

Filtering



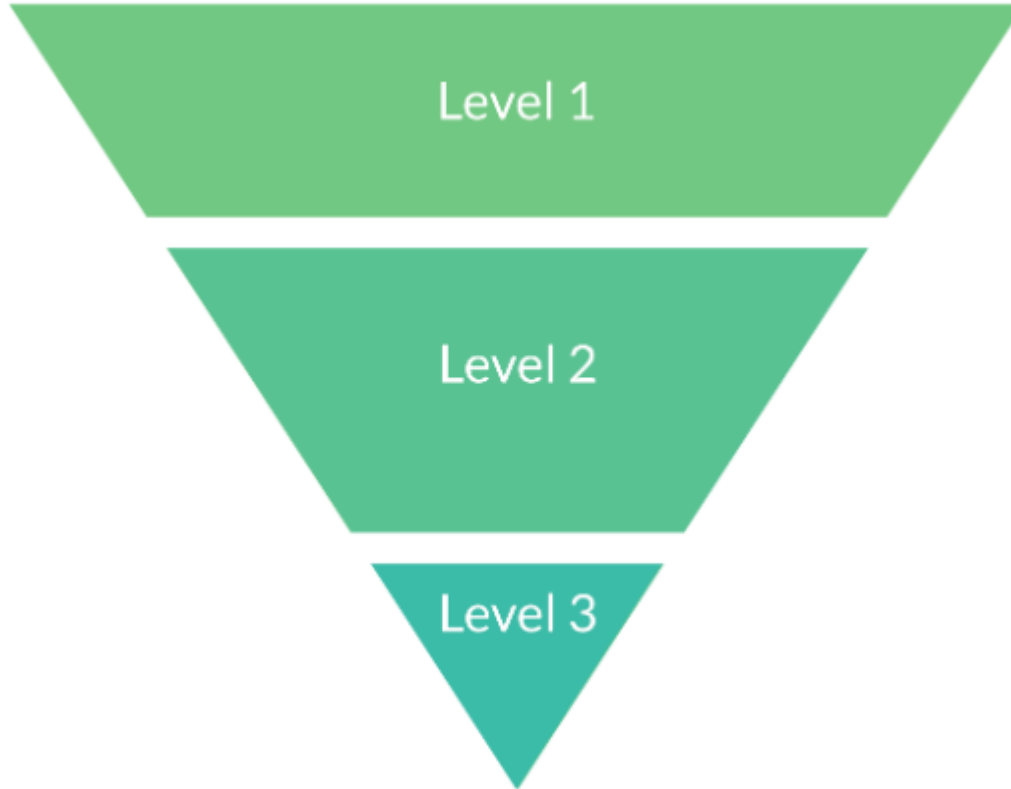
Drilling down and filtering

INTRODUCTION TO POWER BI

All Files are here:

**[https://github.com/fenago/cts245X
/tree/main/CTS245 I IntroToPowerBI
/Exercises](https://github.com/fenago/cts245X/tree/main/CTS245%20IntroToPowerBI/Exercises)**

