3;0,85;EUR
4;3,67;AED
5;1,3;AUD"""

```

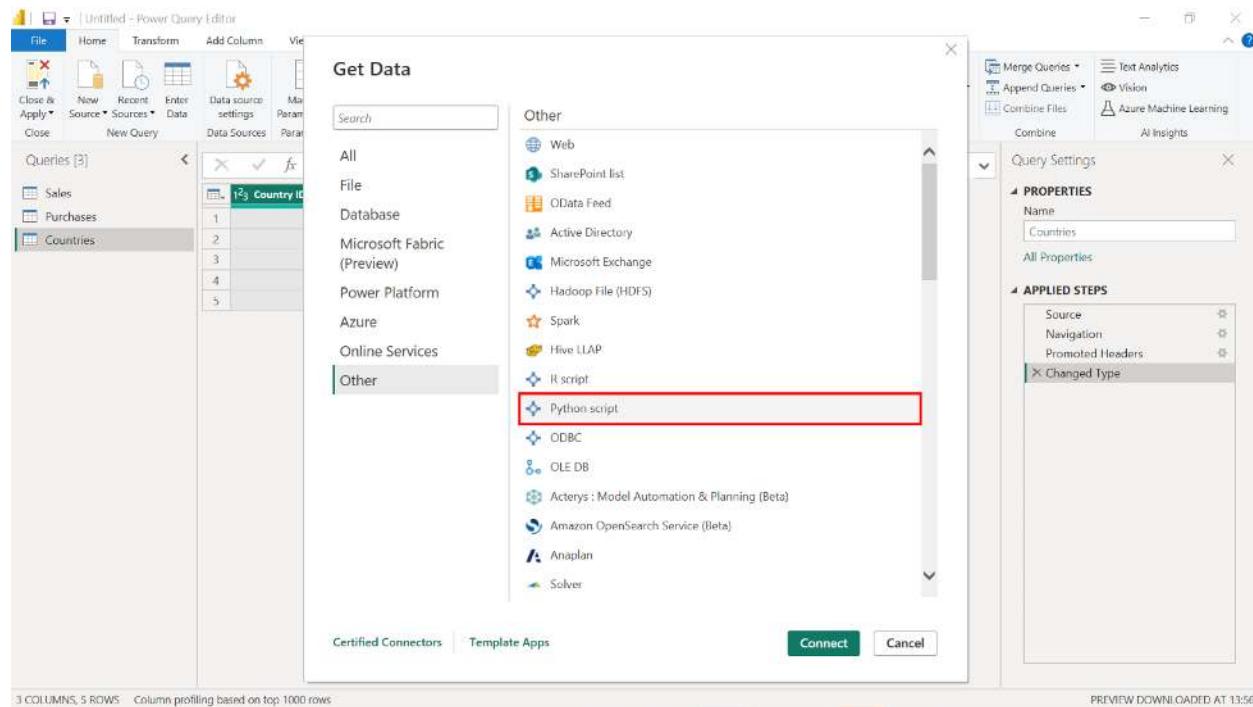
```

df = pd.read_csv(StringIO(data), sep=';')

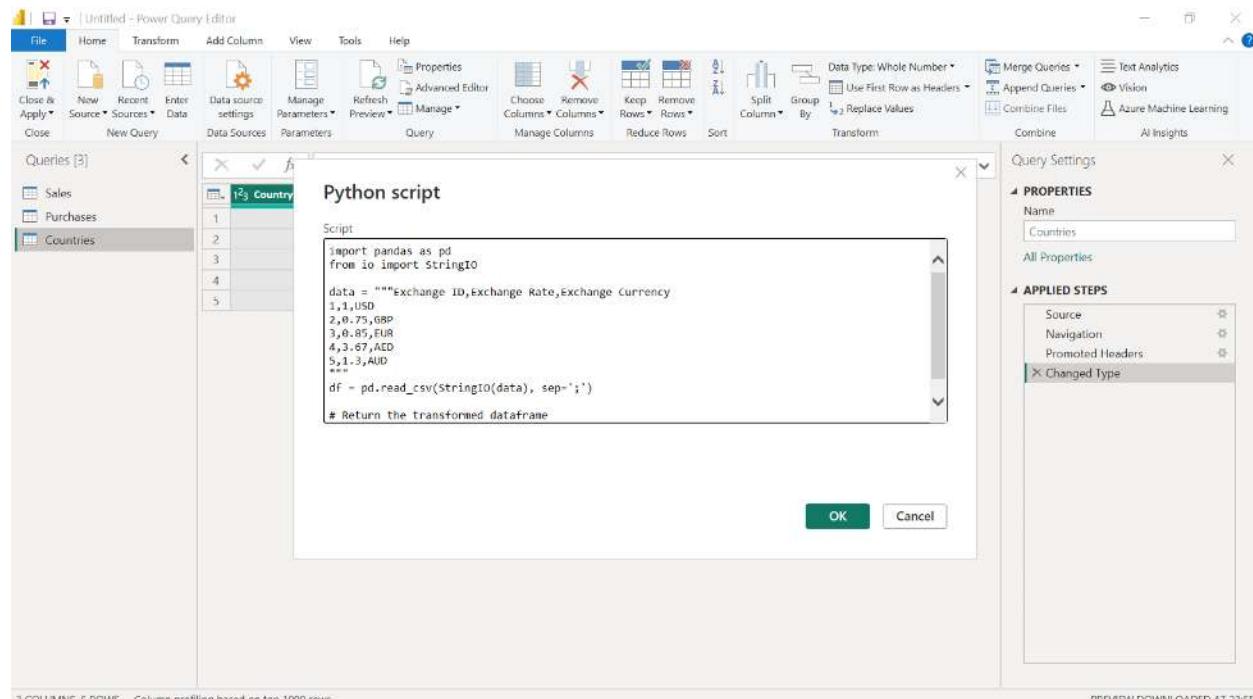
# Return the transformed dataframe
df

```

Navigate to **Get Data** and select the **Python script** option.

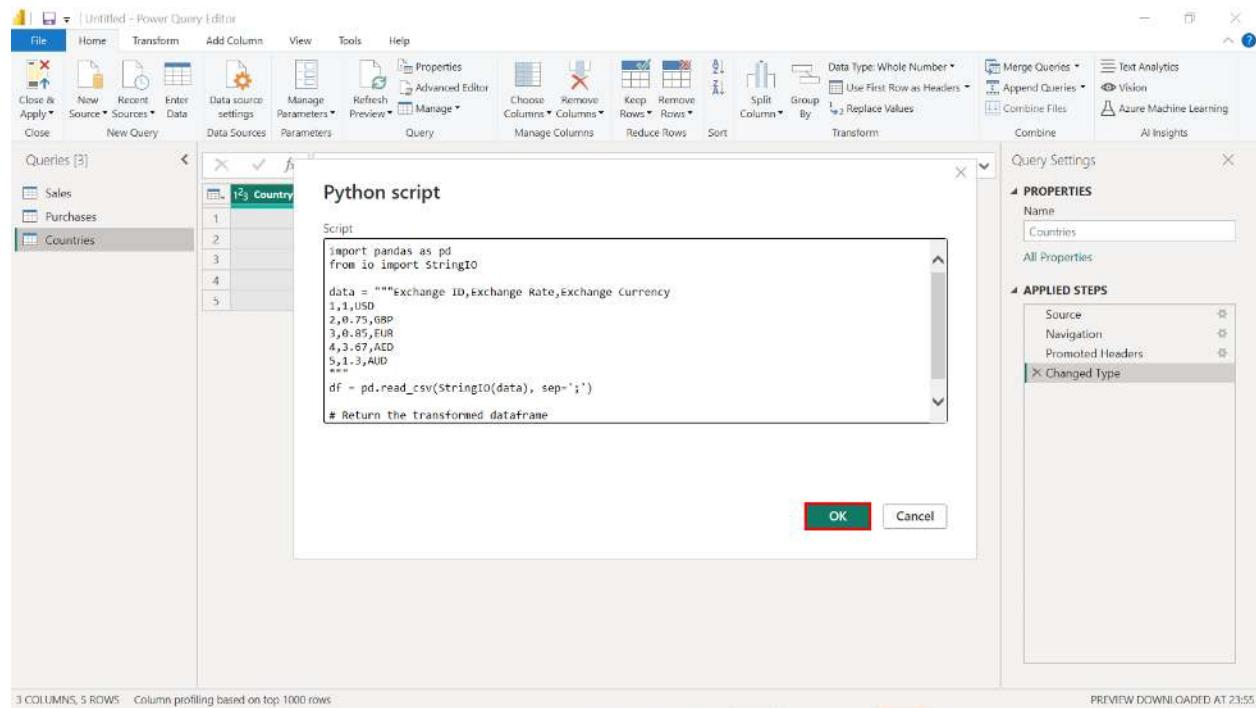


Input the Python code into Power BI's script window.



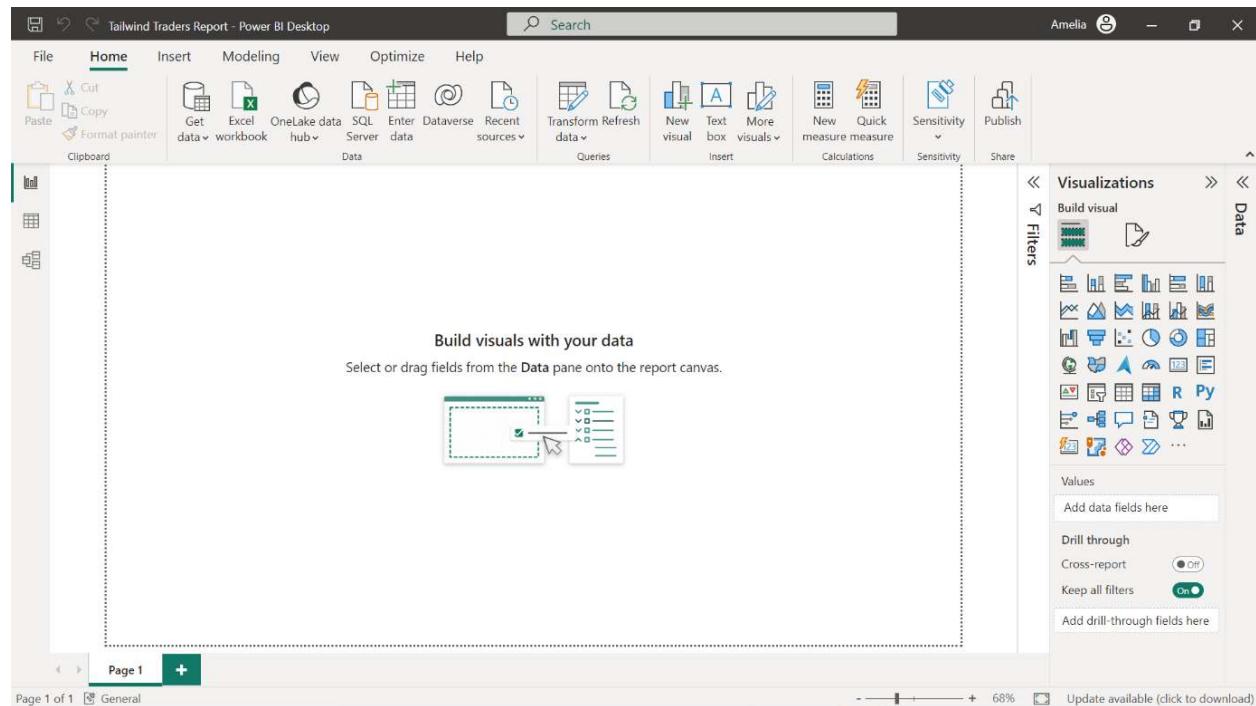
1. Integrate this data into your Power BI report.

Select the **OK** button to add this data to your Power BI report.



1. Save the Power BI project as **Tailwind Traders Report.pbix**.

Save your Power BI project with the name **Tailwind Traders Report.pbix**. This captures your progress and solidifies the analytical workflow, allowing for reporting and further analysis continuity.

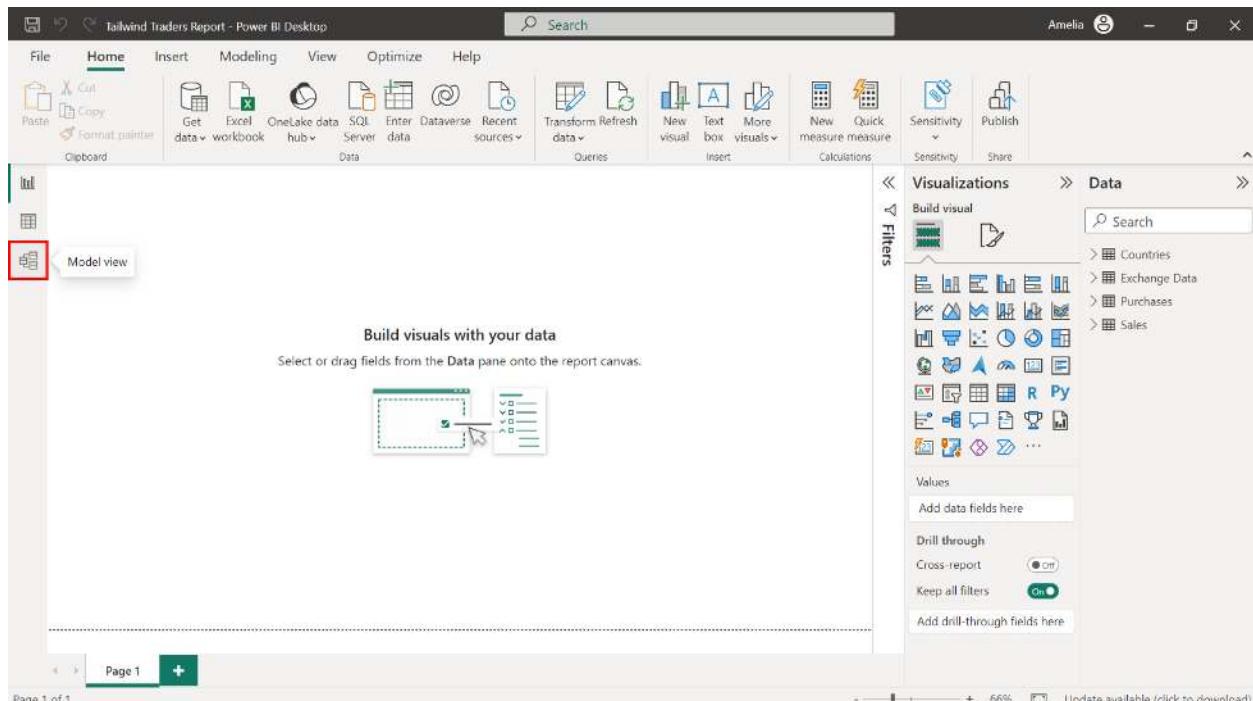


Exercise 3: Design and develop the data model

Step 1: Create a relationship between the Countries and Exchange Data tables

1. Create a relationship between the **Countries** and **Exchange Data** tables on the **Exchange ID** field.

Select the **Model view** option from the left-hand sidebar to view your data model.



Begin by creating a relationship on the **Exchange ID** field that links the **Countries** table with the **Exchange Data** table, which forms the foundation of the currency translation mechanism.

The screenshot shows the Power BI Desktop interface with the 'Tailwind Traders Report - Power BI Desktop' project open. The 'Home' tab is selected in the ribbon. In the center workspace, there are two tables: 'Countries' and 'Exchange Data'. A relationship is being established between them. The 'Country ID' column in the 'Countries' table and the 'Exchange ID' column in the 'Exchange Data' table are highlighted with red boxes. The relationship line connects these two columns, indicating a many-to-one relationship.

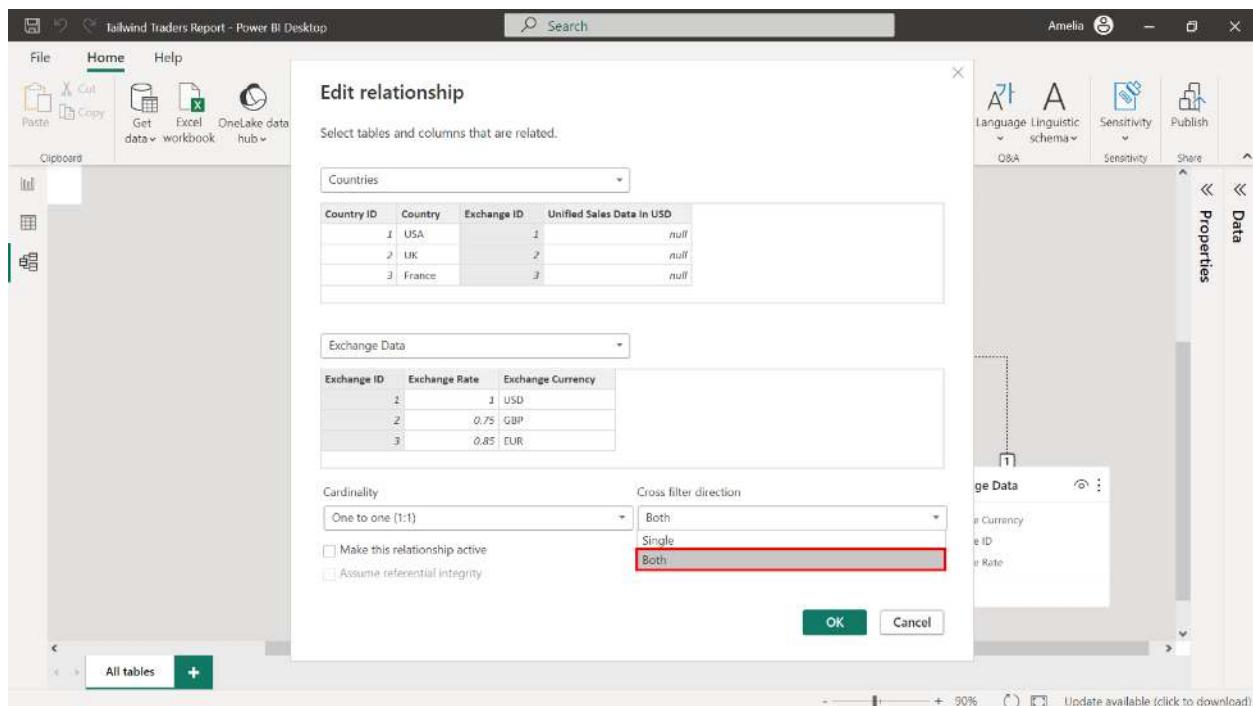
1. Set the Cardinality to One to One (1:1).

Right-click on the relationship that you just created to access the **Edit relationship** menu. Navigate to the **Cardinality** options and set the cardinality of this relationship to **One to One (1:1)**.

The screenshot shows the 'Edit relationship' dialog box in Power BI Desktop. The 'Relationships' pane on the right shows the existing relationship between the 'Countries' and 'Exchange Data' tables. The 'Edit relationship' dialog has two main sections: 'Select tables and columns that are related' and 'Cardinality'. In the 'Cardinality' section, the 'One to one (1:1)' option is selected, highlighted with a red box. Other options like 'Many to one (*:1)', 'Many to one (*:1)', 'One to many (1:*)', and 'Many to many (*:*)' are also listed. Below the cardinality dropdown is a 'Cross filter direction' dropdown set to 'Single'. At the bottom of the dialog are 'OK' and 'Cancel' buttons.

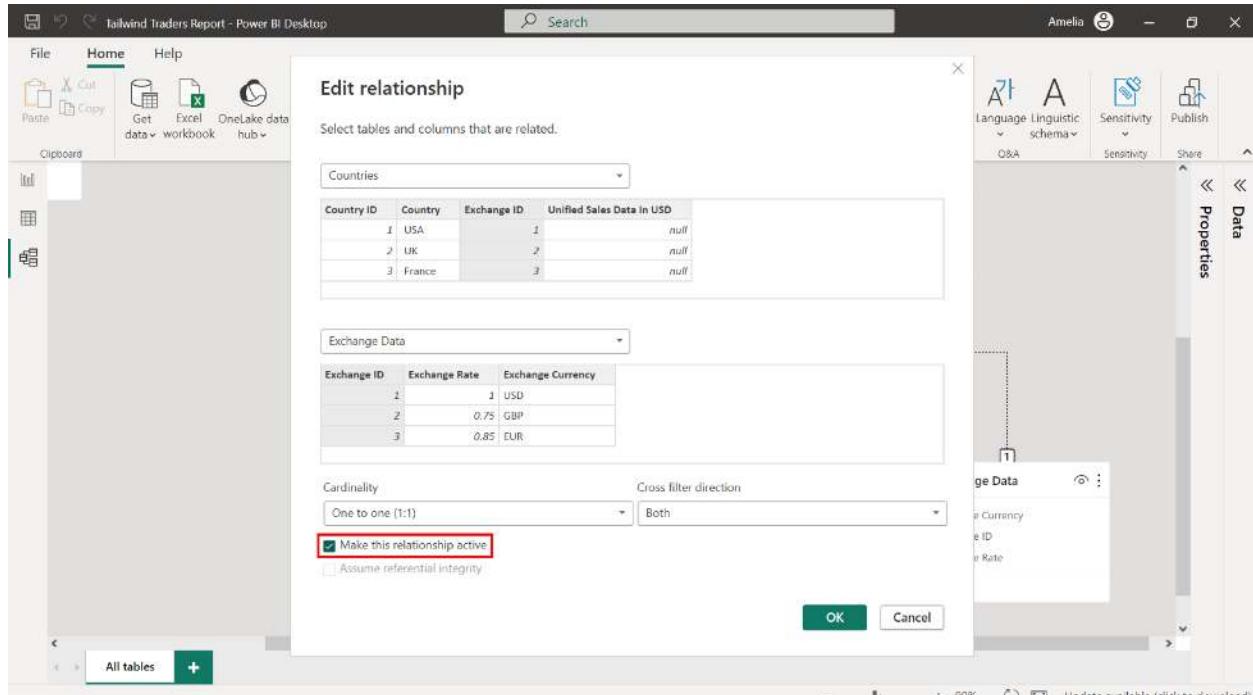
1. Set the Cross filter direction to Both to be bi-directional.

Navigate to the **Cross filter direction** options and select **Both** to enable a bi-directional flow.



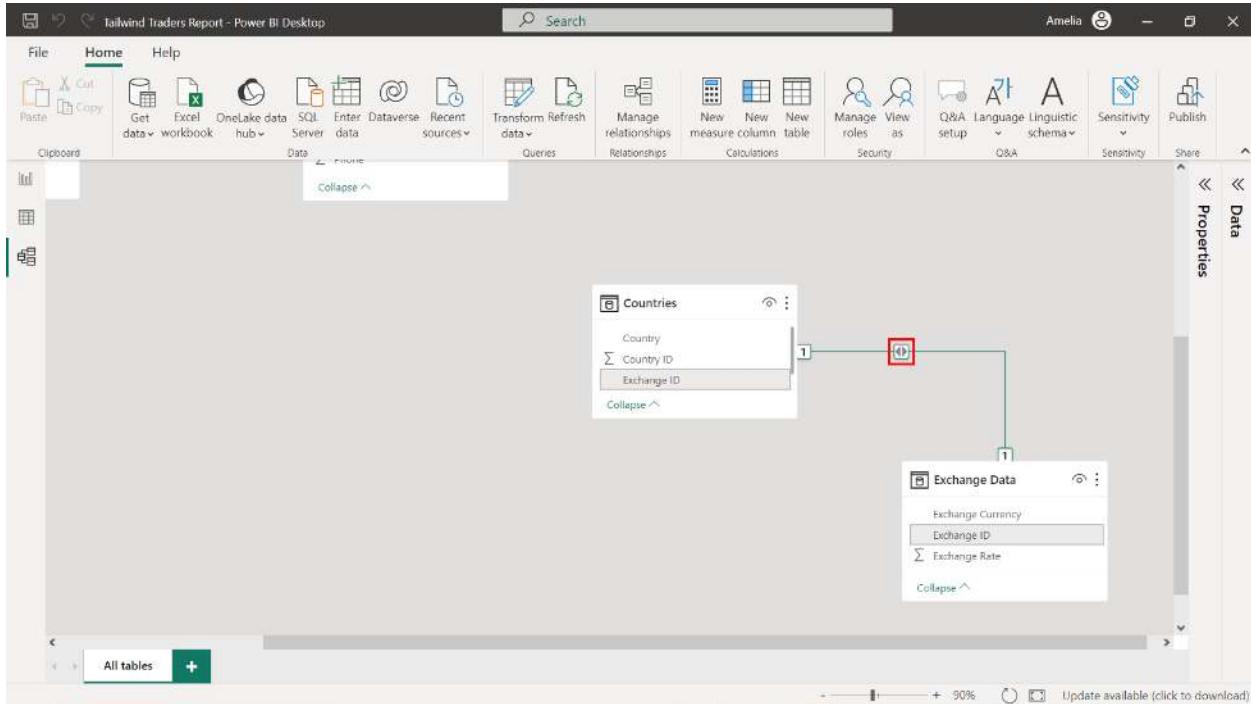
1. Ensure the **Make this relationship active** checkbox is selected.

Navigate to the **Make this relationship active** checkbox and confirm it's checked. Select **OK** to apply your settings.



1. Inspect the relationship arrow in the Model View to ensure the arrows point in both directions and display a 1:1 symbol on either end of the connector.

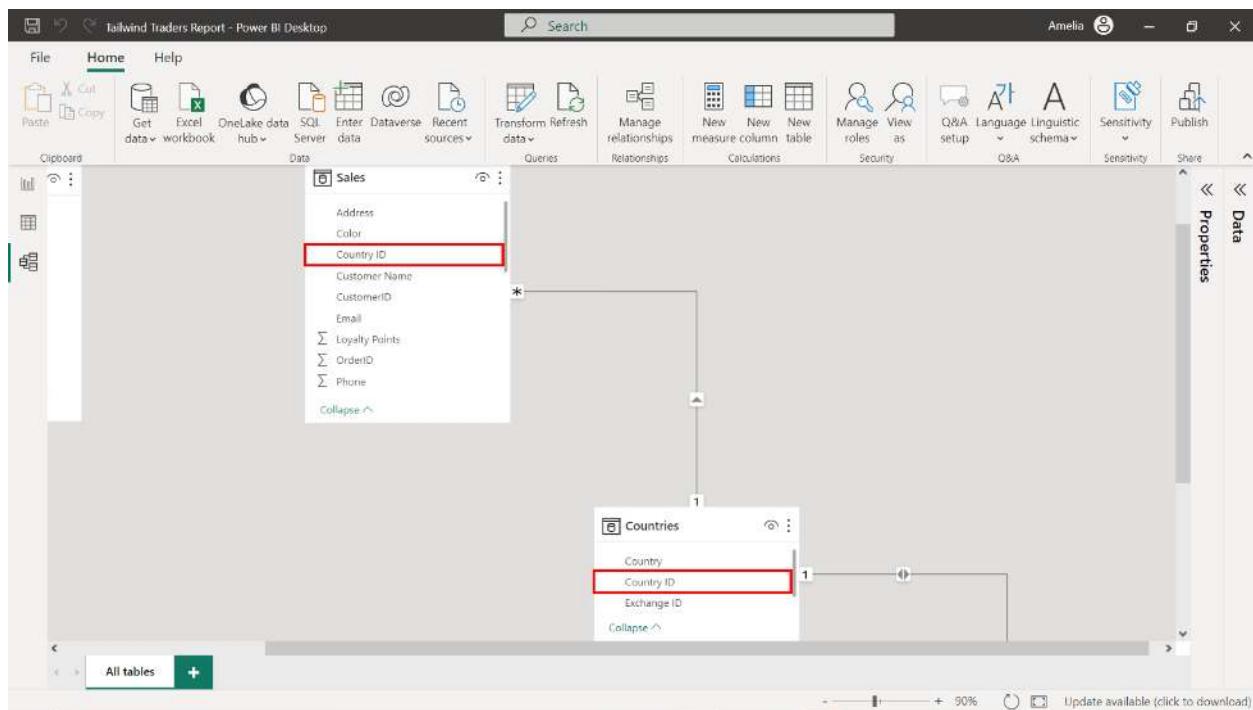
Once you select **OK**, Power BI returns to the **Model View**. To ensure your settings have been enacted as required, check that your model resembles the screenshot below. The relationship arrow between the tables must point both ways, symbolizing a bi-directional link. There should also be a **1:1** symbol at both ends of the connector, signifying the one-to-one nature of this relationship.



Step 2: Create a relationship between Sales and Countries

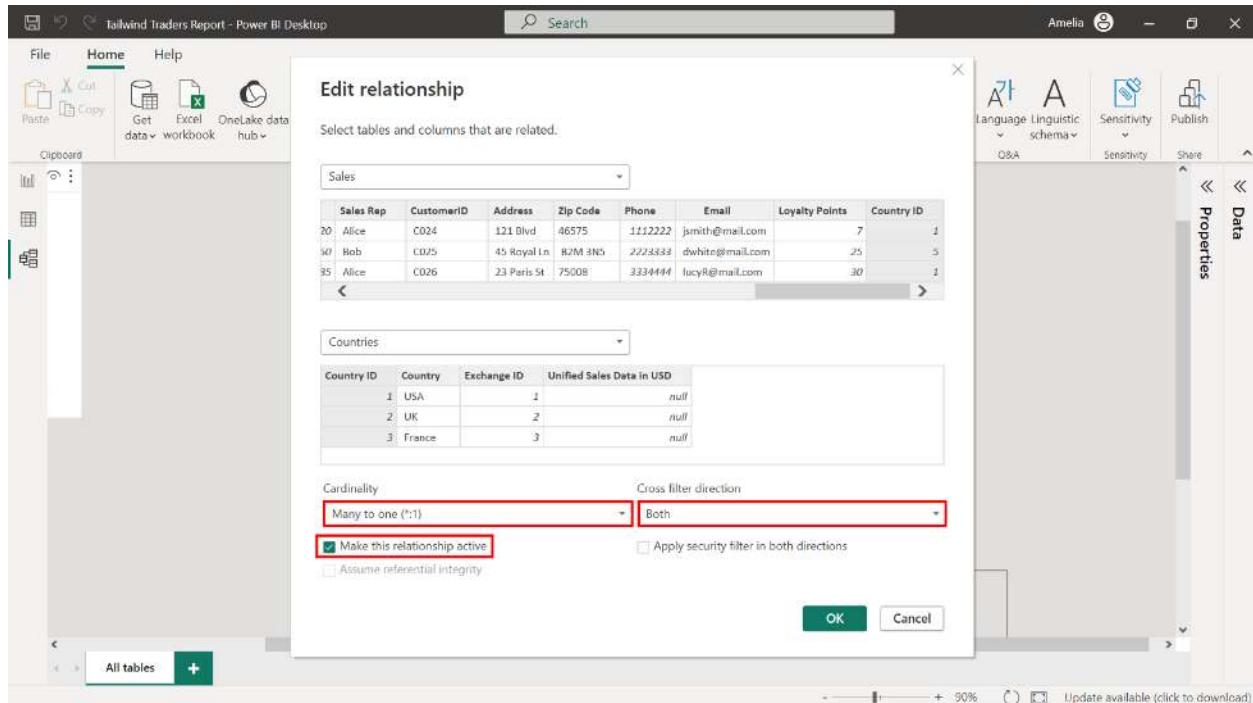
1. Create a relationship on the **Country ID** field between the **Sales** and **Countries** tables.

Like the previous task, establish a connection on the **Country ID** field between the **Sales** and **Countries** tables to allow for geographical analysis of sales data.



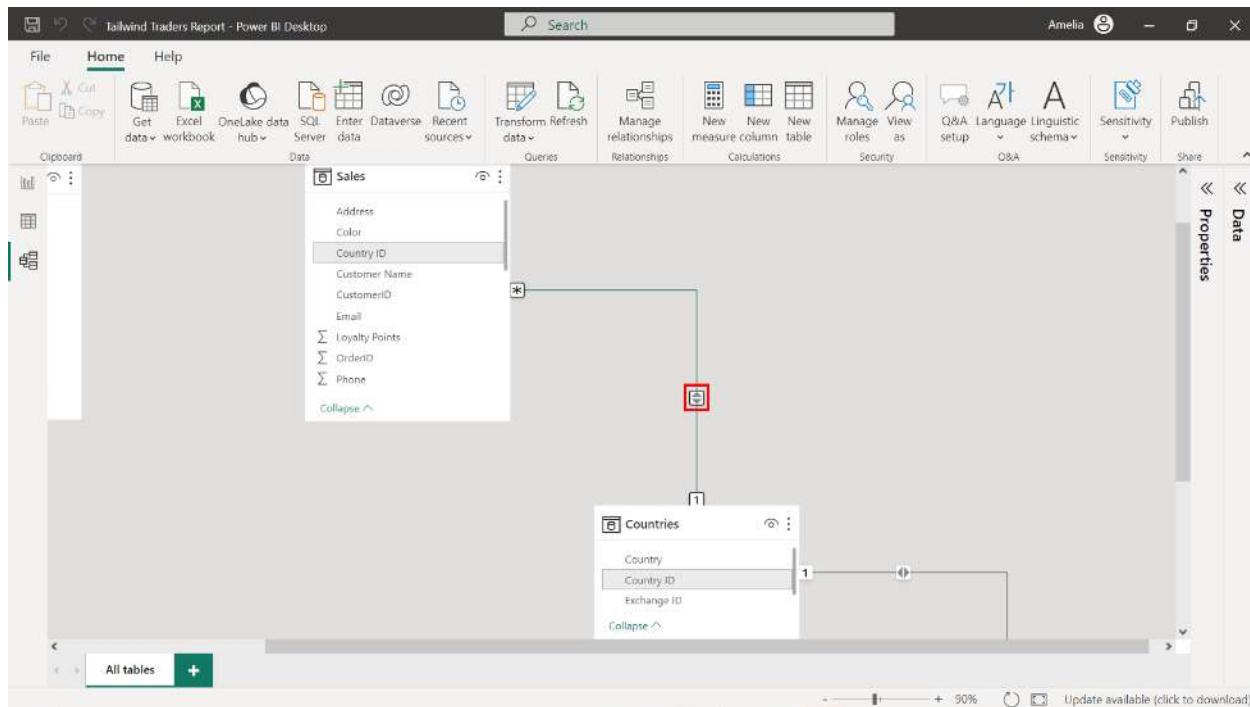
1. Set the **Cardinality** to **Many to One (1:1)**.
2. Set the **Cross-filter direction** to **Both** so that it's bi-directional.
3. Ensure the **Make this relationship active** checkbox is selected.

Right-click the relationship, access the **Edit relationship** menu, and configure the above relationship settings as you did for the tables in the previous task. Your settings should resemble the following screenshot.



1. Inspect the relationship arrow in the Model View to ensure the arrows point in both directions and display a *:1 symbol on either end of the connector.

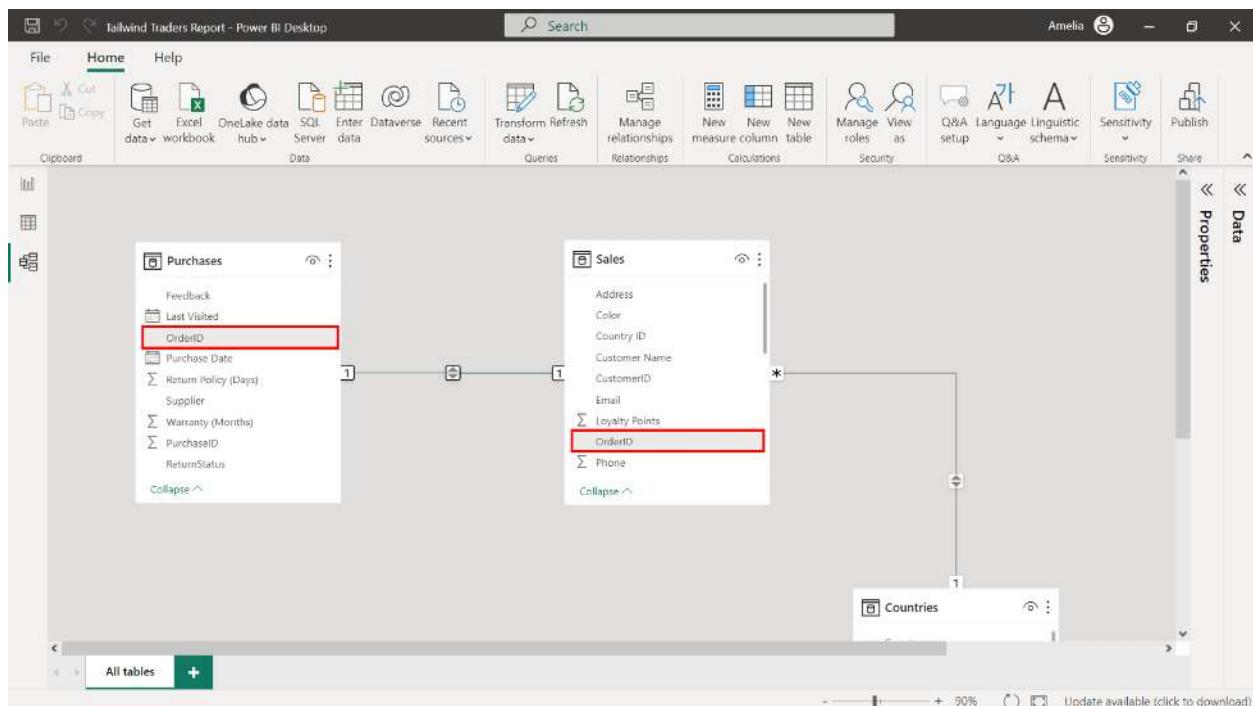
Select **OK** to apply your settings and return to **Model View**. Your model should resemble the screenshot below. Inspect the relationship arrow to ensure that it illustrates a bi-directional connection, complete with a *:1 symbol correctly representing the many-to-one relationship inherent in the sales data structure.



Step 3: Create a relationship between the Purchases and Sales tables

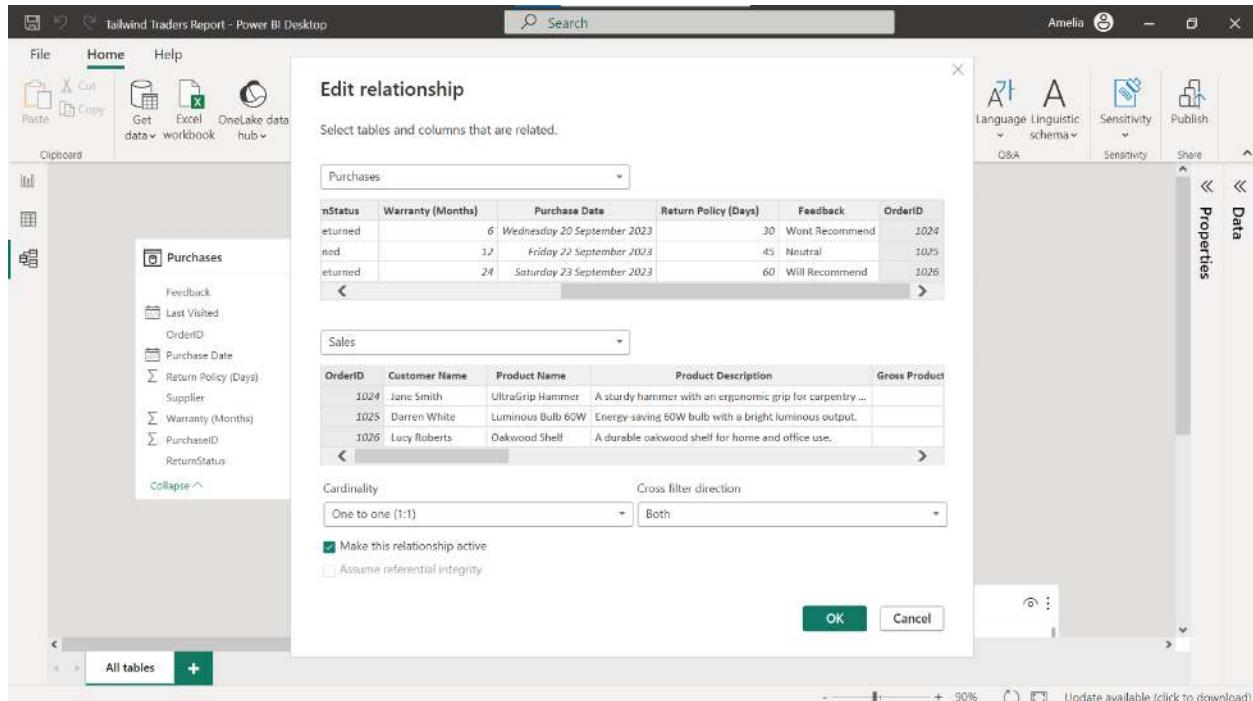
1. Create a relationship on the **OrderID** field between the **Purchases** and **Sales** tables.

Create a relationship using the **OrderID** field as a bridge between the **Purchases** and **Sales** tables, linking procurement with sales.



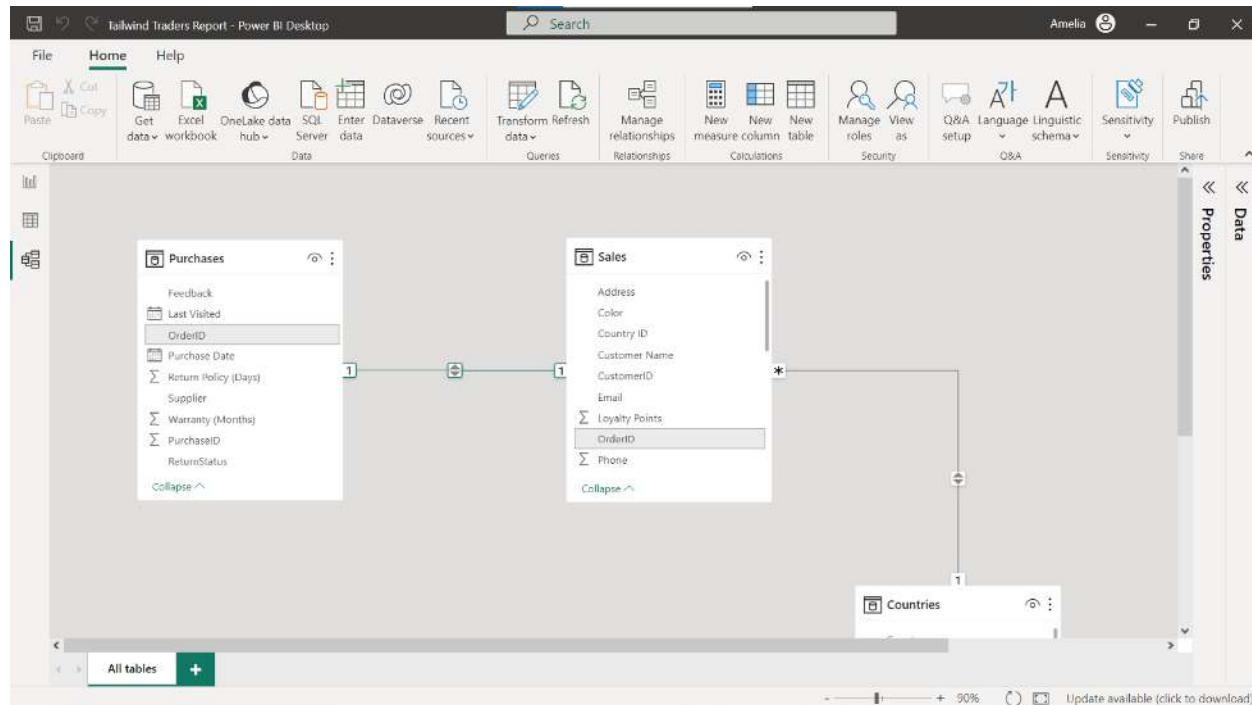
1. Set the **Cardinality** to **One to One (1:1)**.
2. Set the **Cross filter direction** to **Both** to be bi-directional.
3. Ensure the **Make this relationship active** checkbox is selected.

Right-click the relationship, access the **Edit relationship** menu, and configure the above relationship settings as you did for the tables in the previous task. Your settings should resemble the following screenshot.



1. Inspect the relationship arrow in the Model View to ensure the arrows point in both directions and display a **1:1** symbol on either end of the connector.

Select **OK** to apply your settings and return to **Model View**. Your model should resemble the screenshot below. Validate the relationship arrow in the **Model View** to check that it indicates a bidirectional flow, complete with a **1:1** symbol at both ends, affirming a one-to-one correspondence between each order and its sales outcome.



Step 4: Configure the Calendar table

- Select **New Table** and add the following DAX code to create a new **Calendar** table:

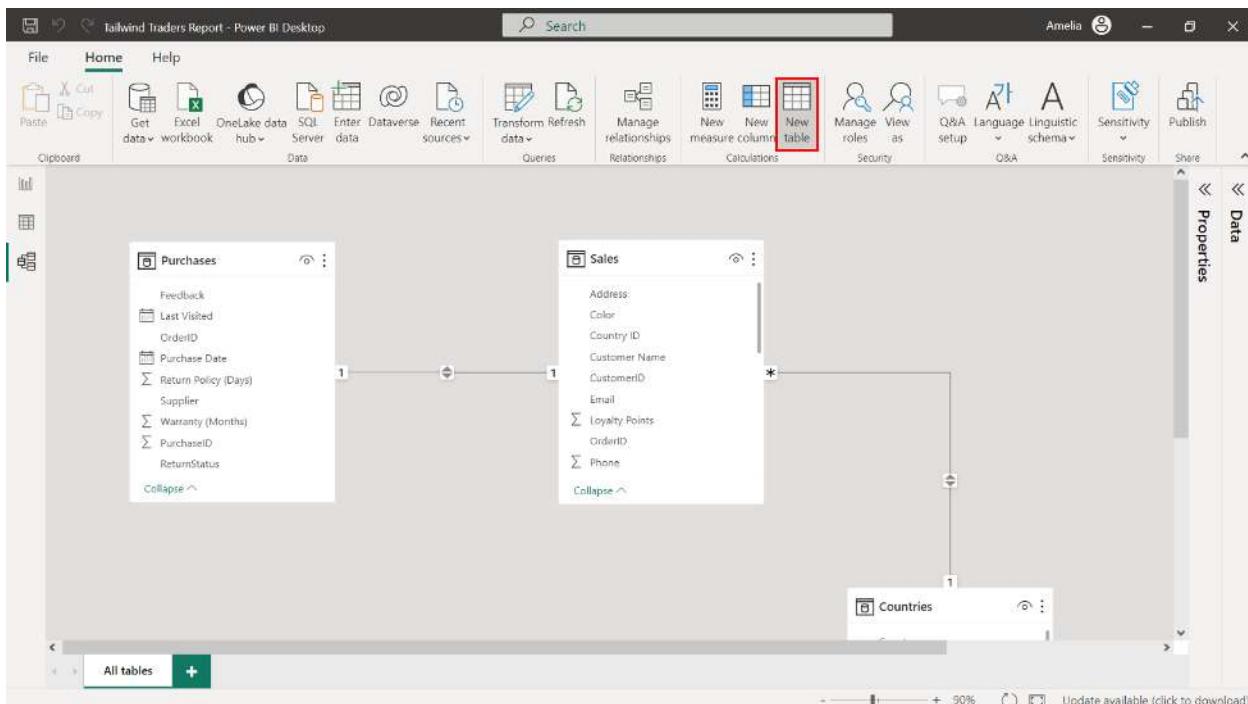
```
1
2
3
4
5
6
7
8
9
10
CalendarTable =
ADDCOLUMNS(
CALENDAR(DATE(2020, 1, 1), DATE(2023, 12, 31)),
"Year", YEAR([Date]),
"Month Number", MONTH([Date]),
```

```

"Month", FORMAT([Date], "MMMM"),
"Quarter", QUARTER([Date]),
"Weekday", WEEKDAY([Date]),
"Day", DAY([Date])
)

```

Select **New Table** and input the provided DAX code to create a **Calendar table**, an indispensable tool for any time-based analysis.

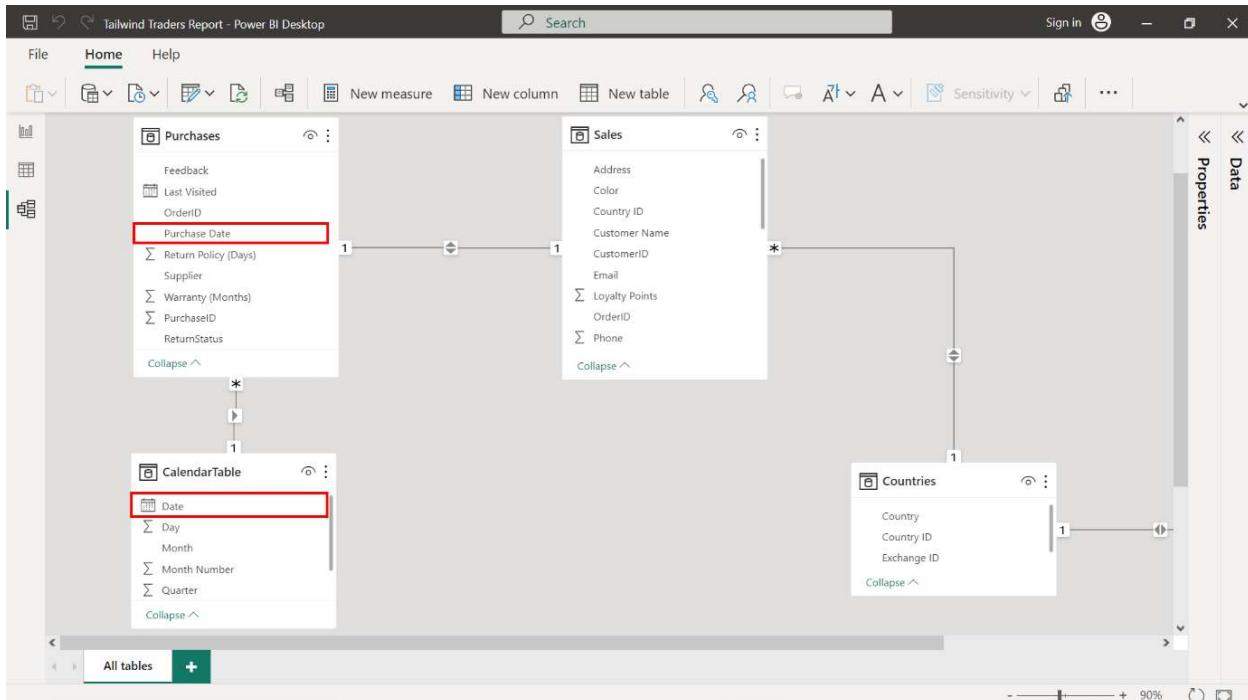


This table will become the backbone for time intelligence in the model, offering fields like **Year**, **Month Number**, **Month**, **Quarter**, **Weekday**, and **Day**, bringing a rich temporal dimension to the data landscape.