Drilling down



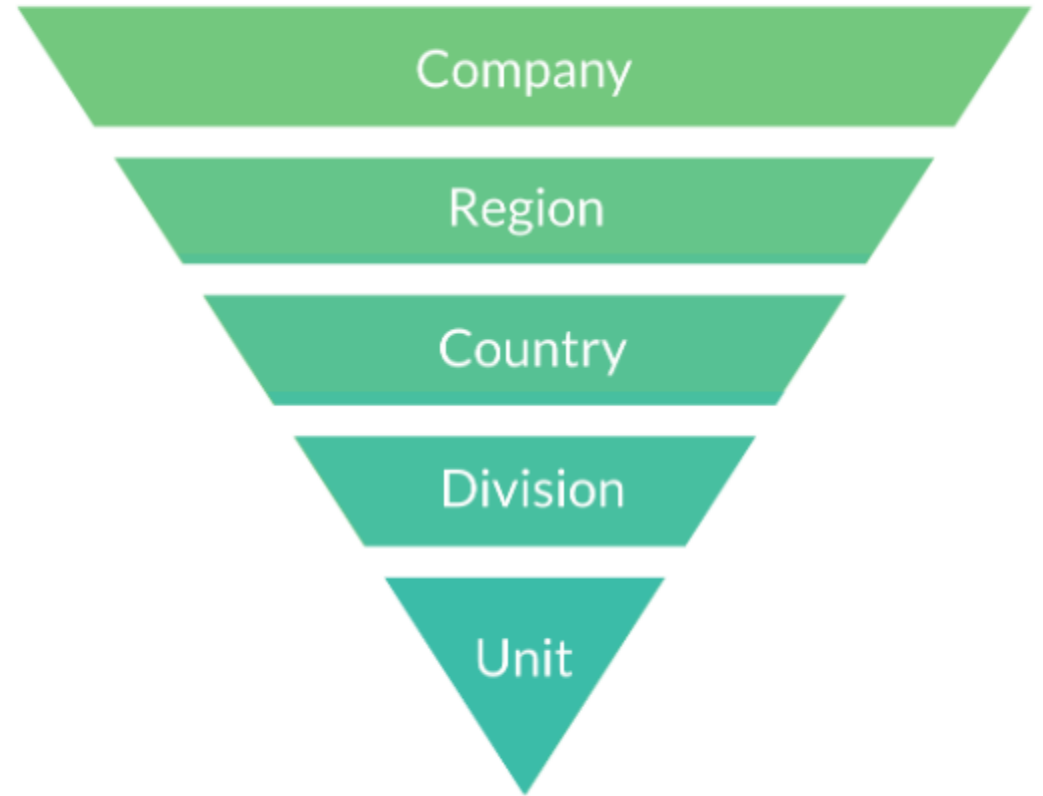
- Show data at a high level
- Option to show a more detailed level

Hierarchies

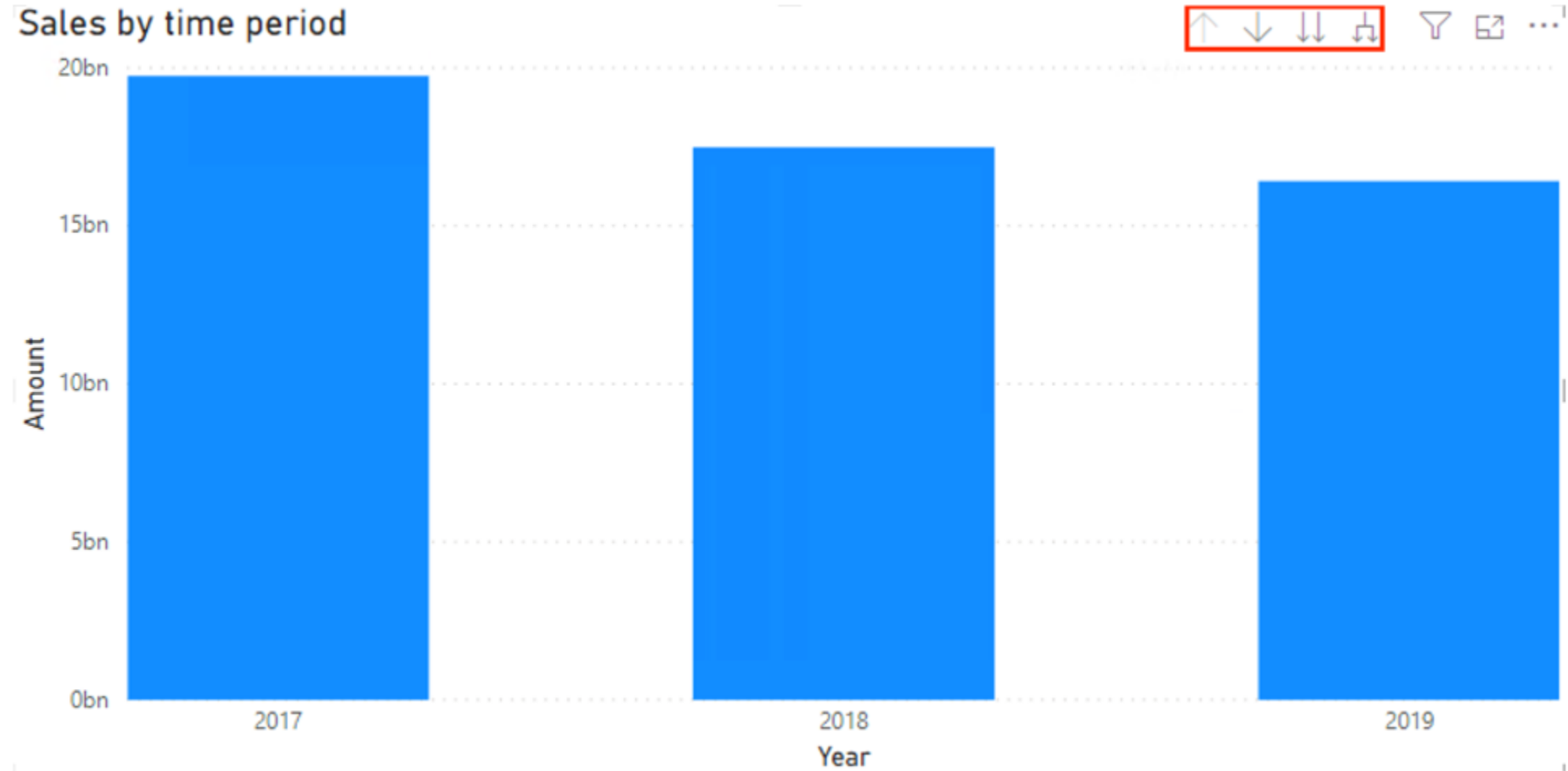
Example 1