Step 5: Create a relationship between the Calendar and Purchases tables

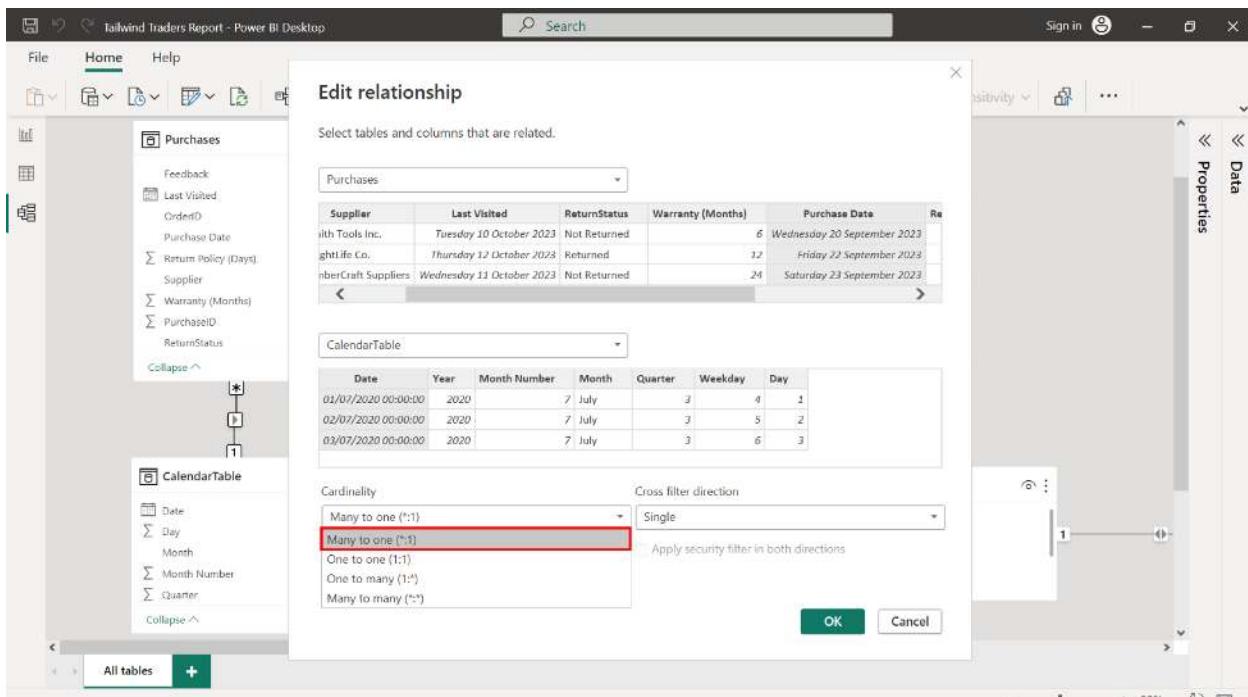
1. Create a relationship on the **Date** field between the **Calendar** and the **Purchase Date** in the **Purchases** table.

Create a relationship on the **Date** field that aligns the **Calendar** table and **Purchase Date** with **Purchases**.



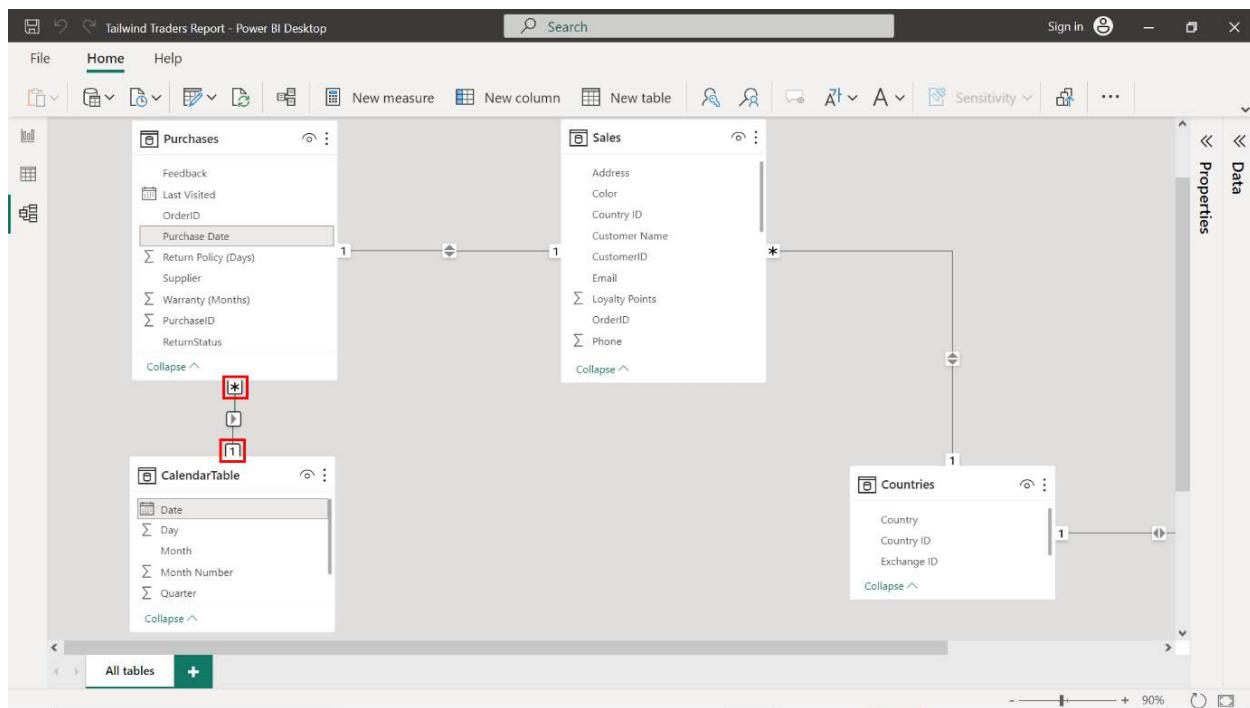
1. Set the **Cardinality** to **Many to One (1:1)**.
2. Ensure the **Make this relationship active** checkbox is selected.

Right-click the relationship, access the **Edit relationship** menu, and configure the above relationship settings as you did for the tables in the previous task. Your settings should resemble the following screenshot.



1. Inspect the relationship arrow in the **Model View** to ensure the arrows point in both directions and display a ***:1** symbol on either end of the connector.

Select **OK** to apply your settings and return to **Model View**. Your model should resemble the screenshot below. Confirm that the relationship arrow correctly points in both directions and displays a ***:1** symbol, validating the many-to-one relationship that connects **Purchases** to **Dates**.



Step 6: Create Sales in USD Calculated Table

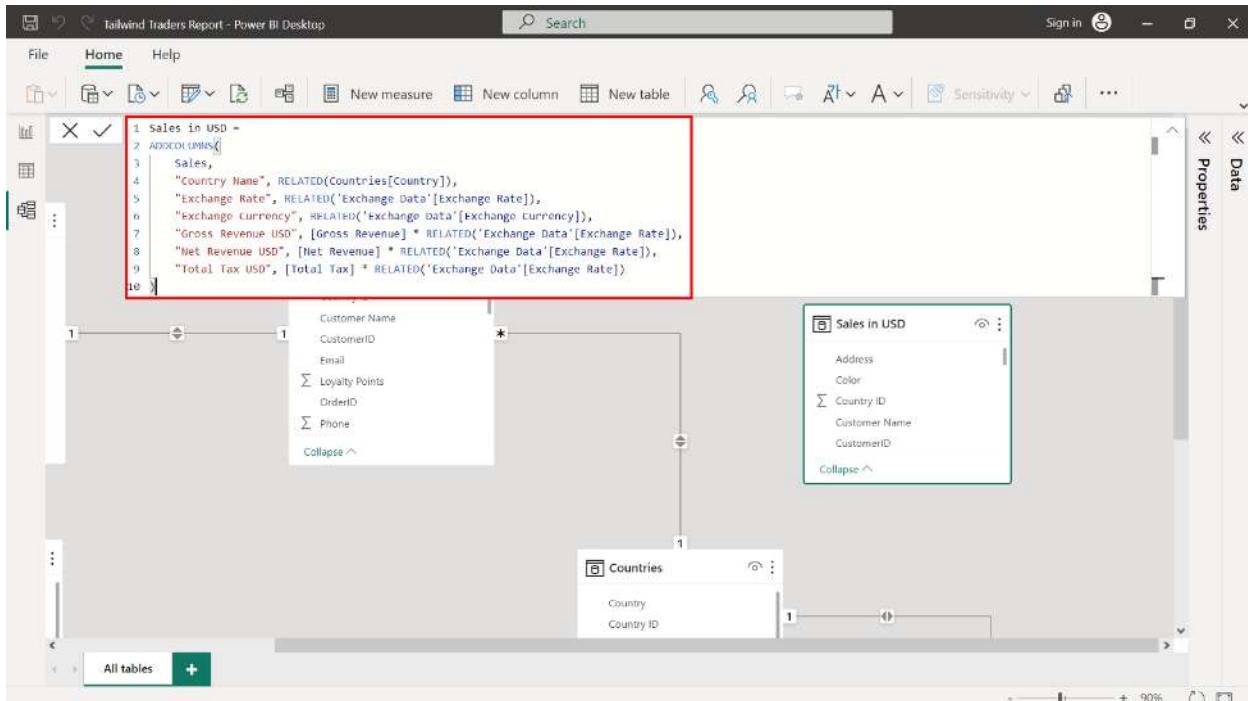
1. Select **New Table** and add the following DAX code to create a new calculated table:

1
2
3
4
5
6
7
8
9
10

```
Sales in USD =
ADDCOLUMNS(
    Sales,
    "Country Name", RELATED(Countries[Country]),
    "Exchange Rate", RELATED('Exchange Data'[Exchange Rate]),
    "Exchange Currency", RELATED('Exchange Data'[Exchange Currency]),
    "Gross Revenue USD", [Gross Revenue] * RELATED('Exchange Data'[Exchange Rate]),
    "Net Revenue USD", [Net Revenue] * RELATED('Exchange Data'[Exchange Rate]),
    "Total Tax USD", [Total Tax] * RELATED('Exchange Data'[Exchange Rate])
```

)

Create a new calculated table named **Sales in USD** by selecting **New Table** and entering the DAX code provided. This adjusts the **Sales** values into a unified currency format.



The screenshot shows the Power BI Desktop interface with the title bar "Tailwind Traders Report - Power BI Desktop". The ribbon menu is visible with "Home" selected. In the center workspace, a new table is being created with the name "Sales in USD". The DAX code for this table is:

```
3 Sales in USD =  
2 ADDCOLUMNS(  
3     Sales,  
4     "Country Name", RELATED(Countries[Country]),  
5     "Exchange Rate", RELATED('Exchange Data'[Exchange Rate]),  
6     "Exchange Currency", RELATED('Exchange Data'[Exchange Currency]),  
7     "Gross Revenue USD", [Gross Revenue] * RELATED('Exchange Data'[Exchange Rate]),  
8     "Net Revenue USD", [Net Revenue] * RELATED('Exchange Data'[Exchange Rate]),  
9     "Total Tax USD", [Total Tax] * RELATED('Exchange Data'[Exchange Rate])  
10 )
```

The "Sales" table is connected to the "Countries" table via a many-to-one relationship. The "Sales in USD" table contains columns: Address, Color, Country ID, Customer Name, and CustomerID. The "Countries" table contains columns: Country and Country ID. The Properties pane on the right shows the table structure.

1. Note the **Gross Revenue USD**, **Net Revenue USD**, and **Total Tax USD** for the **Order ID= 1035** on the **Sales in USD** table.

The **Net Revenue** for Order ID **1035** placed by **Amelia Carter** is precisely **682.62 USD**. The **Gross Revenue USD** measures **734 USD**, and the **Total Tax USD** is **51.38 USD**.

Tailwind Traders Report - Power BI Desktop

File Home Help Table tools Column tools

Name Net Revenue U... Decimal number General \$ % Auto Sum ...

1 Sales in USD =

```

2 ADDCOLUMNS(
3     "Country Name", RELATED(Countries[Country]),
4     "Exchange Rate", RELATED("Exchange Data"[Exchange Rate]),
5     "Exchange Currency", RELATED("Exchange Data"[Exchange currency]),
6     "Gross Revenue USD", [Gross Revenue] * RELATED("Exchange Data"[Exchange Rate]),
7     "Net Revenue USD", [Net Revenue] * RELATED("Exchange Data"[Exchange Rate]),
8     "Total Tax USD", [Total Tax] * RELATED("Exchange Data"[Exchange Rate])
9 )
10 )

```

Phone Email Loyalty Points Country ID Country Name Exchange Rate Exchange Currency Gross Revenue USD Net Revenue USD Total Tax USD

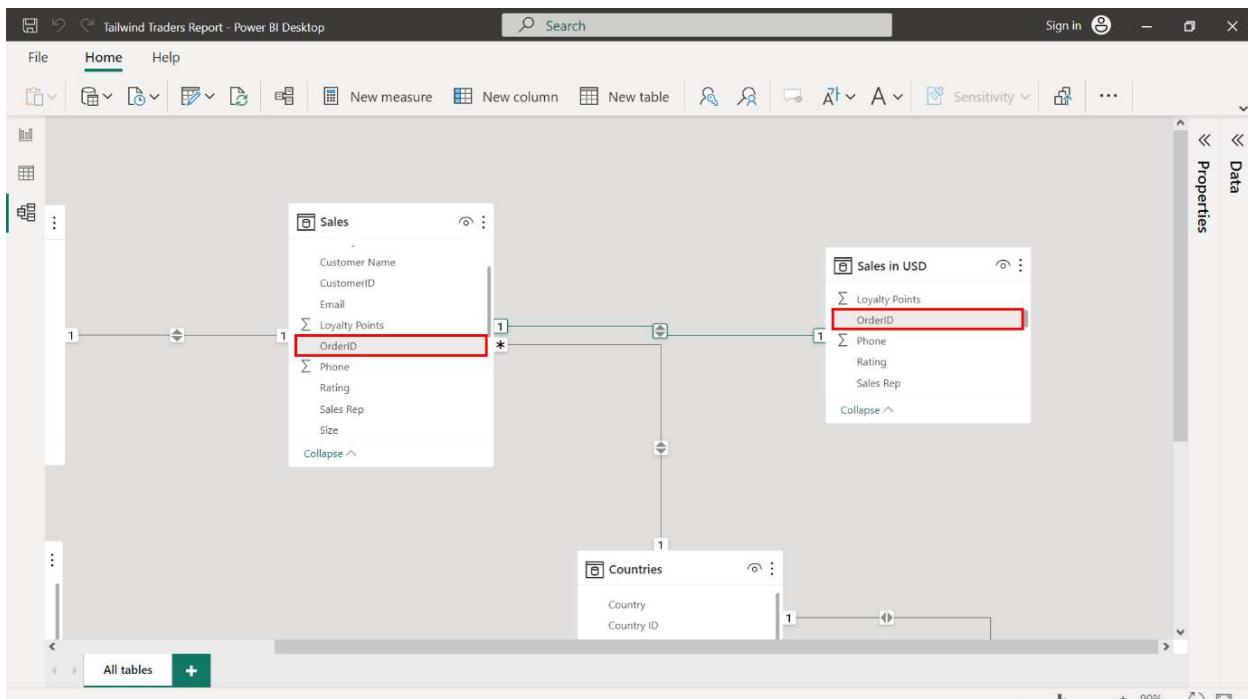
Phone	Email	Loyalty Points	Country ID	Country Name	Exchange Rate	Exchange Currency	Gross Revenue USD	Net Revenue USD	Total Tax USD
1112222	jsmith@mail.com	7	1	USA	1	USD	120	103.2	16.8
152223333	dwhite@mail.com	25	5	Australia	1.3	AUD	136.5	126.945	9.555
3334444	lucyR@mail.com	30	1	USA	1	USD	250	232.5	17.5
4445555	markL@mail.com	20	2	UK	0.75	GBP	56.25	52.3125	3.9375
5556666	oliviaG@mail.com	10	1	USA	1	USD	220	204.6	15.4
6667777	jack1@mail.com	15	2	UK	0.75	GBP	112.5	104.625	7.875
7778888	mial@mail.com	5	3	France	0.85	EUR	42.5	30.005	12.495
148889999	aaronW@mail.com	20	2	UK	0.75	GBP	202.5	188.325	14.175
99900000	lilyP@mail.com	3	1	USA	1	USD	360	334.8	25.2
51497971	benF@mail.com	12	1	USA	1	USD	78	9.6	8.4
1122334	owenG@mail.com	18	2	UK	0.75	GBP	225	209.25	15.75
2233445	ameliaC@mail.com	25	4	UAE	3.67	AED	734	682.62	51.38
3344556	liamC@mail.com	45	1	USA	1	USD	300	279	21
4455667	sophiaT@mail.com	12	5	Australia	1.3	AUD	156	145.08	10.92
5566778	jacobsM@mail.com	35	5	Australia	1.3	AUD	234	217.62	16.38
6677889	aval@mail.com	22	1	USA	1	USD	160	148.8	11.2
7788990	ethanW@mail.com	20	5	Australia	1.3	AUD	260	241.8	18.2

Table: Sales in USD (54 rows) Column: Net Revenue USD (52 distinct values)

Step 7: Create a relationship between the Sales in USD and Sales tables

- Create a relationship between the **Sales in USD** and **Sales** tables on the **Order ID** field.

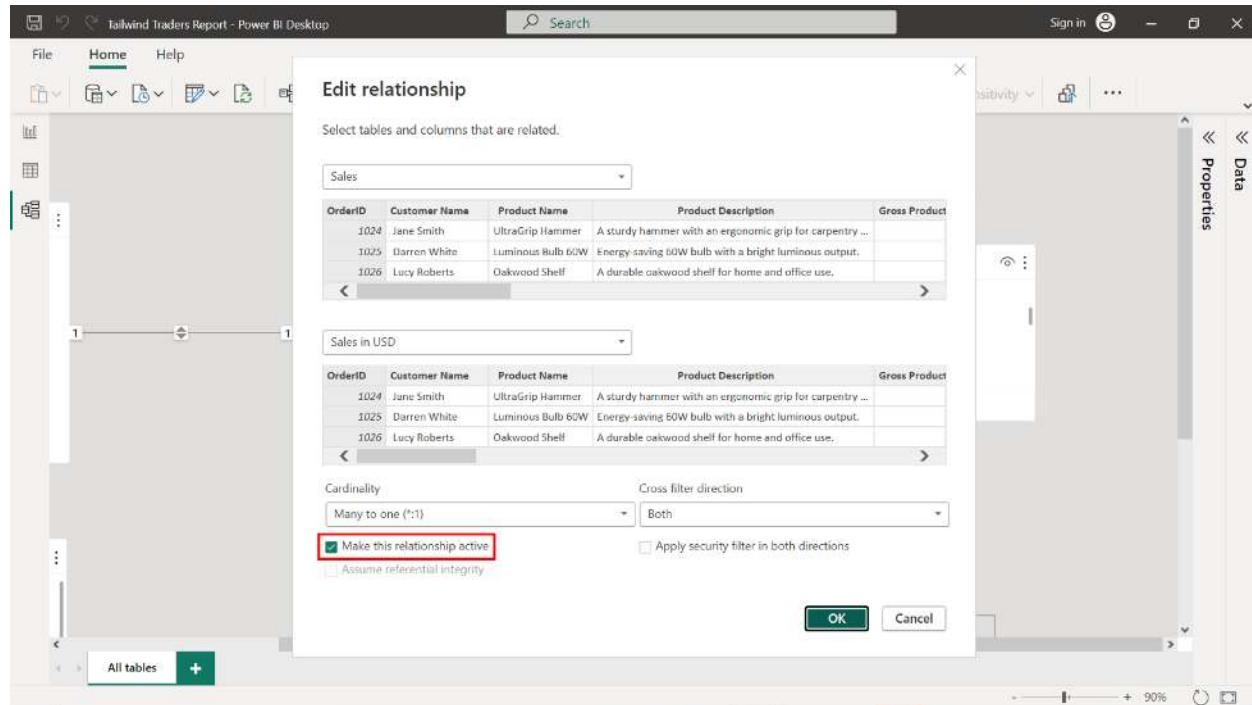
Link the **Sales in USD** table with the **Sales** table by creating a relationship based on the **Order ID** field, enabling Tailwind Traders to contrast the original sales data with its USD equivalent.



- Set the **Cardinality** to **Many to One (1:1)**.

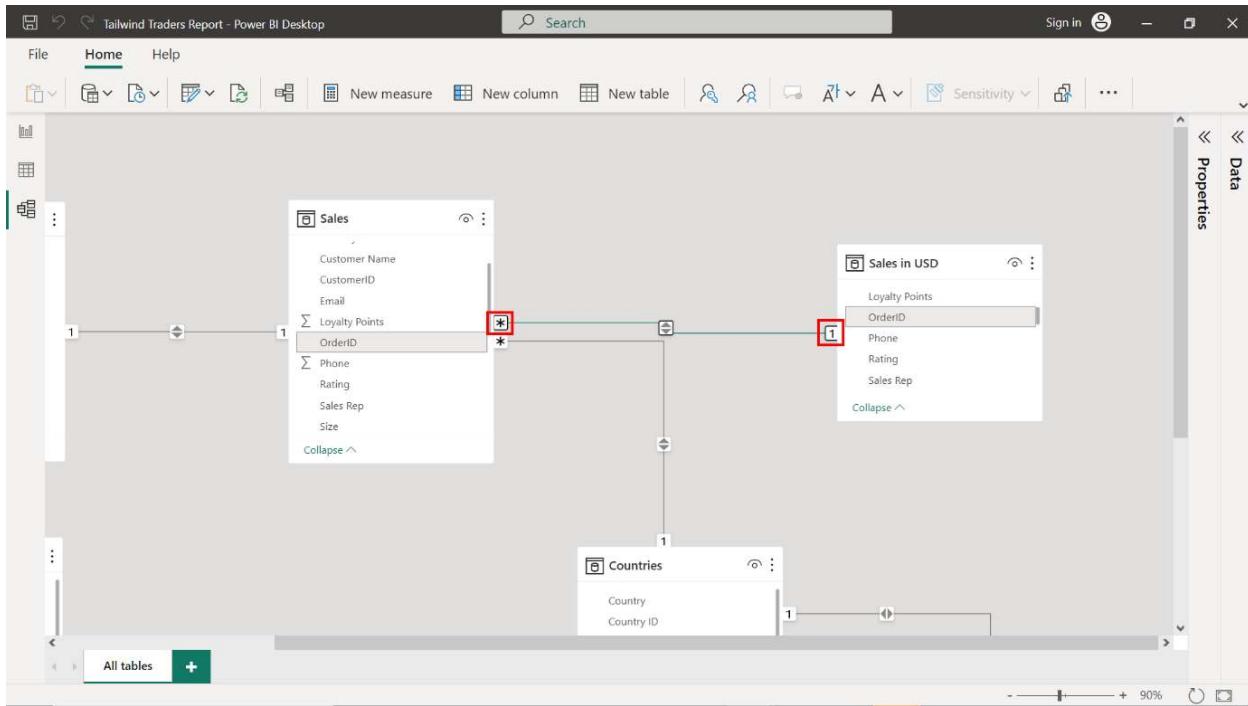
2. Ensuring the **Make this relationship active** checkbox is selected.

Right-click the relationship, access the **Edit relationship** menu, and configure the above relationship settings as you did for the tables in the previous task. Your settings should resemble the following screenshot. Ensure the **Make this relationship active** checkbox is selected to prioritize this relationship as the default linkage for navigating between sales records and their USD counterparts.



1. Inspect the relationship arrow in the Model View to ensure the arrows point in both directions and display a **1:1** symbol on either end of the connector.

Select **OK** to apply your settings and return to **Model View**. Examine the relationship arrow to verify that it correctly illustrates a bi-directional relationship, with a ***:1** symbol on either end, confirming the proper relationship structure for USD sales analysis.



Conclusion

With these steps, you have successfully prepared and configured sales data for Tailwind Traders and used this data to design and develop a data model.

Exemplar: Capstone project - Part 2 Overview

In the second set of Capstone project exercises, you had to assist Tailwind Traders with configuring its aggregations and generating insights in the form of reports from its data.

The two exercises you undertook in this second phase were:

- Configure aggregations using DAX.
- And create sales and profit reports.

This reading provides you with a step-by-step guide for completing these tasks. It also includes screenshots that you can compare against your work.

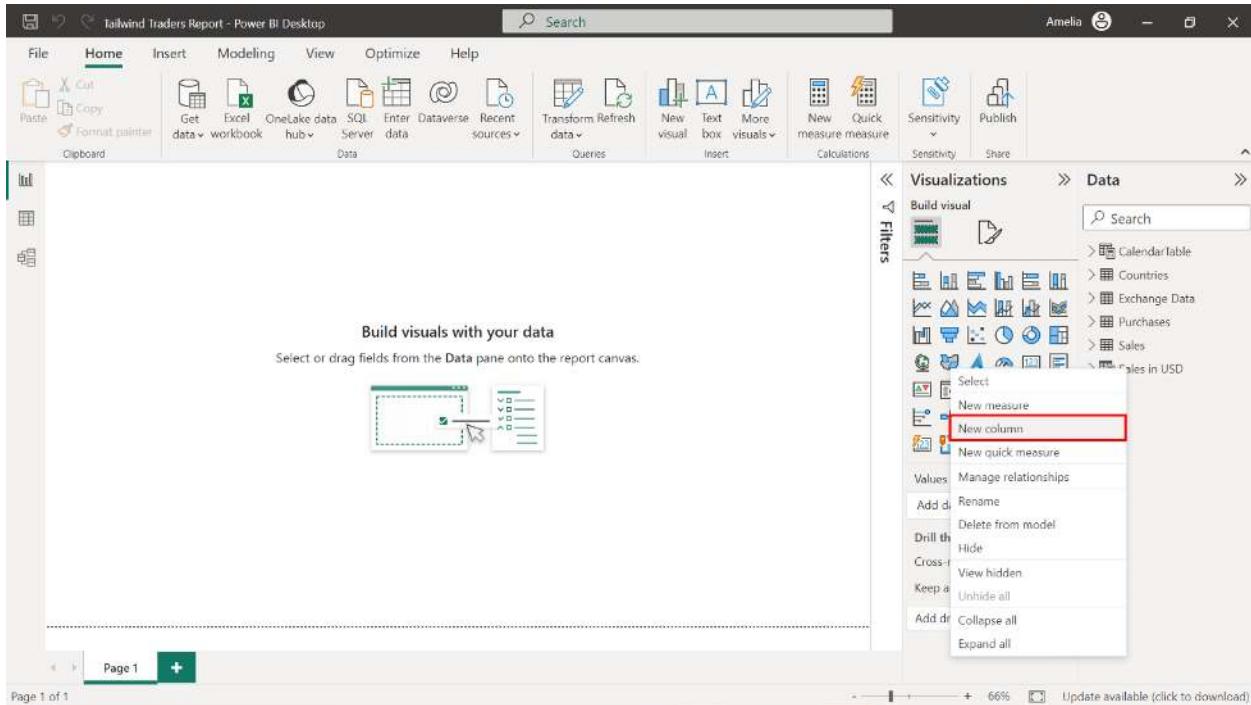
You can also review the learning materials provided in this course for more guidance.

Exercise 1: Configure aggregations using DAX

Step 1: Calculate Yearly Profit margin

1. Create a new measure for the **Sales in USD** table.

Right-click on the **Sales in USD** table in the **Fields** pane and select **New Column**.

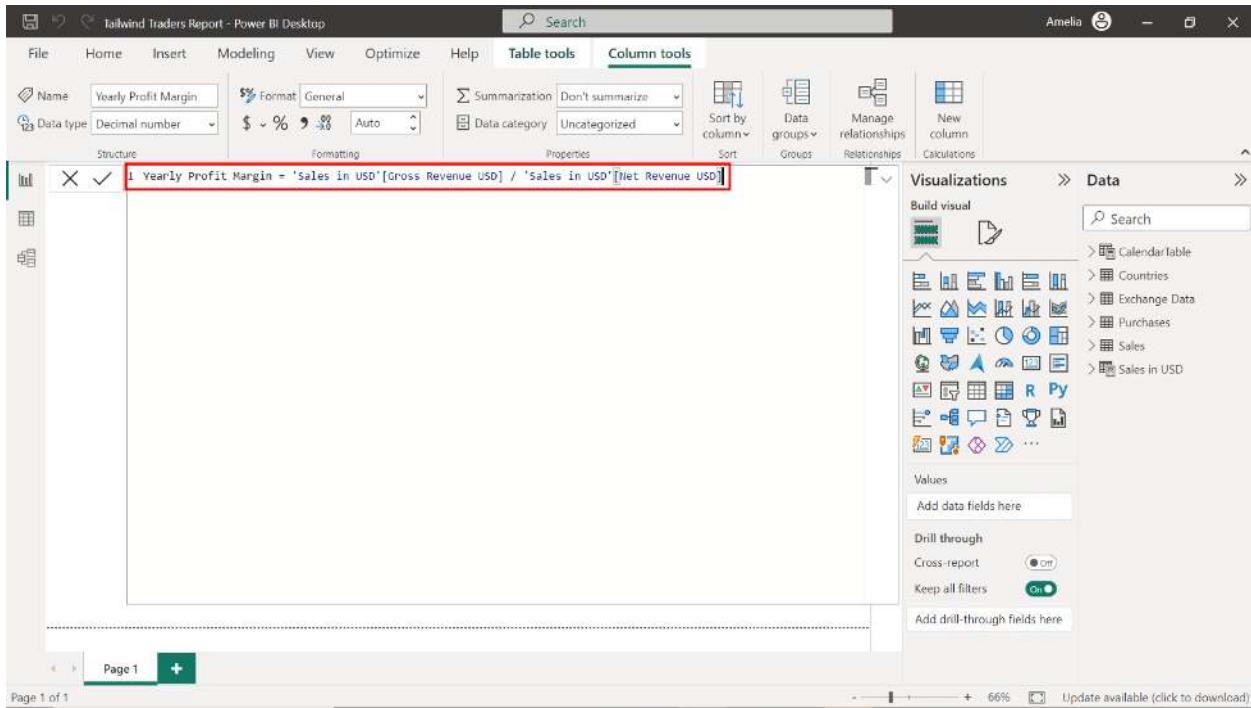


1. In the formula bar, create a new column that represents the yearly profit margin. This margin should be derived by dividing the gross revenue by the total net revenue within the **Sales in USD** table.

Right-click on the **Sales in USD** table in the **Fields** pane and select **New Column** to set the stage for this calculation. Then, input the provided DAX formula into the formula bar.

1
Yearly Profit Margin = 'Sales in USD'[Gross Revenue USD] / 'Sales in USD'[Net Revenue USD]

This calculation divides the **Gross Revenue** by the **Net Revenue**, and shows how much money is kept as profit from sales after costs. This measure provides an overarching view of Tailwind Traders' financial efficiency throughout the year and is a key indicator of the company's financial health.

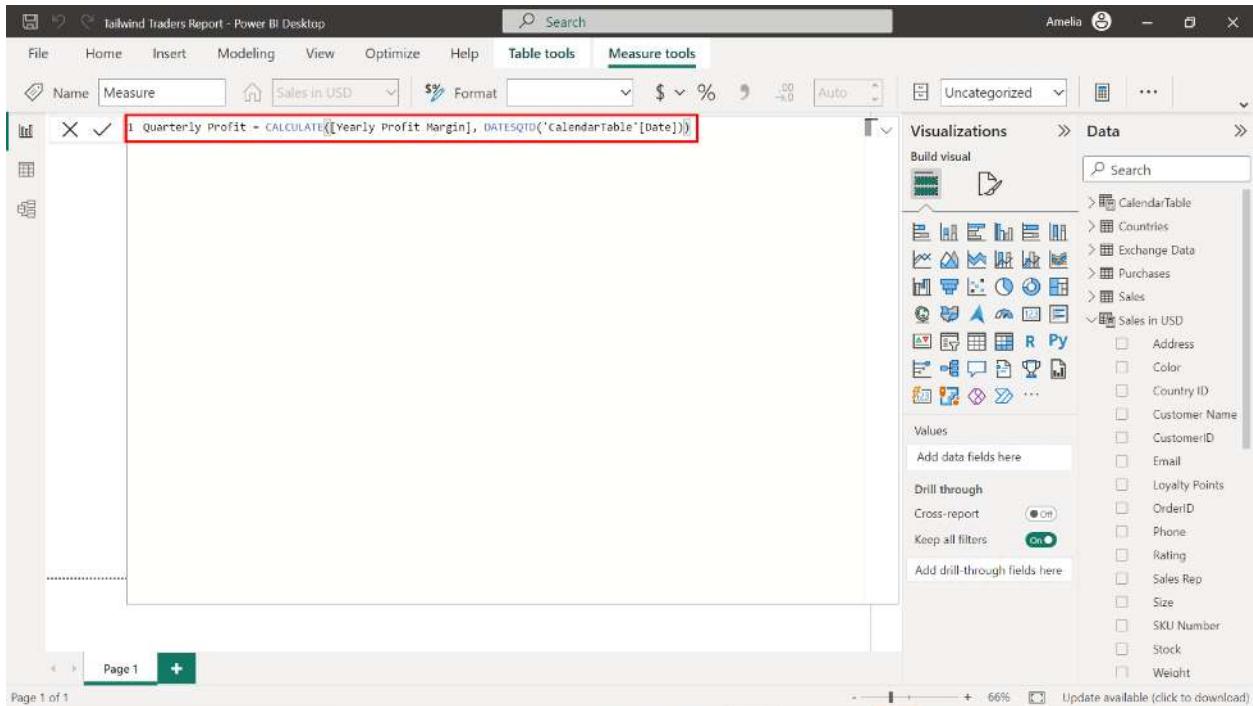


Step 2: Calculate Quarterly Profit

1. Create a new measure for quarterly profit. Consider using a function that aggregates data until the end of the current quarter. To achieve this, you must reference the calculated yearly profit and a calendar table.

As you did in the previous task, right-click the **Sales in USD** table in the **Fields** pane and select **New Column**. Then, input the provided DAX formula into the formula bar:

1
Quarterly Profit = CALCULATE([Yearly Profit Margin], DATESQTD('CalendarTable'[Date]))
This calculation isolates the profit made in each quarter by using a time intelligence function, which filters the profit to each respective quarter. This data provides actionable insights for short-term planning and strategy.



Step 3: Calculate Year-to-Date Profit

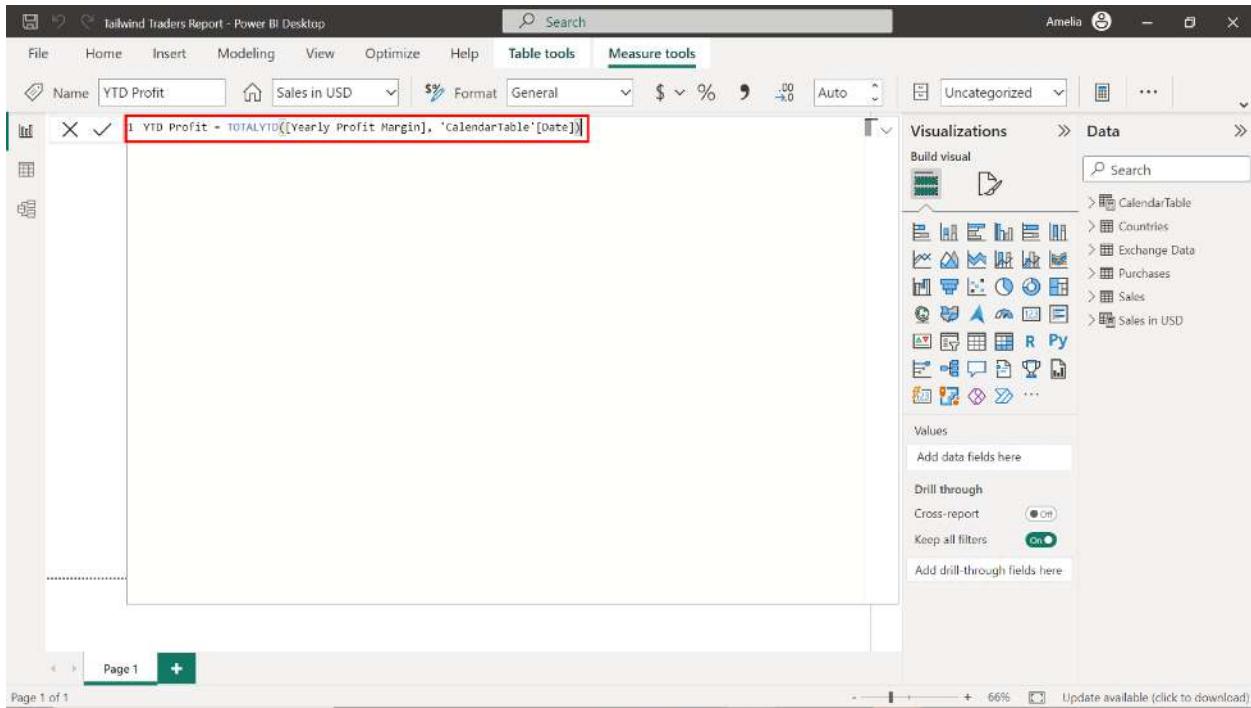
1. Right-click on the **Sales in USD** table in the **Fields** pane and select **New Measure**.
2. Create a new measure for the year-to-date profit. You'll need a function aggregating data from the start of the year to the current date.

As you did in the previous task, right-click the **Sales in USD** table in the **Fields** pane and select **New Column**. Then, input the provided DAX formula into the formula bar:

1

`YTD Profit = TOTALYTD([Yearly Profit Margin], 'CalendarTable'[Date])`

This measure accumulates the profit from the first day of the fiscal year to the current date, providing a running total of Tailwind Traders' profitability. This step provides a real-time snapshot of the company's financial trajectory, allowing for comparison against the same period in previous years or projected targets.



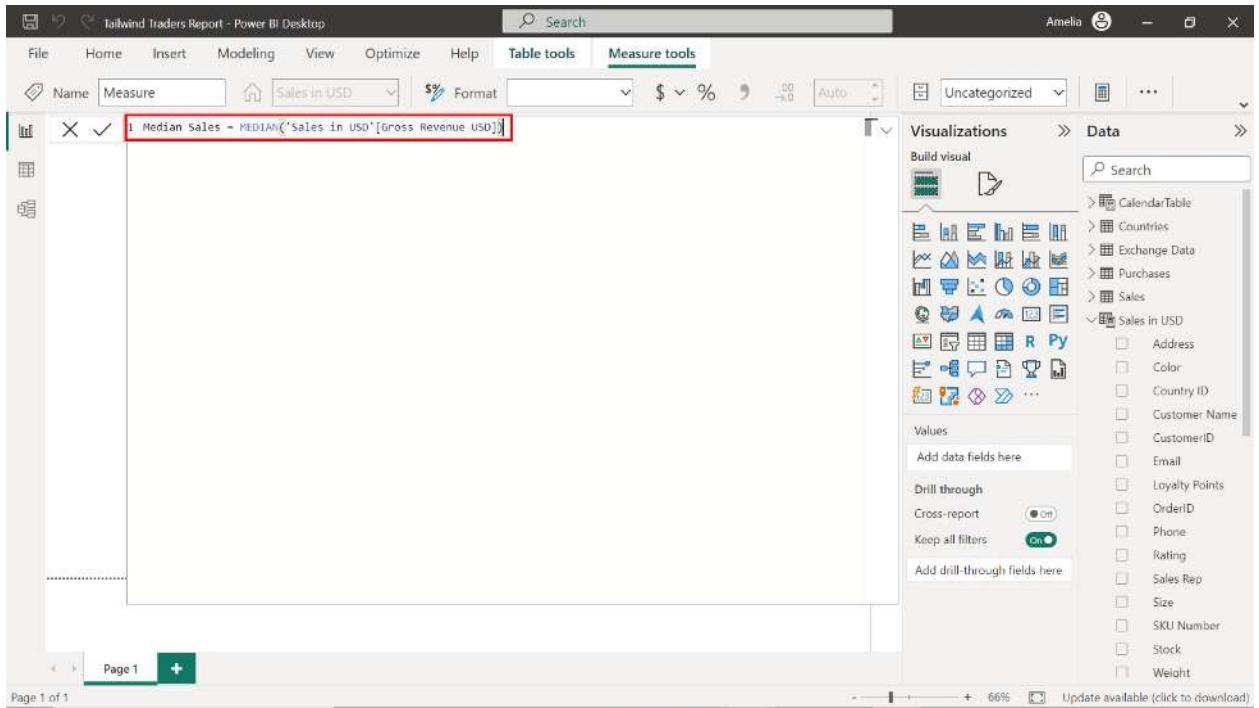
Step 4: Calculate Median Sales

1. Right-click on the **Sales in USD** table in the **Fields** pane and choose **New Measure**.
2. In the formula bar, create a new measure to represent the median sales. Consider the statistical functions in **DAX** that can help you find the middle value of gross revenue.

Right-click on the **Sales in USD** table and choose **New Measure**. Input the provided DAX formula into the formula bar.

Median Sales = MEDIAN('Sales in USD'[Gross Revenue USD])

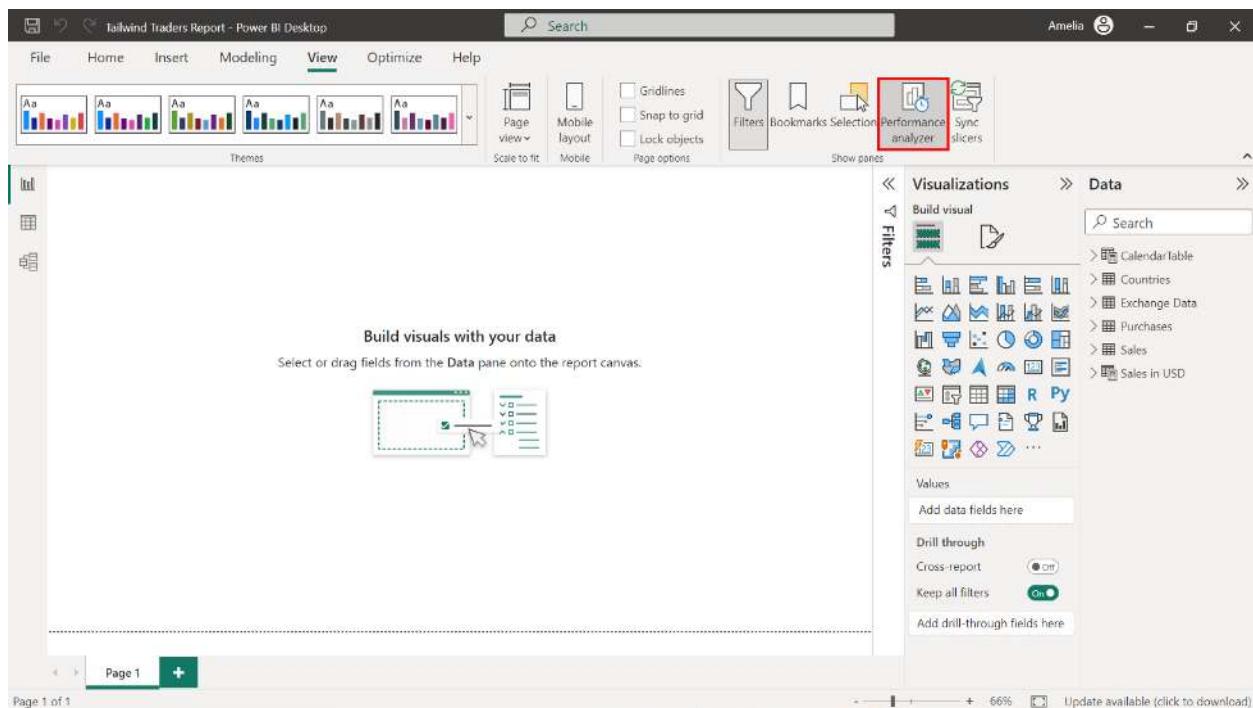
The median is a statistical measure that indicates the middle value in a set of numbers, which, in this case, represents sales volumes. Using the **MEDIAN** function on **Gross Revenue** identifies the sales value at the center of the dataset.



Step 5: Access the Performance Analyzer

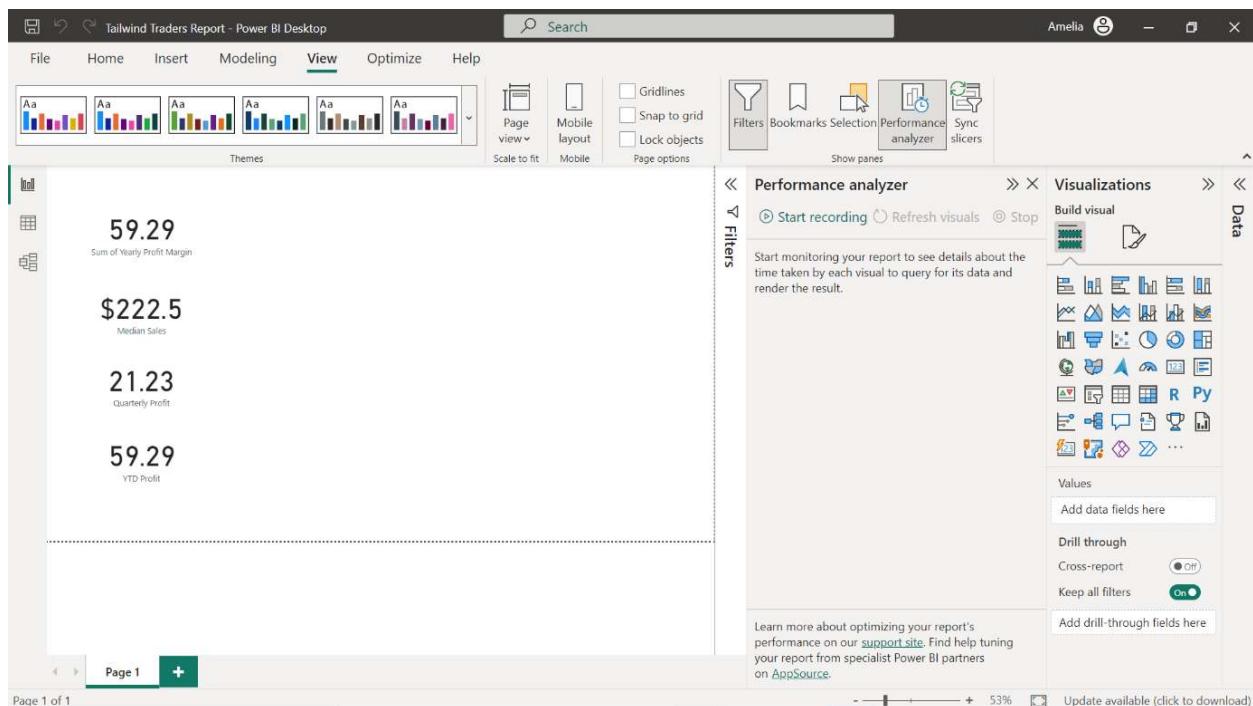
1. Find and select the **Performance Analyzer** option within the **View** tab.

Upon selecting the **Report** view icon, you must open the **Performance Analyzer**. Locate and select the **View** tab on the ribbon interface at the top of your Power BI report. Within the **View** tab, find and select the **Performance Analyzer** option.