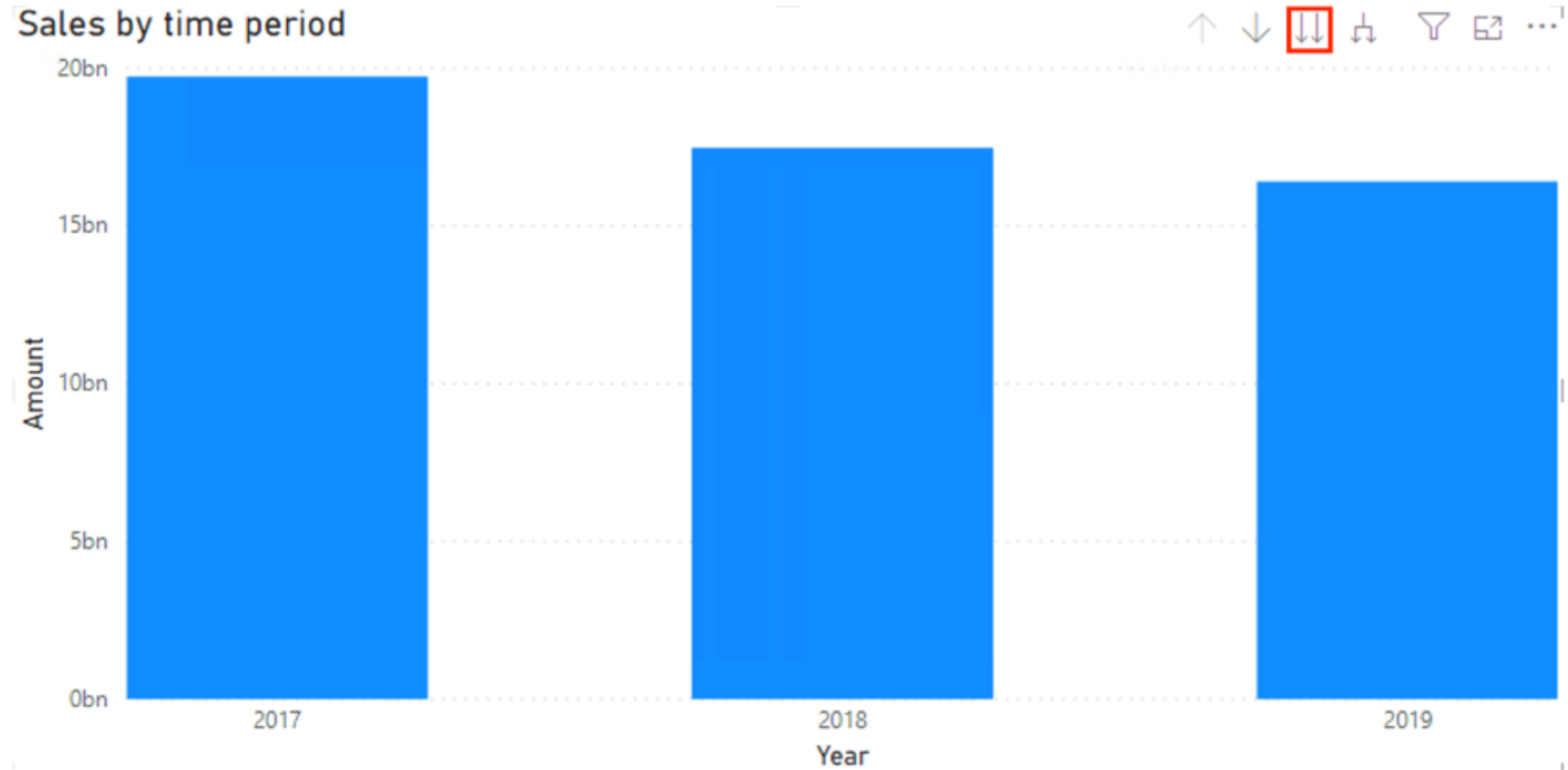
Example 2



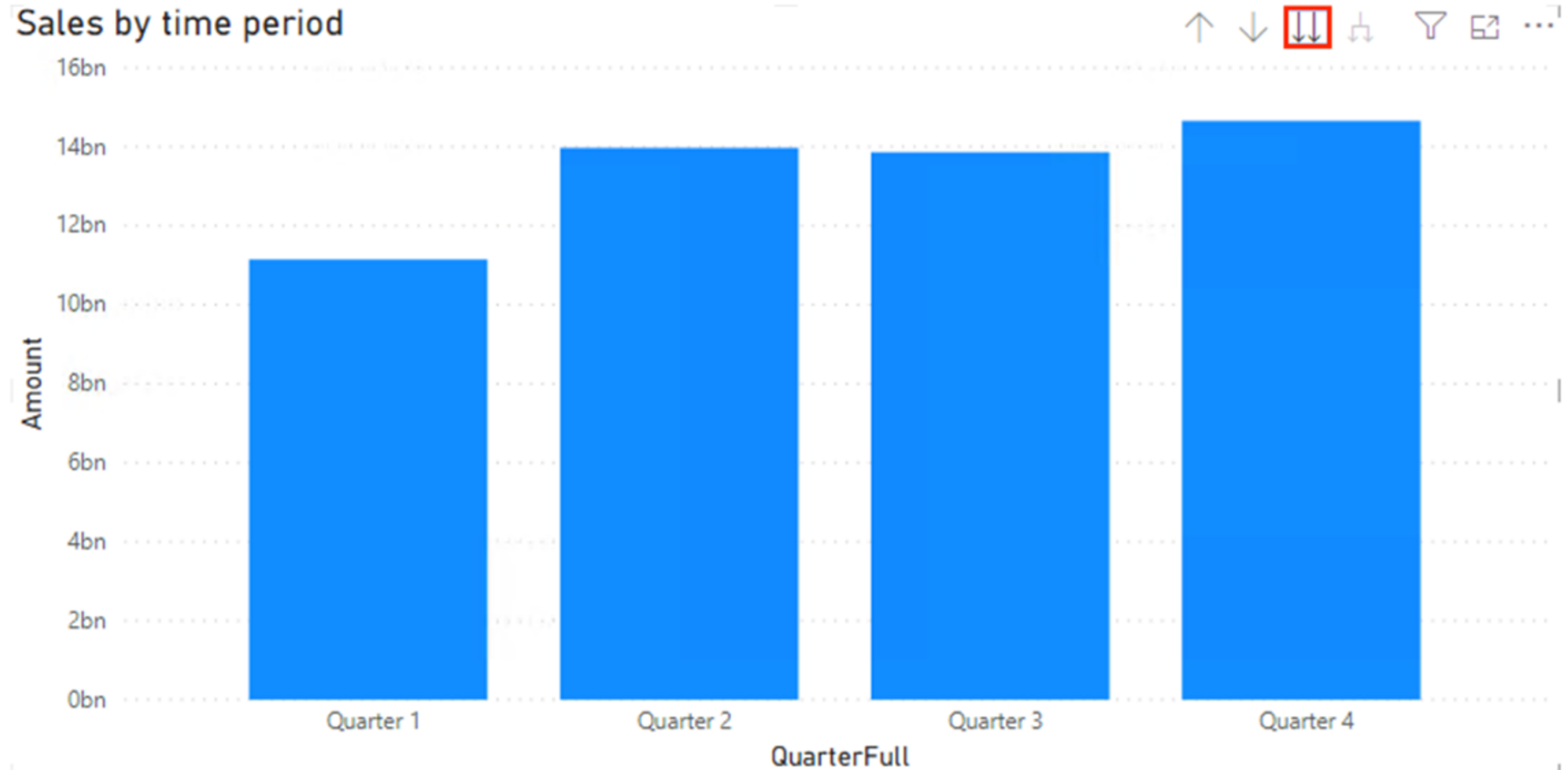