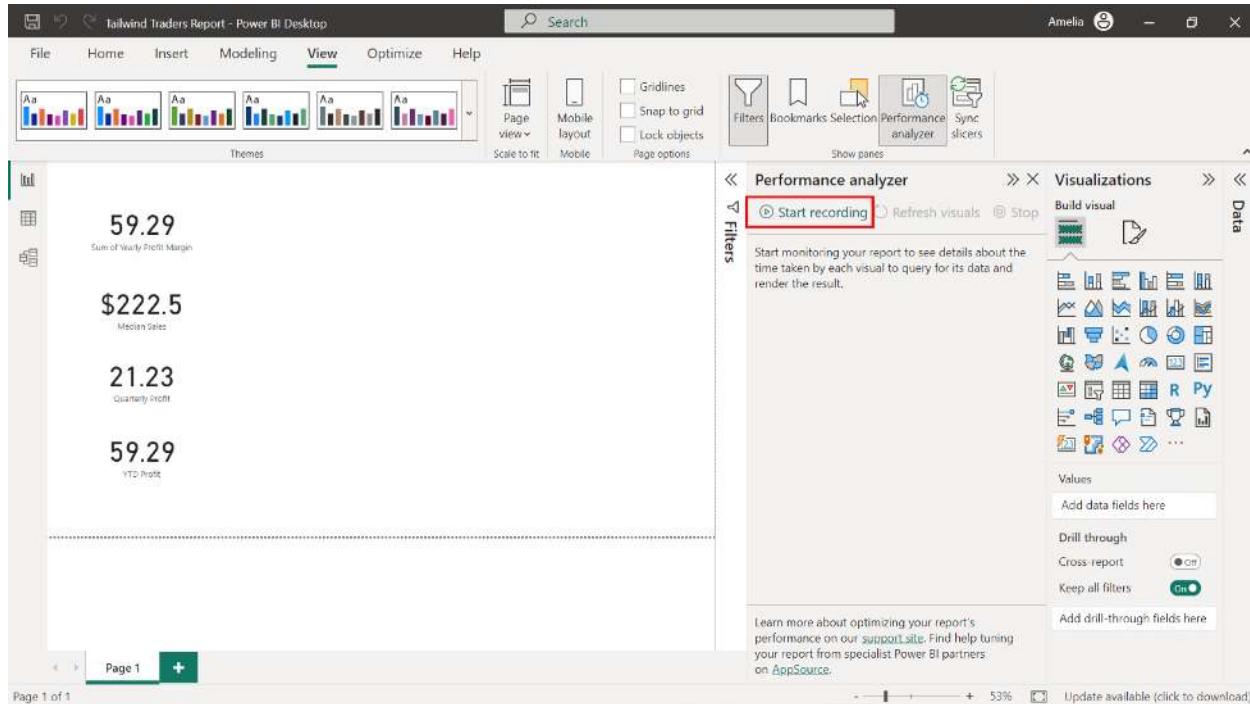
1. Create an empty Card visual and drag the **Yearly Profit Margin** field to the **Fields** well. Repeat this process for the **Median Sales**, **Quarterly Profit**, and **YTD Profit**.

Select the **Card** icon in the **Visualizations** pane. An empty Card visual appears on the canvas. Locate the **Sales in USD** table and drag the **Yearly Profit Margin** field to the **Fields** well in the **Visualizations** pane. Repeat this process for the **Median Sales**, **Quarterly Profit** and **YTD Profit**.



1. Begin recording the performance of the card visuals using the Performance Analyzer's recording feature.

Locate and select the **Start Recording** button in the **Performance Analyzer** pane.



1. Refresh your reports to test their performance.

You can refresh a report using two methods:

- Select the Refresh button in the **Home** tab of the ribbon interface
- or interact directly with the report.

As you interact with the report while the **Performance Analyzer** is recording, it tracks and documents the time taken to load each visual item.

The screenshot shows the Power BI Desktop interface with the 'Performance analyzer' pane open. The pane displays a list of visual items and their corresponding DAX query durations. The 'Duration (ms)' column is highlighted with a red box.

Name	Duration (ms)
Card	68
DAX query	4
Visual display	3
Other	61
Card	76
DAX query	4
Visual display	4
Other	68
Card	48
DAX query	9
Visual display	7
Other	32

1. Observe the list of all visual items in your report and their respective load times. Ensure the **DAX query time** of visual items is **< 200ms** and note any slow-loading visuals.

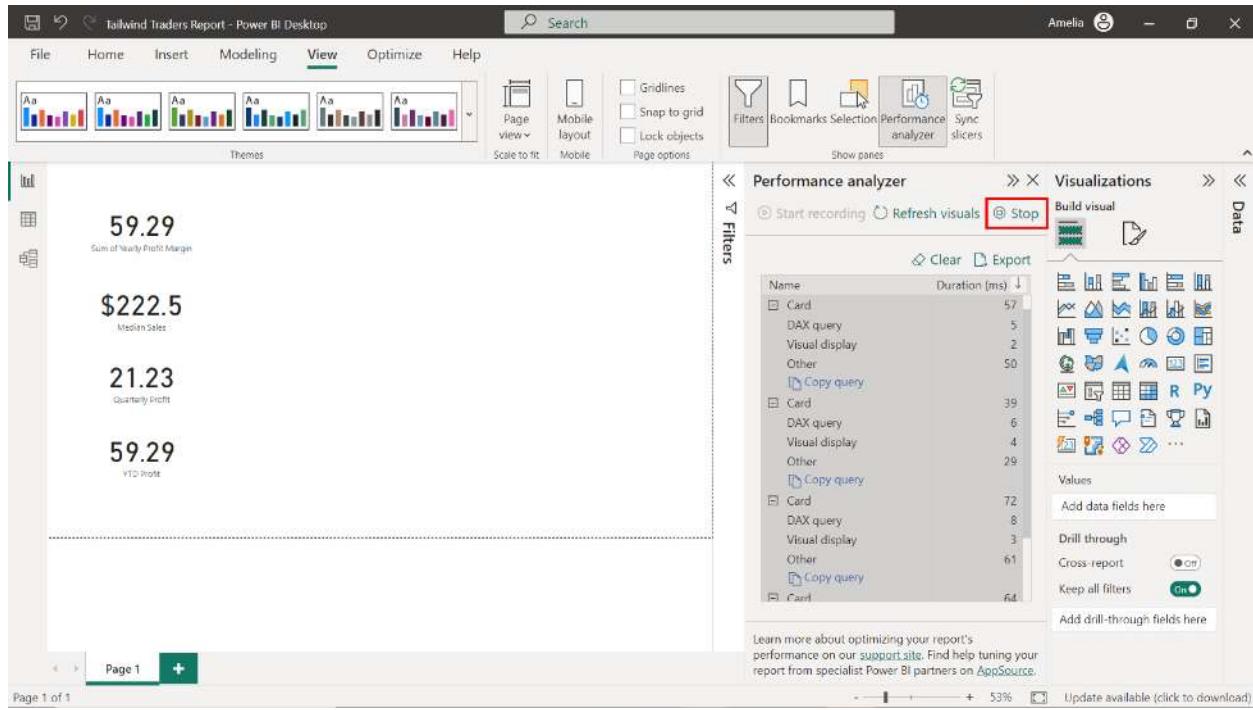
Observe the list of all visual items in your report and their respective load times. Ensure the DAX query time of visual items is **< 200ms** and note down any slow-loading visuals. This step is important not only for data analysis accuracy but also for reports' performance optimization.

The screenshot shows the Power BI Desktop interface with the 'Performance analyzer' pane open. The pane displays a list of visual items and their corresponding DAX query durations. The 'Duration (ms)' column is highlighted with a red box.

Name	Duration (ms)
Card	68
DAX query	4
Visual display	3
Other	61
Card	76
DAX query	4
Visual display	4
Other	68
Card	48
DAX query	9
Visual display	7
Other	32

1. Select **Stop** and remove all Card visuals, resulting in a blank Canvas.

Select Stop and remove all Card visuals upon completion, resulting in a blank Canvas.

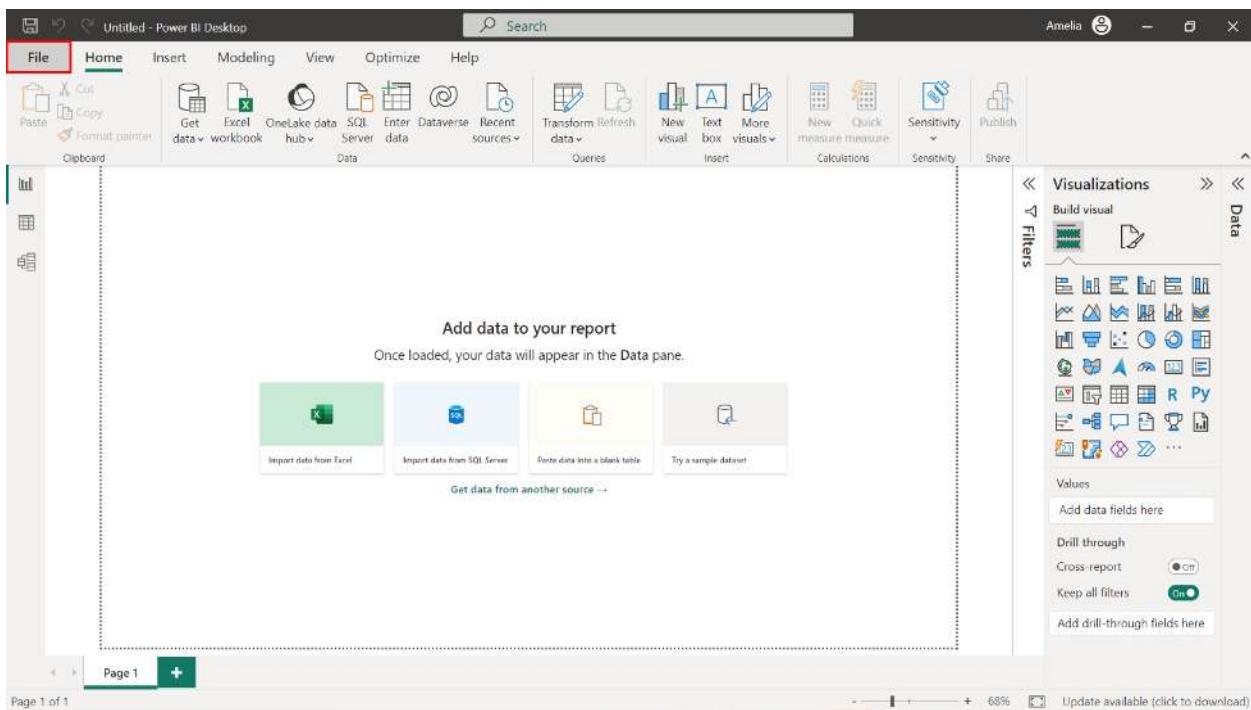


Exercise 2: Create a Sales report

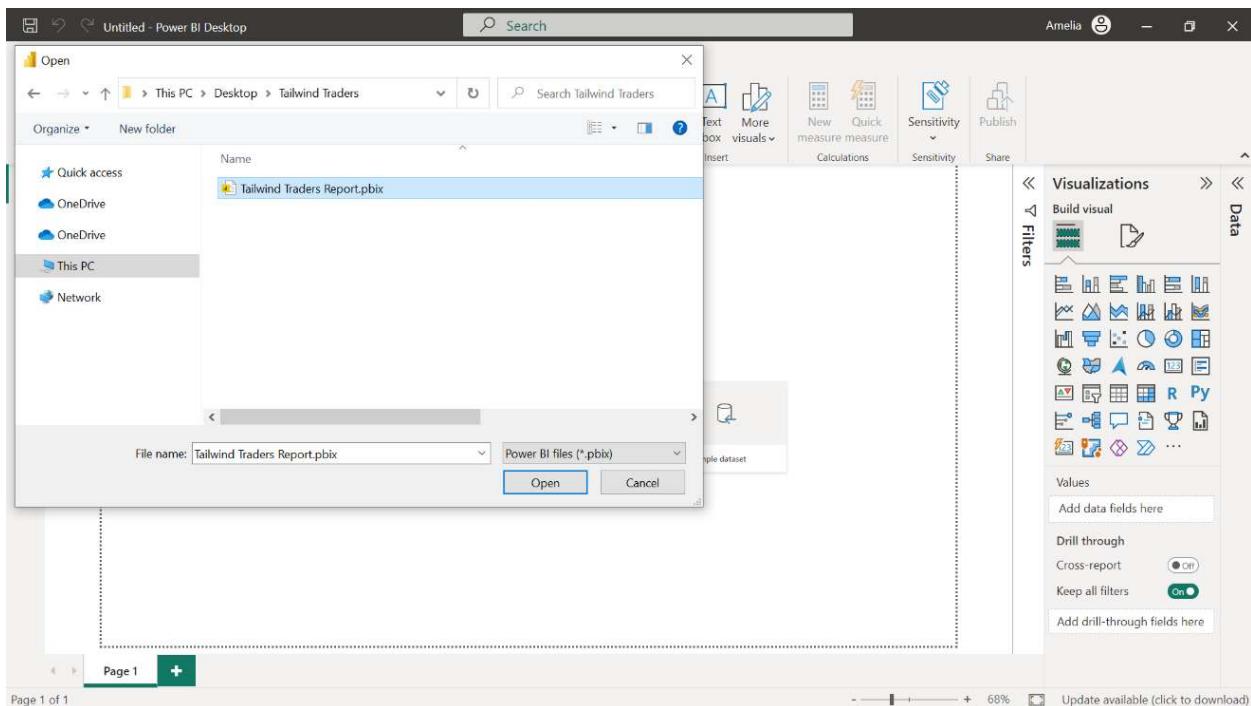
Step 1: Create a Sales Overview report

1. Open the **Tailwind Traders Report.pbix** Power BI file.

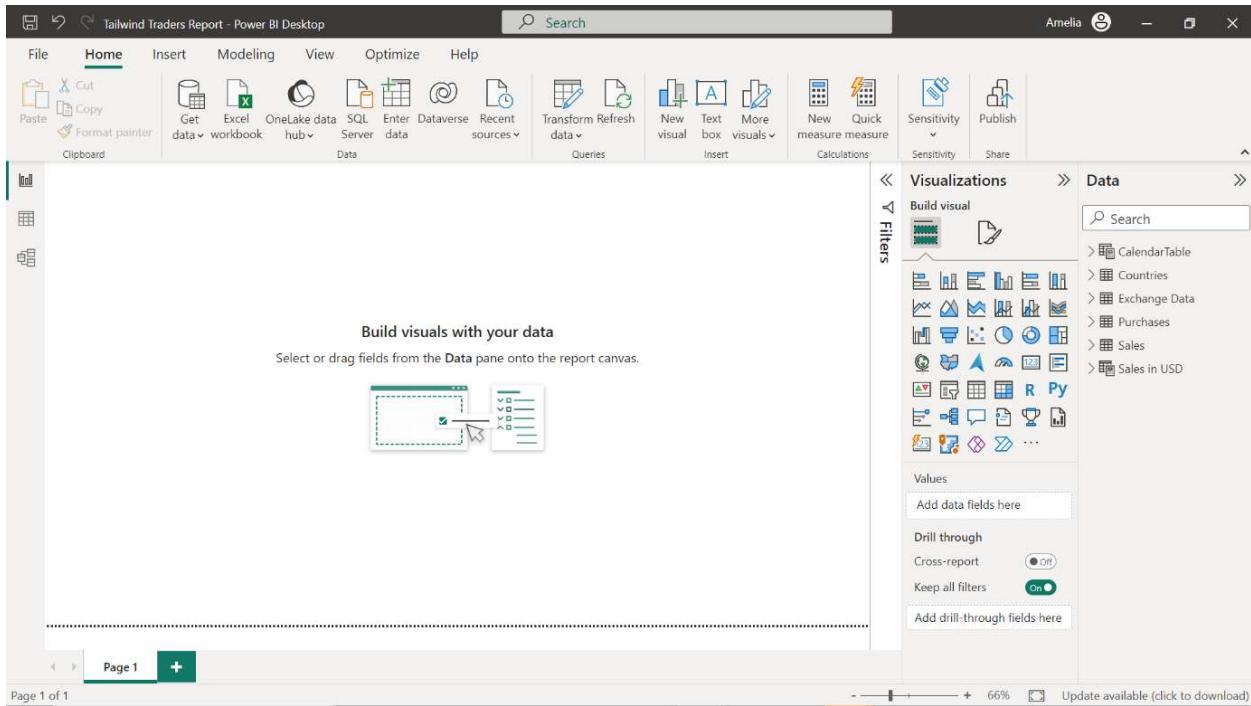
Open Power BI Desktop and select the **File** menu in the top left corner.



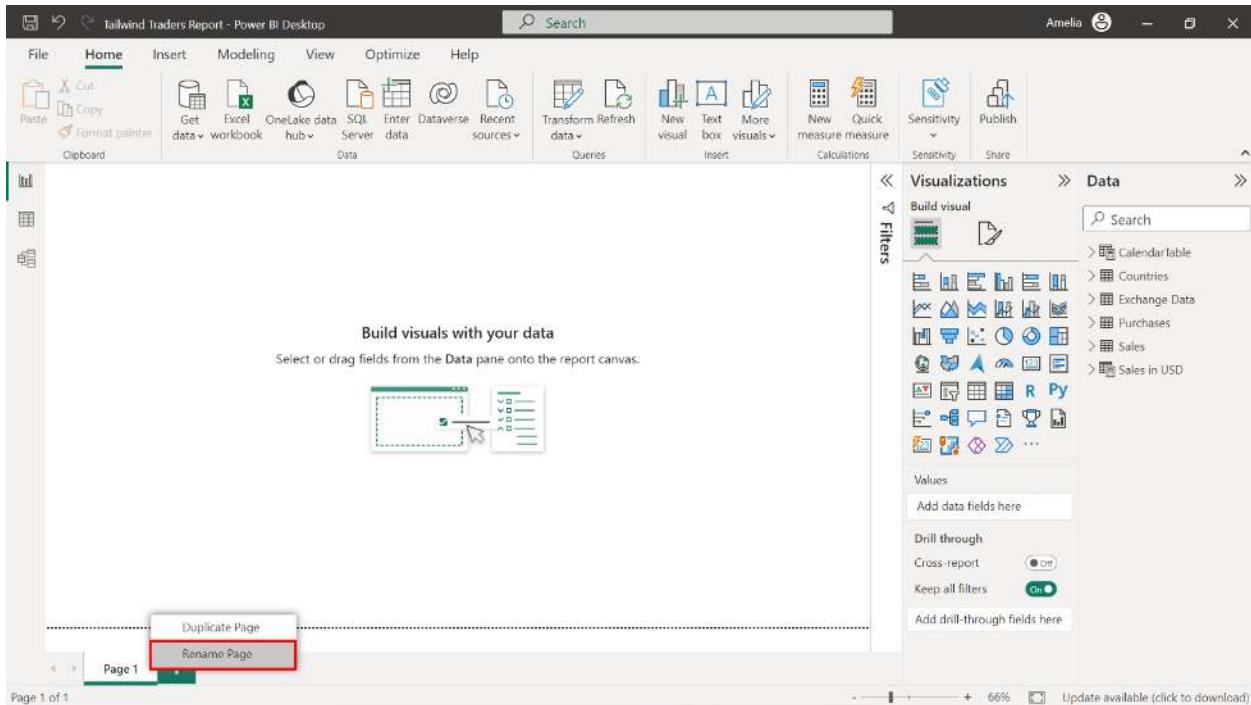
Navigate to the location where your **Tailwind Traders Report.pbix** file is saved.



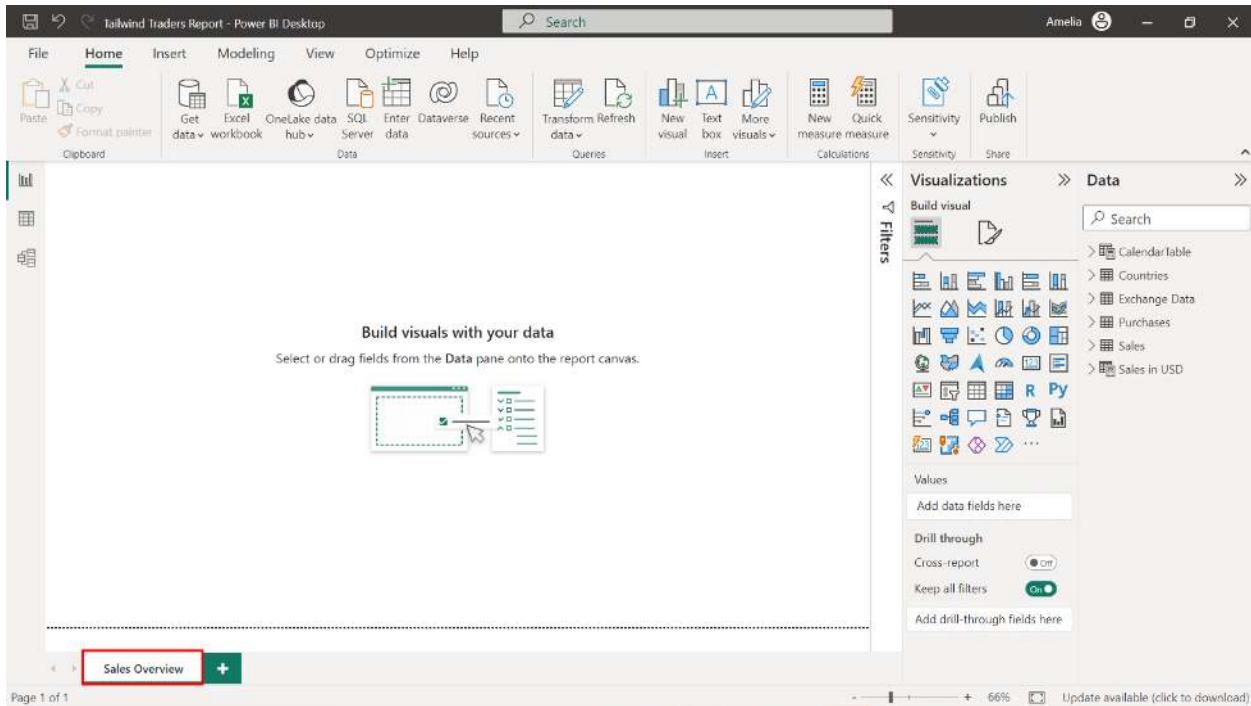
Select the **Tailwind Traders Report.pbix** file and select **Open** in the file explorer window. This action opens the saved project in the Power BI Desktop application.



1. Rename the report **Sales Overview**.



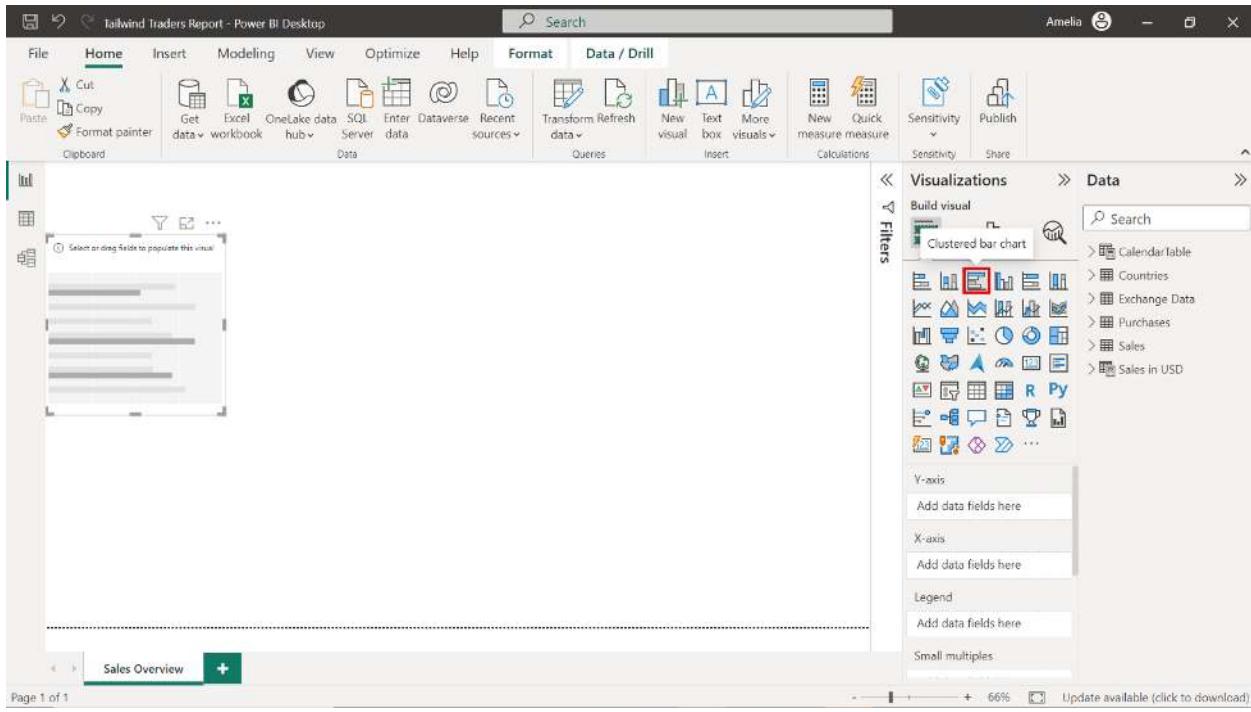
Right-click the page name and select **Rename Page** from the list of options. Rename the page to **Sales Overview**.



Step 2: Create a bar chart for loyalty points by country

1. Create a clustered bar chart that visualizes loyalty points by country using data from the **Sales in USD** table.

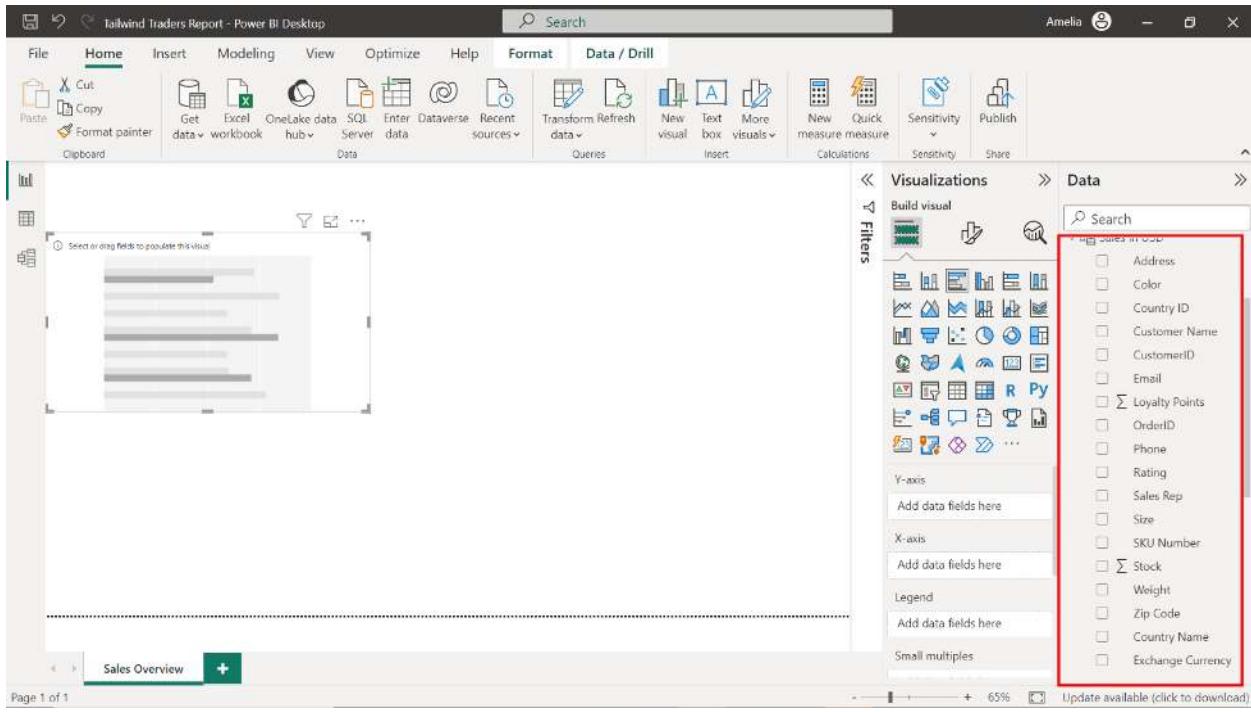
Locate the **Visualizations** pane on the right-hand side of your screen. Select the **Clustered bar chart** icon to create an empty bar chart visualization on the canvas.



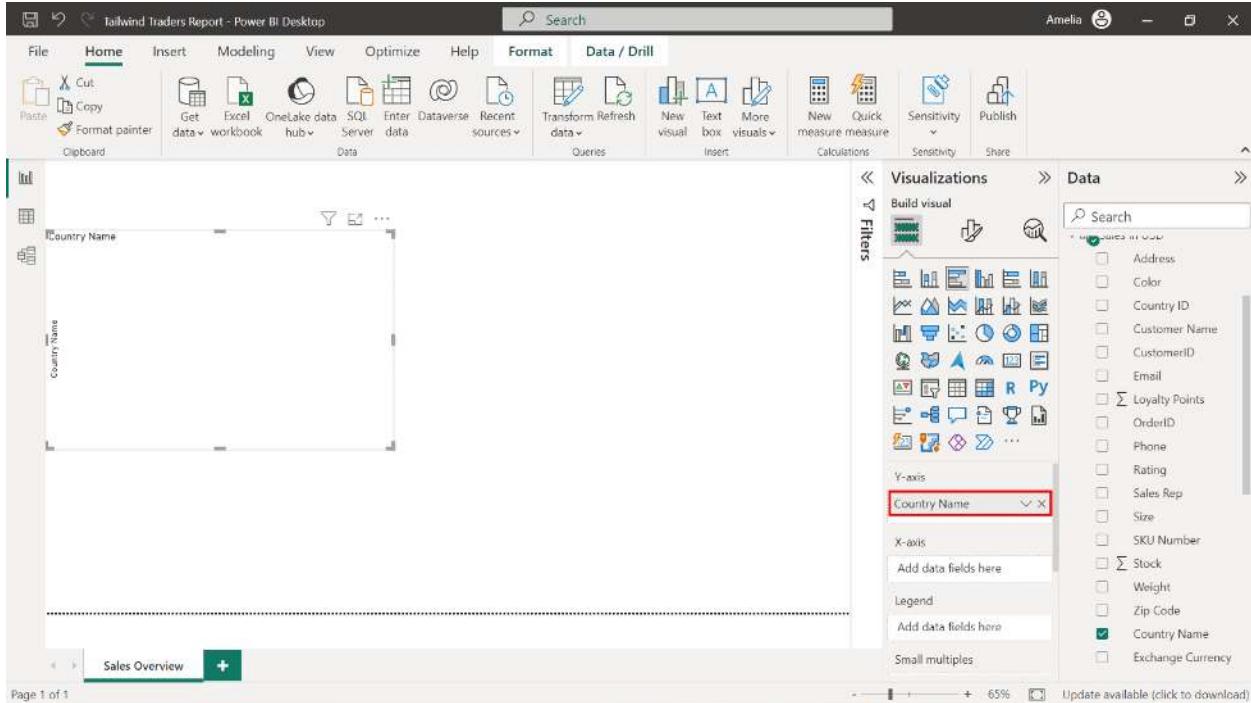
1. Configure the chart as follows:

- Display the country names on the Y-Axis.
- Display the loyalty points on the X-Axis.
- Resize and position the chart to the left side of the canvas.
- Title the chart **Loyalty Points by Country**.
- Toggle on the data labels.

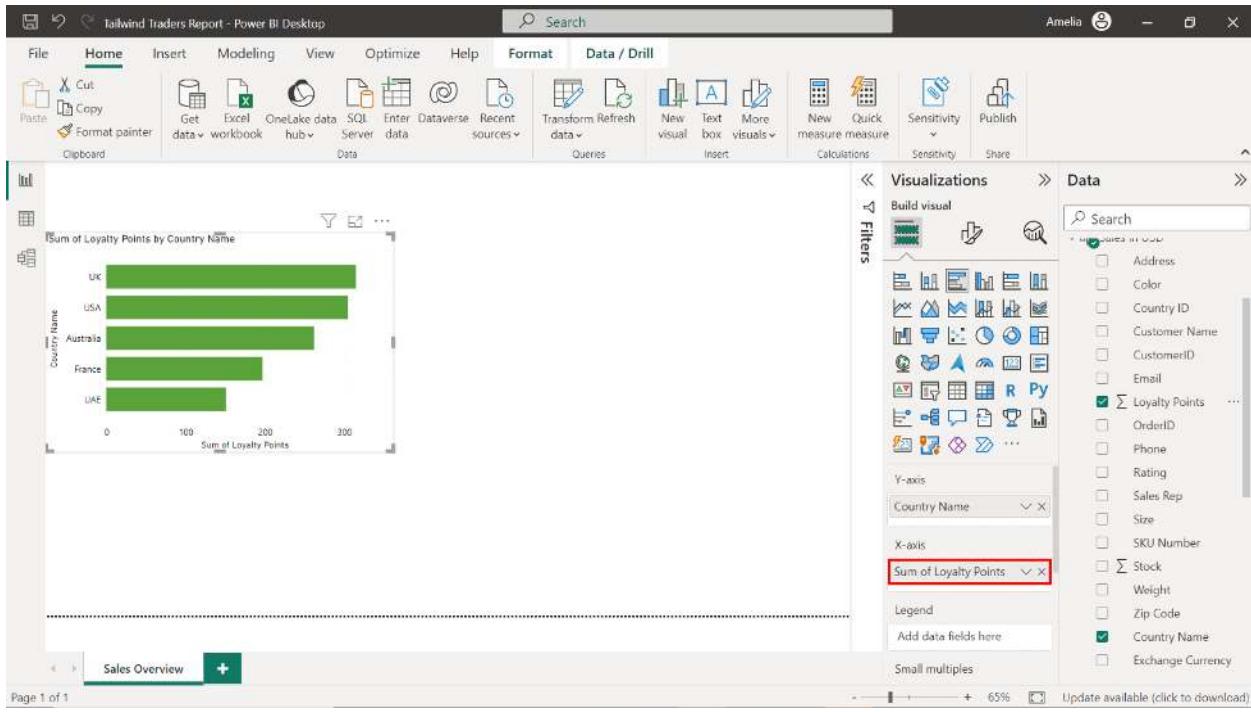
Locate the **Fields** pane on the right-hand side of the screen. This area contains the **Sales in USD** table. Select the table to expand it and view its fields.



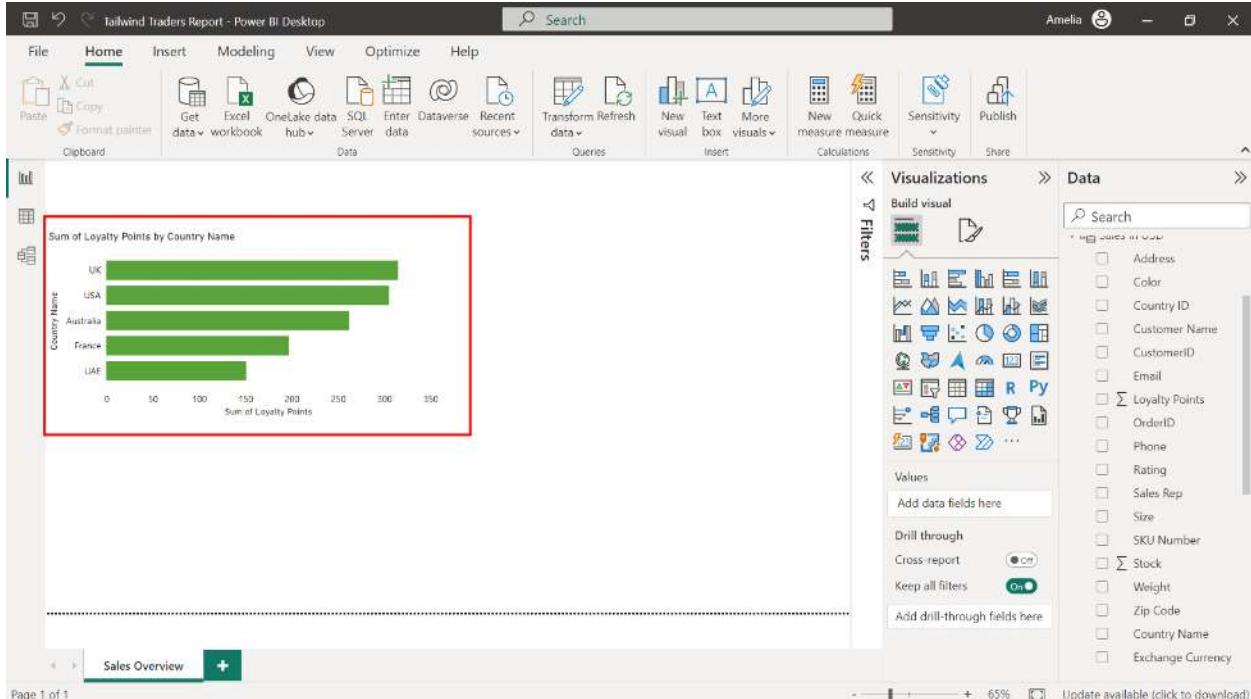
Drag the **Country Name** field from the **Fields** pane to the **Y-Axis** well in the **Visualizations** pane.



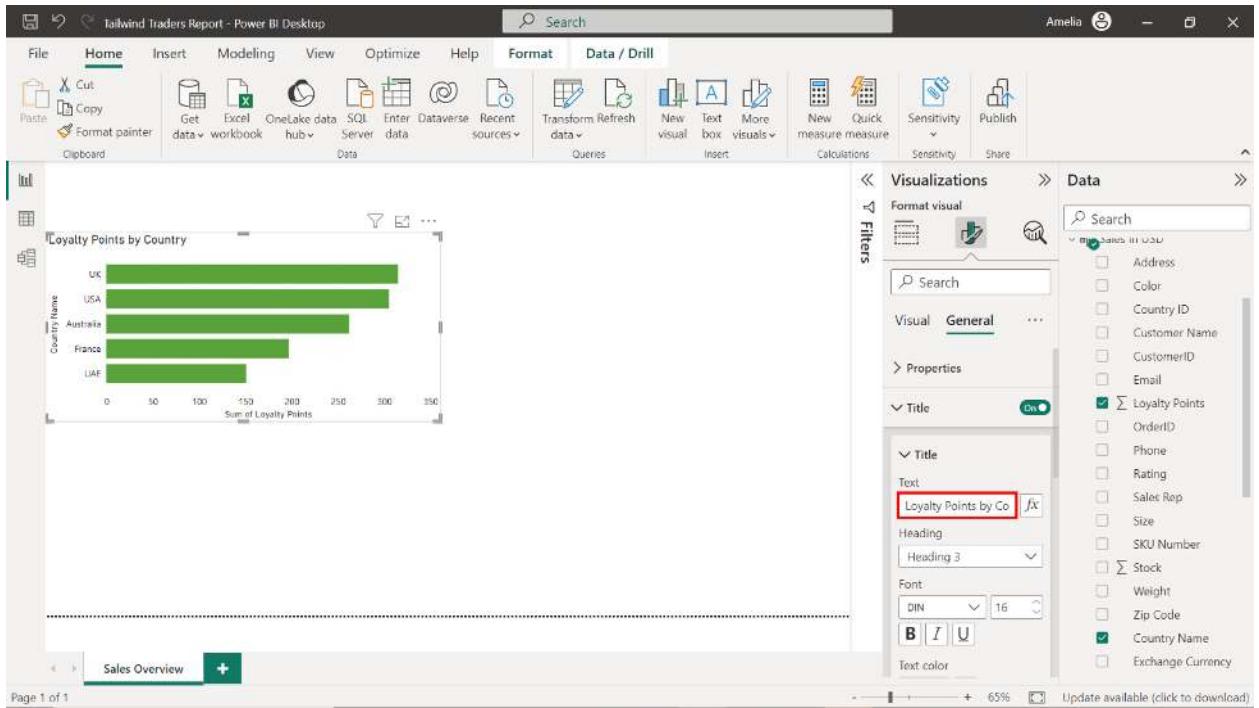
Next, drag the **Loyalty Points** field from the **Fields** pane to the **X-Axis** well in the **Visualizations** pane.



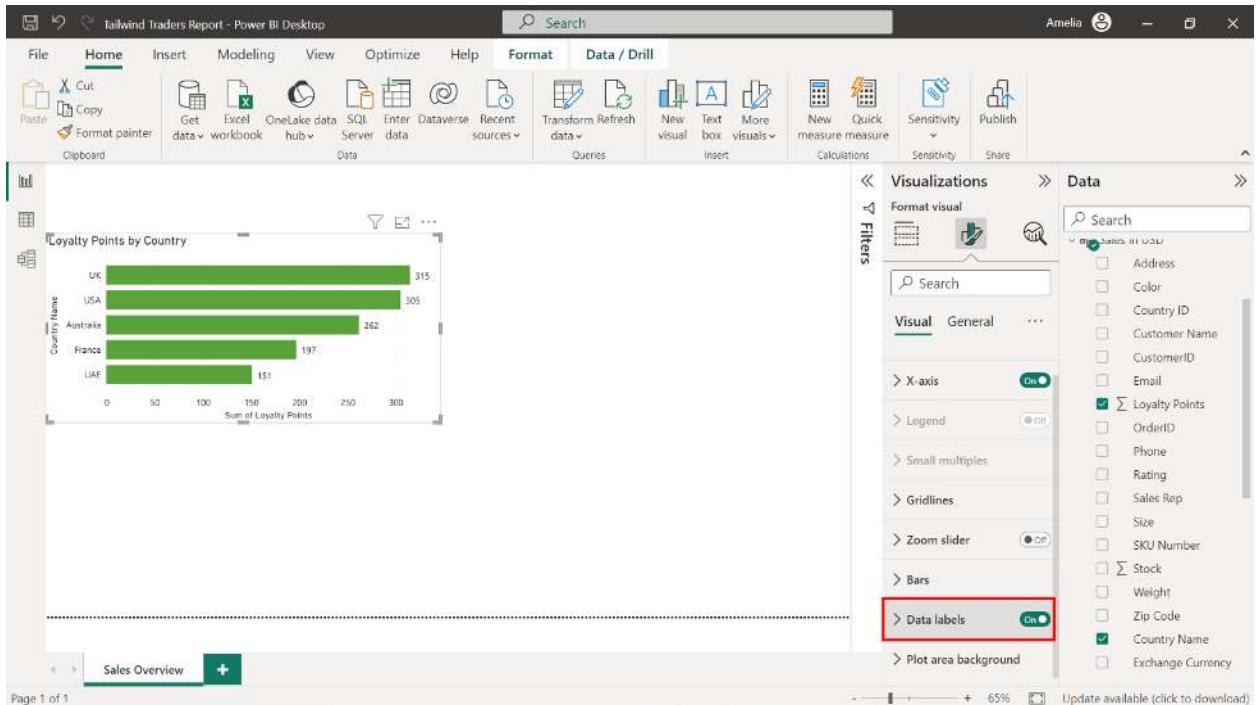
Select the edges of the bar chart on your canvas to resize it and place it on the left side of the canvas.



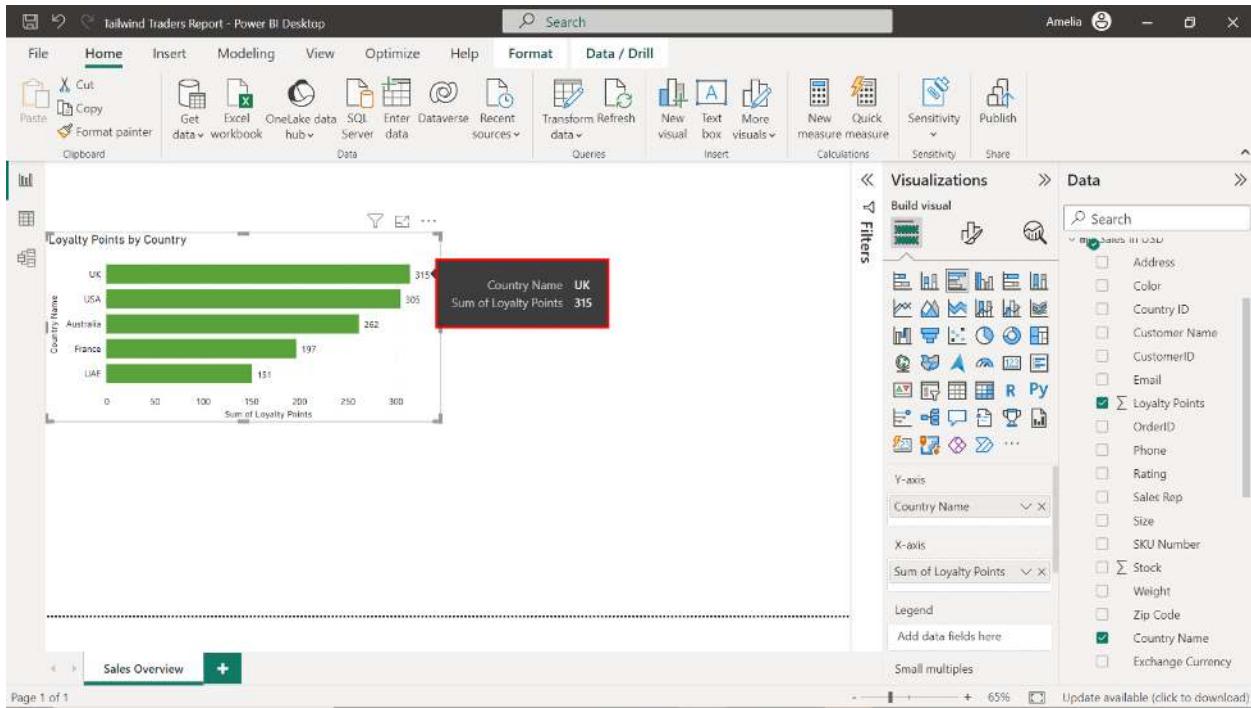
To format this visual, select the **Format** tab and title the chart **Loyalty Points by Country**.



Next, select **Data labels** and toggle the switch **ON** to display the loyalty points on each bar.



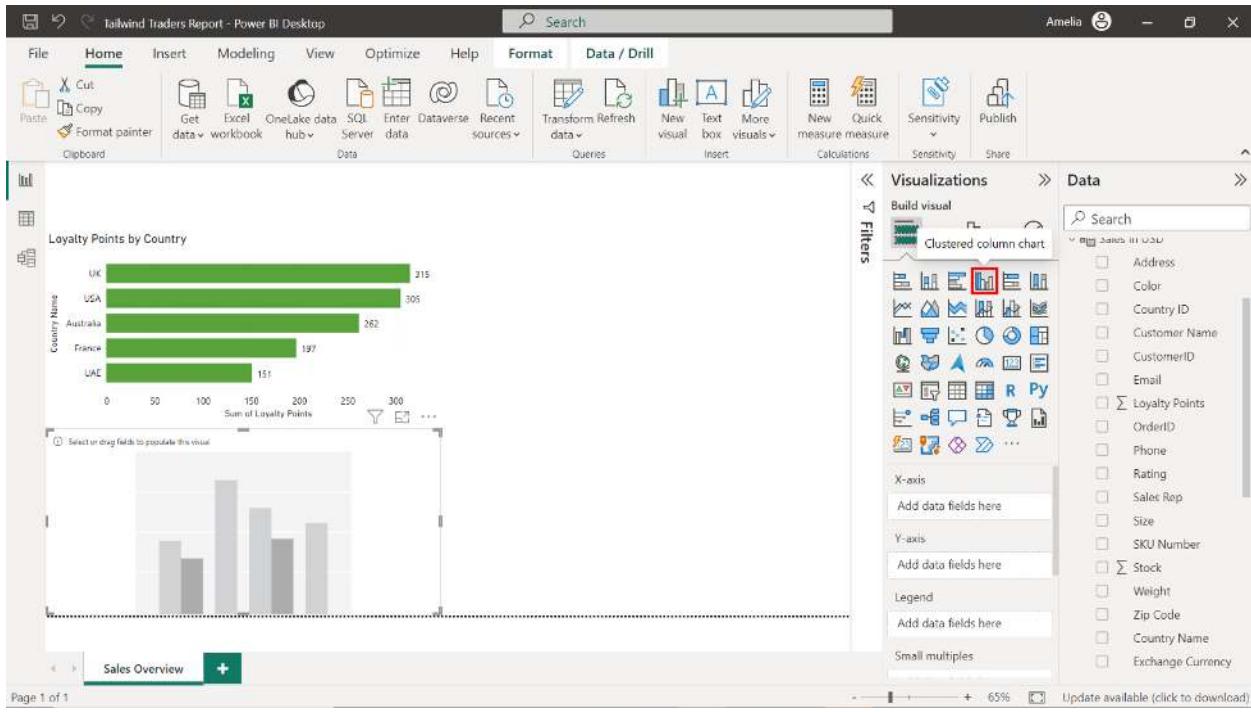
Note down the country with the highest **Loyalty Points** value. The **UK** leads the chart with **315** loyalty points.



Step 3: Create a column chart for Quantity Sold by Product

1. Create a clustered column chart that visualizes the quantity sold by product using data from the **Sales in USD** table.

Select the **Clustered column chart** icon from the **Visualizations** pane to create an empty column chart visualization on the canvas.



1. Configure the chart as follows:

- Display the product names on the Y-Axis.
- Display the quantity purchased on the X-Axis.
- Resize and position the chart to the right of the **Loyalty Points by Country** bar chart.
- Title the chart **Quantity Sold by Product**.
- Toggle on the data labels.

Locate the **Sales in USD** table on the right-hand side of the screen. Drag the **Product Name** field from the **Fields** pane to the **X-Axis** well in the **Visualizations** pane. Next, drag the **Quantity Purchased** field from the **Fields** pane to the **Y-Axis** well in the **Visualizations** pane.

The screenshot shows the Power BI Desktop interface with two visualizations on the canvas:

- Loyalty Points by Country**: A horizontal bar chart showing the sum of loyalty points for four countries: UK (315), USA (305), Australia (262), and UAE (151). The Y-axis is labeled "Country Name" and the X-axis is labeled "Sum of Loyalty Points".
- Sum of Quantity Purchased by Product Name**: A horizontal bar chart showing the sum of quantity purchased for various products. The Y-axis is labeled "Sum of Quantity Purchased" and the X-axis is labeled "Product Name".