Drilling down on a visual



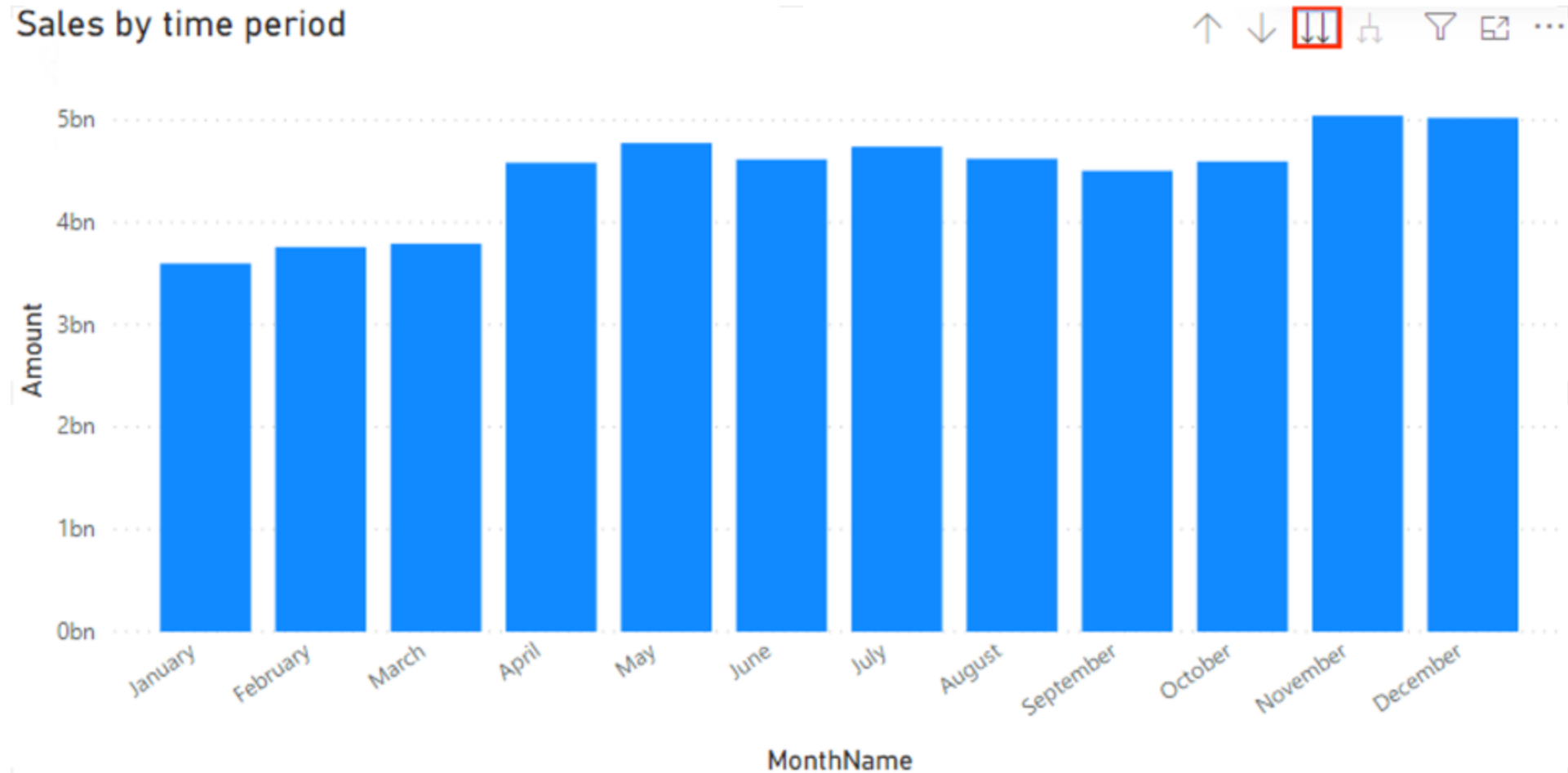
Drill down all fields