The ribbon at the top includes tabs like File, Home, Insert, Modeling, View, Optimize, Help, Format, Data / Drill, and various data source and visualization tools.

The right side of the screen displays the **Data** pane, which lists numerous data fields with checkboxes. The fields for the second chart are selected:

- X-axis: Product Name
- Y-axis: Sum of Quantity Purchased

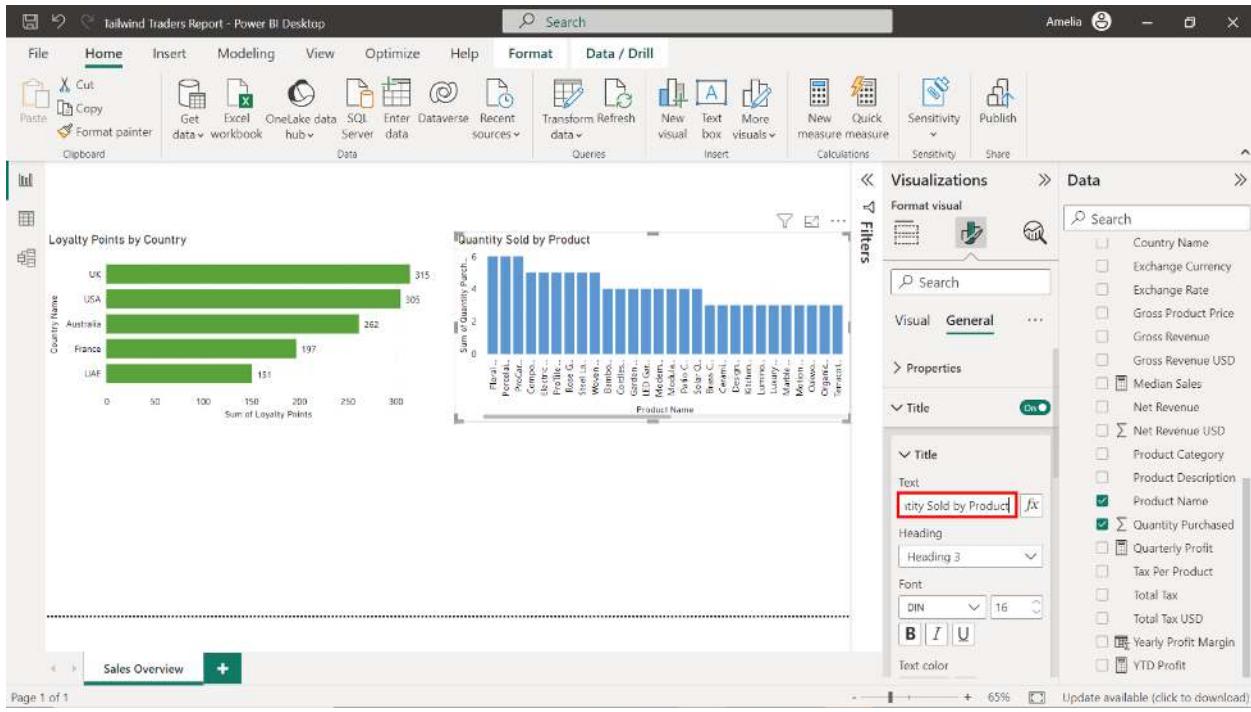
Select the edges of the visualization on your canvas to resize it, and place it on the right, next to the **Loyalty Points by Country** bar chart.

The screenshot shows the Power BI Desktop interface with the same two visualizations, but the second chart has been resized and moved to the right of the first chart.

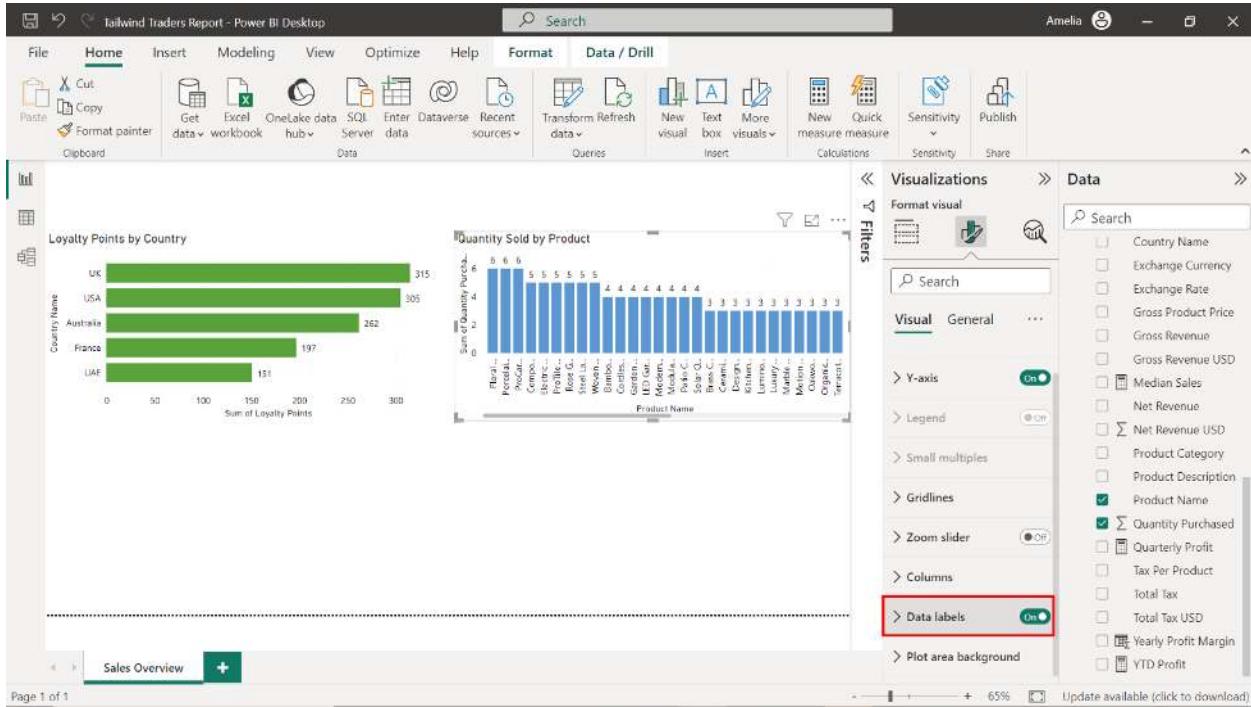
The **Loyalty Points by Country** chart remains on the left, while the **Sum of Quantity Purchased by Product Name** chart is now positioned to the right of it, overlapping slightly. Both charts are clearly visible against the white background of the canvas.

The ribbon and Data pane are identical to the previous screenshot.

Navigate to the **Format** options and title the chart **Quantity Sold by Product**.



Select **Data labels** and toggle the switch **ON** to display the quantity sold on each column.



Step 4: Create a pie chart for median sales distribution by country

- Create a pie chart that visualizes median sales distribution by country using data from the **Sales in USD** table.

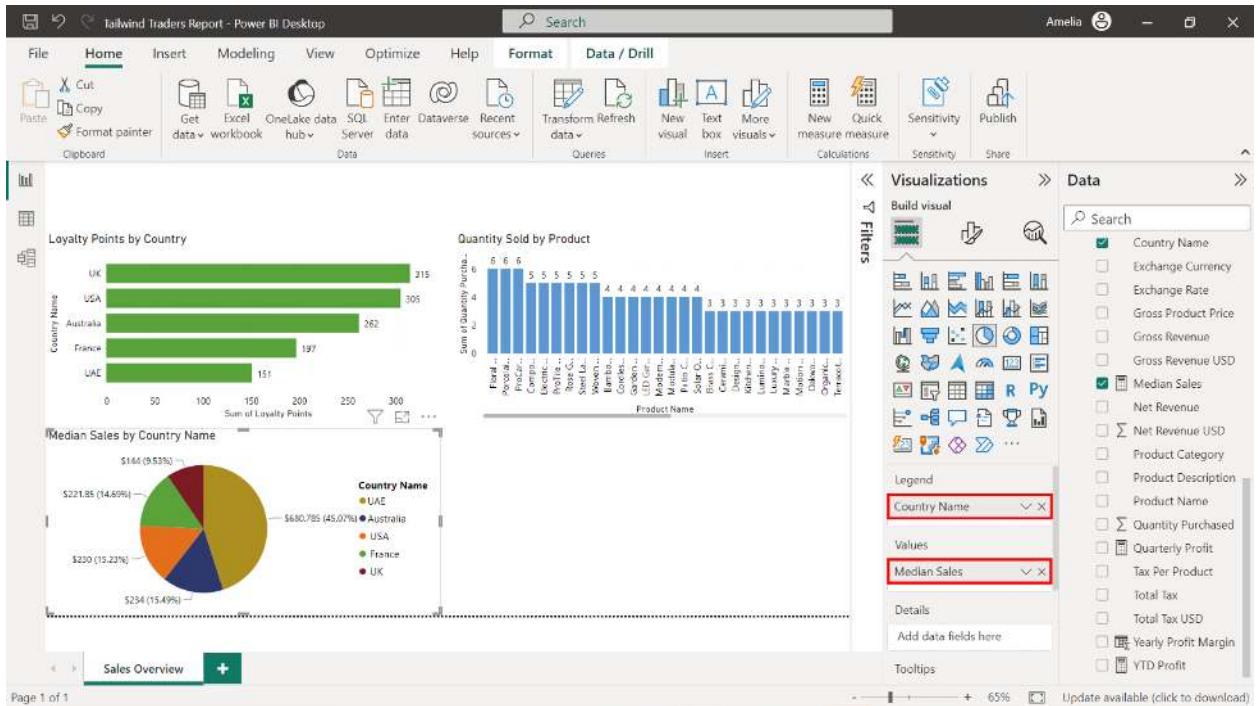
Select the **Pie chart** icon from the **Visualizations** pane to create an empty pie chart visualization on the canvas.

The screenshot shows the Power BI Desktop interface with the 'Tailwind Traders Report - Power BI Desktop' title bar. The ribbon tabs are Home, Insert, Modeling, View, Optimize, Help, Format, Data / Drill. The Data / Drill tab is active. The ribbon icons include Cut, Copy, Paste, Format painter, Get data (Excel, OneLake data hub, SQL Server, Data), Transform data, New visual, Text box, More visuals, New measure, Quick measure, Calculations, Sensitivity, Publish, and Share. The main canvas displays two visualizations: a horizontal bar chart titled 'Loyalty Points by Country' and a vertical bar chart titled 'Quantity Sold by Product'. Below the charts is an empty pie chart placeholder with the text 'Select or drag fields to populate this visual'. The 'Visualizations' pane on the right shows various chart types, with the 'Pie chart' icon highlighted with a red box. The 'Data' pane on the far right lists numerous fields such as Country Name, Exchange Currency, Exchange Rate, Gross Product Price, Gross Revenue, Gross Revenue USD, Median Sales, Net Revenue, Net Revenue USD, Product Category, Product Description, Product Name, Quantity Purchased, Quarterly Profit, Tax Per Product, Total Tax, Total Tax USD, Yearly Profit Margin, and YTD Profit.

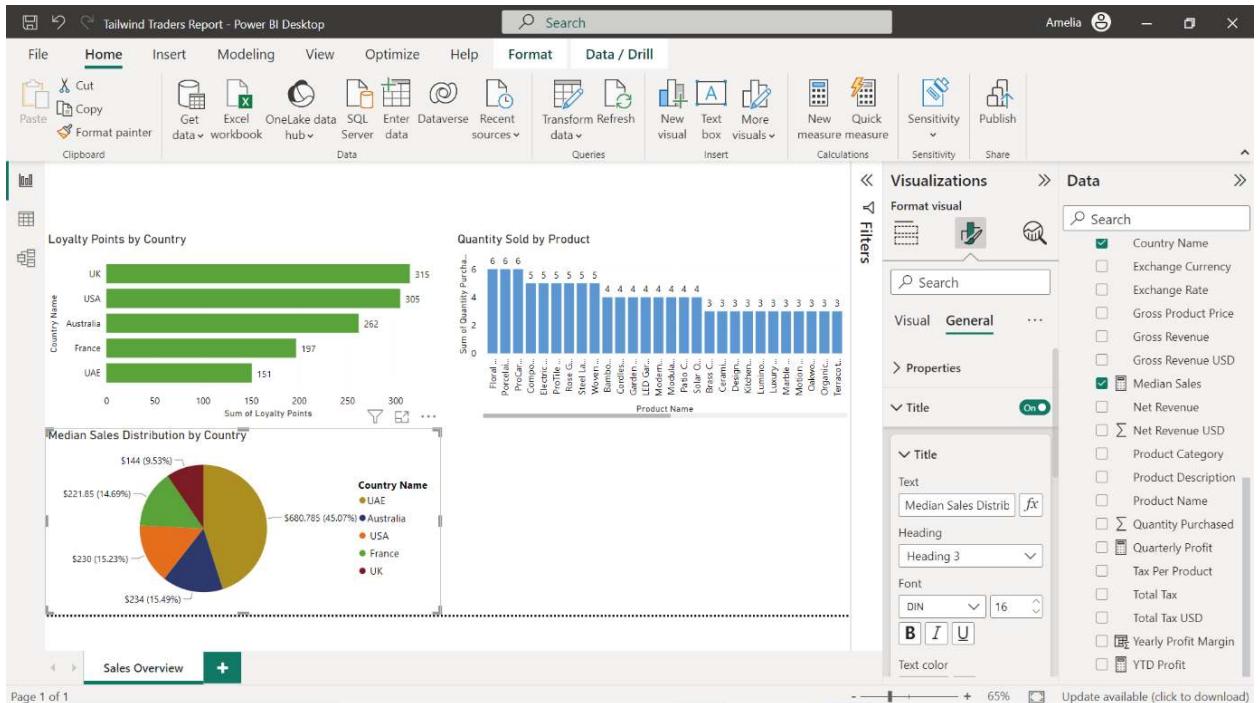
1. Configure the chart as follows:

- Display the country names in the **Legend** area.
- Display the median sales in the **Values** area.
- Adjust the chart size and position it below the **Loyalty Points by Country** bar chart.
- Title the chart **Median Sales Distribution by Country**.
- Display detailed labels.

Locate the **Sales in USD** table on the right-hand side of the screen and drag the **Country Name** field from the **Fields** pane to the **Legend** well in the **Visualizations** pane. Then, drag the **Median Sales** field from the **Fields** pane to the **Values** well in the **Visualizations** pane.



Select the edges of the visualization on your canvas to resize it, and place it below the **Loyalty Points by Country** bar chart.



Title the chart **Median Sales Distribution by Country**.

Loyalty Points by Country

Country Name	Sum of Loyalty Points
UK	215
USA	305
Australia	262
France	197
UAE	151

Median Sales Distribution by Country

Country Name	Value	Percentage
UAE	\$144 (9.53%)	9.53%
USA	\$221.85 (14.69%)	14.69%
France	\$230 (15.23%)	15.23%
UK	\$234 (15.49%)	15.49%
Australia	\$680.785 (45.07%)	45.07%

Quantity Sold by Product

Product Name	Sum of Quantity Purchased
Product A	6
Product B	6
Product C	6
Product D	5
Product E	5
Product F	5
Product G	5
Product H	5
Product I	5
Product J	5
Product K	5
Product L	4
Product M	4
Product N	4
Product O	4
Product P	4
Product Q	4
Product R	3
Product S	3
Product T	3
Product U	3
Product V	3
Product W	3
Product X	3
Product Y	3
Product Z	3

Select **Detailed labels**, and from the dropdown, select **All detail labels**.

Loyalty Points by Country

Country Name	Sum of Loyalty Points
UK	215
USA	305
Australia	262
France	197
UAE	151

Median Sales Distribution by Country

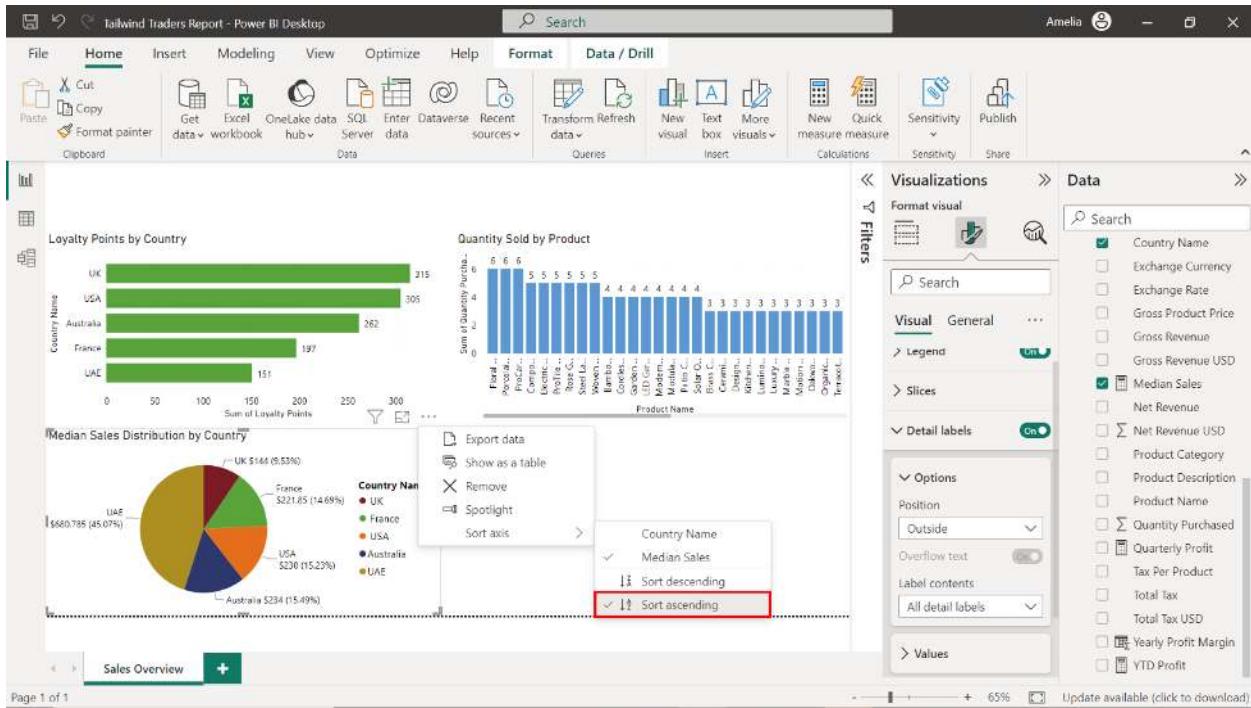
Country Name	Value	Percentage
UAE	\$144 (9.53%)	9.53%
USA	\$221.85 (14.69%)	14.69%
France	\$230 (15.23%)	15.23%
Australia	\$234 (15.49%)	15.49%
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Quantity Sold by Product

Product Name	Sum of Quantity Purchased
Product A	6
Product B	6
Product C	6
Product D	5
Product E	5
Product F	5
Product G	5
Product H	5
Product I	5
Product J	5
Product K	5
Product L	4
Product M	4
Product N	4
Product O	4
Product P	4
Product Q	4
Product R	3
Product S	3
Product T	3
Product U	3
Product V	3
Product W	3
Product X	3
Product Y	3
Product Z	3

- Sort the data in ascending order.

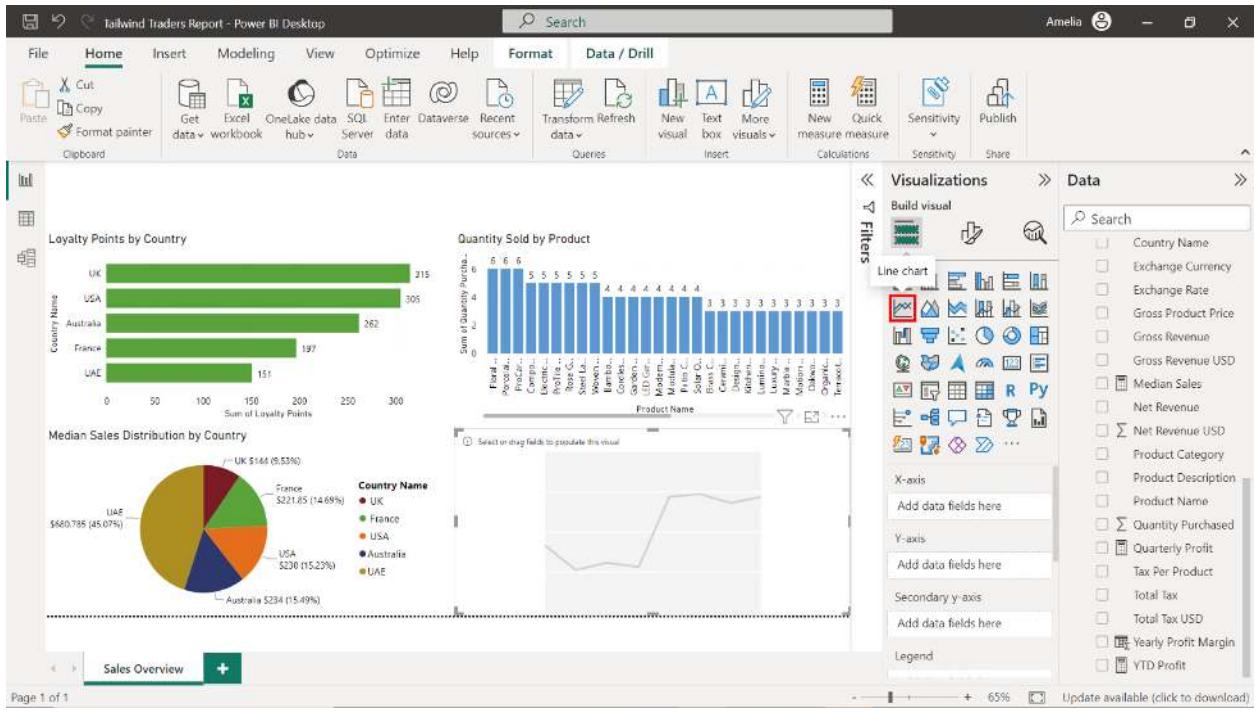
Select the ellipses located at the top right corner of the visualization. Select the **SortAxis** dropdown, then select **Sort ascending**.



Step 5: Create a line chart for median sales over time

1. Create a line chart that visualizes median sales over time using data from the **Sales in USD** table.

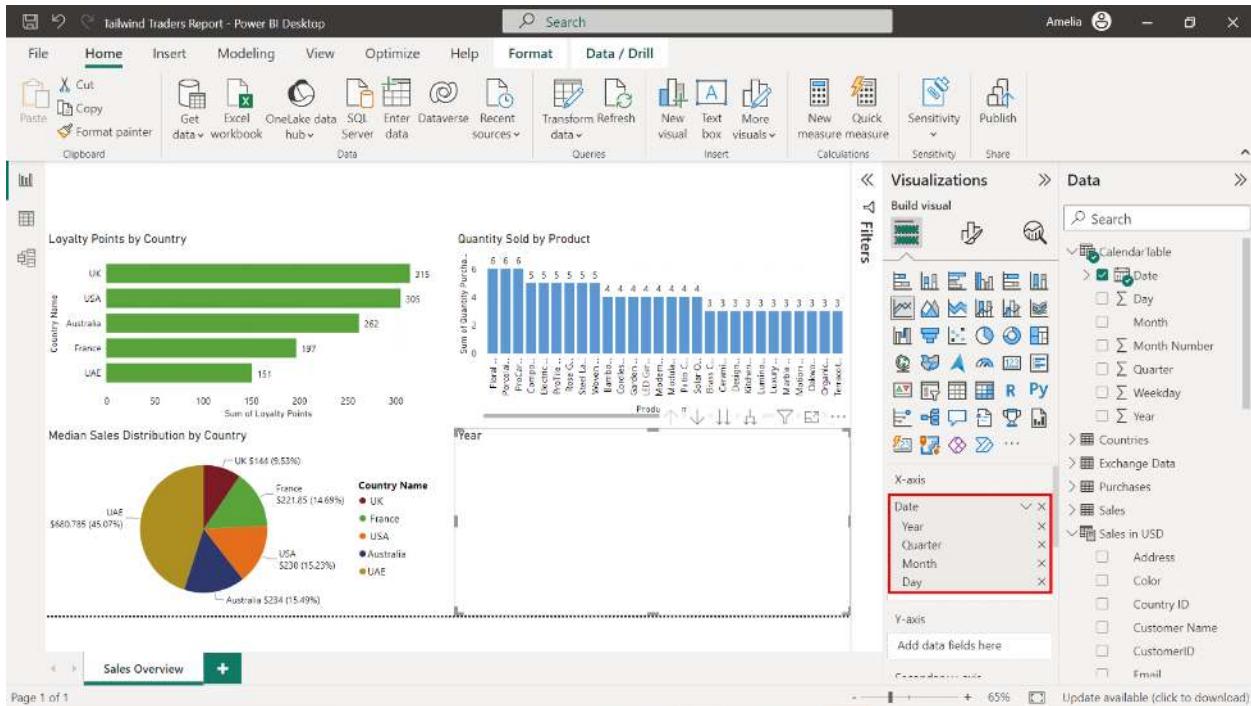
Select the **Line chart** icon from the **Visualizations** pane to create an empty line chart visualization on the canvas.



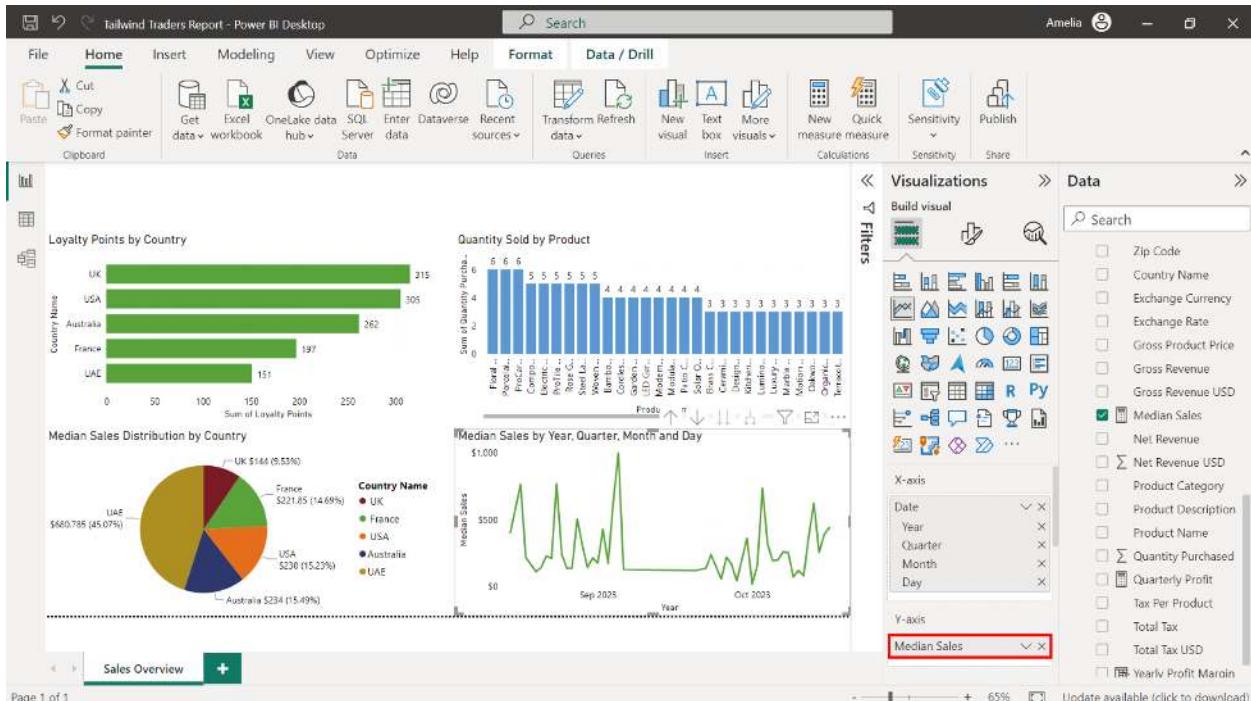
- Configure the chart as follows:

- Display date data on the X-axis.
- Display median sales data on the Y-axis.
- Adjust and position the chart below the **Quantity Sold by Product** column chart.
- Title the chart **Median Sales Over Time**.
- Toggle on the data labels.

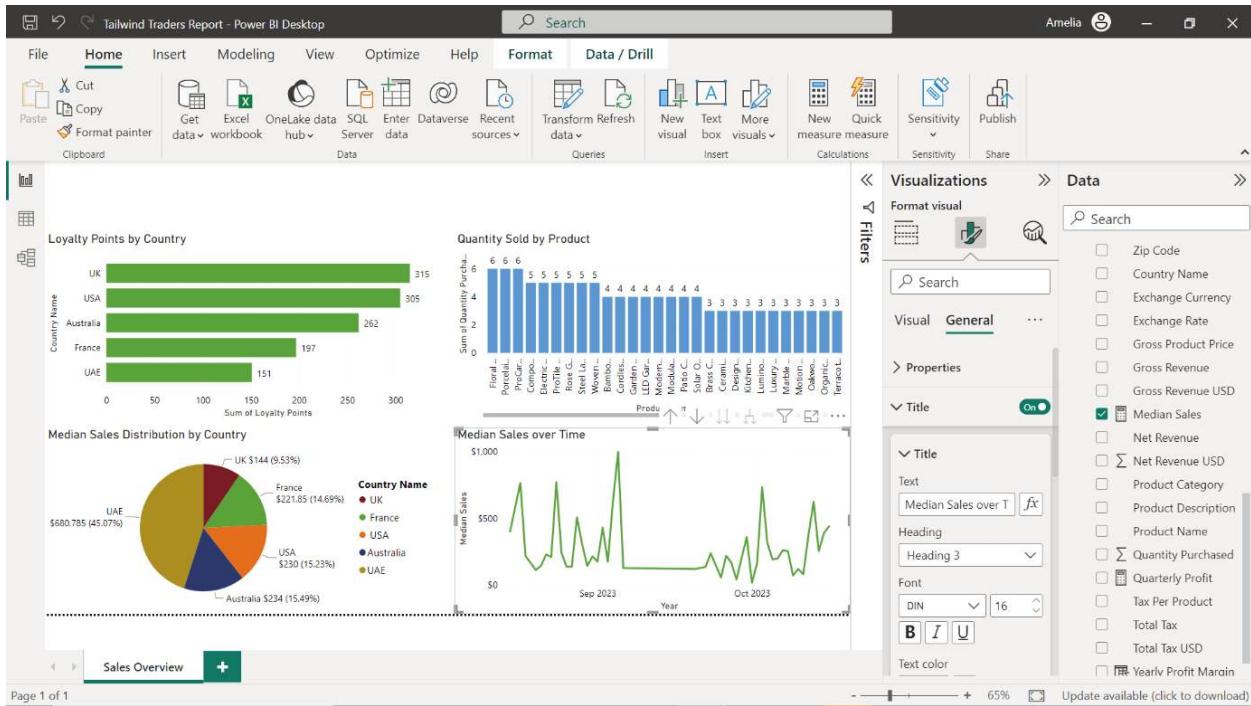
Locate the **CalendarTable** on the right-hand side of the screen. Drag the **Date** field from the **Fields** pane to the **X-Axis** well in the **Visualizations** pane.



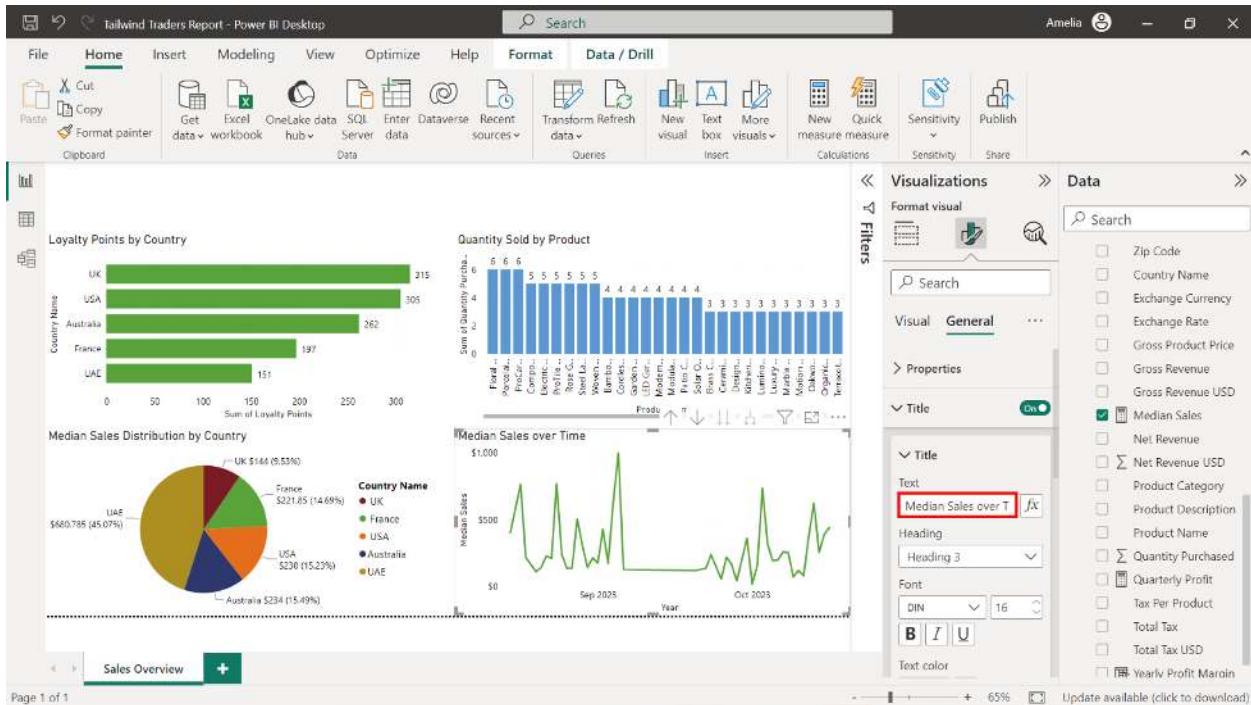
Locate the **Sales in USD** table and drag the **Median Sales** field from the **Fields** pane to the **Y-axis** well in the **Visualizations** pane.



Select the edges of the visualization on your canvas to resize it, and place it below the **Quantity Sold by Product** column chart.



Title the chart Median Sales over Time.



1. Configure an analytics forecast as follows:

- Set **Units** to **Days**.
- Set **Forecast Length** to **2**.
- Set **Confidence interval** to **99%**.

Select the **Analytics** tab, represented by a magnifying glass icon. Locate the **Forecast** option and toggle the switch beside it to add a forecast line to your chart.

The screenshot shows the Power BI Desktop interface with the Analytics ribbon tab selected. In the Visualizations pane, the Forecast section is open, and the 'Forecast' checkbox is checked. The main workspace contains three visualizations: a bar chart titled 'Loyalty Points by Country' showing points for UK, USA, Australia, and France; a pie chart titled 'Median Sales Distribution by Country' showing sales for UK, USA, Australia, and UAE; and a line chart titled 'Median Sales over Time' showing sales from September to October 2023 with a forecasted line and shaded confidence interval.

Set the **Units to Days**, **Forecast Length** to 2, and the **Confidence interval** to 99%. Select **Apply** to apply the changes. The forecasted line appears on your line chart in a different color with shading to indicate the confidence intervals.

This screenshot shows the same Power BI Desktop interface as the previous one, but with specific settings applied to the Forecast pane. The 'Units' dropdown is set to 'Days', 'Forecast length' is set to '2', and 'Confidence interval' is set to '99%'. The 'Apply' button is visible at the bottom right of the Forecast pane. The main workspace remains the same, displaying the three charts: Loyalty Points by Country, Median Sales Distribution by Country, and Median Sales over Time with its forecasted line and shaded confidence interval.

Step 6: Create cards to visualize your measures

1. Create cards that visualize the following measures:

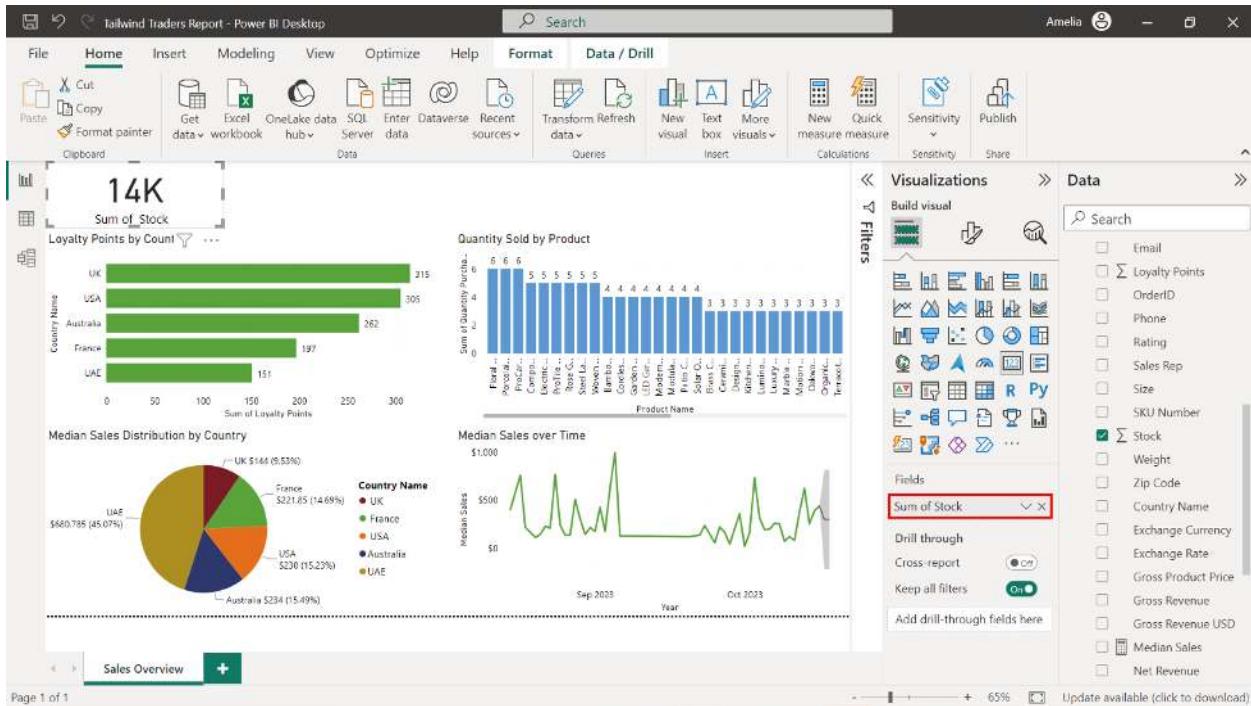
- Stock.
- Quantity Purchased.
- Median Sales.

Select the **Card** icon in the **Visualizations** pane while ensuring nothing is selected on the canvas. An empty Card visual appears on the canvas.

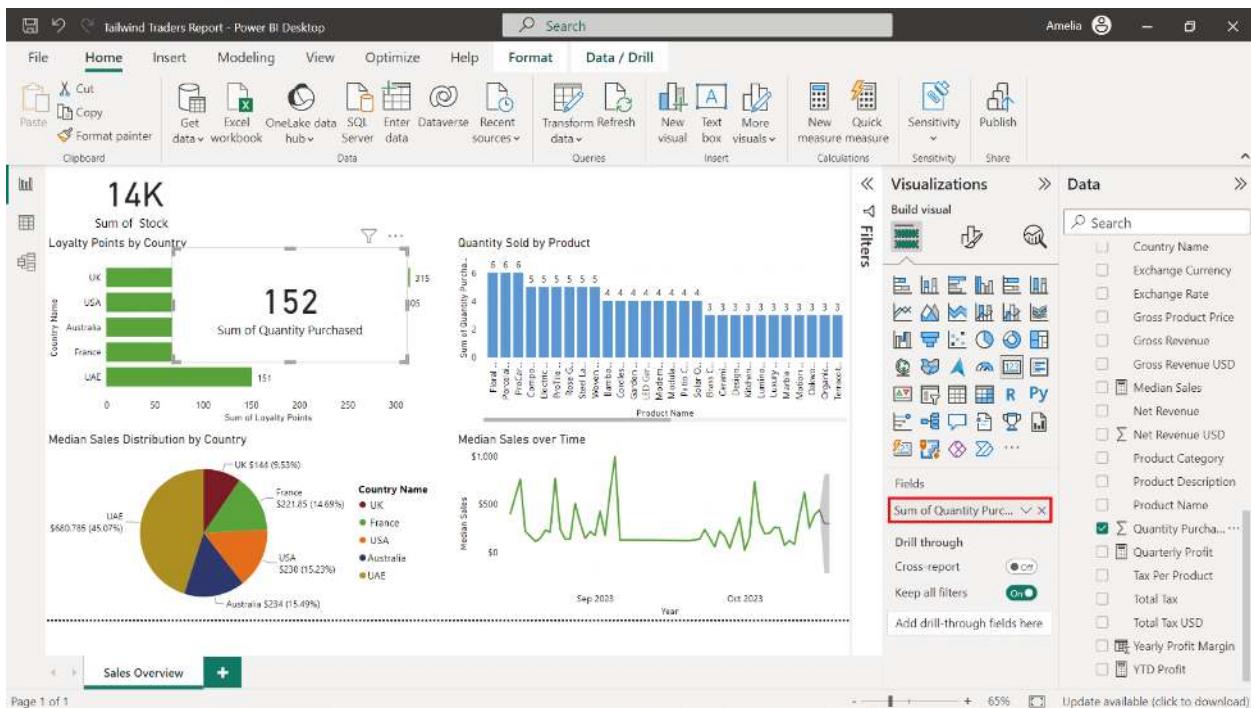
The screenshot shows the Power BI Desktop interface with the following details:

- Home Tab:** Selected tab.
- Data:** Loyalty Points by Country (Bar chart), Quantity Sold by Product (Bar chart), Median Sales Distribution by Country (Pie chart), and Median Sales over Time (Line chart).
- Visualizations pane:** Shows various visualization icons, including a Card icon which is highlighted.
- Fields pane:** Lists measures such as Sum of Stock, Sum of Quantity Purchased, and Median Sales.
- Page:** Sales Overview, Page 1 of 1.

Locate the **Sales in USD** table and drag the **Sum of Stock** field to the **Fields** well in the **Visualizations** pane.



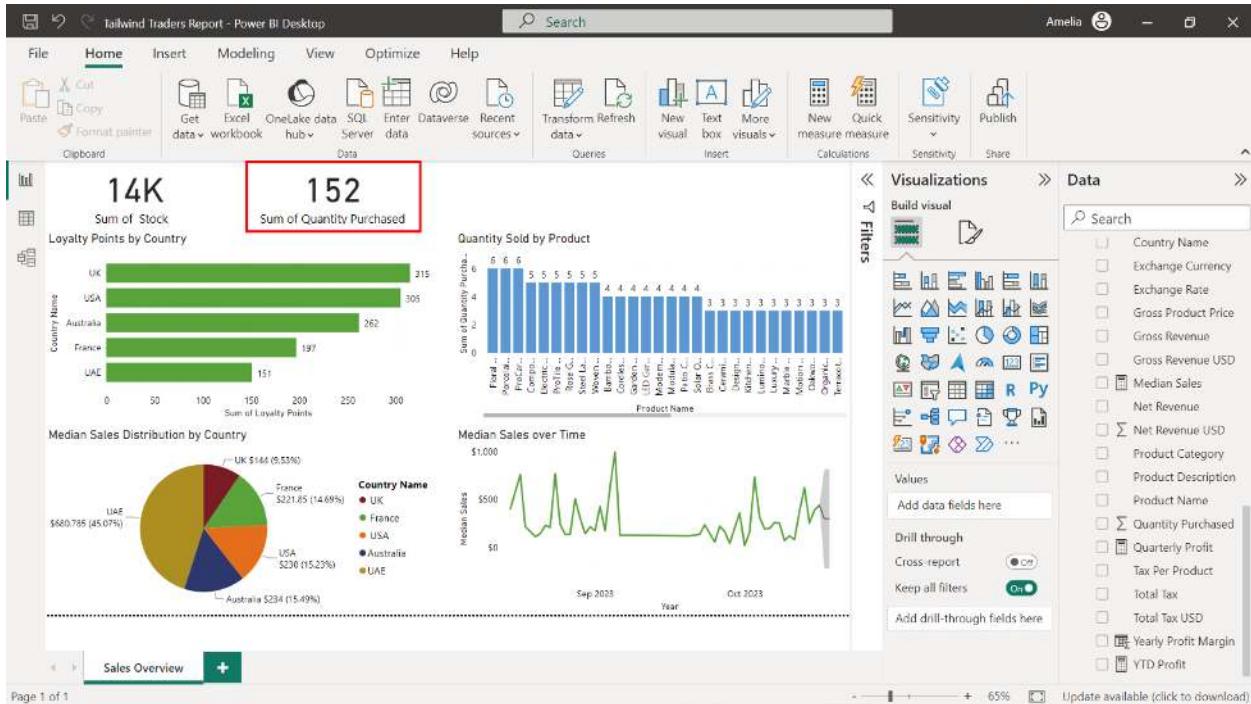
Repeat this process for the **Sum of Quantity Purchased** and **Median Sales** measures.



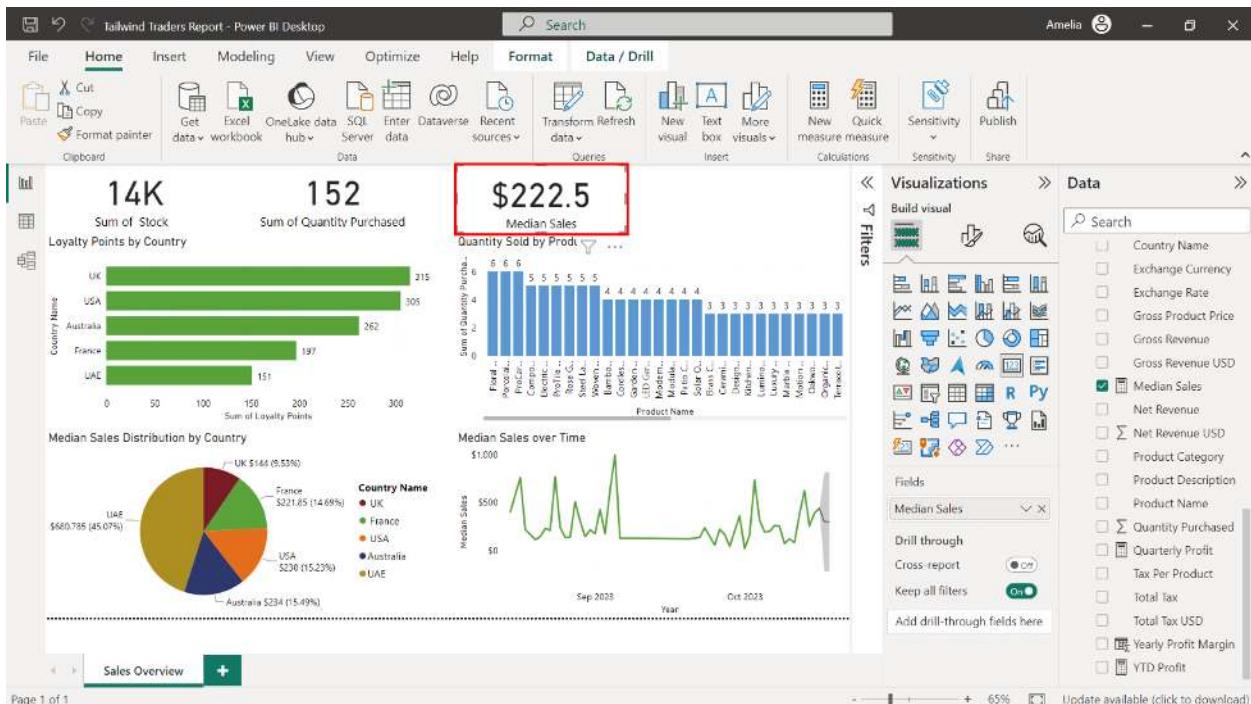
1. Position the cards as follows:

- Place the **Stock** and **Quantity Purchased** cards above the **Loyalty Points by Country** bar chart.
- Place the **Median Sales** card above the **Quantity Sold by Product** column chart.

Select the edges of the Stock and Quantity Purchased cards on your canvas to resize them. Place both cards above the **Loyalty Points by Country** bar chart.



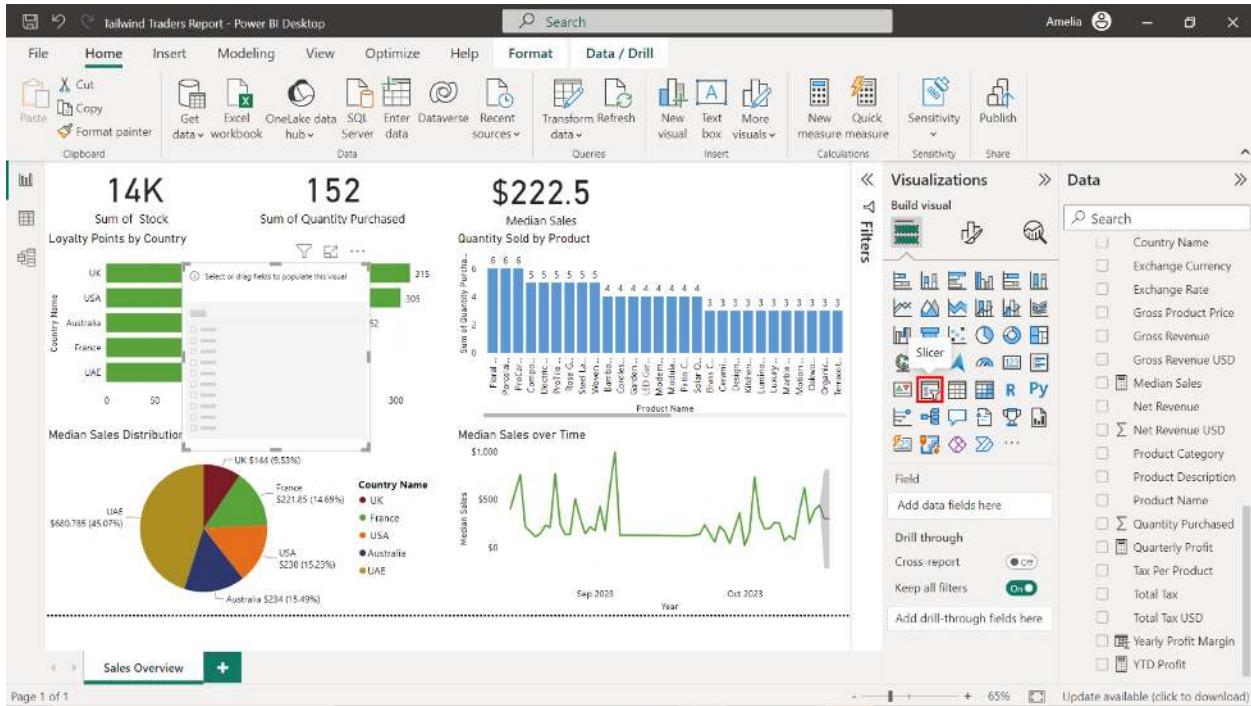
Repeat this process for the **Median Sales** card, placing it above the **Quantity Sold by Product** column chart.



Step 7: Add a slicer to the report

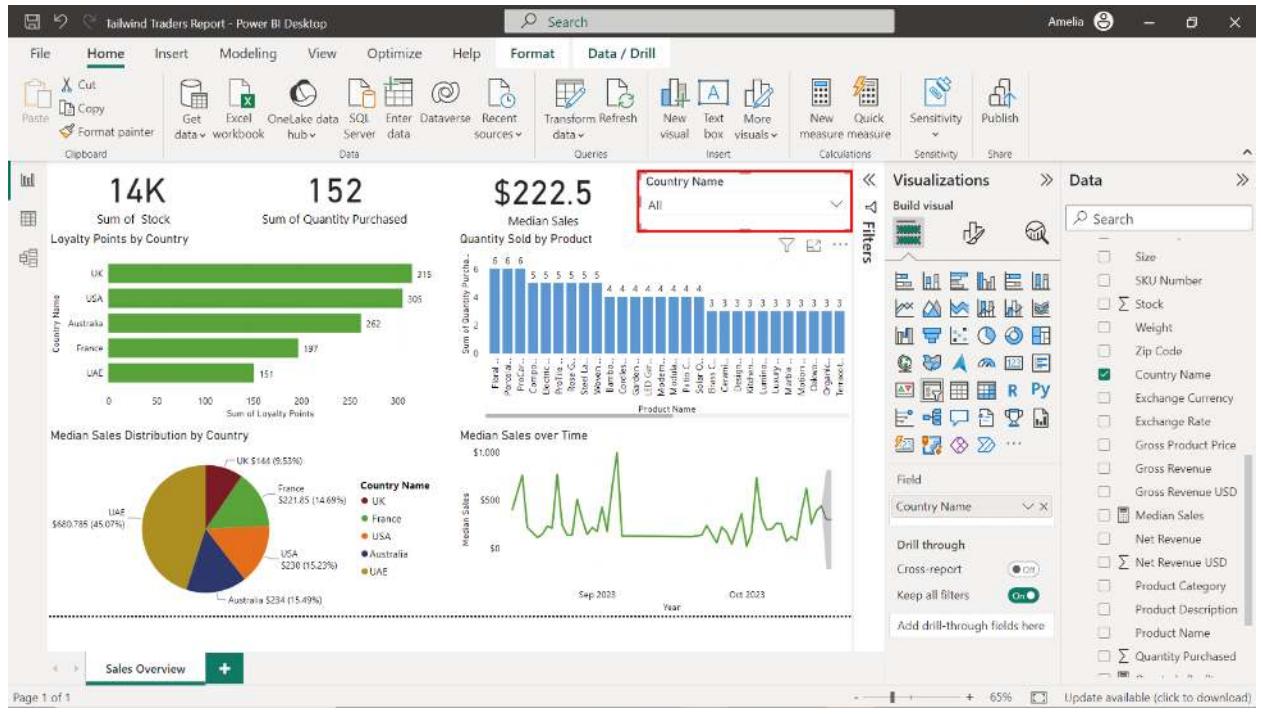
1. Create a slicer that displays the **Country Name** data from the **Sales in USD** table.

In the **Visualizations** pane, select the **Slicer** icon and drag the **Country Name** field from the **Sales in USD** table to the **Field** area.



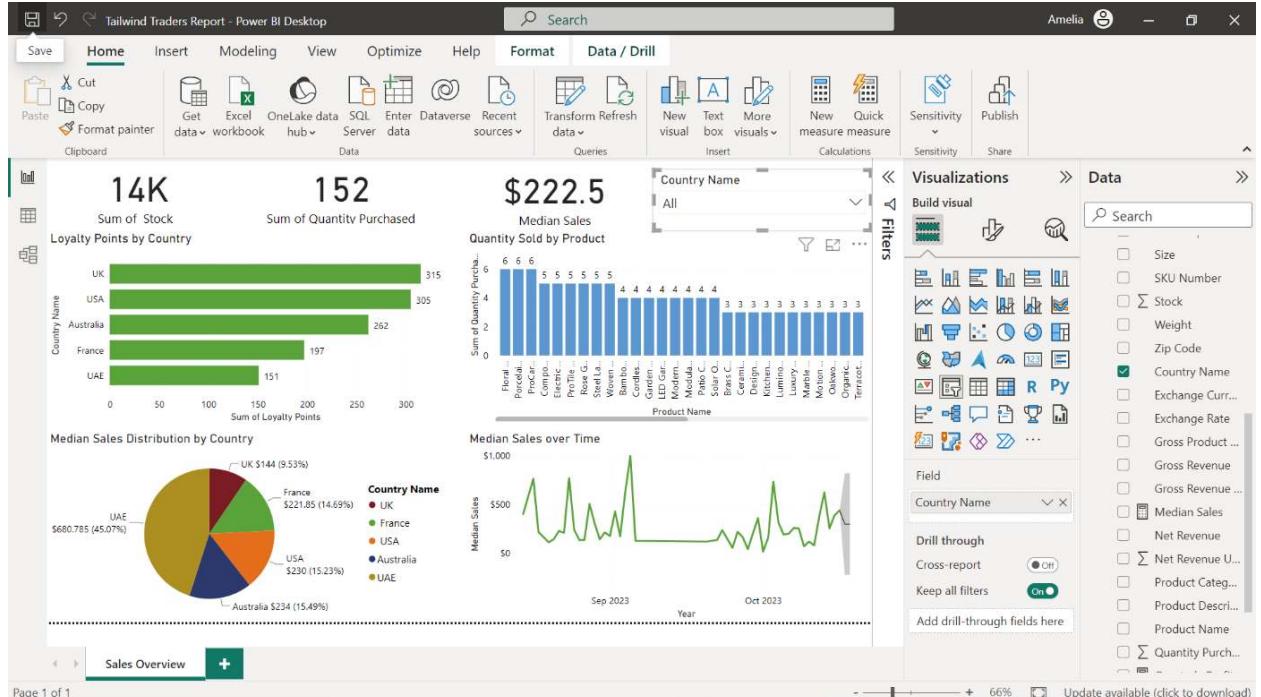
1. Position the slicer above the **Quantity Sold by Product** column chart.

Select the edges of the slicer to resize it. Place it above the **Quantity Sold by Product** column chart.



1. Save your report.

Select the **disk icon** on the top left of the window to save the report.

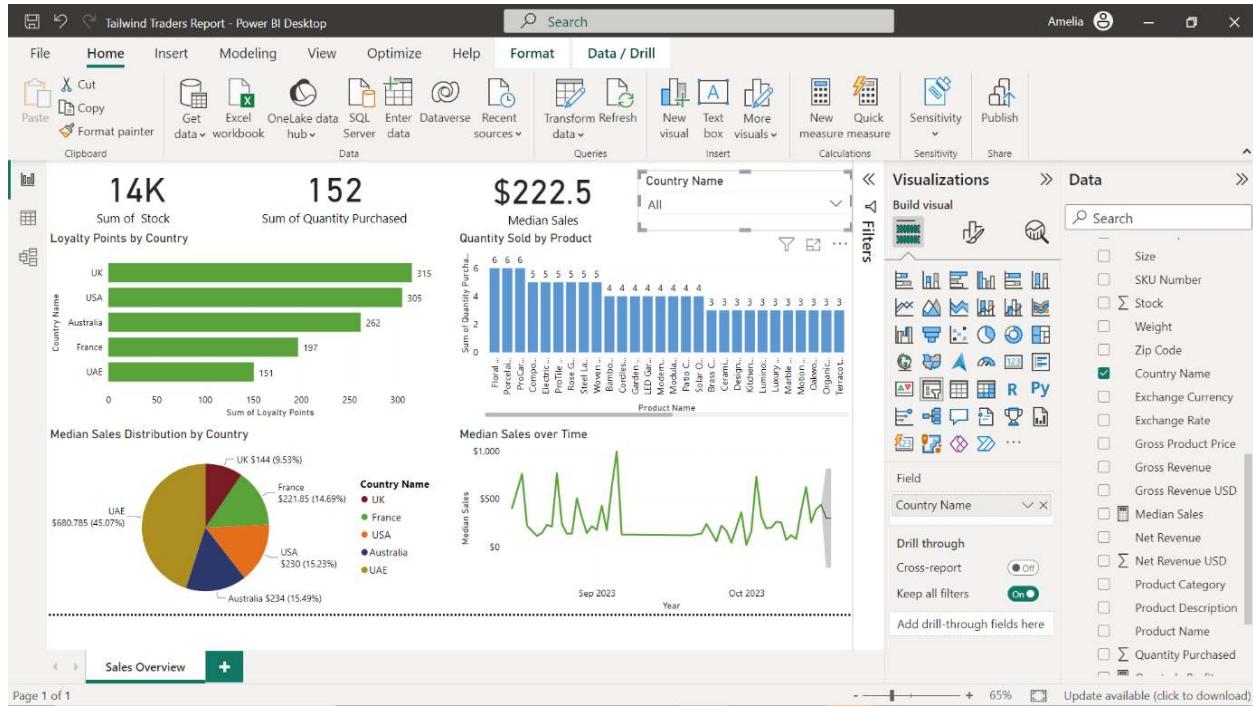


Exercise 3: Create a Profit report

Step 1: Create Profit Overview report

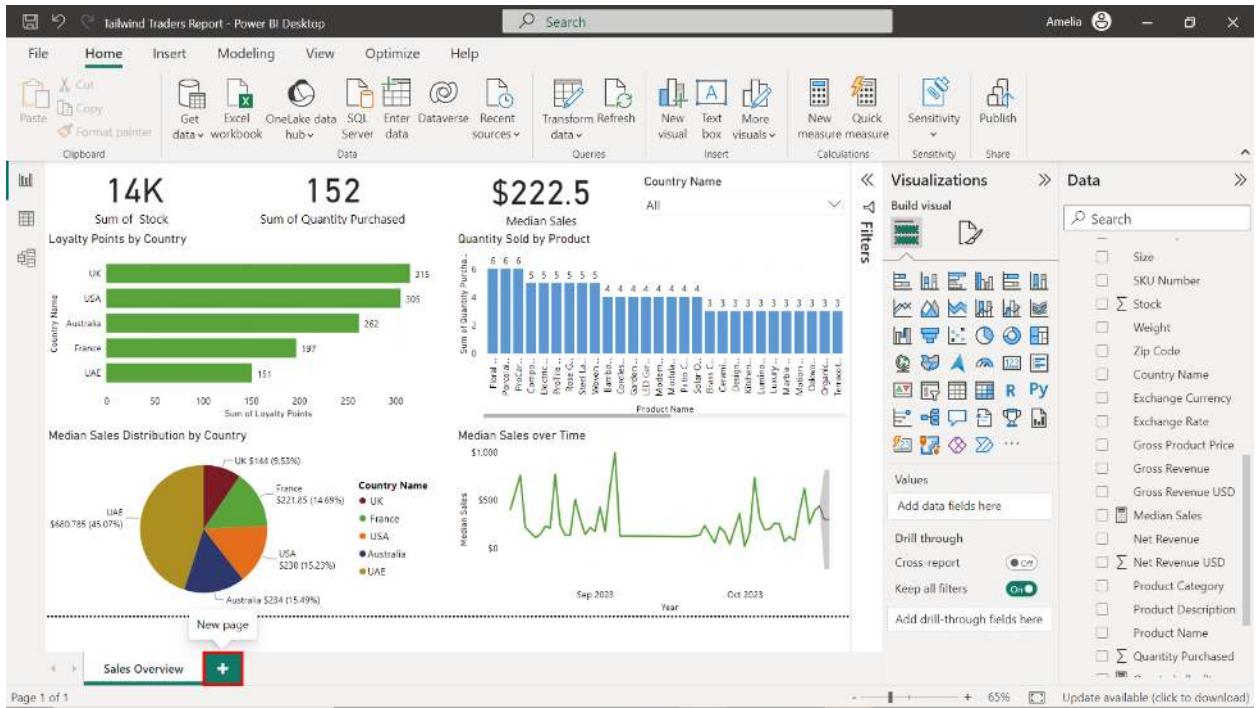
1. Open your **Sales Overview** report.

Open the **Sales Overview** report within Power BI.

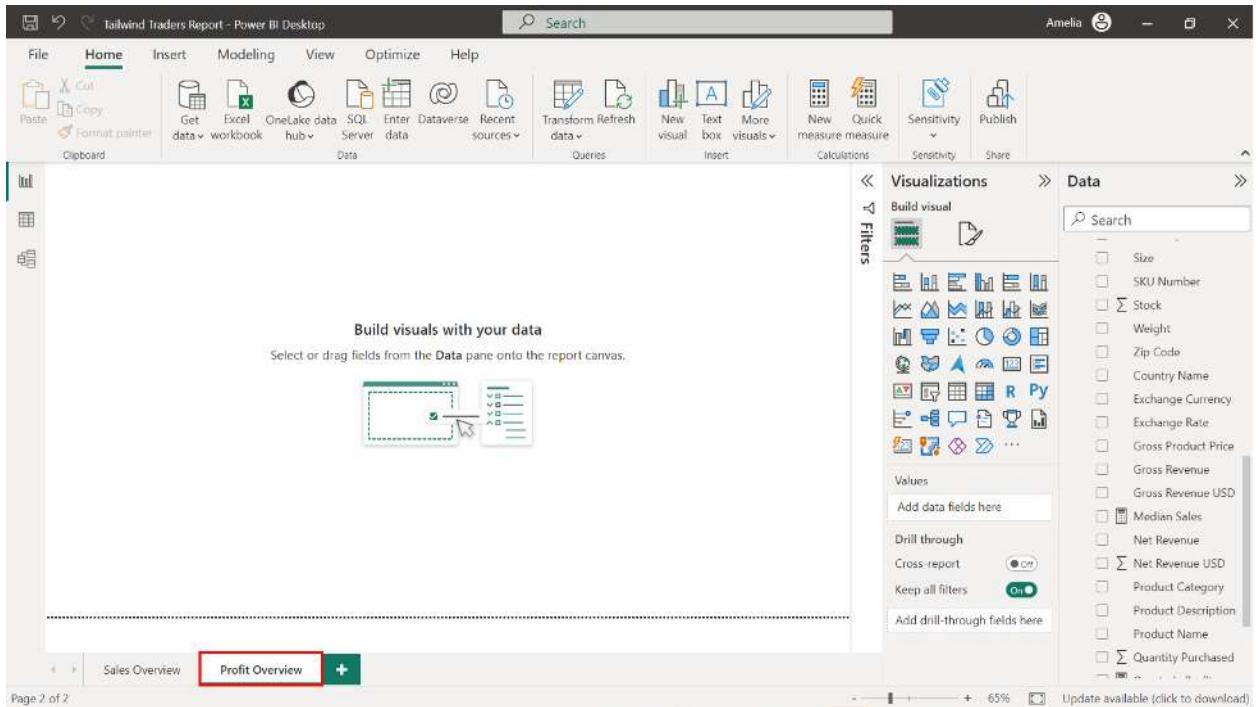


1. Create a new page in your existing **Sales Overview** report and name it **Profit Overview**.

To add a new page, select the **New Page** option.



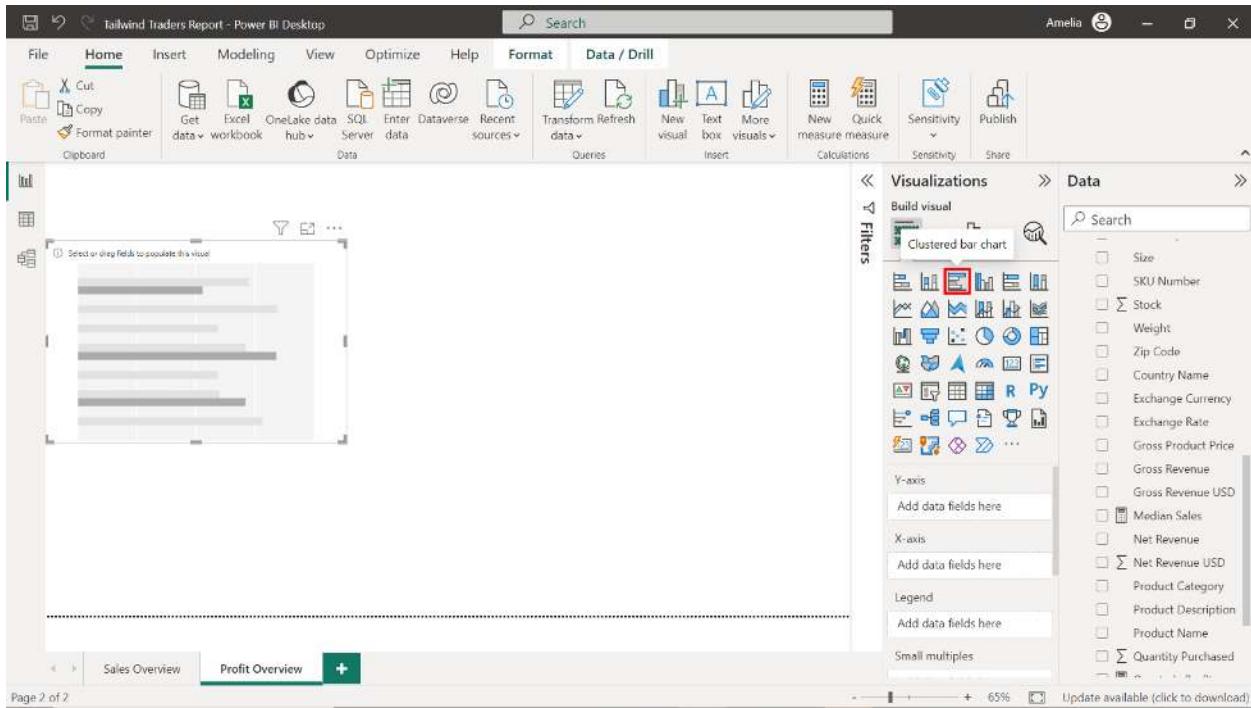
Right-click the new page, select the **Rename** option, and title the report **Profit Overview**.



Step 2: Create a bar chart for Net Revenue by Product

1. Create a clustered bar chart that visualizes **Net Revenue** using data from the **Product Sales in USD** table.

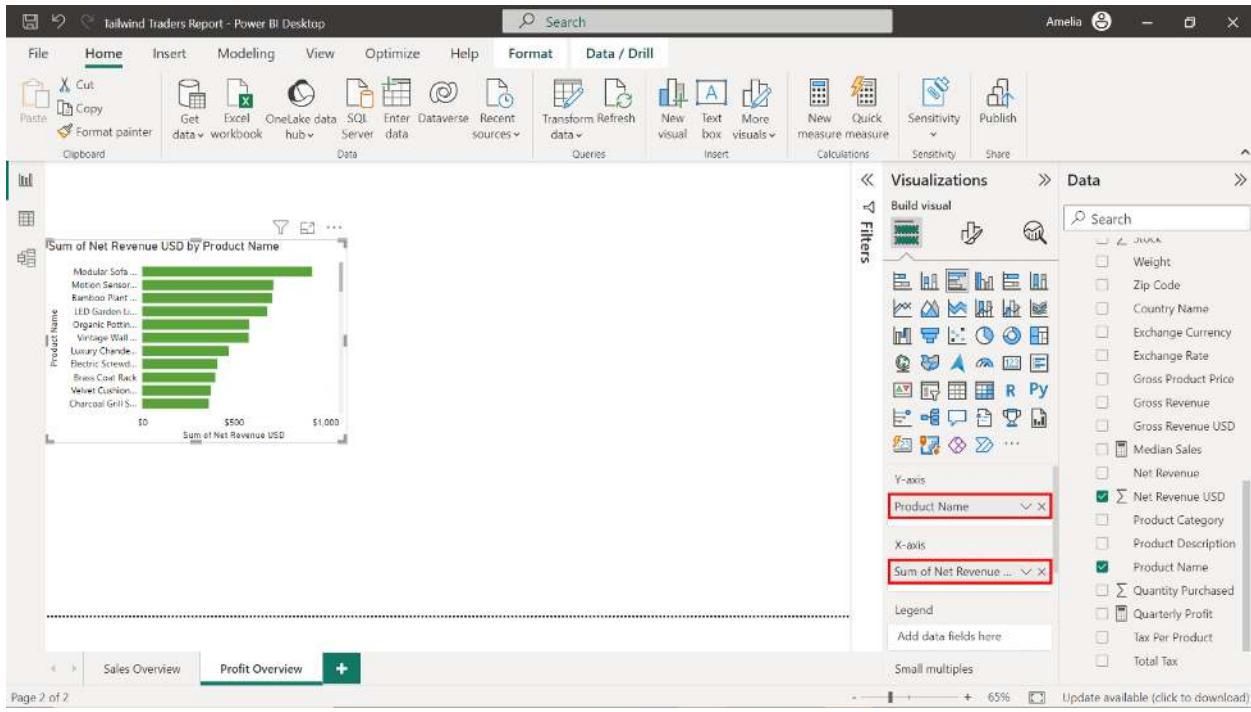
Locate the **Visualizations** pane on the right-hand side of your screen. Select the **Clustered bar chart** icon to create an empty bar chart visualization on the canvas.



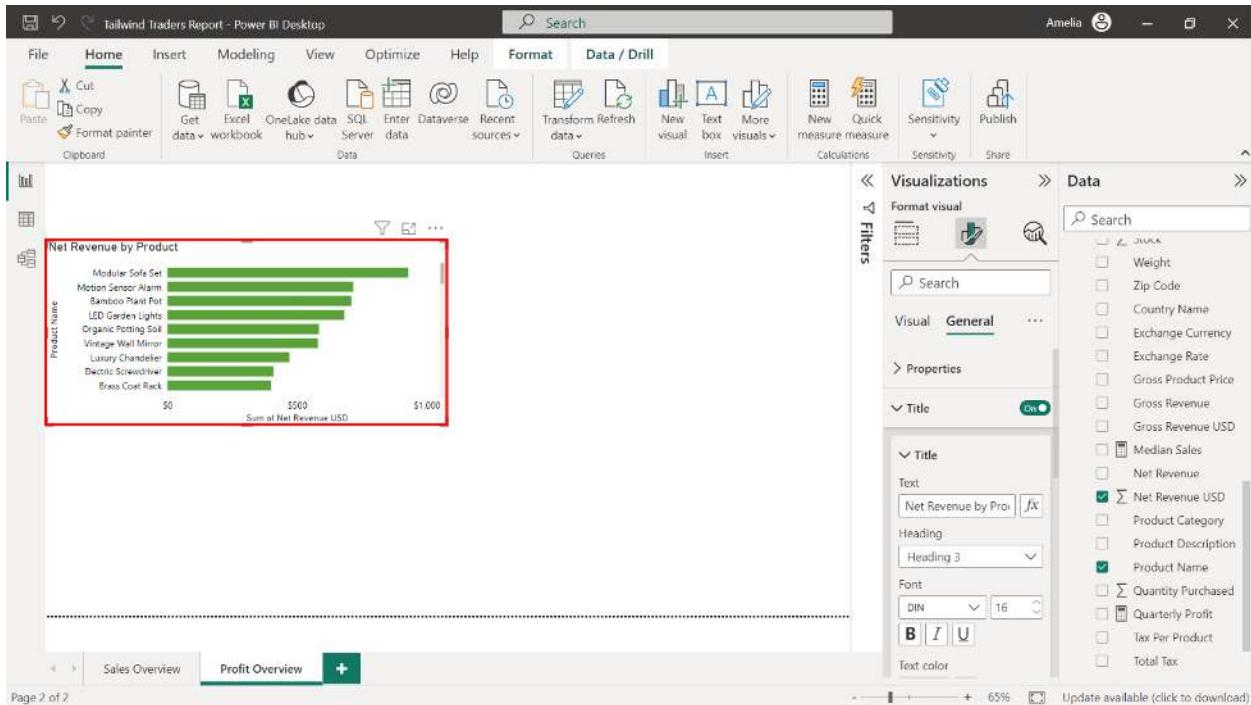
1. Configure the chart as follows:

- Display the **Product Name** on the Y-Axis.
- Display the **Net Revenue USD** on the X-Axis.
- Resize and position the chart to the left side of the canvas.
- Title the chart **Net Revenue by Product**.
- Toggle on the data labels.

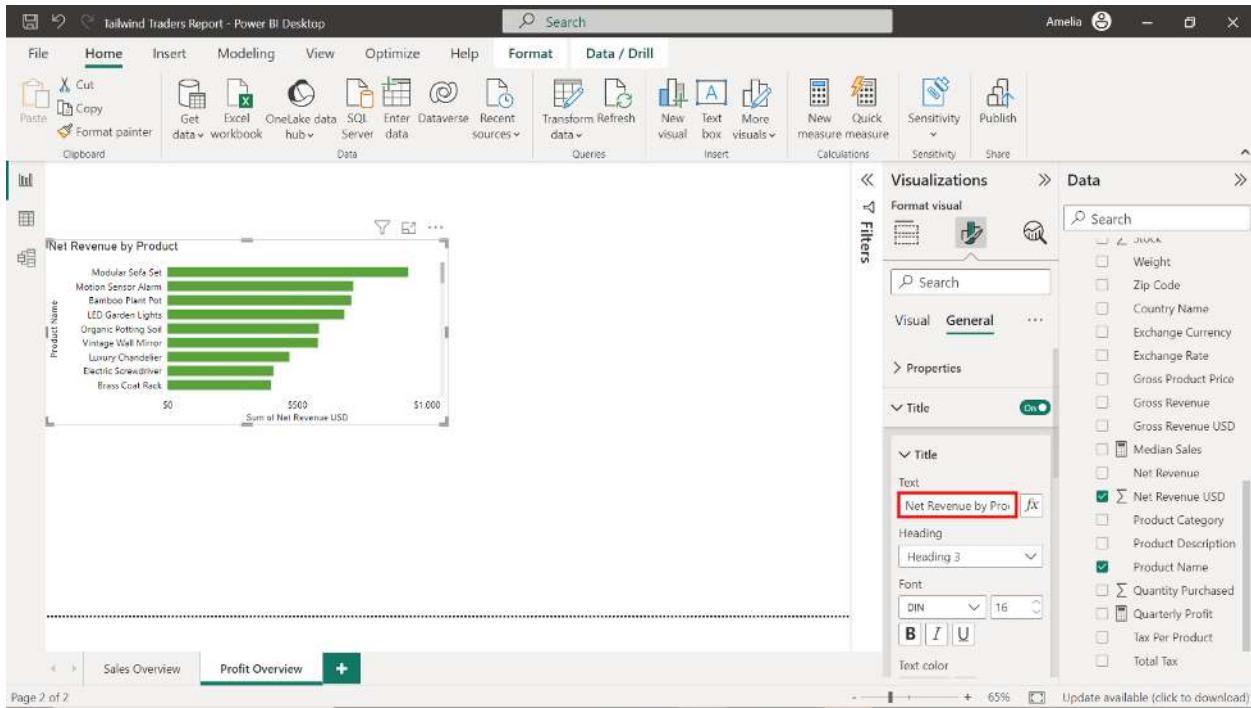
Locate the **Product Name** table on the right-hand side of the screen. Drag the **Product Name** field from the **Fields** pane to the **Y-Axis** well in the **Visualizations** pane. Next, drag the **Net Revenue USD** field from the **Fields** pane to the **X-Axis** well in the **Visualizations** pane.



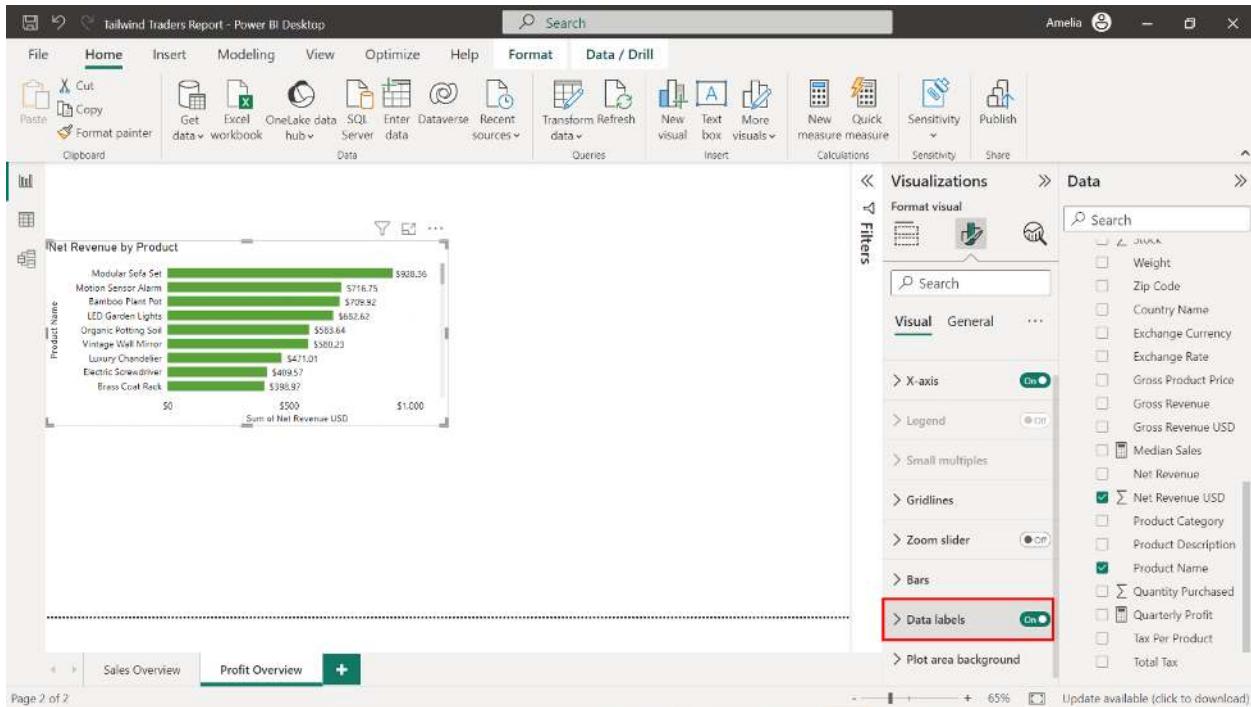
Select the edges of the visualization to resize it and place it on the left side of the canvas.



To format this visual, select the **Format** tab and title the chart **Net Revenue by Product**.

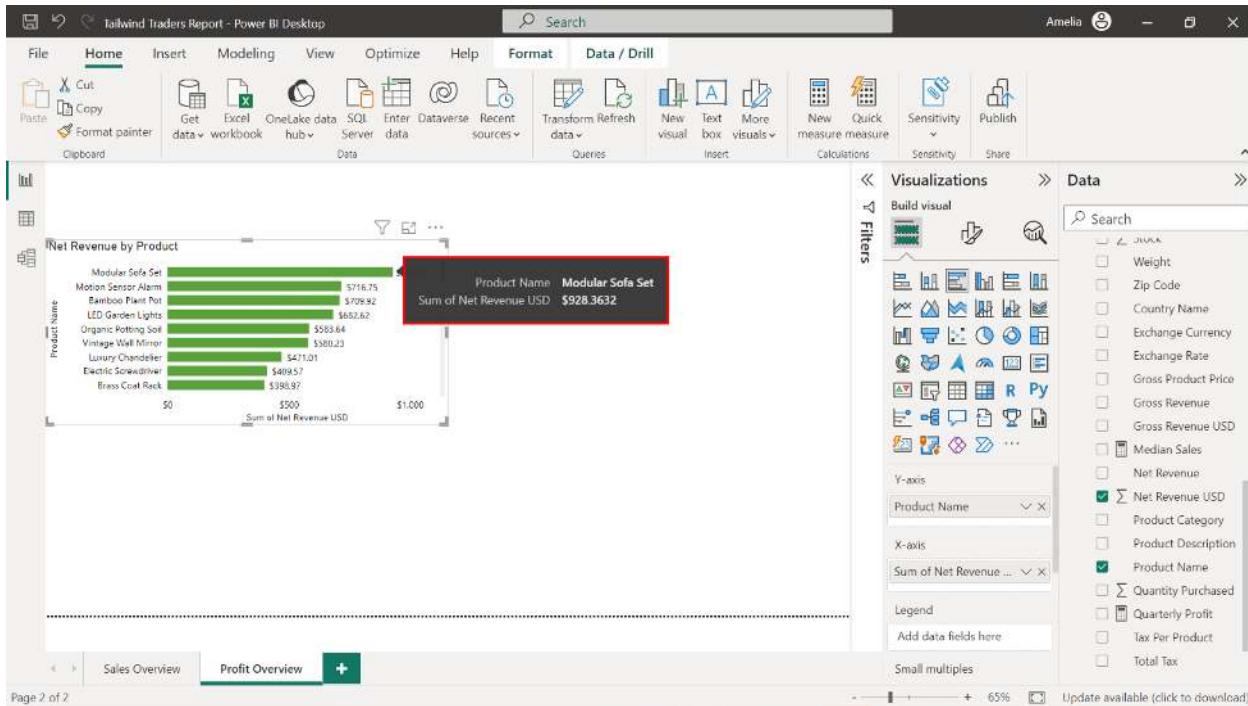


Select **Data labels** and toggle the switch **ON** to display the revenue on each bar.



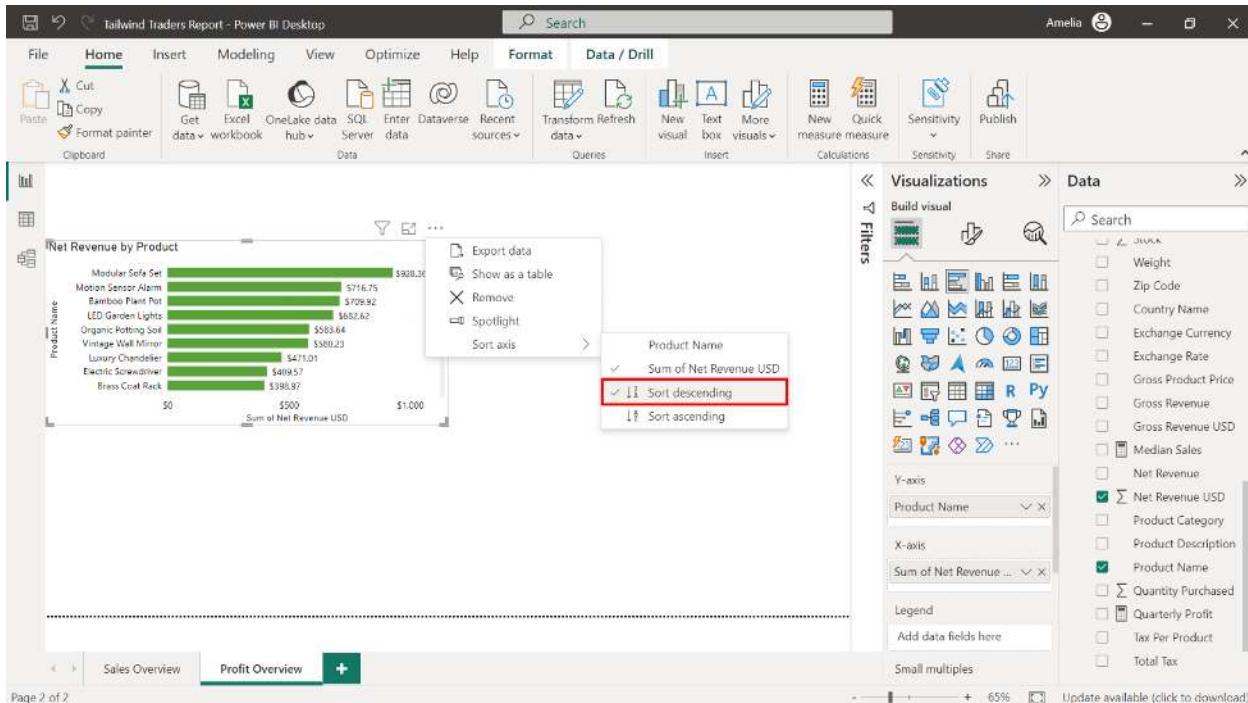
1. Note the product with the highest **Net Revenue** value.

Note the product with the highest **Net Revenue** value: the **Modular Sofa Set** at **928.36 USD**.



1. Sort the data in descending order.

Select the ellipsis from the top right corner of the chart. Select the **Sort Axis** dropdown, then select **Sort descending**.



Step 3: Create a donut chart for Yearly Profit Margin by Country

1. Create a donut chart that visualizes **Yearly Profit Margin by Country** using data from the **Product Sales in USD** table.

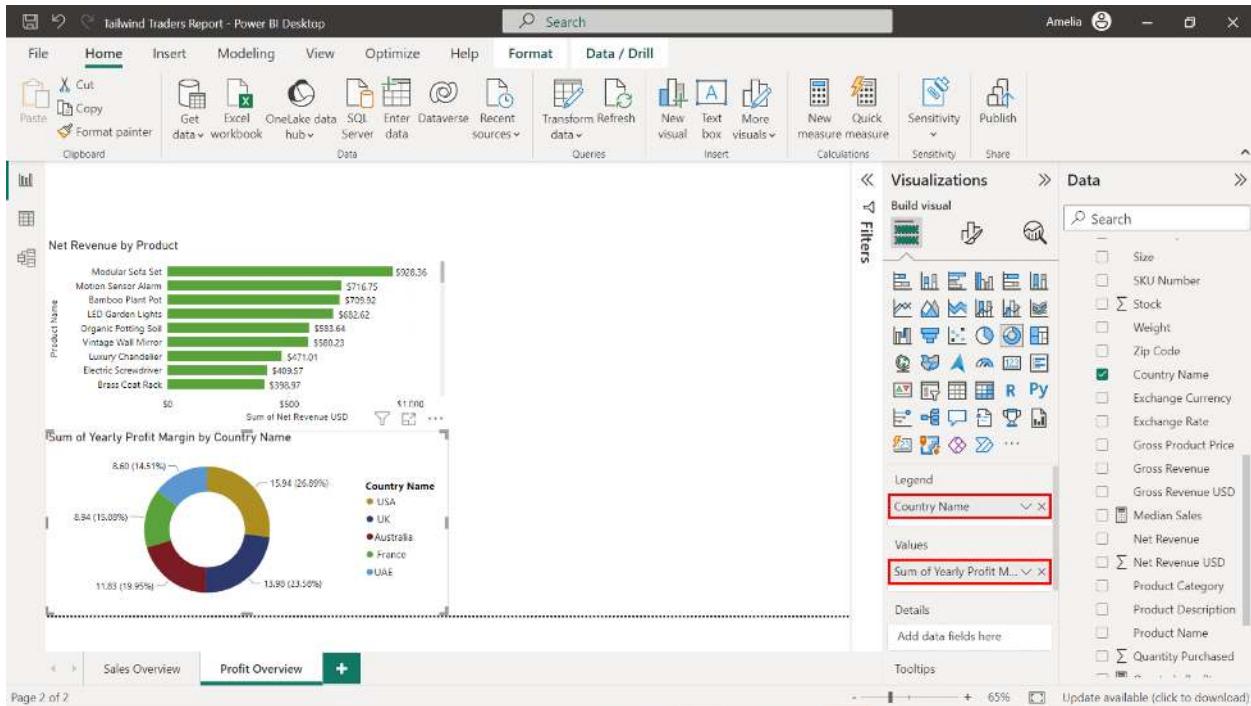
Select the **Donut chart** icon from the **Visualizations** pane to create an empty donut chart visualization on the canvas.

The screenshot shows the Power BI Desktop interface with the 'Home' tab selected. On the canvas, there is a horizontal bar chart titled 'Net Revenue by Product' and an empty donut chart placeholder. The Fields pane on the right shows various data fields like Product Name, Sum of Net Revenue USD, and Country Name. The Visualizations pane is open, showing the 'Donut chart' icon selected.

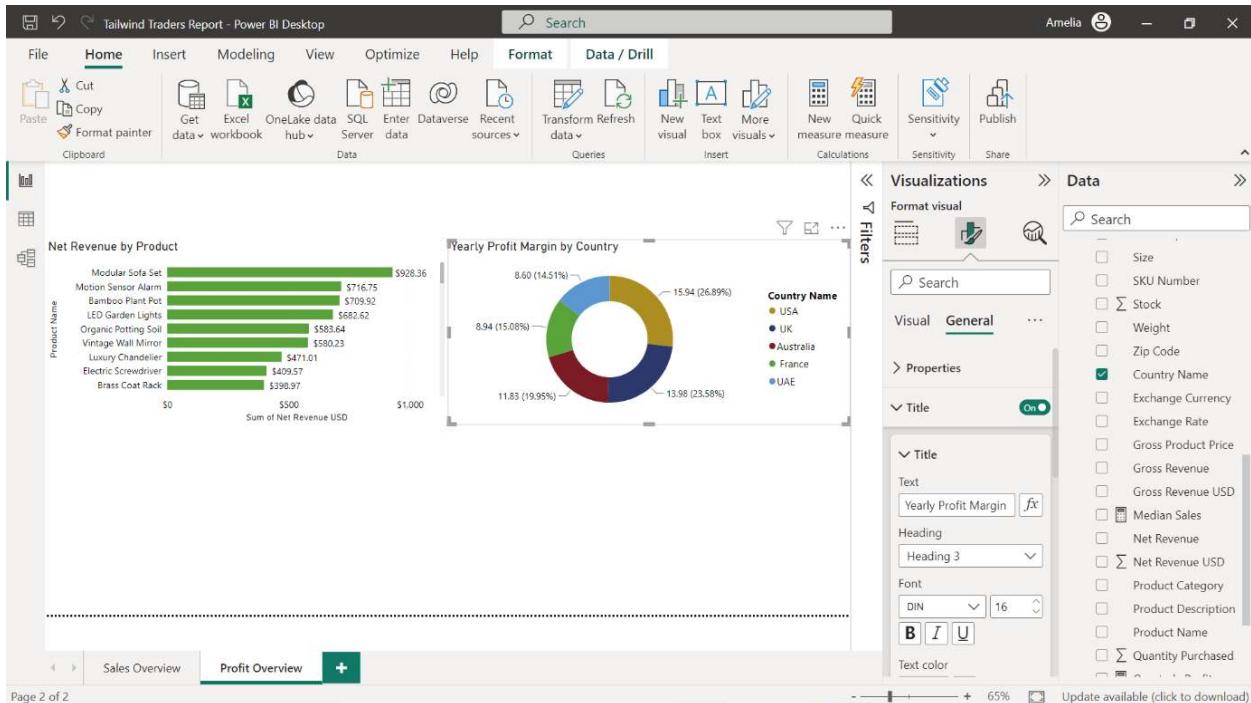
1. Configure the chart as follows:

- Display the **Country Name** in the **Legend** area.
- Display the **Yearly Profit Margin** in the **Values** area.
- Resize and position the chart to the right side of the canvas, next to the **Net Revenue by Product chart**.
- Title the chart **Yearly Profit Margin by Country**.
- Enable detailed labels for the **Percent of total** category.

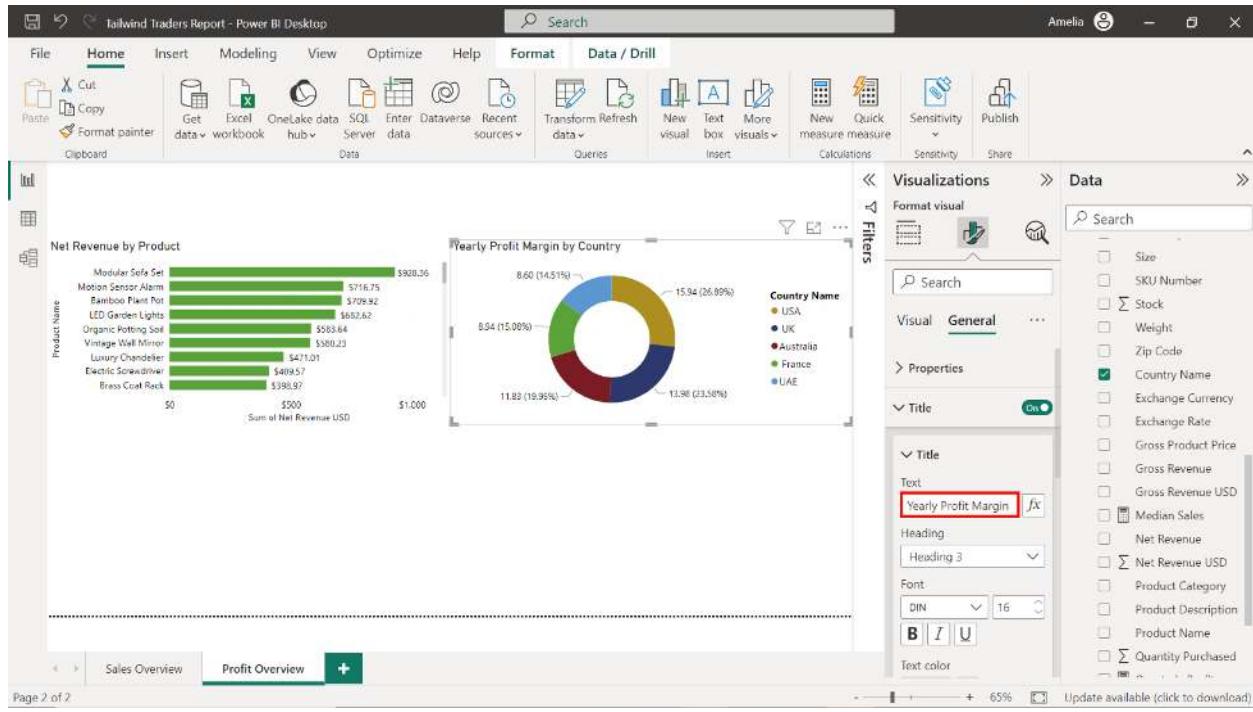
Locate the **Sales in USD** table on the right-hand side of the screen and drag the **Country Name** field from the **Fields** pane to the **Legend** well in the **Visualizations** pane. Next, drag the **Yearly Profit Margin** field from the **Fields** pane to the **Values** well in the **Visualizations** pane.



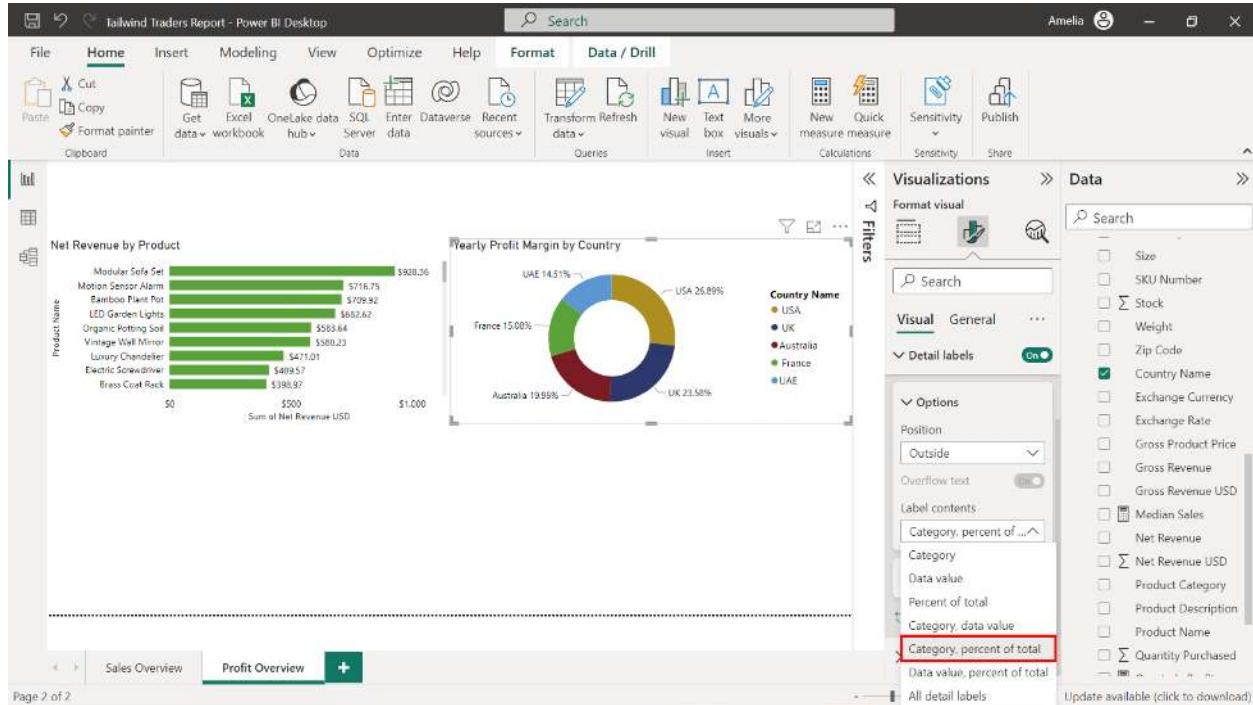
Select the edges of the visualization to resize it. Place it to the right of the **Net Revenue by Product** chart.



In the **Format** tab, title the chart **Yearly Profit Margin by Country**.



Select **Detailed labels**. Select **Category, percent of total** from the dropdown.



Step 4: Create an area chart for Yearly Profit Margin over Time

1. Create an area chart that visualizes **Yearly Profit Margin over Time**.

Select the **Area Chart** icon from the **Visualizations** pane to create an empty area chart visualization on the canvas.

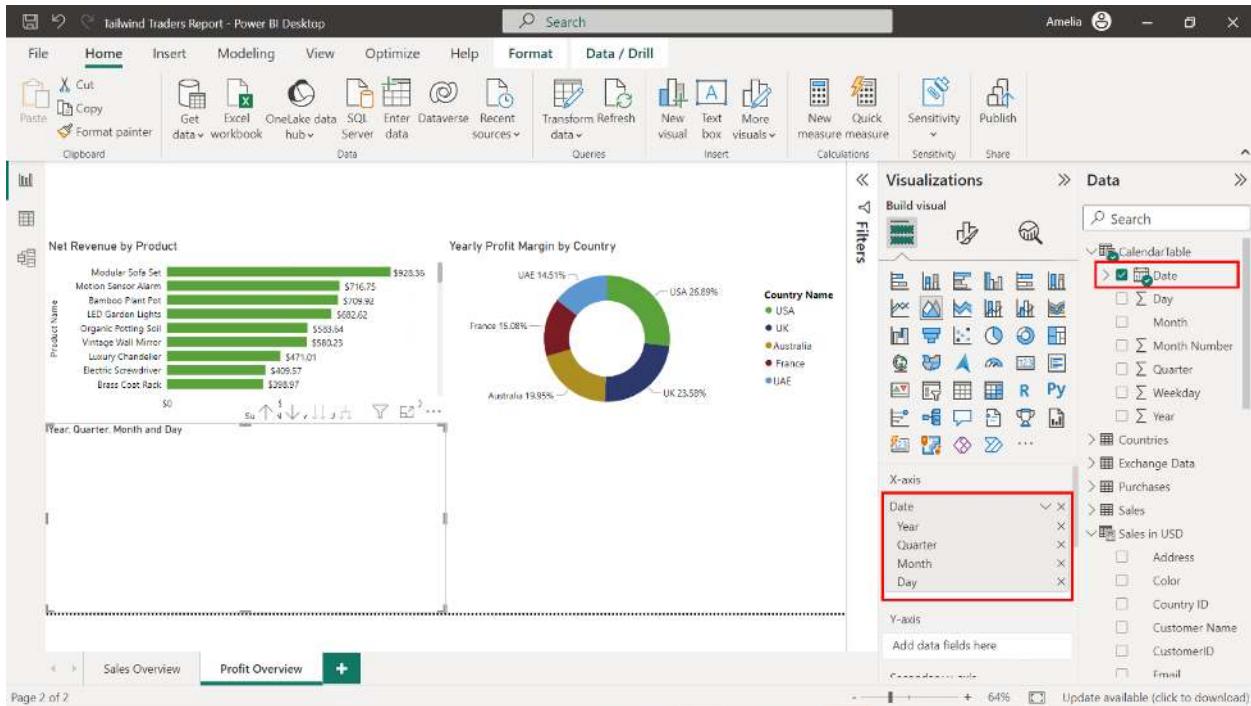
The screenshot shows the Power BI Desktop interface with the following details:

- Home tab selected:** The ribbon at the top has "Home" selected.
- Visualizations pane:** On the right, it shows the "Visualizations" pane with various chart icons. The "Area chart" icon is highlighted with a red box.
- Content area:** Contains three visualizations:
 - Net Revenue by Product:** A horizontal bar chart showing revenue for various products. The top product is "Modular Sofa Set" with \$928.36.
 - Yearly Profit Margin by Country:** A donut chart showing the profit margin distribution across countries. The largest segment is USA at 26.89%.
 - Empty Area Chart Placeholder:** An area chart with a light gray fill and a white border, currently empty.
- Bottom navigation:** Shows "Sales Overview" and "Profit Overview" tabs, with "Profit Overview" selected.

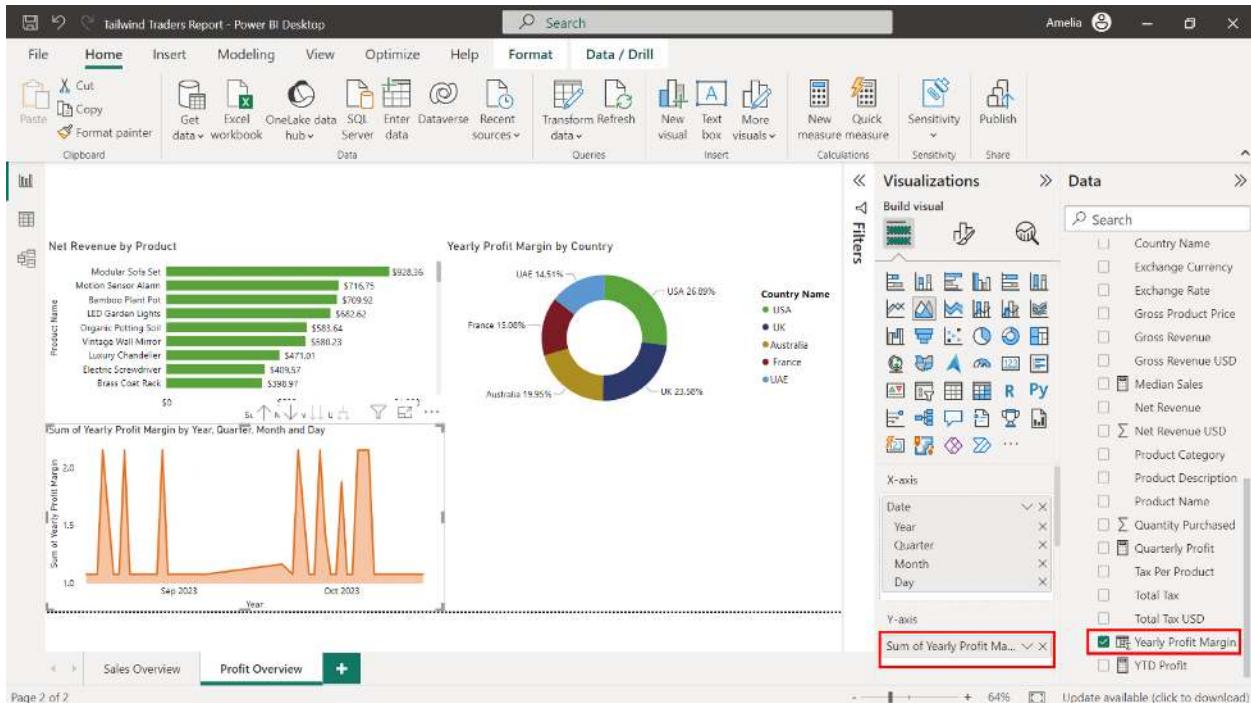
1. Configure the chart as follows:

- Display the **Date** on the Y-axis.
- Display the **Yearly Profit Margin** on the X-axis.
- Resize and position the chart below the **Net Revenue by Product** bar chart and **Yearly Profit Margin by Country** donut chart.
- Title the chart **Yearly Profit Margin over Time**.
- Toggle on the **data labels**.

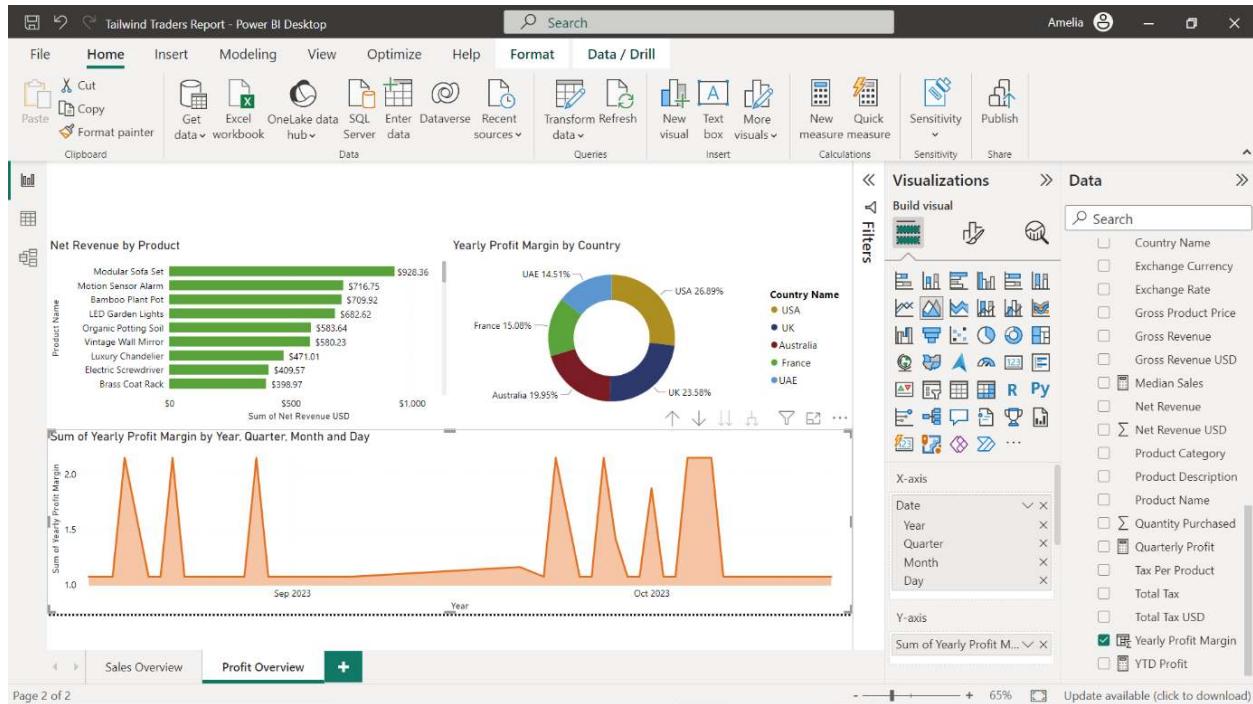
Locate the **CalendarTable** on the right-hand side of the screen. Drag the **Date** field from the **Fields** pane to the **X-axis** well in the **Visualizations** pane.



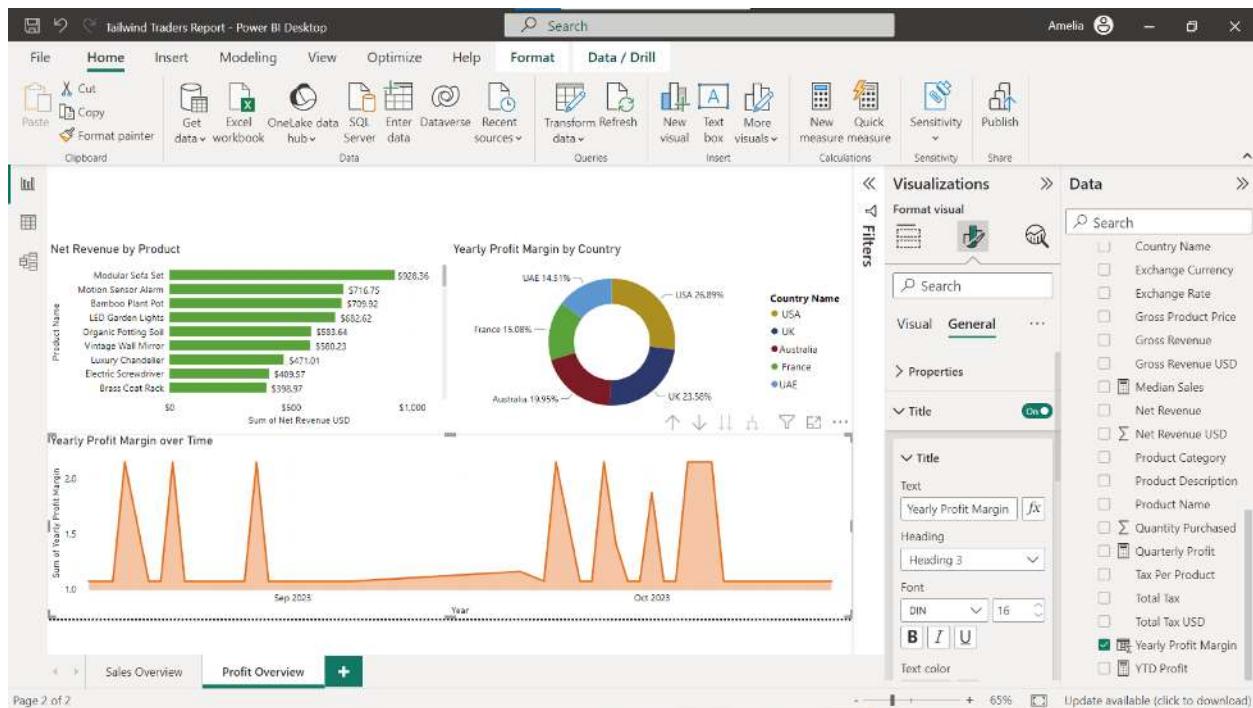
Locate the **Sales in USD** table and drag the **Yearly Profit Margin** field from the **Fields** pane to the **Y-axis** well in the **Visualizations** pane.



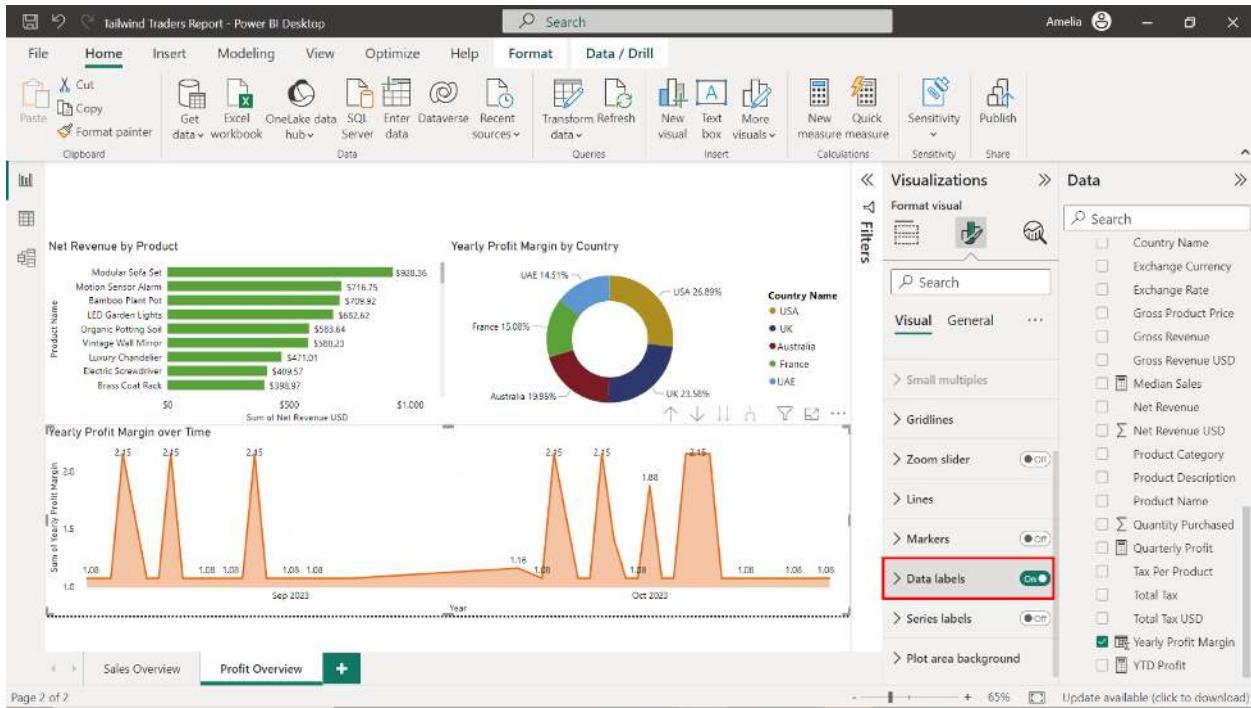
Select the edges of the visualization to resize it. Place it below the **Net Revenue by Product** bar chart and **Yearly Profit Margin by Country** donut chart.



Using the **Format** tab, title the chart **Yearly Profit Margin over Time**.



Select **Data labels** and toggle the switch **ON** to show the **Yearly Profit Margin** figures.



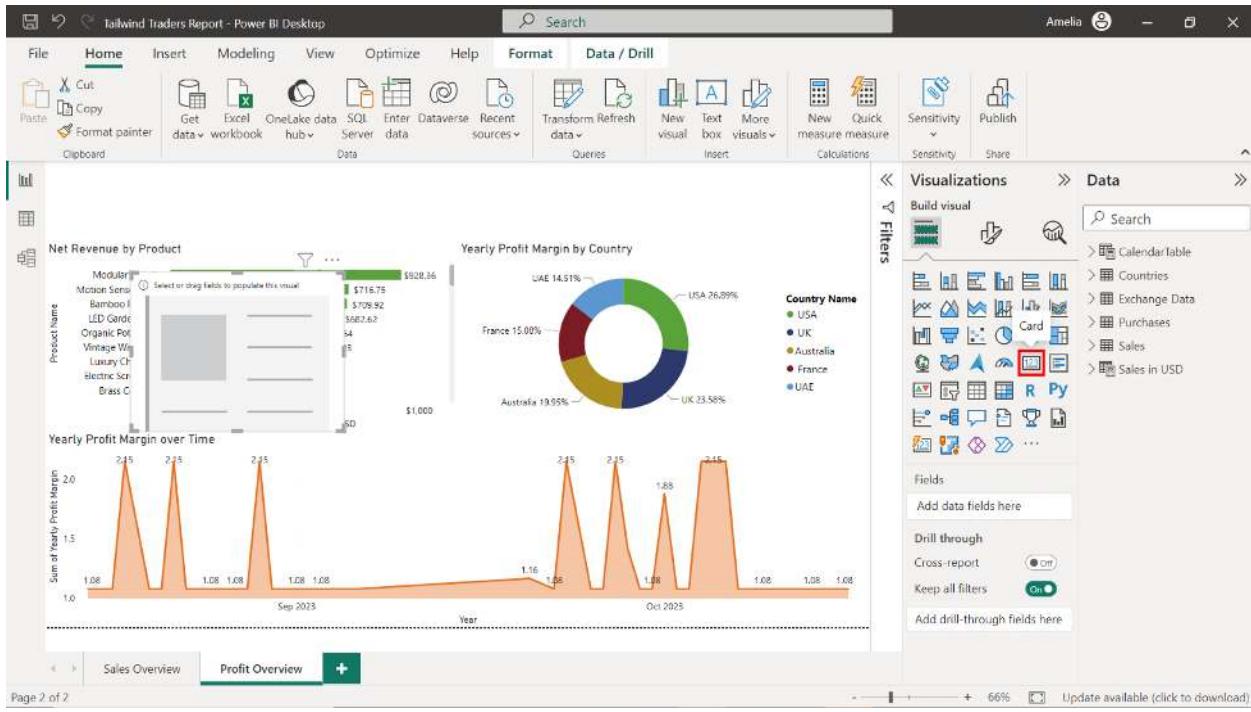
Step 5: Create cards to visualize your measures

1. Create cards that visualize the following measures:

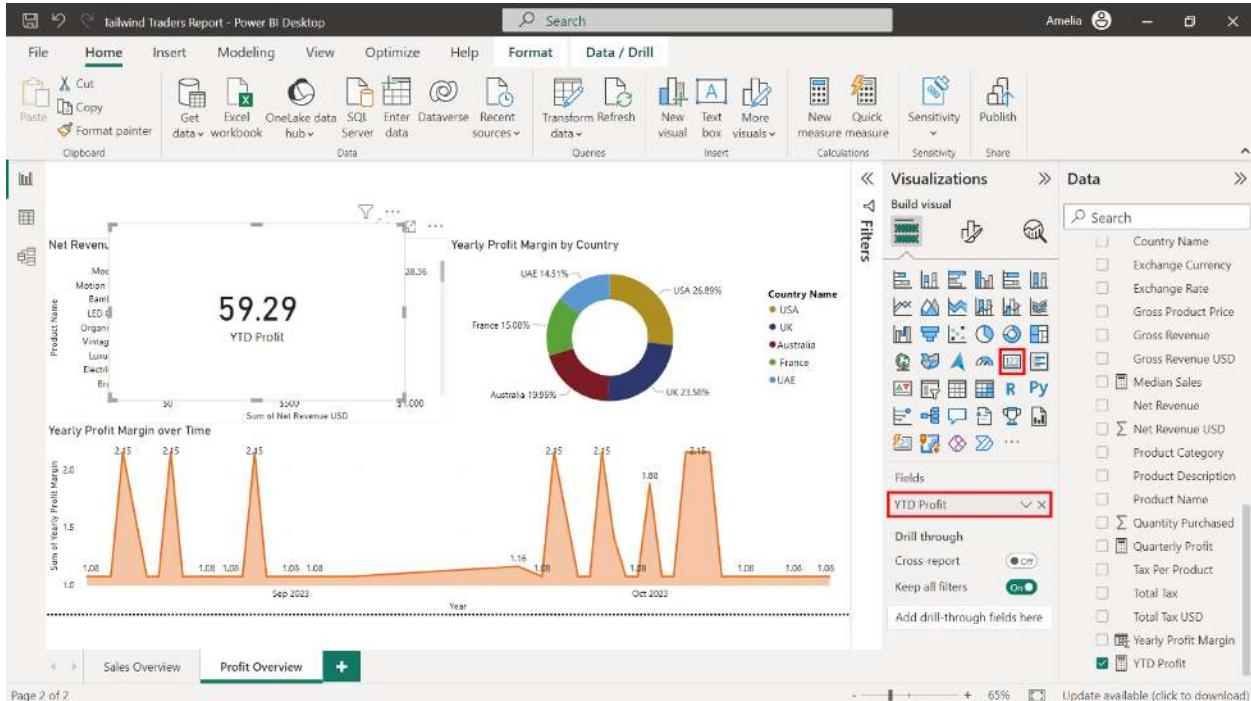
- **YTD Profit**
- **Net Revenue USD**

1. Position the cards above the **Net Revenue by Product** bar chart.

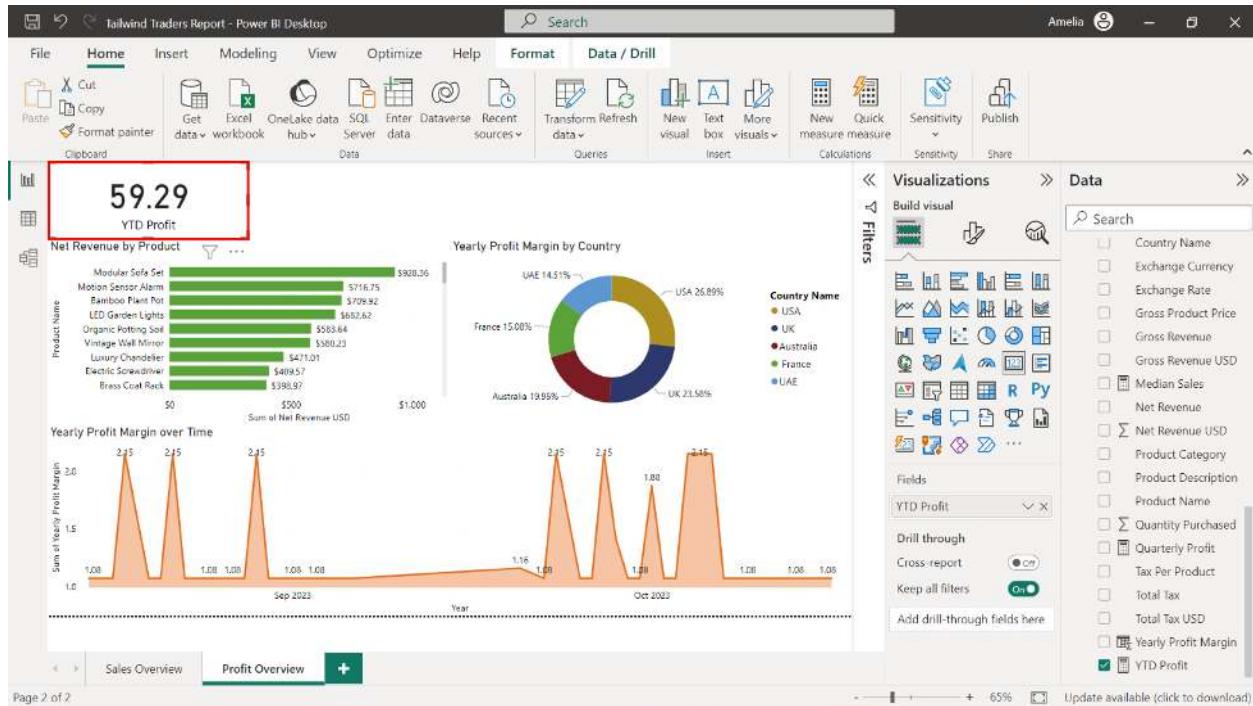
Select the **Card** icon in the **Visualizations** pane while ensuring nothing else is selected on the canvas. An empty card visual appears on the canvas.



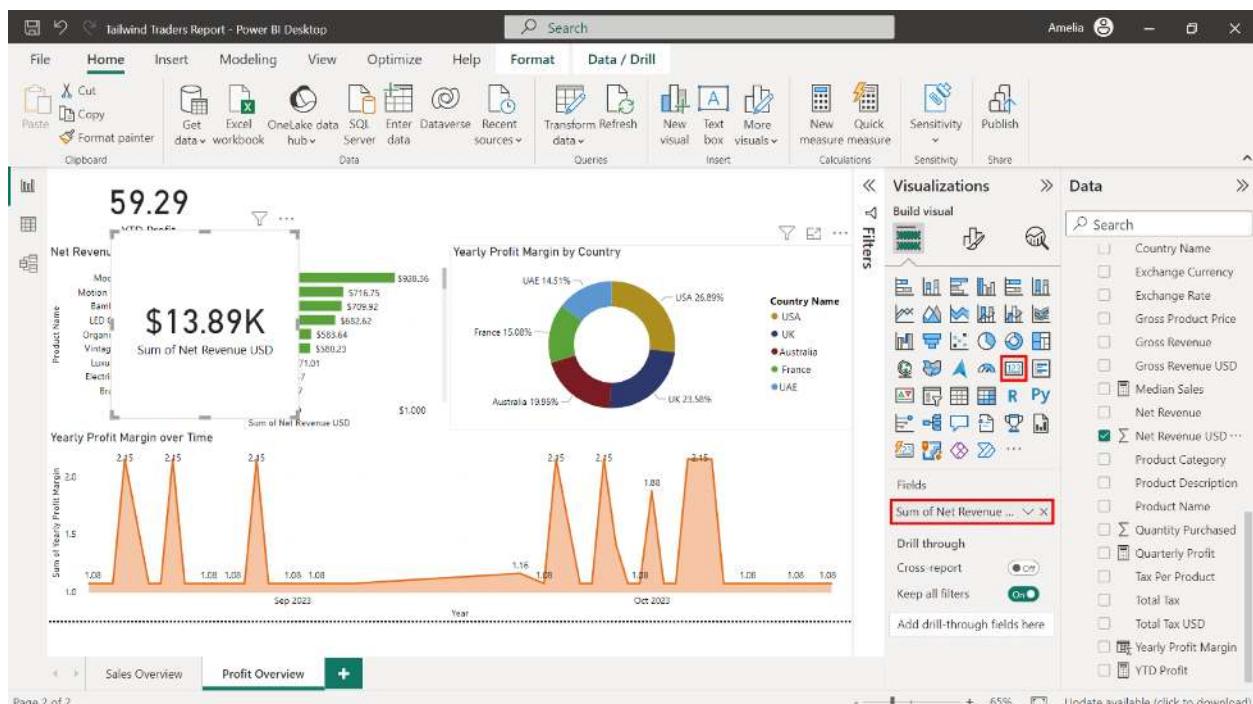
Locate the **Sales in USD** table and drag the **YTD Profit** field to the **Fields** well in the **Visualizations** pane.



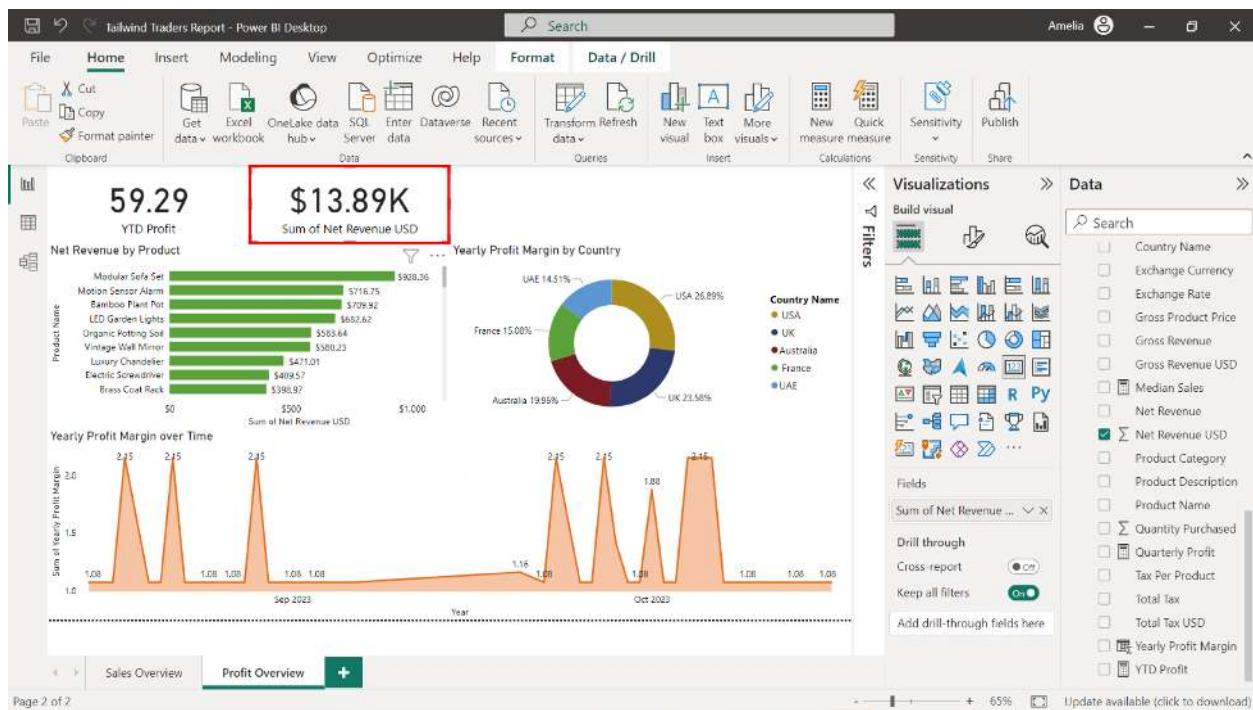
Select the edges of the card on your canvas to resize it. Place it above the **Net Revenue by Product** bar chart.



Select the **Card** icon in the **Visualizations** pane to create a second card visual for **Net Revenue USD**. Locate the **Sales in USD** table and drag the **Net Revenue USD** field to the **Fields** well in the **Visualizations** pane.



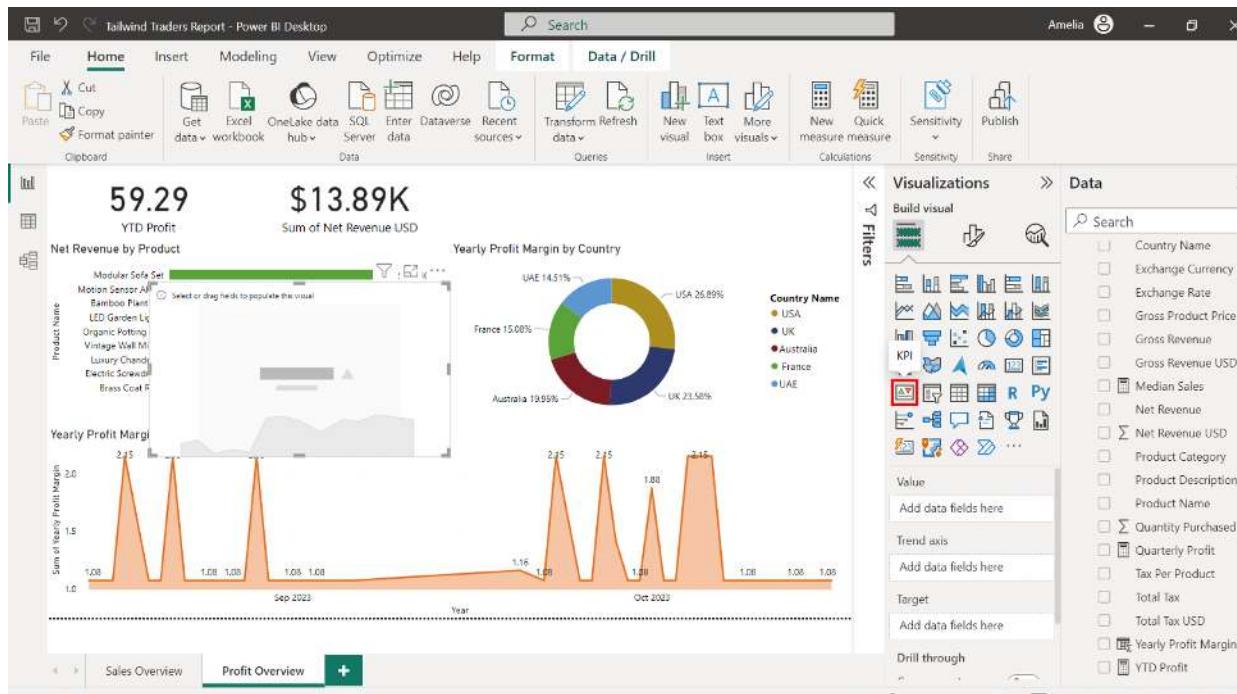
Select the edges of the card on your canvas to resize it. Place it above the **Net Revenue by Product** bar chart.



Step 6: Create a KPI for Gross Revenue USD

1. Create a KPI for Gross Revenue USD.

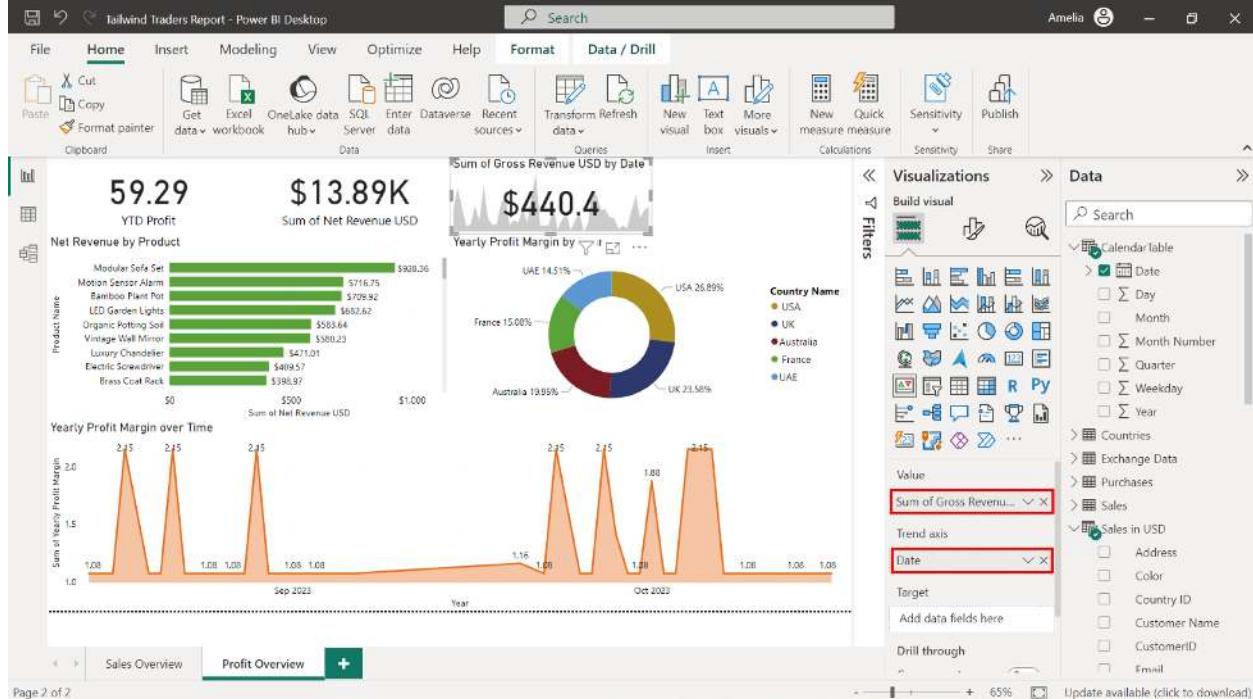
Select the **KPI** icon in the **Visualizations** pane, ensuring nothing else is selected on the canvas. An empty KPI visual appears on the canvas.



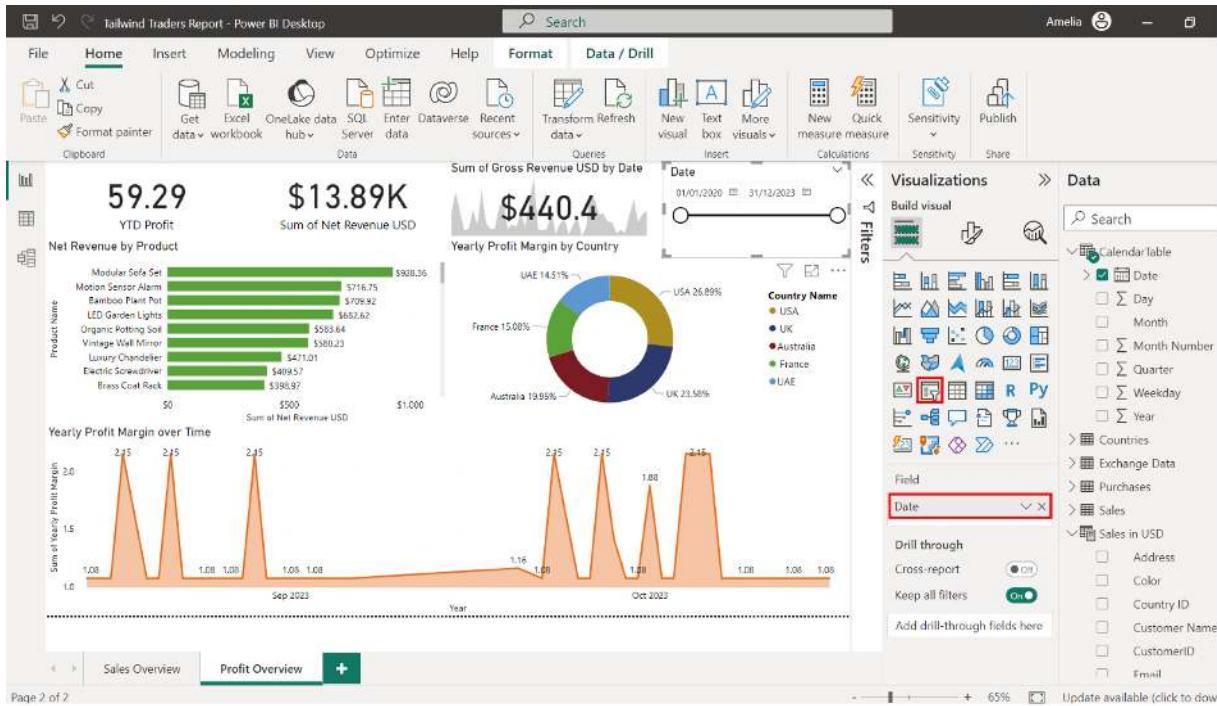
1. Configure the KPI as follows:

- Display the **Gross Revenue USD** in the value area
- Display the **Date** in the **Trend Axis** area.
- Resize and position the KPI next to the **Net Revenue USD** card.

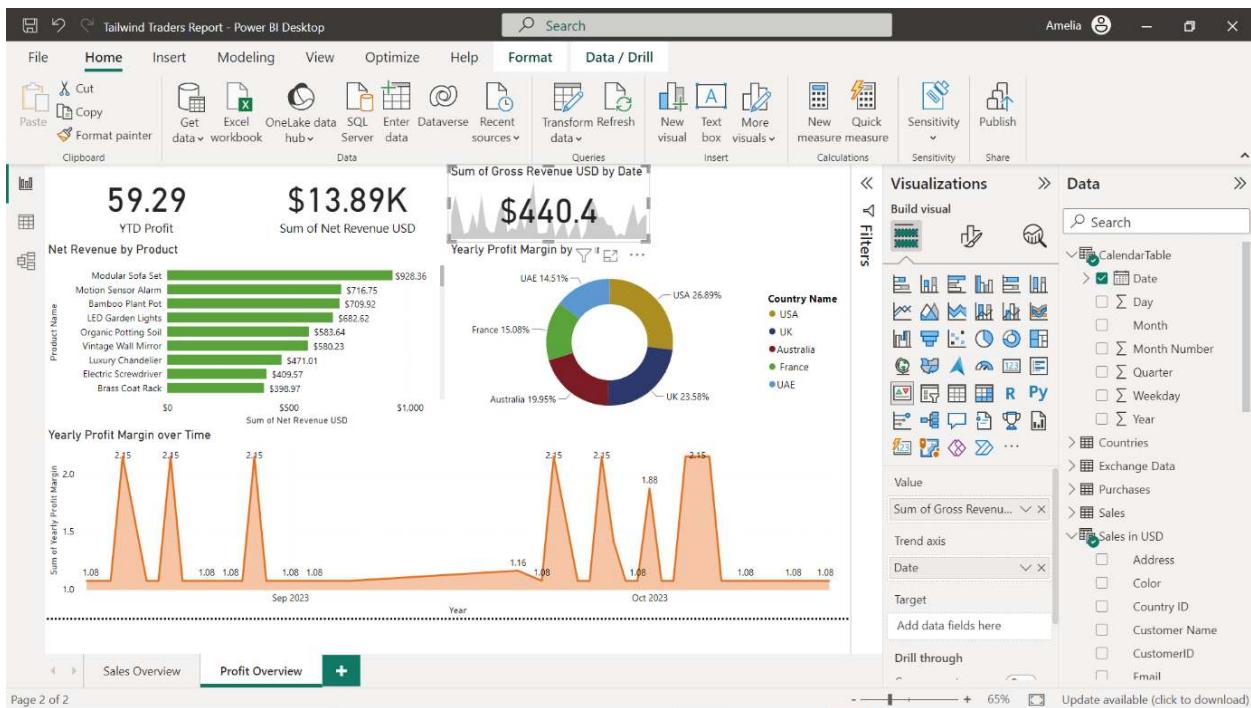
Locate the **Sales in USD** table and drag the **Gross Revenue USD** field to the **Value** well in the **Visualizations** pane.



Next, locate the **CalendarTable** and drag the **Date** field to the **Trend Axis** well.



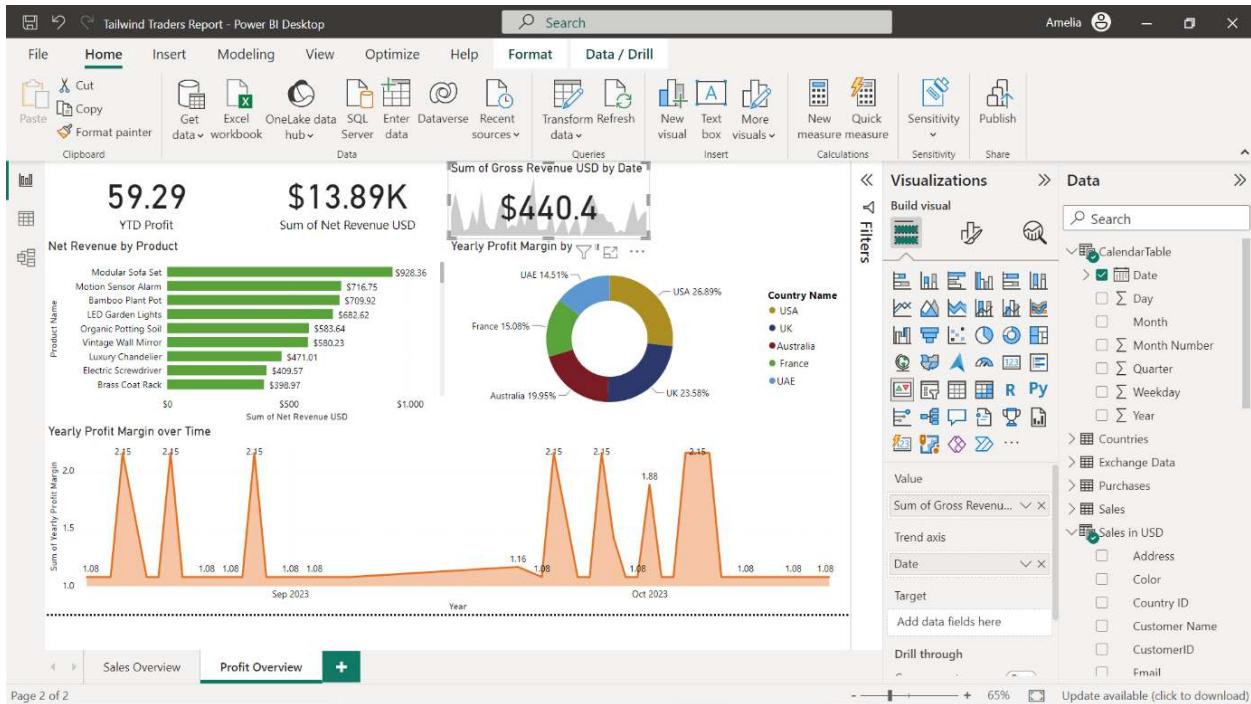
Select the edges of the canvas to resize it. Place it next to the **Net Revenue USD** card.



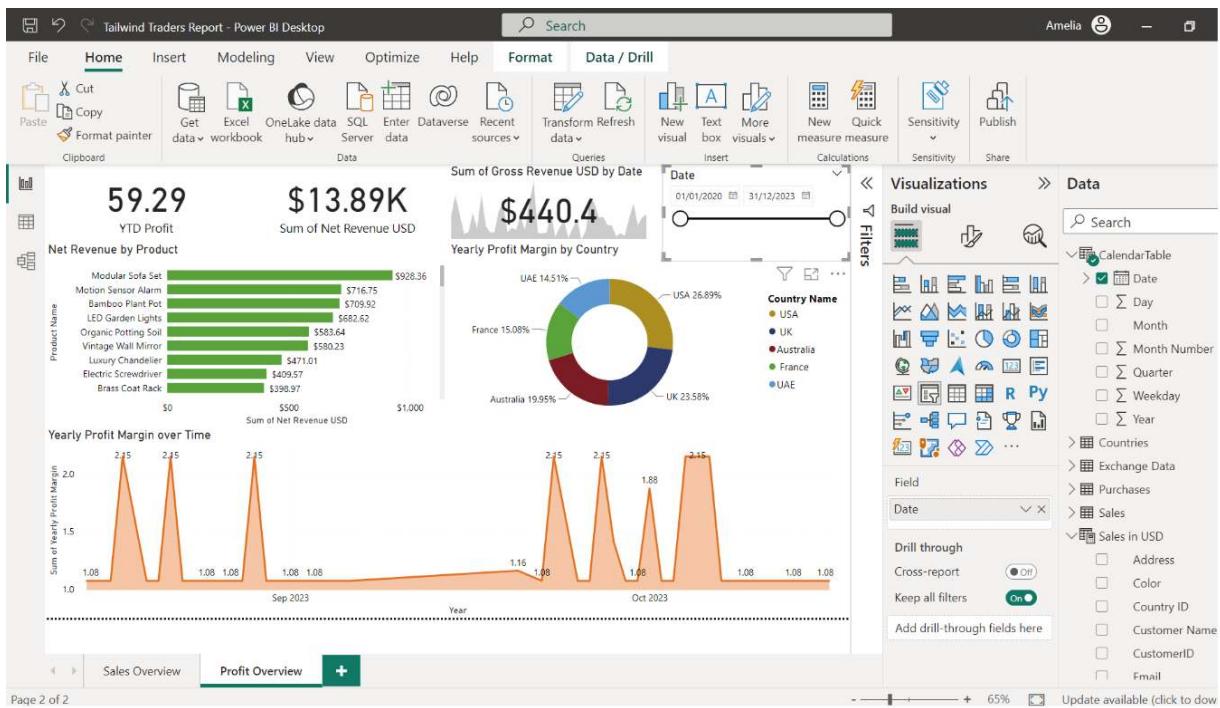
Step 7: Add a slicer to the report

1. Create a slicer that displays the **Date** data from the **CalendarTable** table.

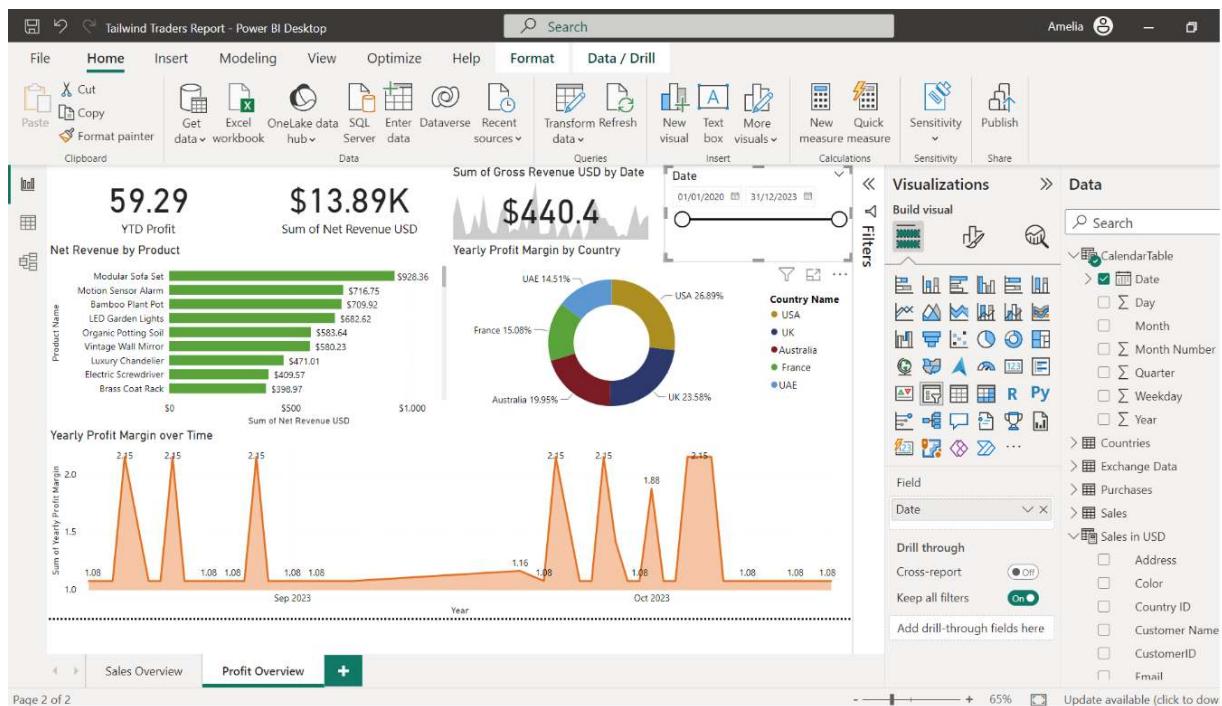
In the **Visualizations** pane, select the **Slicer** icon.



Drag the **Date** field from the **CalendarTable** to the **Field** area.

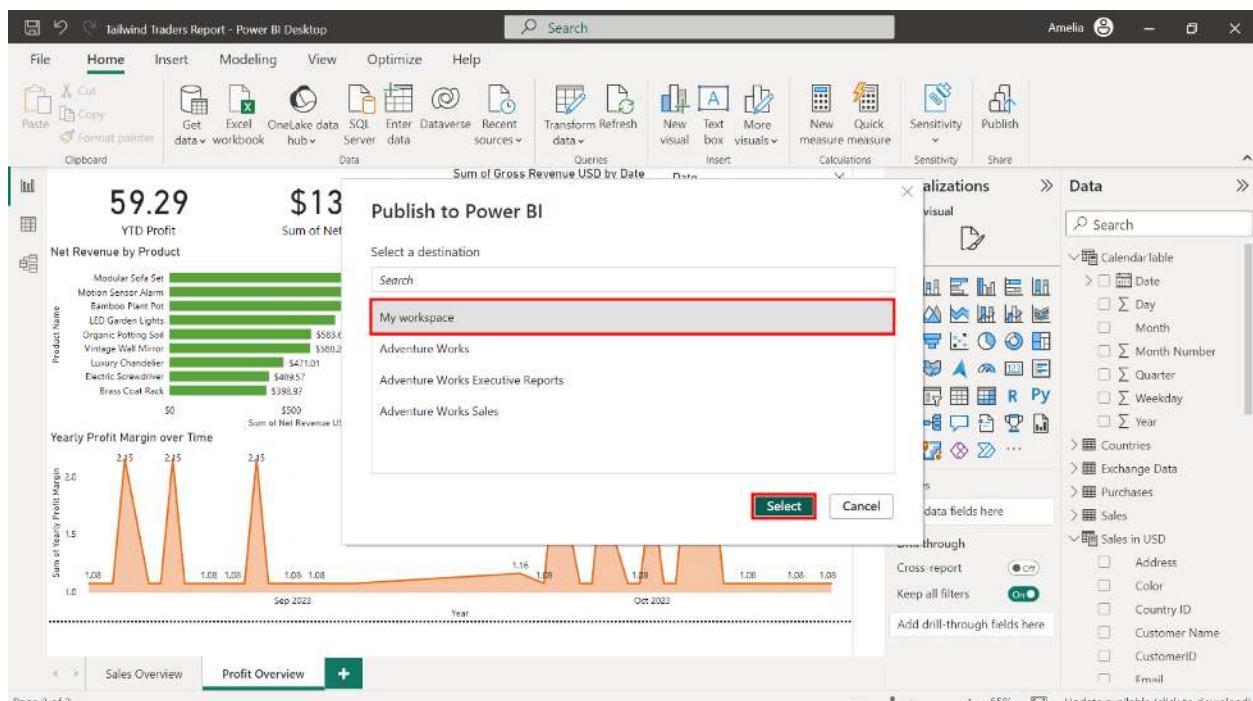


Select the edges of the Slicer to resize it. Place it next to the **Gross Revenue USD** KPI.



1. Save and publish your report.

Select **File** in the top-left corner of the Power BI Desktop interface, and then **Save** to save the report. In the dialog box, indicate where to save the report. Select **My Workspace** as your workspace and then the **Select** button.



Once the destination is selected, Power BI publishes the report. Depending on the size of the report and your internet connection, this process could take a few moments.

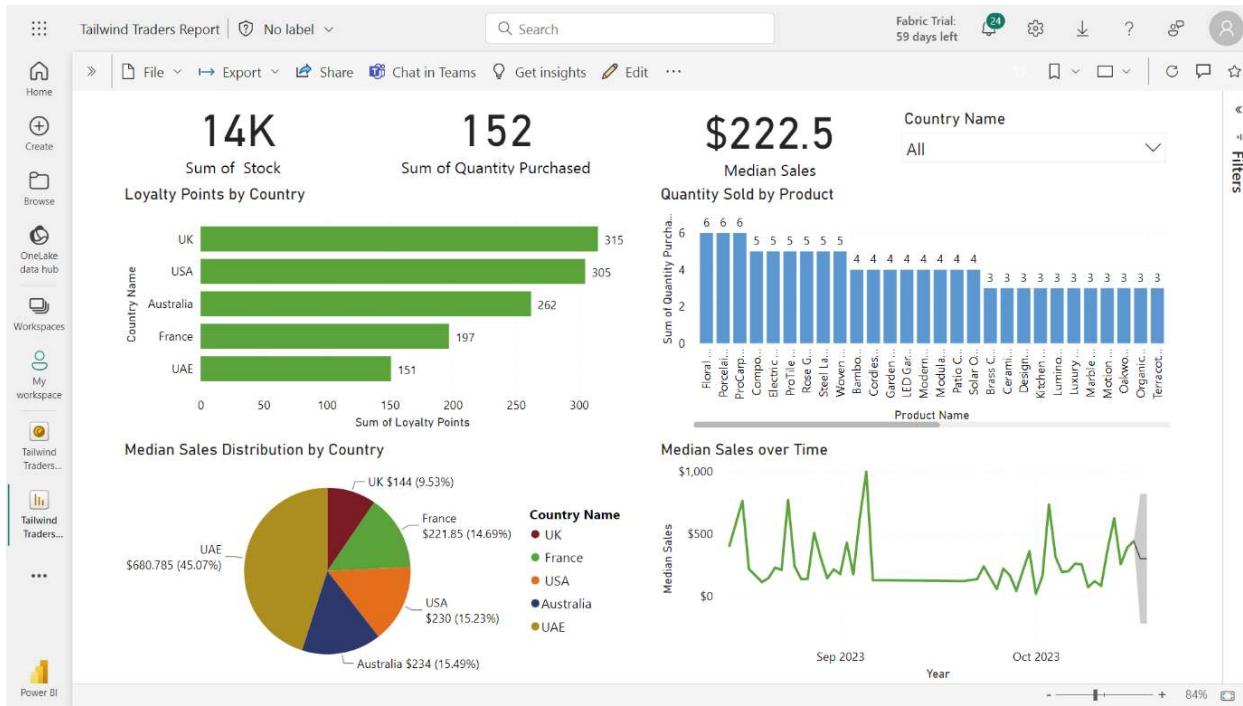
The screenshot shows the Power BI Desktop interface with a report titled "Tailwind Traders Report". The report contains two visualizations: a bar chart for "Net Revenue by Product" and a line chart for "Yearly Profit Margin over Time". A publishing dialog box is overlaid on the report, titled "Publishing to Power BI". The dialog message says "Publishing 'Tailwind Traders Report.pbix' to Power BI". At the bottom of the dialog are two buttons: "Cancel" and "Publish". The "Publish" button is highlighted with a red box.

Once the report is published, a new window appears to confirm successful publication. It provides two options:

- Open the report in Power BI Service
- Or Cancel and open it later.

The screenshot shows the Power BI Desktop interface after a successful publication. The publishing dialog box now displays a success message: "Success! Open 'Tailwind Traders Report.pbix' in Power BI". A green "Got It" button is visible at the bottom right of the dialog. The rest of the interface remains the same, showing the report's visualizations and the Power BI desktop ribbon.

In this case, select **Open** to launch the default web browser on your computer and view your report in Power BI service.



Conclusion

With these steps, you have successfully configured aggregations using DAX, and generated insights from the data you used to create sales and profit reports.

Exemplar: Capstone project - Part 3 Overview

In the third and final set of Capstone project exercises, you helped Tailwind Traders create a dashboard in which you could upload the reports you generated and configure the dashboard, so it notified the company in the form of alerts and subscriptions.

In this final set, you undertook the fifth and sixth exercises in the Capstone project:

- Create an executive dashboard.
- And configuring alerts and subscriptions.

This reading provides you with a step-by-step guide for completing these tasks. It also includes screenshots that you can compare against your work.

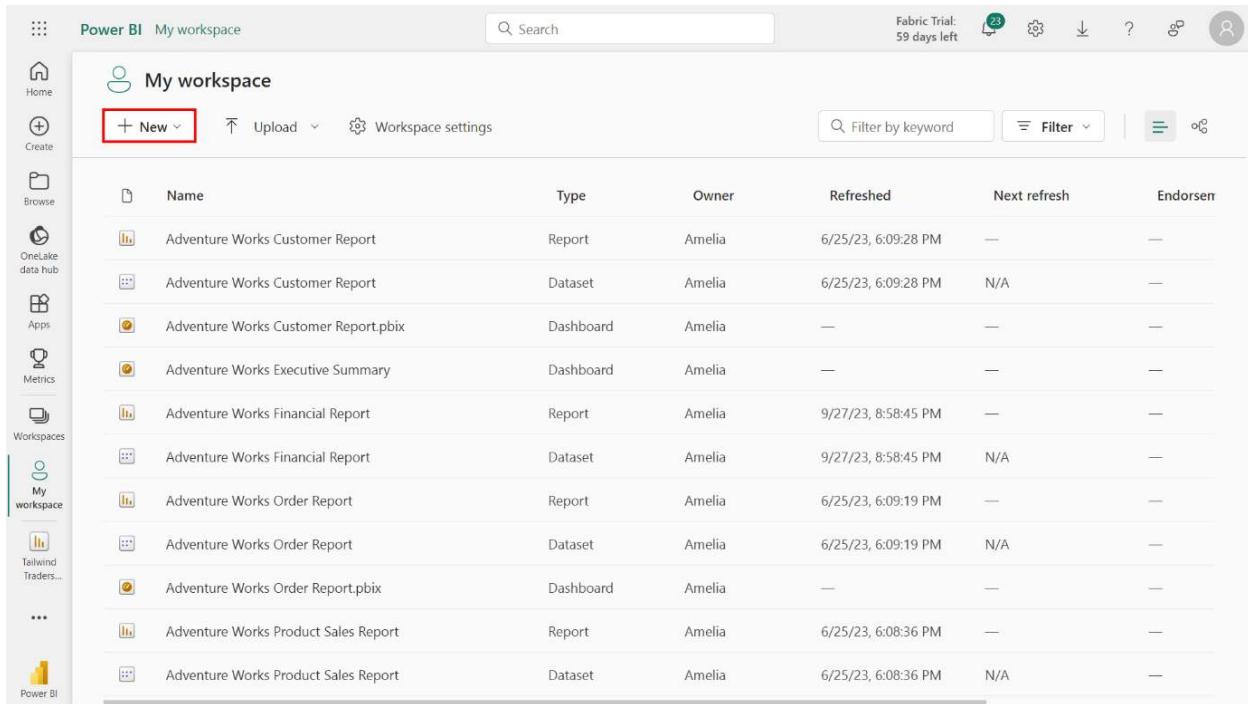
You can also review the learning materials provided in this course for more guidance.

Exercise 6: Creating an executive dashboard

Step 1: Create a new dashboard

1. Navigate to your workspace and create a new dashboard called **Tailwind Traders Executive Dashboard**.

In the **Navigation** view of **My Workspace**, locate and select the **+ New** button on the top left corner of the screen.



The screenshot shows the Power BI 'My workspace' interface. On the left, there's a navigation sidebar with icons for Home, Create, Browse, OneLake data hub, Apps, Metrics, Workspaces, and a selected 'My workspace'. The main area is titled 'My workspace' and contains a table of existing reports and datasets. At the top of this area, there's a red box highlighting the '+ New' button. Other buttons include 'Upload' and 'Workspace settings'. To the right of the table are search, filter, and sort tools. A status bar at the bottom indicates 'Fabric Trial: 59 days left'.

Name	Type	Owner	Refreshed	Next refresh	Endorsers
Adventure Works Customer Report	Report	Amelia	6/25/23, 6:09:28 PM	—	—
Adventure Works Customer Report	Dataset	Amelia	6/25/23, 6:09:28 PM	N/A	—
Adventure Works Customer Report.pbix	Dashboard	Amelia	—	—	—
Adventure Works Executive Summary	Dashboard	Amelia	—	—	—
Adventure Works Financial Report	Report	Amelia	9/27/23, 8:58:45 PM	—	—
Adventure Works Financial Report	Dataset	Amelia	9/27/23, 8:58:45 PM	N/A	—
Adventure Works Order Report	Report	Amelia	6/25/23, 6:09:19 PM	—	—
Adventure Works Order Report	Dataset	Amelia	6/25/23, 6:09:19 PM	N/A	—
Adventure Works Order Report.pbix	Dashboard	Amelia	—	—	—
Adventure Works Product Sales Report	Report	Amelia	6/25/23, 6:08:36 PM	—	—
Adventure Works Product Sales Report	Dataset	Amelia	6/25/23, 6:08:36 PM	N/A	—

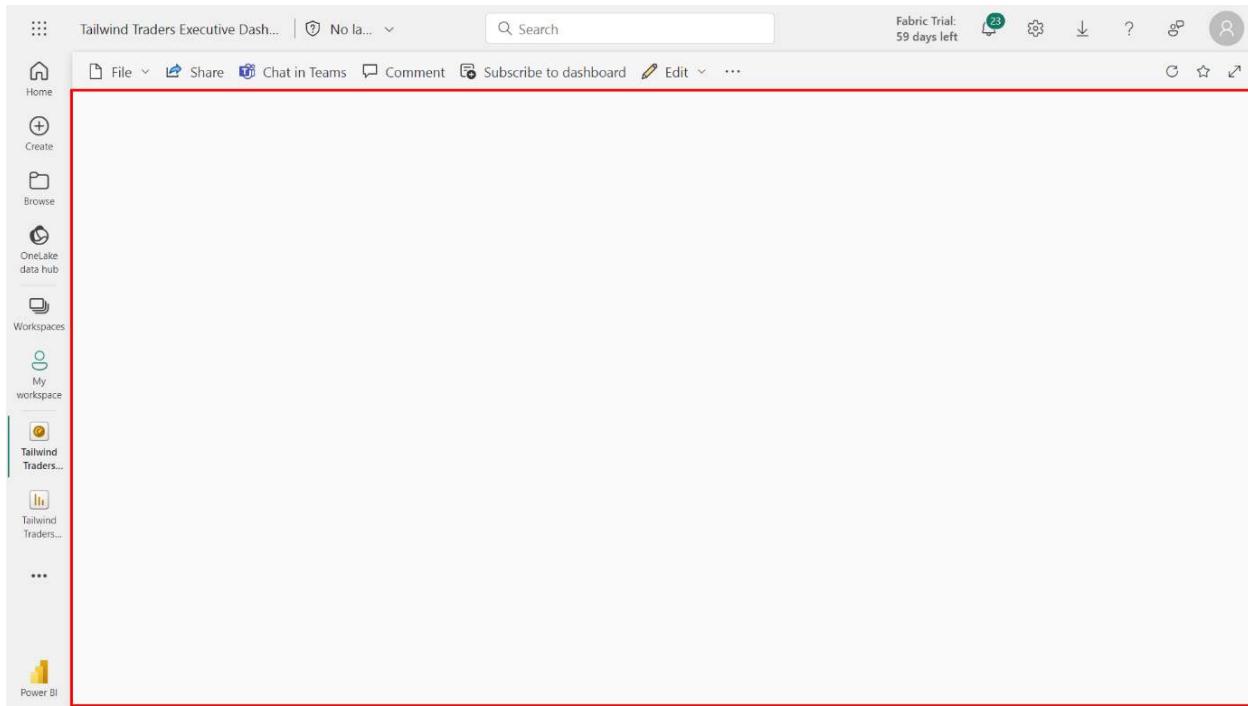
Select **Dashboard** from the list of options.

The screenshot shows the Power BI 'My workspace' interface. On the left, there's a sidebar with various icons for Home, Create, Browse, OneLake data hub, Apps, Metrics, Workspaces, and Power BI. The 'My workspace' icon is highlighted. In the center, there's a search bar and a 'Fabric Trial: 59 days left' message. Below the search bar is a 'Workspace settings' button. A 'New' button is followed by a dropdown menu with options: Report, Paginated report, Scorecard, and Dashboard. The 'Dashboard' option is highlighted with a red box. To the right of the menu is a table listing items: Report, Type, Owner, Refreshed, Next refresh, and Endorsers. The table includes items like 'Adventure Works Financial Report' (Report, Amelia, 6/25/23, 6:09:28 PM, N/A, —), 'Adventure Works Order Report' (Dataset, Amelia, 6/25/23, 6:09:19 PM, N/A, —), and 'Adventure Works Order Report.pbix' (Dashboard, Amelia, —, —, —).

A pop-up window titled **Create a dashboard** appears. Type **Tailwind Traders Executive Dashboard** in the Name field.

This screenshot is similar to the previous one, showing the 'My workspace' interface. The 'New' menu is open, and 'Dashboard' is selected. A 'Create dashboard' dialog box is now in the foreground. It has a 'Dashboard name' input field containing 'Tailwind Traders Executive Dashboard', which is also highlighted with a red box. There are 'Create' and 'Cancel' buttons at the bottom of the dialog. The background table and sidebar are visible but appear slightly dimmed.

Select **Create**. This action creates a new dashboard shell to which you can add content.



Step 2: Pin Sales Overview core visualizations

1. Navigate to your Workspace and access the **Sales Overview** tab of the **Tailwind Traders Report**.

On the left side of your Power BI service screen, locate and select **Workspaces > My Workspace** again.

The screenshot shows the Power BI 'My workspace' interface. On the left is a navigation bar with icons for Home, Create, Browse, OneLake data hub, Workspaces, and My workspace (which is selected). The main area displays a table of reports. The columns are: Name, Type, Owner, Refreshed, Next refresh, and Endorsers. The reports listed are: Adventure Works Customer Report, Adventure Works Financial Report, Adventure Works Order Report, Adventure Works Product Sales Report, Adventure Works Product Sales Report, Regional Sales, Sales and Profit report, Tailwind Executives, and Tailwind Traders Report. The 'Tailwind Traders Report' is highlighted with a red border.

Navigate to the **Tailwind Traders Report** in the list of reports within the workspace. Select the report's **Sales Overview** tab.

The screenshot shows the 'Tailwind Traders Report' page. The left sidebar shows the report's name and a 'Pages' section with 'Sales Overview' selected and highlighted with a red border. The main area contains four visualizations: 1) 'Loyalty Points by Country' (Bar chart showing UK: 315, USA: 305, Australia: 262, France: 197, UAE: 151). 2) 'Median Sales Distribution by Country' (Pie chart showing UAE: \$680,765 (45.07%), USA: \$230 (15.23%), France: \$21,85 (14.69%), UK: \$144 (9.53%), Australia: \$234 (5.49%)). 3) 'Median Sales over Time' (Line chart showing median sales from Sep 2023 to Oct 2023). 4) 'Median Sales by Product' (Bar chart showing sales for various products like Floral Arrangements, Perfume, Cosmetic, Electric, Profile, Rose Gold, Steel Lamp, Woven, Bamboo, Garden, Candles, LED Light, Modern, Metal, Robot, Sale Offer, Brass, Ceramic, Kitchen, Luminescent, Luxury, Marble, Motion, Orange, and Terrarium).

Within this tab, locate and select the pin icon on the **Loyalty Points by Country** bar chart. A **Pin to dashboard** dialog box appears onscreen. Select the **Tailwind Traders Executive Dashboard** and select **Pin** to confirm your choice.

The screenshot shows a Microsoft Power BI dashboard titled "Tailwind Traders Report". The dashboard includes several key metrics displayed as large numbers: "14K" (Sum of Stock), "152" (Sum of Quantity Purchased), and "\$222.5" (Median Sales). Below these are three charts: a bar chart for "Loyalty Points by Country" (UK: 315, USA: 305, Australia: 262), a pie chart for "Median Sales Distribution by Country" (USA: \$230, Australia: \$234, UAE: \$680.785), and a column chart for "Quantity Sold by Product" (various products like Floral, Porcelain, Ceramic, Steel, etc.). A "Pin to dashboard" modal window is overlaid on the dashboard, asking where to pin it. The "Select existing dashboard" dropdown menu is open, showing "Tailwind Traders Executive Dashboard" which is highlighted with a red box.

Repeat this action for the following charts:

Quantity Sold by Product column chart.

This screenshot shows the same Microsoft Power BI dashboard as the previous one, but the focus is on the "Quantity Sold by Product" column chart. This chart displays the quantity sold for various product categories. A "Pin to dashboard" modal window is overlaid, with the "Select existing dashboard" dropdown menu showing "Tailwind Traders Executive Dashboard" highlighted with a red box.

Median Sales Distribution by Country pie chart.

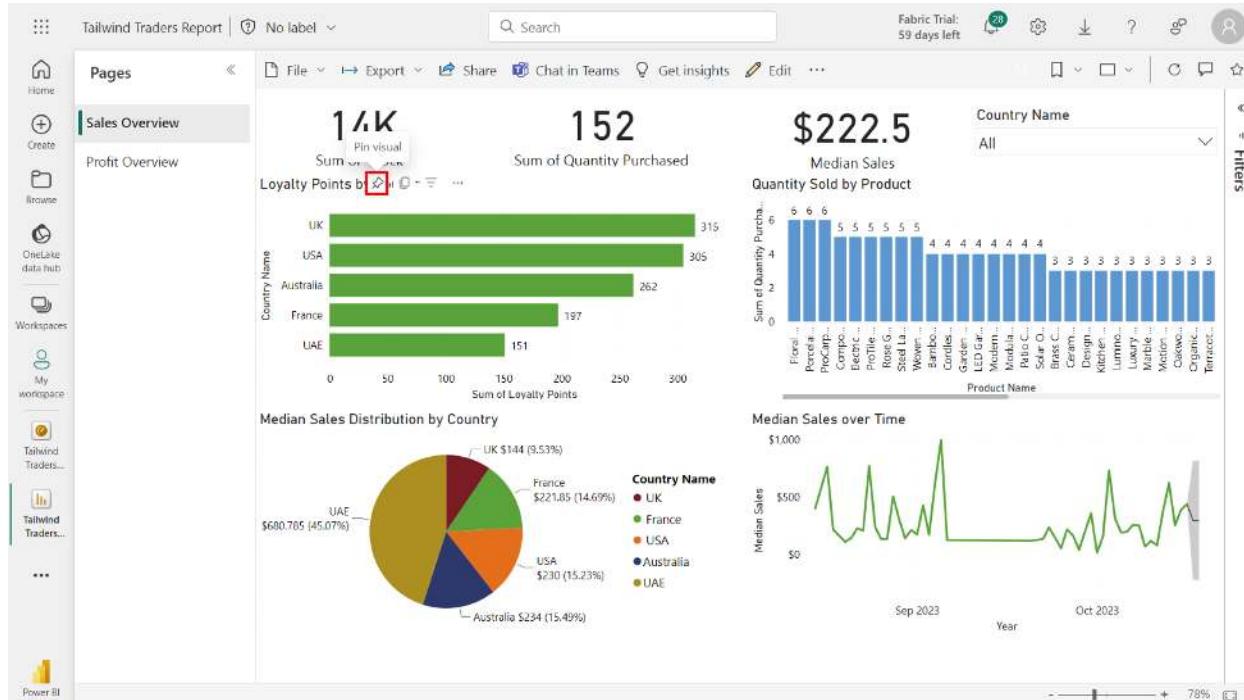
Media Sales Over Time line chart.

Step 3: Pin the Sales Overview card visualizations

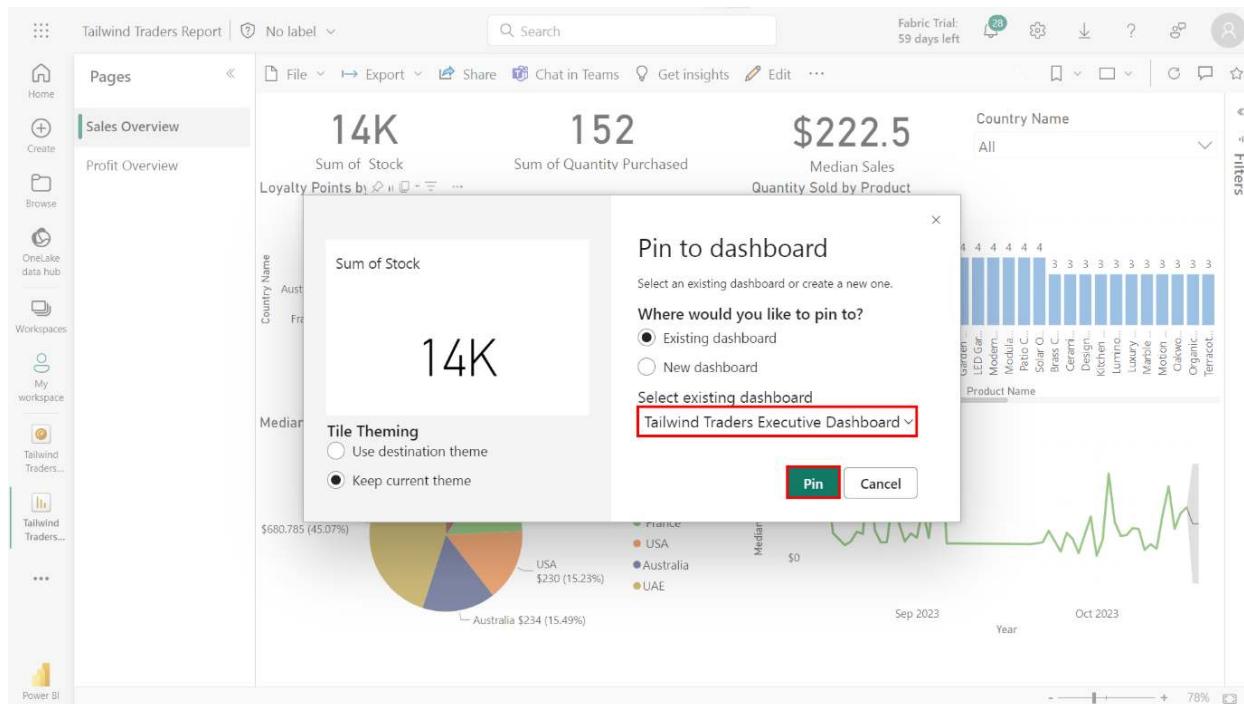
1. Locate and pin the following **Sales Overview** card visualizations to the **Tailwind Traders** dashboard:

- **Sum of Stock** card
- **Sum of Quantity Purchased** card
- **Median sales** card

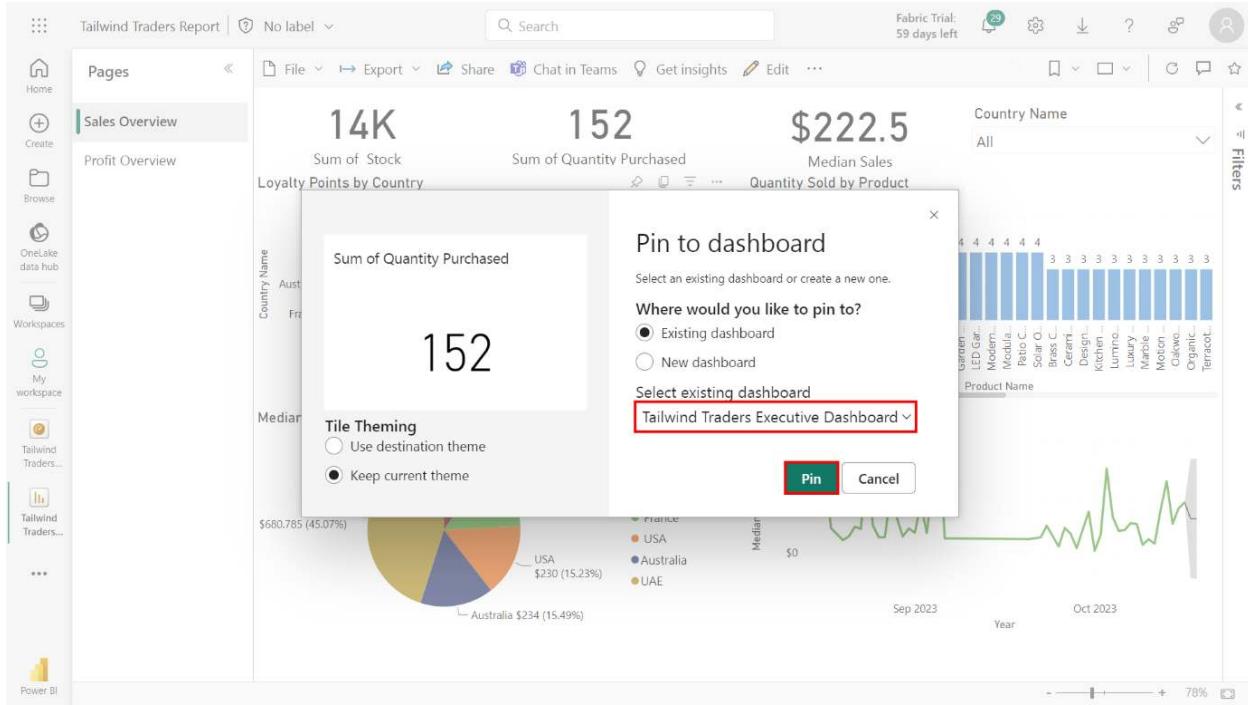
Select the pin icon on the **Sum of Stock** card.



Pin the card to the Tailwind Traders Executive Dashboard.

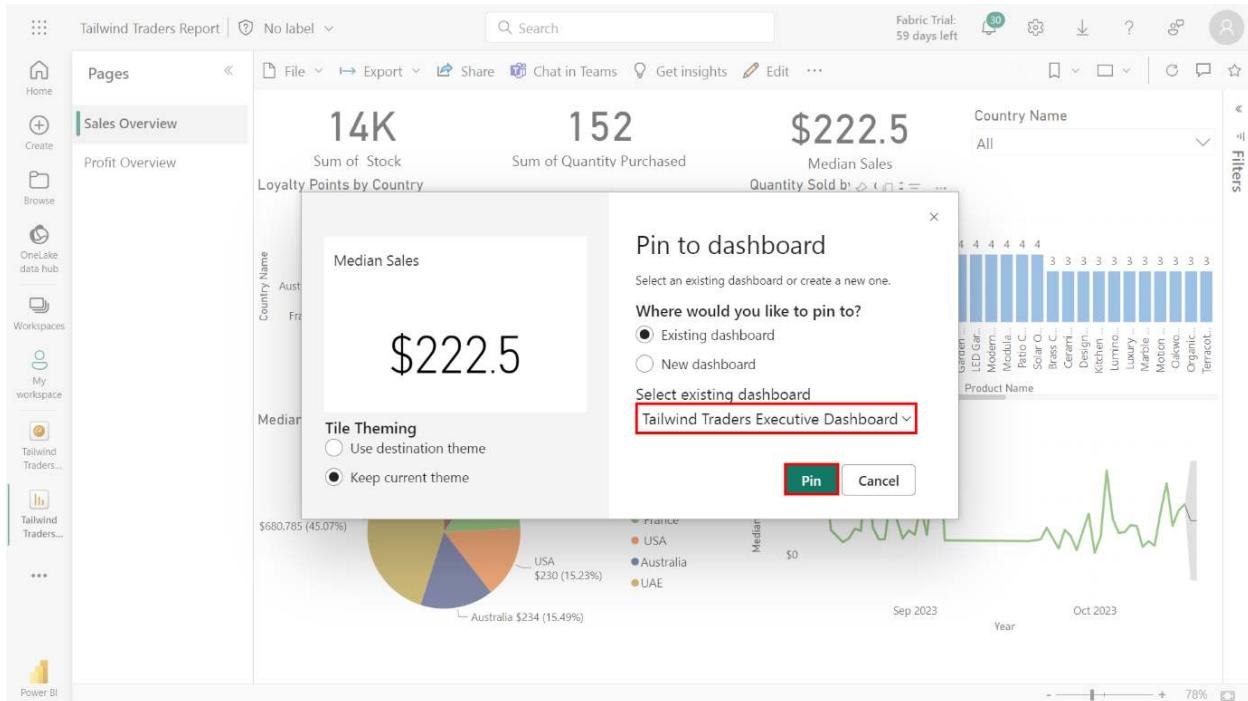


Repeat this process for the **Sum of Quantity Purchased** card.



The screenshot shows the Power BI interface with the 'Sales Overview' page selected. In the center, there is a large card for 'Sum of Quantity Purchased' with the value '152'. Below it is a pie chart showing the distribution of sales by country: France (45.07%), USA (15.23%), Australia (15.49%), and UAE (44.25%). To the right of the card is a line chart showing 'Median Sales' over time from September 2023 to October 2023. A modal window titled 'Pin to dashboard' is overlaid on the page, asking 'Where would you like to pin to?'. The 'Existing dashboard' option is selected, and a dropdown menu shows 'Tailwind Traders Executive Dashboard' with a red box around it. At the bottom right of the modal are 'Pin' and 'Cancel' buttons.

Repeat this process once again for the **Median Sales** card.

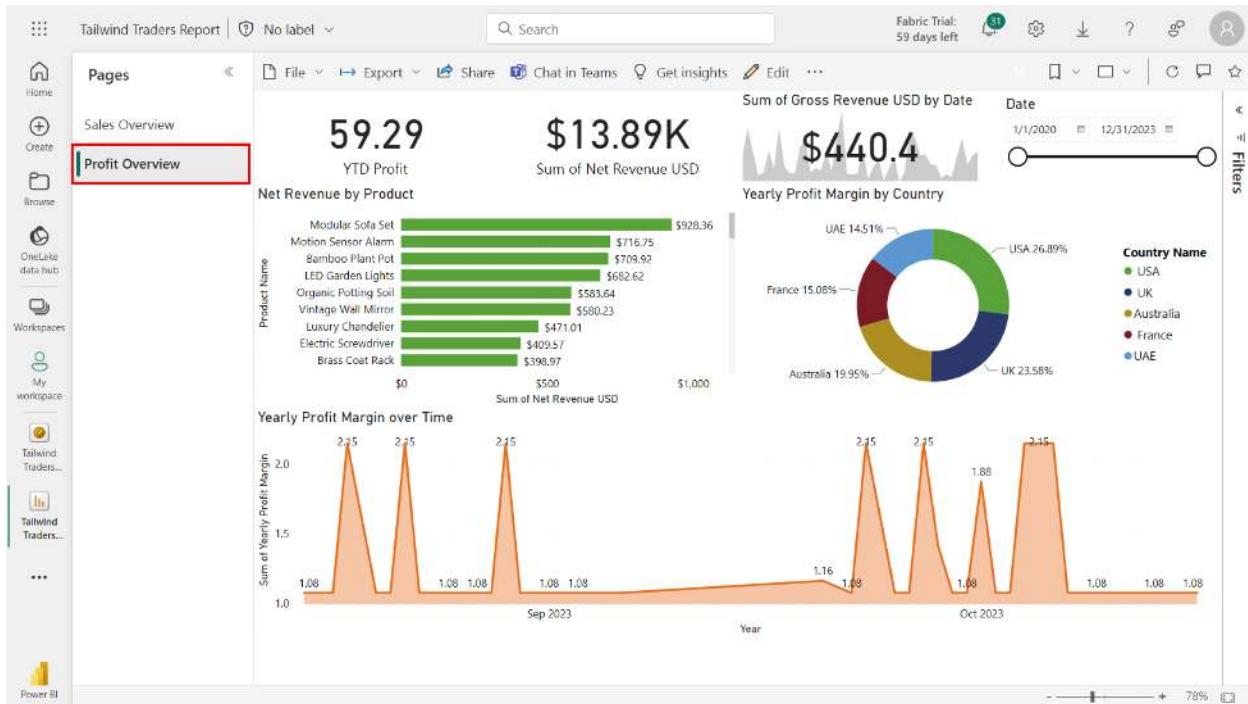


This screenshot is identical to the one above, showing the 'Sales Overview' page in Power BI. The 'Median Sales' card is now the active one, displaying the value '\$222.5'. The same 'Pin to dashboard' modal window is open, with the 'Tailwind Traders Executive Dashboard' selected and highlighted with a red box. The 'Pin' and 'Cancel' buttons are visible at the bottom right of the modal.

Step 4: Pin the Profit Overview core visualizations

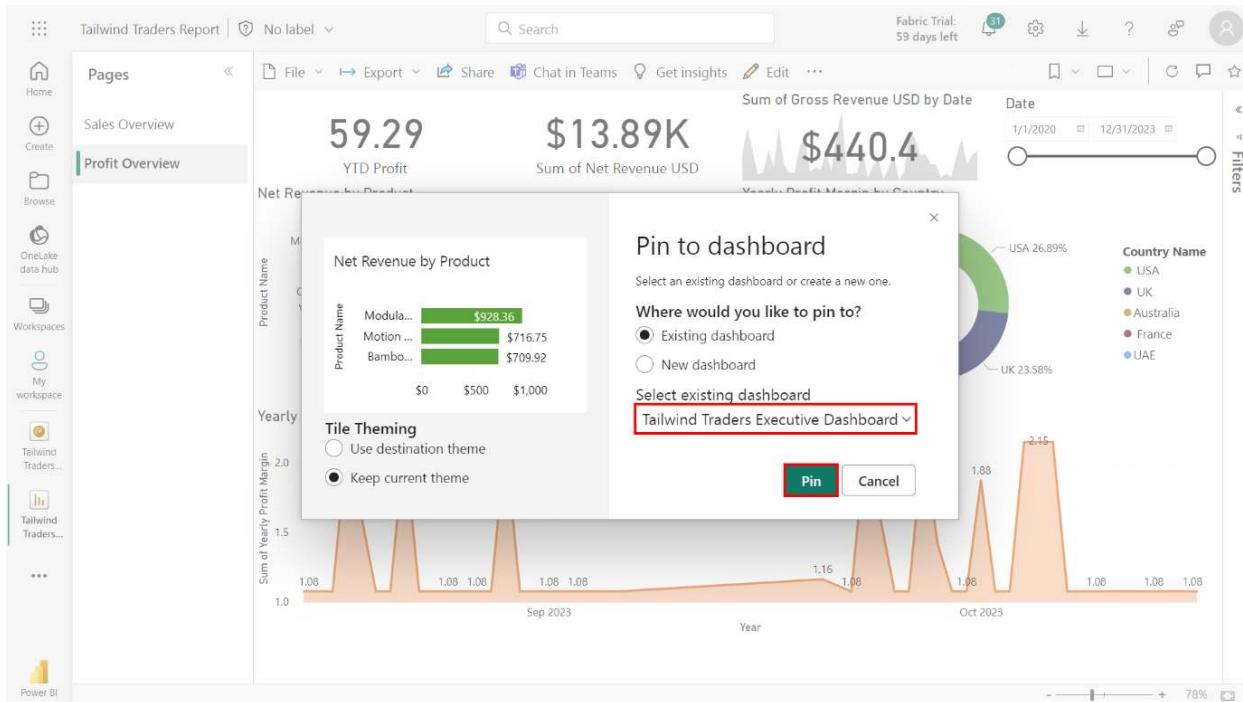
1. Select the **Profit Overview** tab.

Select the **Profit Overview** tab from the **Tailwind Traders Report**.

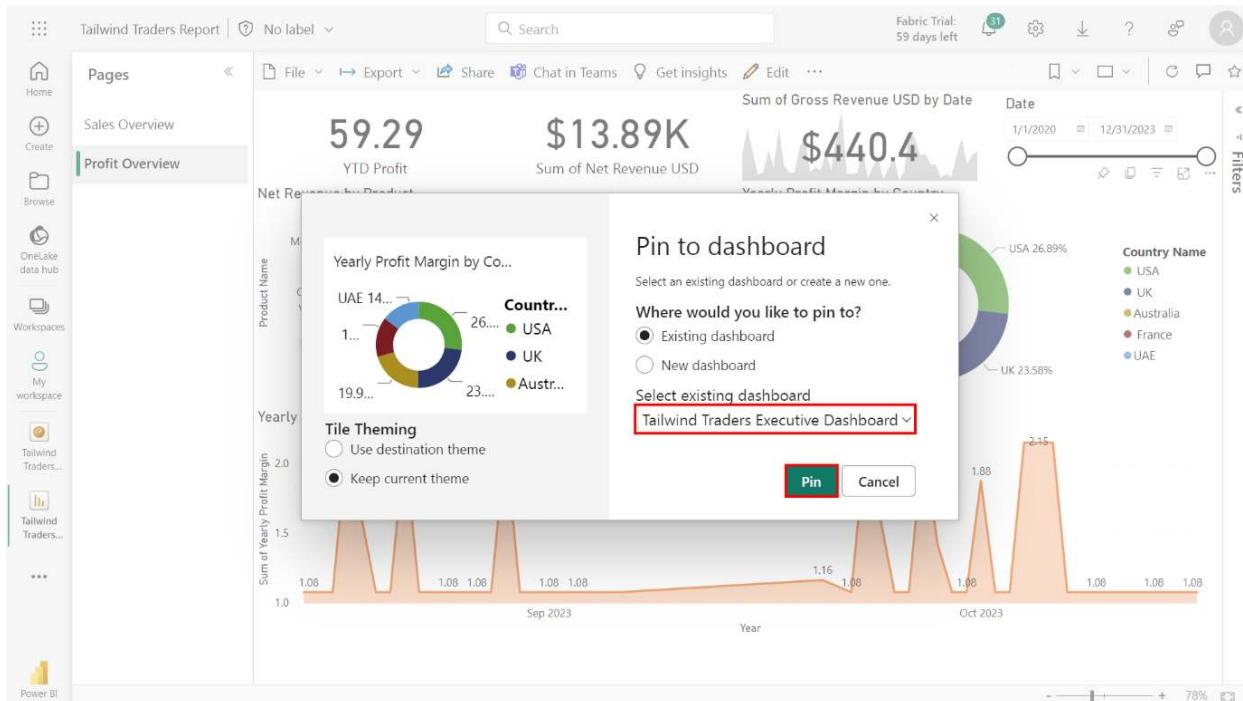


1. Locate and pin the following **Profit Overview** core visualization to the **Tailwind Traders Executive Dashboard**:
 - **Net Revenue by Product** bar chart
 - **Yearly Profit Margin by Country** donut chart
 - **Year Profit Margin over Time** area chart

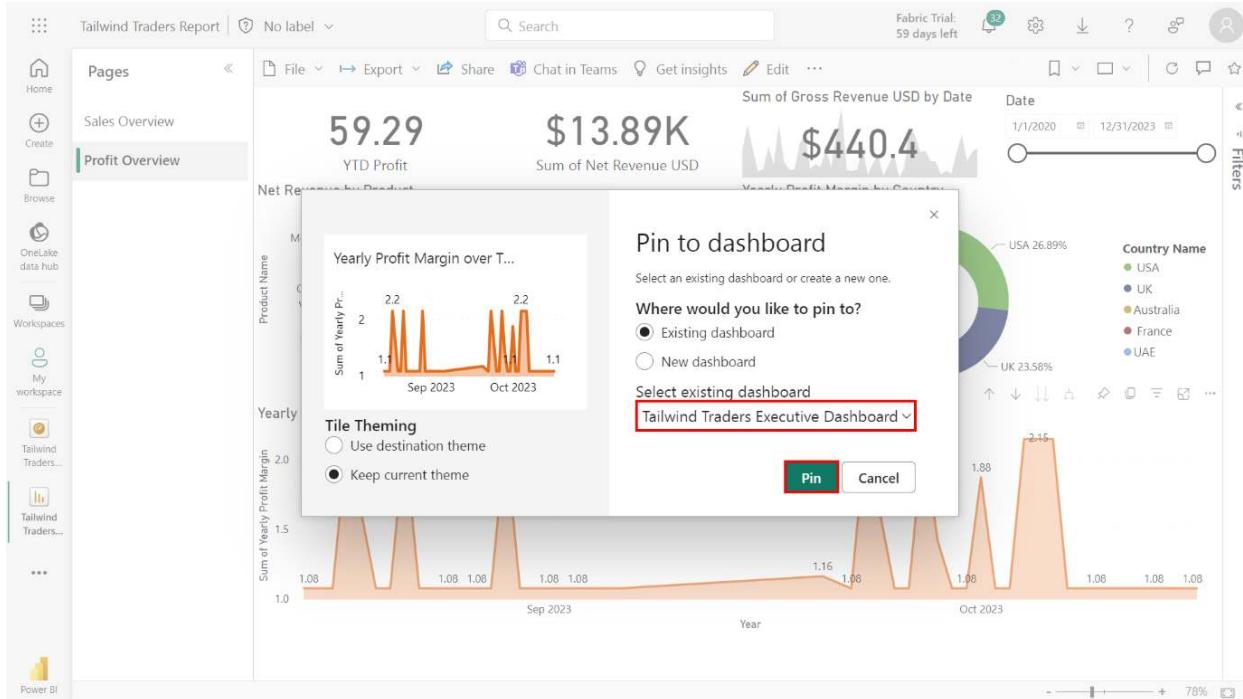
Select the pin icon on the **Net Revenue by Product** bar chart and pin the visualization to the **Tailwind Traders Executive Dashboard**.



Repeat this process for the **Yearly Profit Margin by Country** donut chart.

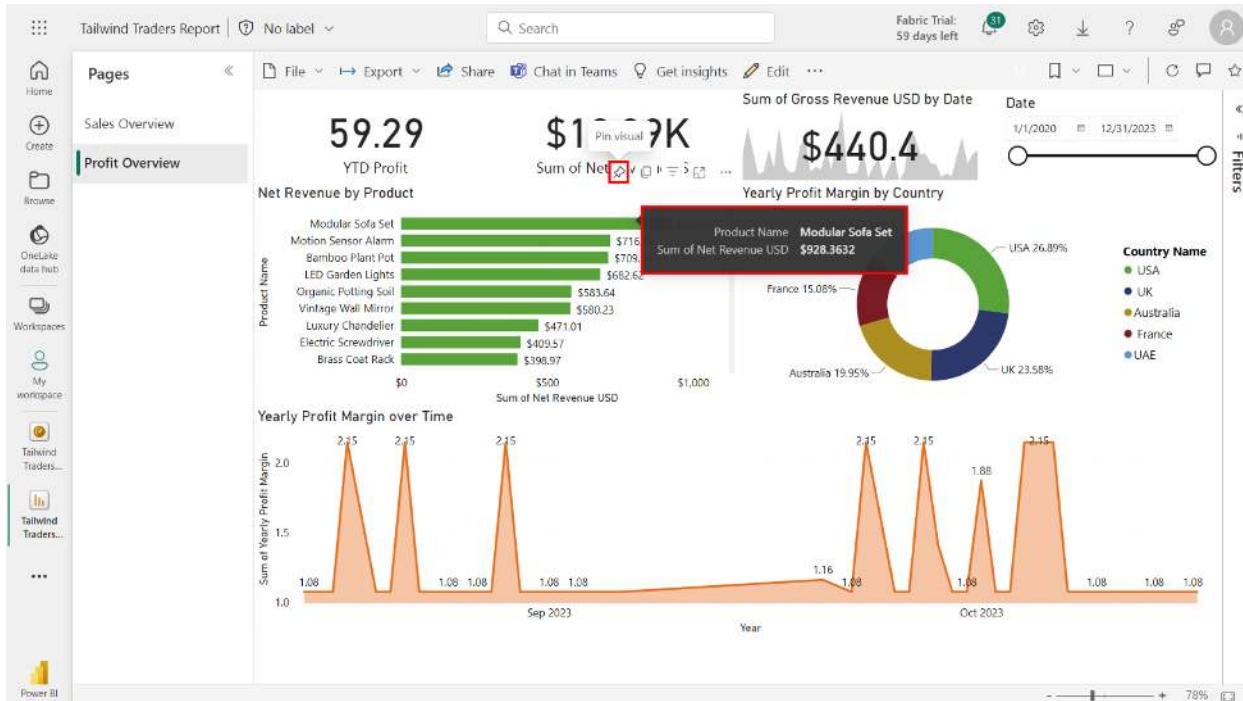


Repeat the process for the **Year profit Margin Over Time** area chart.



1. Note the product with the highest value in the **Net Revenue by Product** bar chart.

The **Modular Sofa Set** has the highest **Sum of Net Revenue USD**, which is precisely **928.36**.

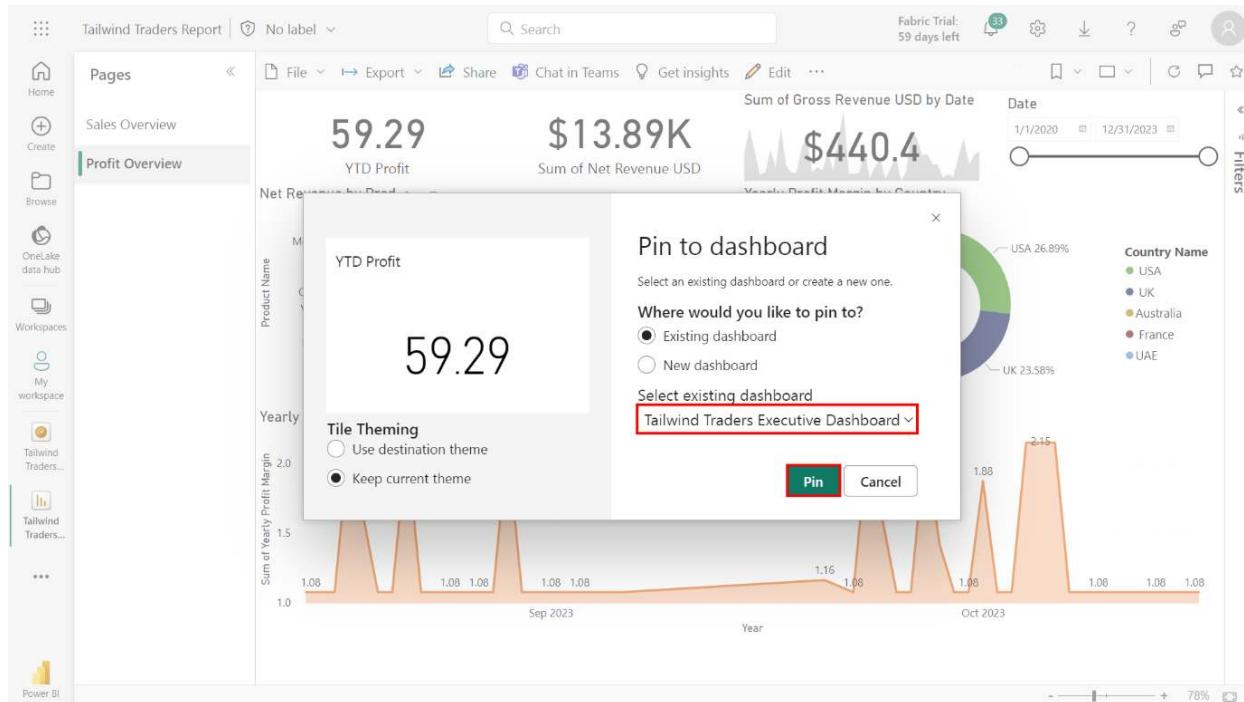


Step 5: Pin Profit Overview Card and KPI Visualizations

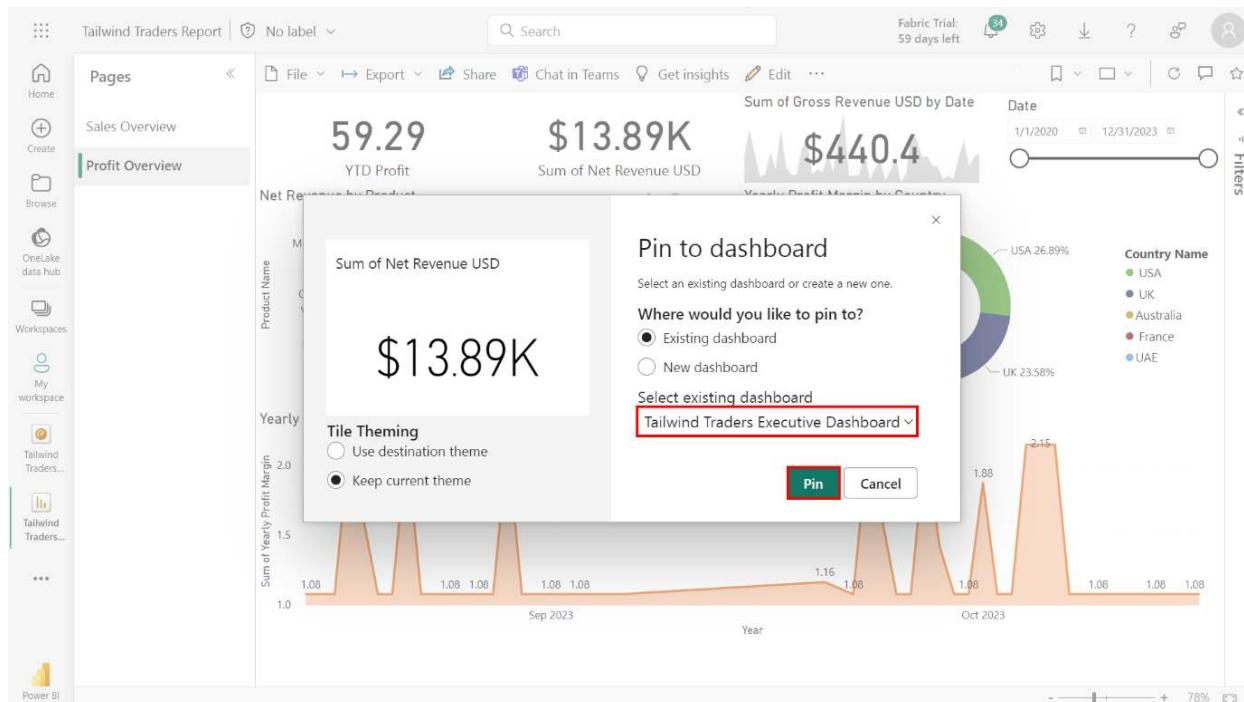
1. Locate and pin the following items to the **Tailwind Traders Executive Dashboard**:

- **YTD Profit card**
- **Sum of Net Revenue USD card**
- **Sum of Gross Revenue USD KPI**

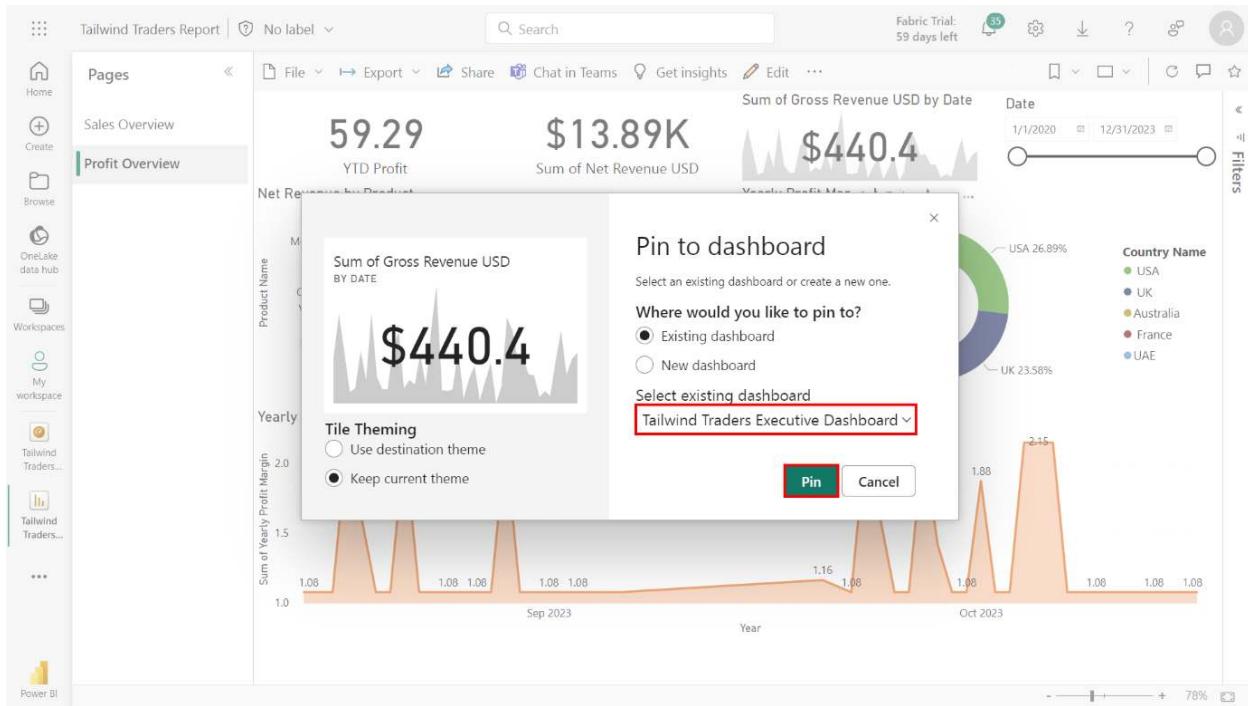
Select and pin the **YTD Profit Card** to the Tailwind Traders Executive Dashboard.



Repeat these actions for the **Sum of Net Revenue USD Card**.



Repeat these actions for the **Sum of Gross Revenue USD KPI**.



Step7: Configure the Mobile View for the cards and KPI visuals

1. Locate and select the **Tailwind Traders Executive Dashboard** from the **Dashboards** list.

Select **Workspaces**, then **My Workspace**. Select the **Tailwind Traders Executive Dashboard** from the list of dashboards within the workspace.

The screenshot shows the Power BI 'My workspace' interface. On the left is a navigation bar with icons for Home, Create, Browse, OneLake data hub, Workspaces, My workspace (which is selected and highlighted in green), Tailwind Traders..., and Power BI Bl. The main area is titled 'My workspace' and contains a table of dashboards. The columns are: Name, Type, Owner, Refreshed, Next refresh, and Endorsers. The dashboards listed are:

Name	Type	Owner	Refreshed	Next refresh	Endorsers
Adventure Works Executive Summary	Dashboard	Amelia	—	—	—
Adventure Works Order Report.pbix	Dashboard	Amelia	—	—	—
Adventure Works Product Sales Report.pbix	Dashboard	Amelia	—	—	—
Adventure Works Sales	Dashboard	Amelia	—	—	—
Customer Dashboard	Dashboard	Amelia	—	—	—
Dashboard	Dashboard	Amelia	—	—	—
Executive Dashboard	Dashboard	Amelia	—	—	—
Order Dashboard	Dashboard	Amelia	—	—	—
Tailwind Traders Executive Dashboard	Dashboard	Amelia	—	—	—
Tailwinds	Dashboard	Amelia	—	—	—

1. Select **Mobile Layout** from the **Edit** menu and pin your card visuals to the dashboard in the following order:
 - **Sum of Net Revenue USD** to the left and **Sum of Quantity Purchased** cards to the right.
 - **Median Sales** to the left and **YTD Profit** cards to the right.
 - **Sum of Gross Revenue USD** KPI across the full width of the layout

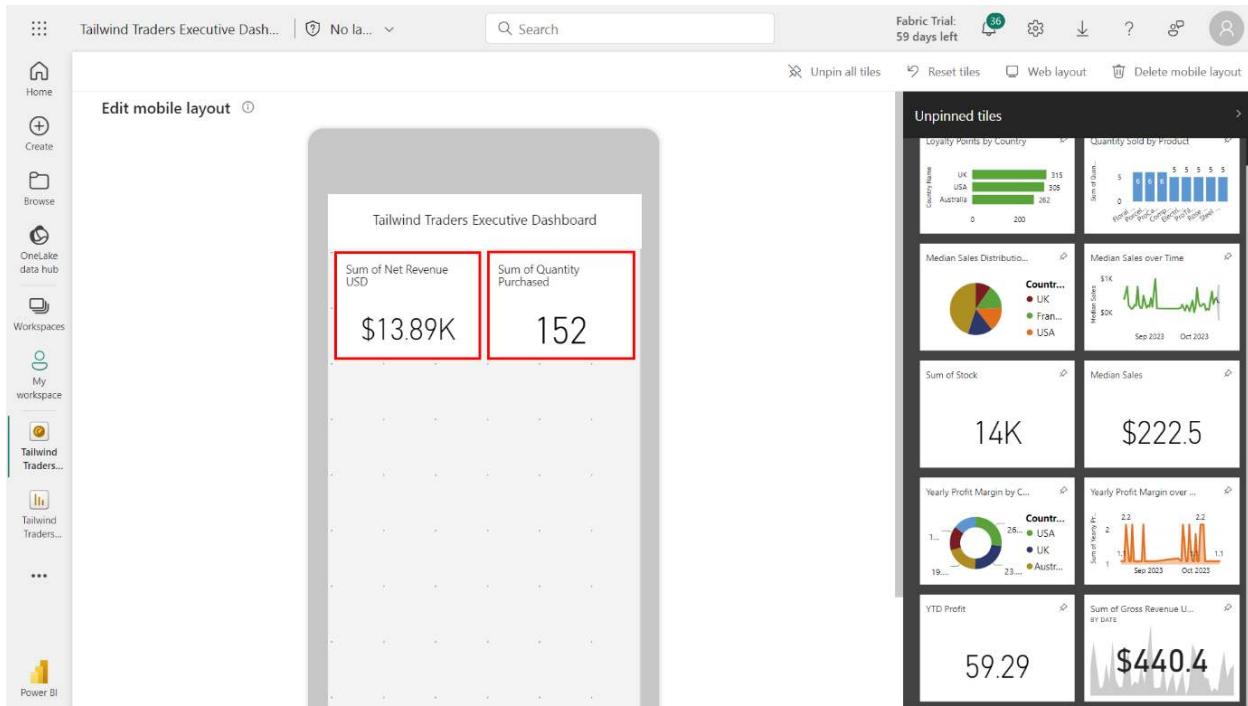
Select **Edit** from the main navigation bar. Select **Mobile layout** from the list of options to switch the view from desktop to mobile.

The screenshot shows a Microsoft Power BI dashboard titled "Tailwind Traders Executive Dashboard". The dashboard features several visualizations: a bar chart of "Loyalty Points by Country" (UK: 315, USA: 305, Australia: 262, France: 197, UAE: 151), a line chart of "Median Sales over Time" (Sep 2023 to Oct 2023), a card for "Sum of Stock" (14K), a card for "Sum of Quantity Purchased" (152), a pie chart of "Median Sales Distribution by Country" (UK: \$144 (9.53%), USA: \$680 (45.7%), France: \$2... (1...), UAE: \$1...), a bar chart of "Quantity Sold by Product" (values 6, 6, 6, 5, 5, 5, 5, 5, 5, 4, 4, 4, 4, 4, 4, 3, 3, 3), and a card for "Median Sales" (\$222.5). On the left, the Power BI ribbon includes Home, Create, Browse, OneLake data hub, Workspaces, My workspace, Tailwind Traders..., and Power BI. The top right shows a "Fabric Trial: 59 days left" badge and various dashboard management icons. A red box highlights the "Mobile layout" option in the "Edit" menu.

Once you select the **Mobile layout**, your screen adjusts to a vertical layout to replicate a mobile device's screen size. This canvas is blank. You must decide which visualizations to show on the mobile layout and where to place them. A list of all the visualizations in your dashboard is displayed on the right side of your screen. Each visualization has a pin icon next to it.

The screenshot shows the same "Tailwind Traders Executive Dashboard" in "Edit mobile layout" mode. The main area is a large, empty white space with a red border, labeled "Pin tiles to create a custom mobile layout". To the right is a sidebar titled "Unpinned tiles" containing a grid of cards from the dashboard. One card, "Sum of Net Revenue USD", has a red box around its pin icon. Other pinned tiles include "Loyalty Points by Country", "Quantity Sold by Product", "Median Sales Distribution by Country", "Median Sales over Time", "Sum of Stock", "Sum of Quantity Purchased" (with a red box around its pin icon), "Median Sales", "Yearly Profit Margin by Country", "Yearly Profit Margin over Time", and "YTD Profit". The Power BI ribbon and top navigation bar are visible on the left and top respectively.

Select the **Pin** icon for the **Sum of Net Revenue USD** and **Sum of Quantity Purchased** cards. Arrange the card visuals on the mobile canvas side-by-side for a balanced look.



Repeat this process for the **Median Sales Card** and **YTD Profit Card**. Finally, pin the **Sum of Gross Revenue USD KPI** so that it's the full width of the layout of the mobile canvas.

Step 8: Configure the Mobile View for the core visualizations

1. Configure the mobile view for the core visualizations by pinning the **Sales Overview** visualizations in the following order:
 - **Loyalty Points by Country** bar chart
 - **Quantity Sold by Product** column chart
 - **Median Sales Distribution by Country** pie chart
 - **Median Sales over Time** line chart

Select the **Pin** icon for the **Loyalty Points by Country** bar chart to pin it to the mobile view. Repeat this process for the **Quantity Sold by Product** chart.

Repeat this process for the **Median Sales Distribution by Country** pie chart and **Median Sales over Time** line chart.

1. Pin the following **Profit Overview** visualizations in the following order:

- **Net Revenue by Product** bar chart
- **Yearly Profit Margin by Country** donut chart
- **Yearly Profit Margin over Time** area chart

Select the Pin icons for the **Net Revenue by Product** bar chart and **Yearly Profit Margin by Country** bar chart.

The screenshot shows the Tailwind Traders Executive Dashboard. On the left sidebar, there are various navigation options: Home, Create, Browse, OneLake data hub, Workspaces, My workspace, Tailwind Traders..., and Power BI. The main content area displays two charts. The top chart is a bar chart titled "Net Revenue by Product" for Sep 2023 and Oct 2023. The bottom chart is a donut chart titled "Yearly Profit Margin by Country". A red box highlights the donut chart. In the top right corner, there is a pinned tile titled "Unpinned tiles" which shows a summary of stock levels and a line chart titled "Yearly Profit Margin over Time".

Pin the **Yearly Profit Margin over Time** area chart.

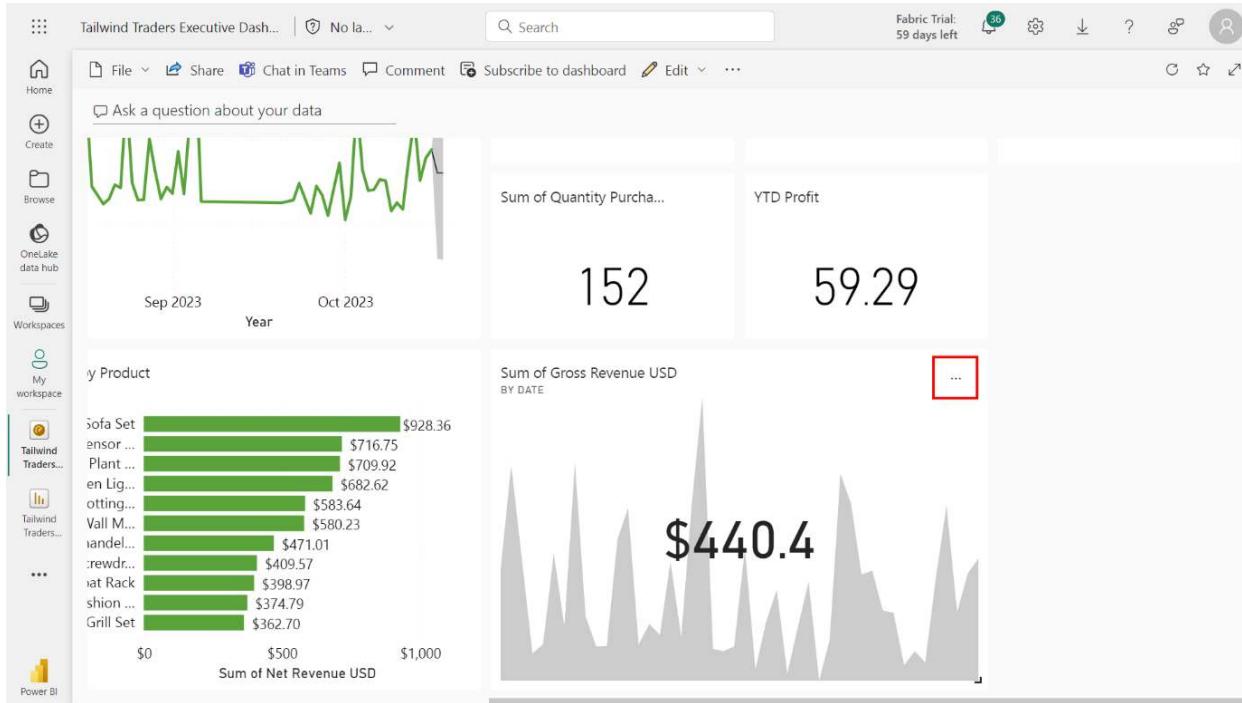
The screenshot shows the Tailwind Traders Executive Dashboard. The layout is identical to the previous one, with the same sidebar and pinned tile. However, the bottom chart has been replaced by a new chart titled "Yearly Profit Margin over Time". This chart is an area chart showing the sum of yearly profit margin over time from Sep 2023 to Oct 2023. A red box highlights this new chart. The pinned tile in the top right corner remains the same, displaying stock levels and a line chart.

Exercise 7: Configuring alerts and subscriptions

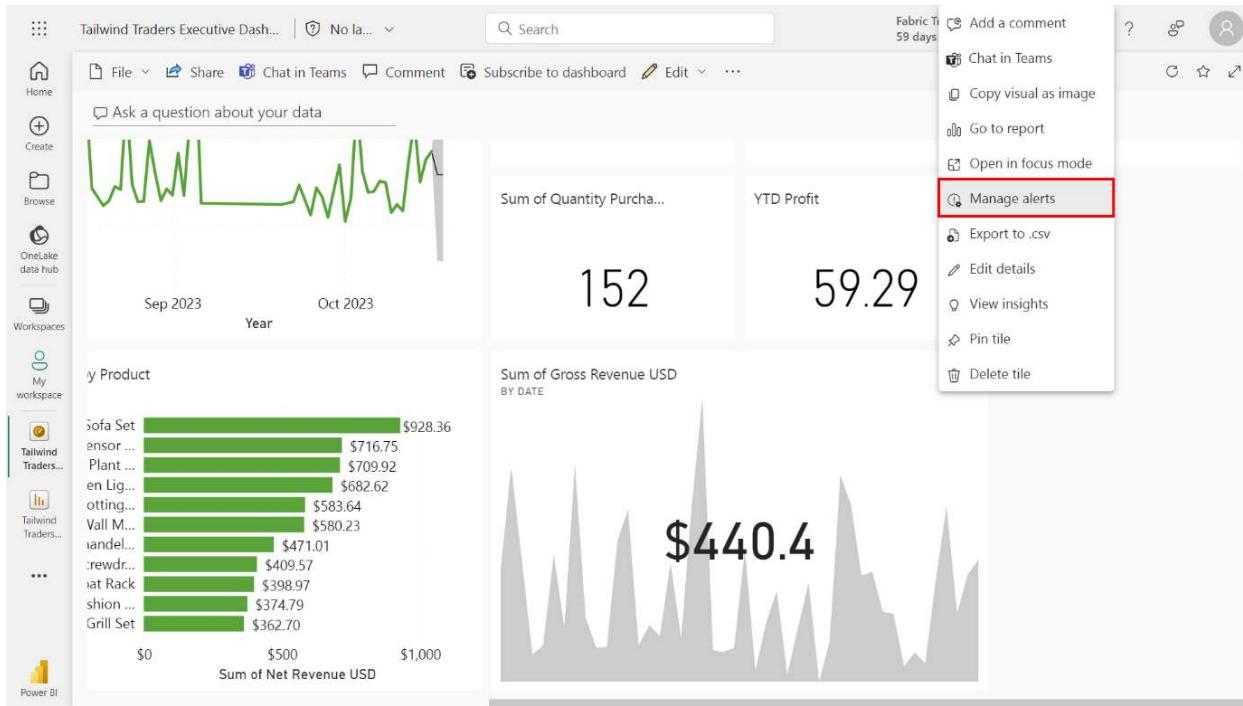
Step 1: Create a daily alert for Gross Revenue USD

1. Access the **Manage Alerts** menu for the **Sum of Gross Revenue USD KPI** tile.

On the **Tailwind Traders Executive Dashboard**, locate the **Sum of Gross Revenue USD** KPI tile and select the ellipses icon.



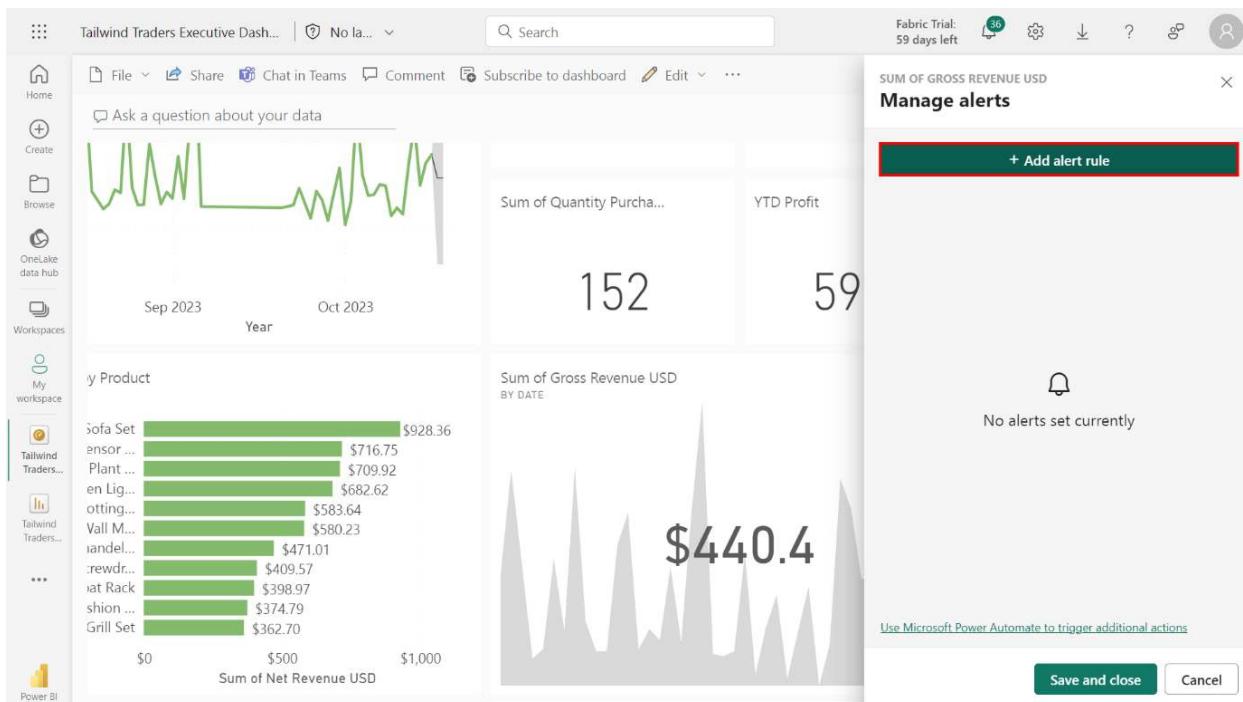
Select **Manage alerts** from the list of options that appear.



1. Create a new alert titled **Gross Revenue USD below \$400** with the following configurations:

- In the **Condition** section, set the threshold at **\$400**.
- Set a frequency of at most every 24 hours.

Within the **Manage alerts** screen, locate and select **+ New alert rule**.



Enter **Gross Revenue USD below \$400** in the **Alert title** field.

The screenshot shows a Power BI dashboard titled "Tailwind Traders Executive Dashboard". On the left, there's a bar chart for "Sum of Net Revenue USD" by Product, with values ranging from \$362.70 to \$928.36. In the center, there's a large number "152" and a bar chart for "Sum of Gross Revenue USD BY DATE" with a value of "\$440.4". On the right, there's a summary card for "YTD Profit" with the value "59". A modal window titled "Manage alerts" is open on the right side. It shows an alert rule for "Gross Revenue USD below \$400" which is active and set to trigger "At most every 24 hours". The "Alert title" field contains "Gross Revenue USD below \$400". The "Threshold" is set to "0". The "Condition" dropdown is set to "Below". The "Save and close" button at the bottom right of the modal is highlighted.

In the **Condition** section, locate the dropdown menu and select **Below**. In the adjacent field, type in **400** to set the threshold at \$400. Navigate to the **Frequency** section to decide how often Power BI checks this condition. For critical metrics, like **Sum of Gross Revenue USD** that might require daily checks, selecting the **At most every 24 hours** setting is appropriate.

This screenshot is identical to the one above, but the "Threshold" field in the "Manage alerts" modal has been changed to "400". The "Condition" dropdown is still set to "Below". The "Maximum notification frequency" section shows "At most every 24 hours" selected. The "Send me email, too" checkbox is checked. The "Save and close" button at the bottom right is highlighted.

1. Save and close the alert.

Once you've set all required parameters, select **Save and close** to save your alert settings and activate the alert rule.

The screenshot shows a Microsoft Power BI Executive Dashboard. On the left, there's a sidebar with navigation links: Home, Create, Browse, OneLake data hub, Workspaces, and My workspace. Under My workspace, there are two sections: Tailwind Traders... and Tailwind Traders... (with a blue dot). Below these are three more items: ... and Power BI. The main dashboard area displays several visualizations: a line chart for 'Sum of Quantity Purchased' from Sep 2023 to Oct 2023; a card for 'YTD Profit' showing values 152 and 59; a bar chart for 'Sum of Net Revenue USD' by product, with the top item being 'Sofa Set' at \$928.36; and a large bar chart for 'Sum of Gross Revenue USD BY DATE' with a total value of '\$440.4'. A modal window titled 'Manage alerts' is open on the right, showing a single alert rule: 'Gross Revenue USD below \$400'. At the bottom right of the dashboard are 'Save and close' and 'Cancel' buttons.

Step 2: Create a subscription for Sales Overview

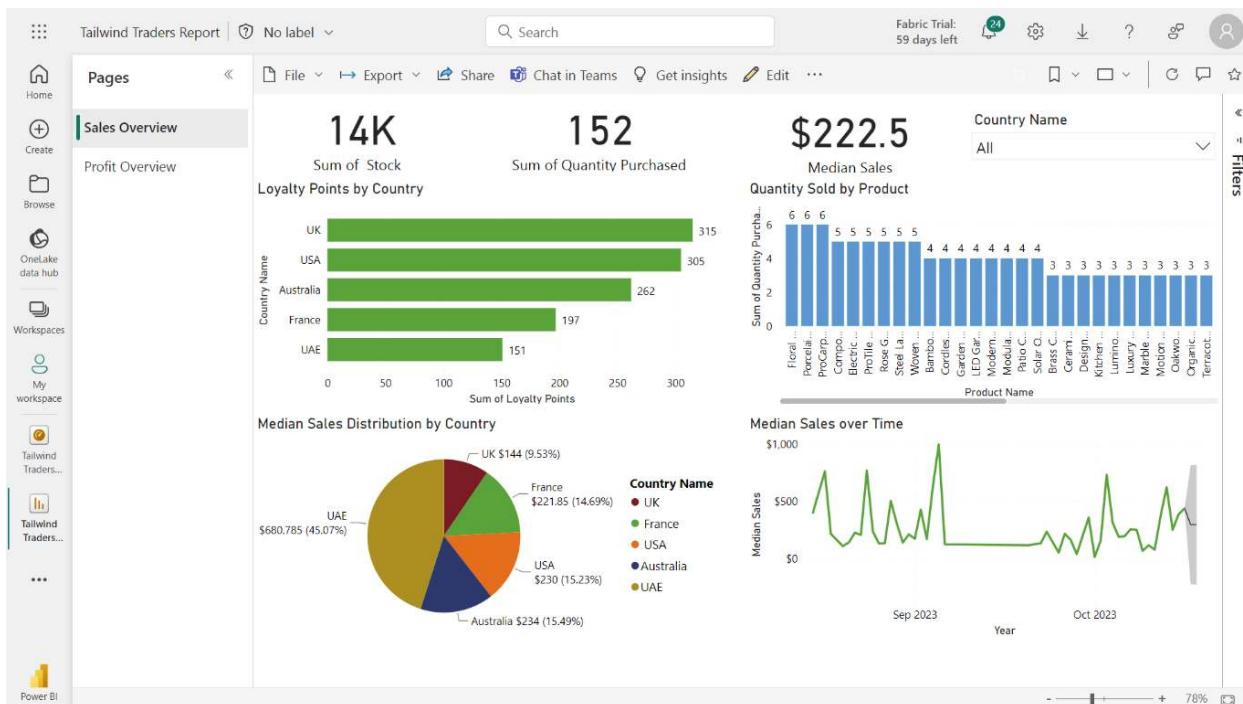
1. Access the report's **Sales Overview** tab.

Locate and select Workspaces, then **My Workspace**. Find and select the **Tailwind Traders Report** in the list of reports within the workspace.

The screenshot shows the Power BI 'My workspace' interface. On the left, there's a sidebar with icons for Home, Create, Browse, OneLake data hub, Workspaces, and a 'My workspace' section which is currently selected. The main area displays a table of reports with columns for Name, Type, Owner, Refreshed, Next refresh, and Endorsers. The reports listed are: Adventure Works Customer Report, Adventure Works Financial Report, Adventure Works Order Report, Adventure Works Product Sales Report, Adventure Works Product Sales Report (duplicated), Regional Sales, Sales and Profit report, Tailwind Executives, Tailwind Traders Report, and Visualizations.

1. Access the **Median Sales Distribution by Country** pie chart and note down the country with the highest **Median Sales** value.

Select the **Median Sales Distribution by Country** pie chart from the canvas. **UAE** is the country with the highest Median Sales, measuring **680.785 USD**.



1. Create a subscription for the **Sales Overview** report with the following configurations:

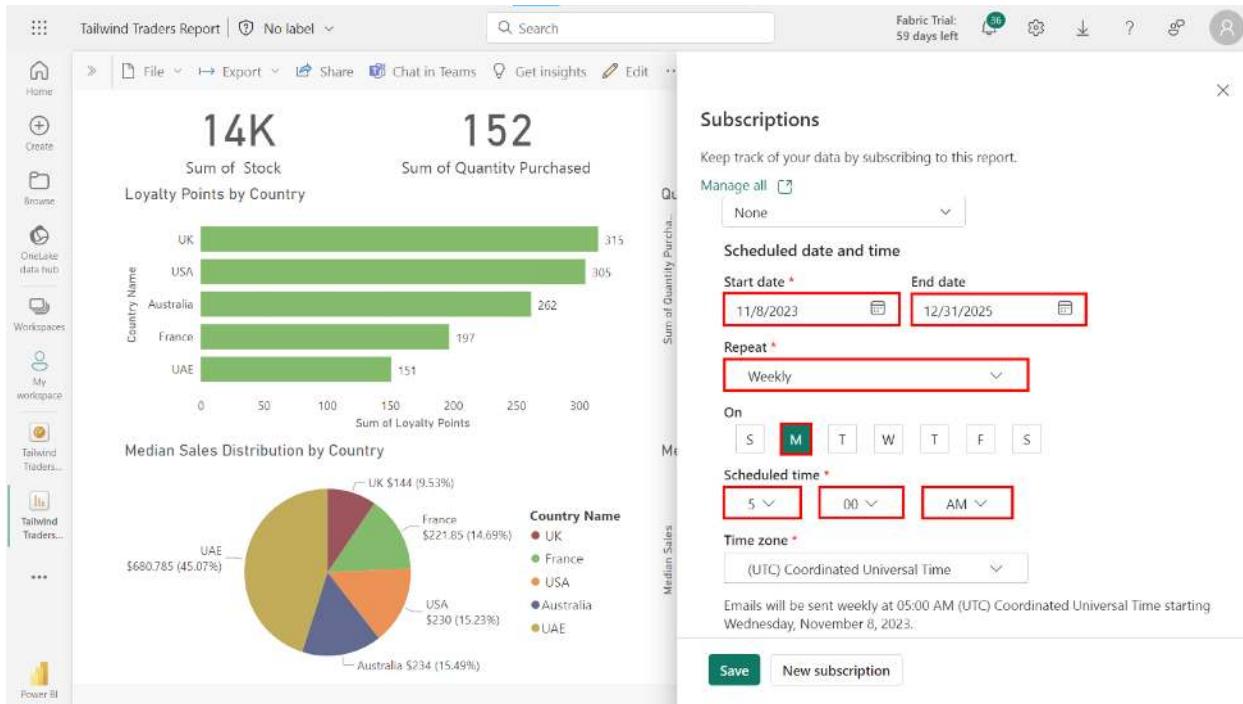
Select the ellipses next to the **Edit** button. Select **Subscribe** from the list of options that appears.

The screenshot shows a Power BI report interface. On the left, there's a navigation pane with options like Home, Create, License, OneLake data hub, Workspaces, My workspace, Tailwind Traders, and Tailwind Traders... The main area has two sections: 'Sales Overview' and 'Profit Overview'. Under 'Sales Overview', there are two charts: 'Loyalty Points by Country' (bar chart) and 'Median Sales Distribution by Country' (pie chart). Under 'Profit Overview', there are two charts: 'Sum of Stock' (bar chart) and 'Sum of Quantity Purchased' (bar chart). A context menu is open over the 'Loyalty Points by Country' chart, with the 'Subscribe to report' option highlighted.

This action opens the **Subscription** pane. Name your subscription **Sales Weekly Summary**.

The screenshot shows the 'Subscriptions' pane open on the right side of the Power BI interface. It lists a single subscription named 'Sales Weekly Summary'. The 'Subscription name' field contains 'Sales Weekly Summary' (highlighted with a red box). The 'Recipients' field shows 'Amelia' with a placeholder 'Enter email addresses'. Below that, the 'Scheduled date and time' section is set to start on '11/4/2023' and end on 'Select a date'. At the bottom of the pane are 'Save' and 'New subscription' buttons.

Set the **Start date** to the current date and the **End date** to **12/31/2025**. For the frequency, select **Weekly** and select **Monday**. Set the **Scheduled time** to **5:00 AM**.



- Access the **Sales Overview** report page in the **Report page** dropdown and ensure that the toggle switches for the following options are activated:
 - Permission to view the report in Power BI**
 - Link to report in Power BI**
 - Report page preview**

Expand **More options** to view the **Report page** dropdown. Select the **Sales Overview** report page from the dropdown. Check that the toggle for each of the following options is activated:

- Permission to view the report in Power BI**
- Link to report in Power BI**
- Report page preview**

The screenshot shows the Power BI interface with the 'Tailwind Traders Report' open. On the left, there's a navigation bar with various icons like Home, Create, Browse, OneLake data hub, Workspaces, My workspace, Tailwind Traders..., and Power BI. The main area displays two large numbers: '14K' and '152'. Below them are two charts: 'Loyalty Points by Country' (a horizontal bar chart) and 'Median Sales Distribution by Country' (a pie chart). The 'Median Sales Distribution by Country' chart is highlighted with a red border. On the right, a 'Subscriptions' pane is open, showing a section for 'Sales Overview'. It includes fields for 'Email subject' (Subject: Sales Overview), 'Message' (Include an optional message...), and a dropdown for 'Report page' set to 'Sales Overview'. Below these are three toggle switches: 'Permission to view the report in Power BI' (on), 'Link to report in Power BI' (on), and 'Report page preview' (on). A red box highlights the 'Report page preview' switch.

1. Activate the subscription.

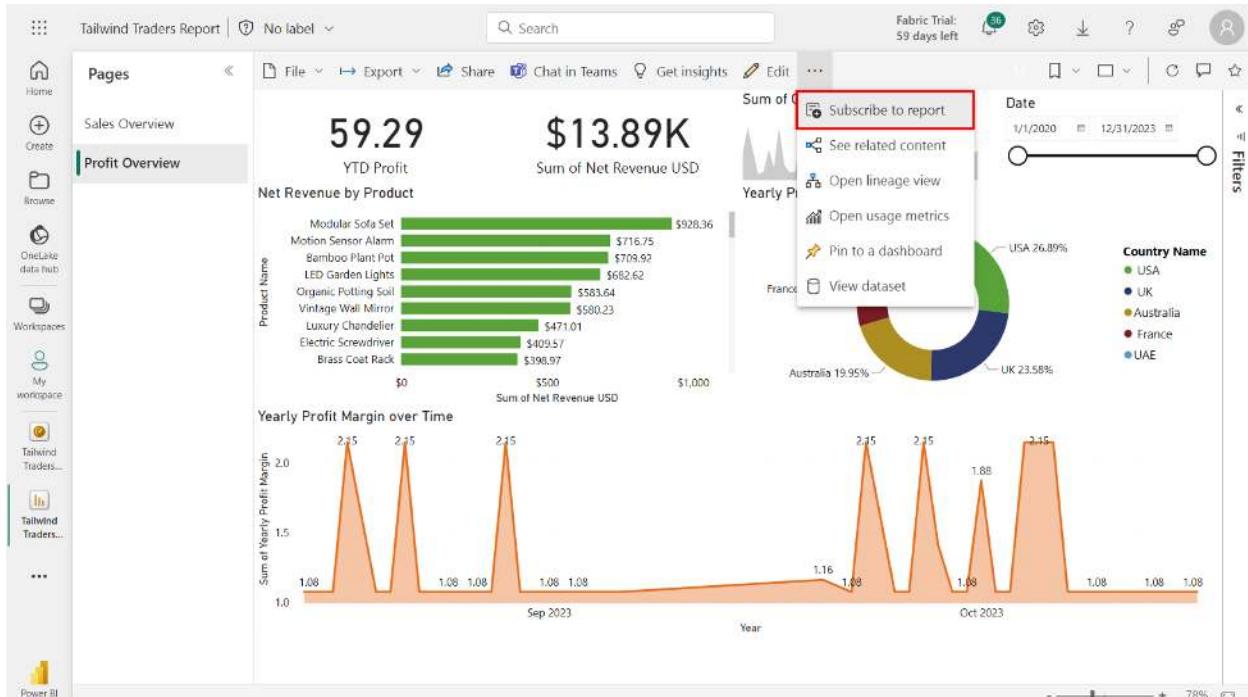
Select **Save** to activate the **Sales Overview** subscription. You'll receive a message confirming your subscription is now active.

This screenshot shows the same Power BI interface as the previous one, but with a success message at the top: 'Subscription saved.' The 'Subscriptions' pane on the right now lists a single item: 'Sales Weekly Summary'. This item has a red border around it and includes a pencil icon, a trash bin icon, and a toggle switch that is also turned on. The rest of the interface remains the same, showing the report's visual elements and the navigation bar on the left.

Step 3: Create a subscription for Profit Overview

1. Access the report's Profit Overview tab.

Navigate to the Profit Overview tab and access the **Subscribe to Report** option.



1. Create a subscription to the report with the following configurations:

- Name the subscription **Profit Weekly Summary**.
- Set the **Start date** to the current date and the **End date** to **12/31/2025**.
- Set the frequency to **Weekly** and select **Monday, Wednesday** and **Friday** as the days of the week.
- Set the **Scheduled time** to **6:00 AM**.

Name your report **Profit Weekly Summary**. Set the **Start date** to the current date and the **End date** to **12/31/2025**. Select **Weekly** as your frequency, and select **Monday, Wednesday**, and **Friday** as the days of the week.

Subscriptions

Keep track of your data by subscribing to this report.

Manage all

Subscription name *
Profit Weekly Summary

Recipients *
A Amelia Enter email addresses

Attach full report
None

Scheduled date and time

Start date * 11/08/2023

End date * 12/31/2025

Repeat * Weekly

On S M T W F S

Save **New subscription**

Set the **Scheduled time** to 6:00 AM.

Subscriptions

Keep track of your data by subscribing to this report.

Manage all

Scheduled time * 6 00 AM

Time zone * (UTC) Coordinated Universal Time

Emails will be sent weekly at 06:00 AM (UTC) Coordinated Universal Time starting Wednesday, November 8, 2023.

More options

Email subject Subject

Message Include an optional message...

Report page Profit Overview

Save **New subscription**

1. Access the **Profit Overview** report page in the **Report page** dropdown and ensure that the toggle switches for the following options are switched on:
 - **Permission to view the report in Power BI**
 - **Link to report in Power BI**
 - **Report page preview**

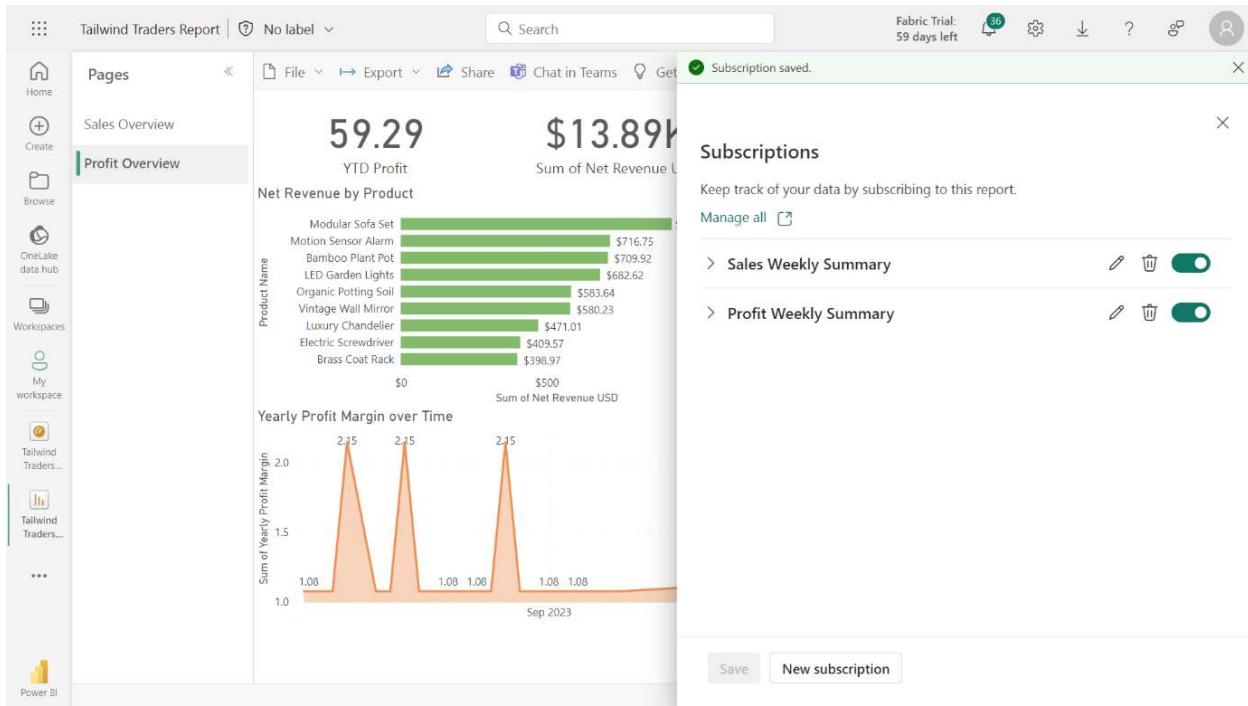
Expand **More options** and select the **Profit Overview report page** in the **Report page** dropdown. Ensure that the toggle switches for the following options are switched on:

- **Permission to view the report in Power BI**
- **Link to report in Power BI**
- **Report page preview**

The screenshot shows the Microsoft Power BI service interface. On the left, the navigation pane includes Home, Create, Browse, OneLake data hub, Workspaces, My workspace, Tailwind Traders, and Power BI. The main area displays the 'Sales Overview' and 'Profit Overview' pages. The 'Profit Overview' page is currently selected, showing a YTD Profit of \$59.29 and a Sum of Net Revenue of \$13,891. Below this are two charts: 'Net Revenue by Product' (a horizontal bar chart) and 'Yearly Profit Margin over Time' (a line chart). To the right, the 'Subscriptions' section is open, showing a message field, a 'Report page' dropdown set to 'Profit Overview' (which is highlighted with a red box), and three toggle switches: 'Permission to view the report in Power BI' (on), 'Link to report in Power BI' (on), and 'Report page preview' (on). A note at the bottom states 'Subscription must be saved before sending.' At the bottom right are 'Save' and 'New subscription' buttons.

1. Activate the subscription.

Select **Save** to activate the **Profit Overview** subscription.



Conclusion

You have successfully created an executive dashboard and configured alerts and subscriptions with these steps.