at once



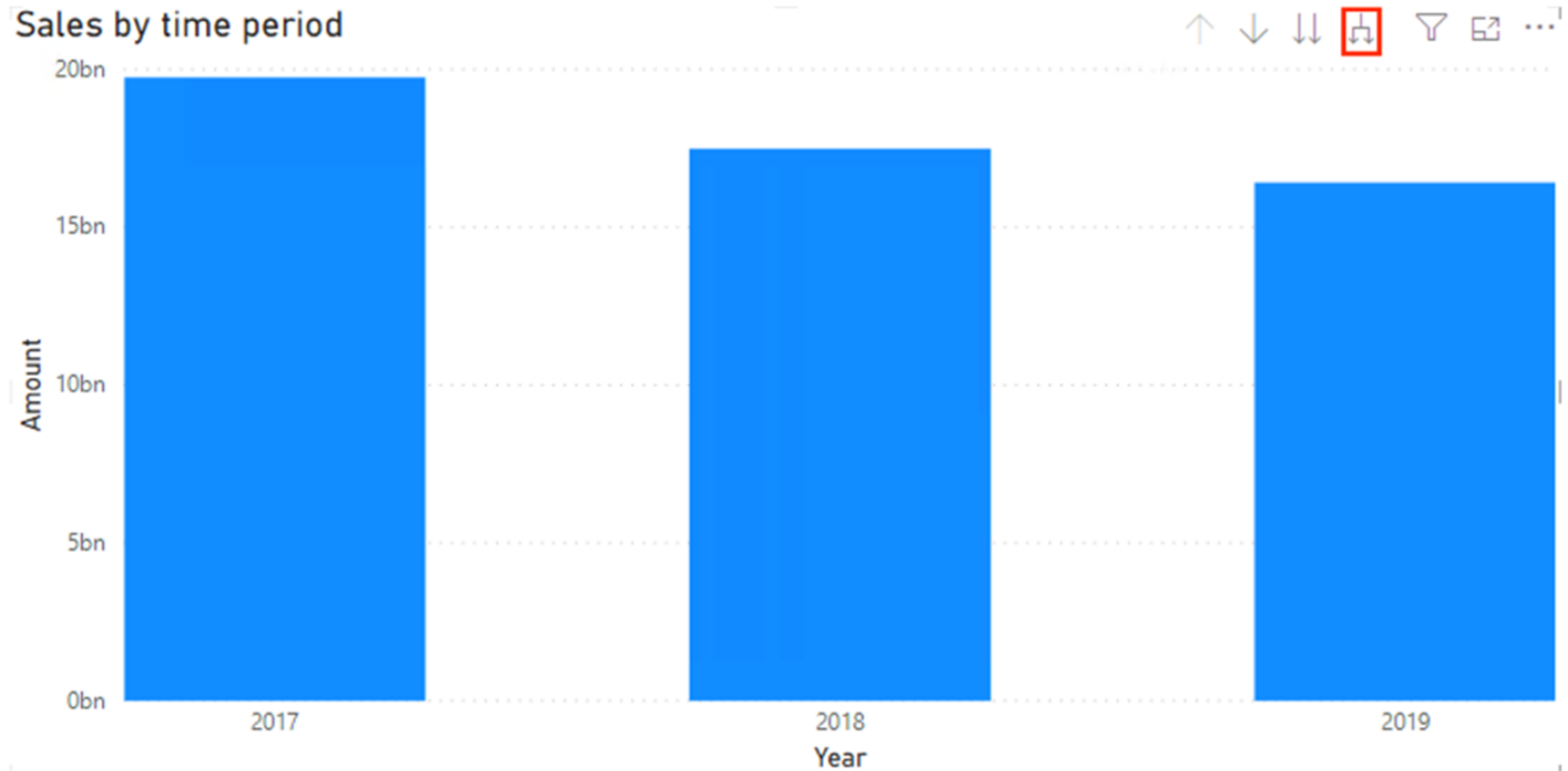
Expand all fields at once



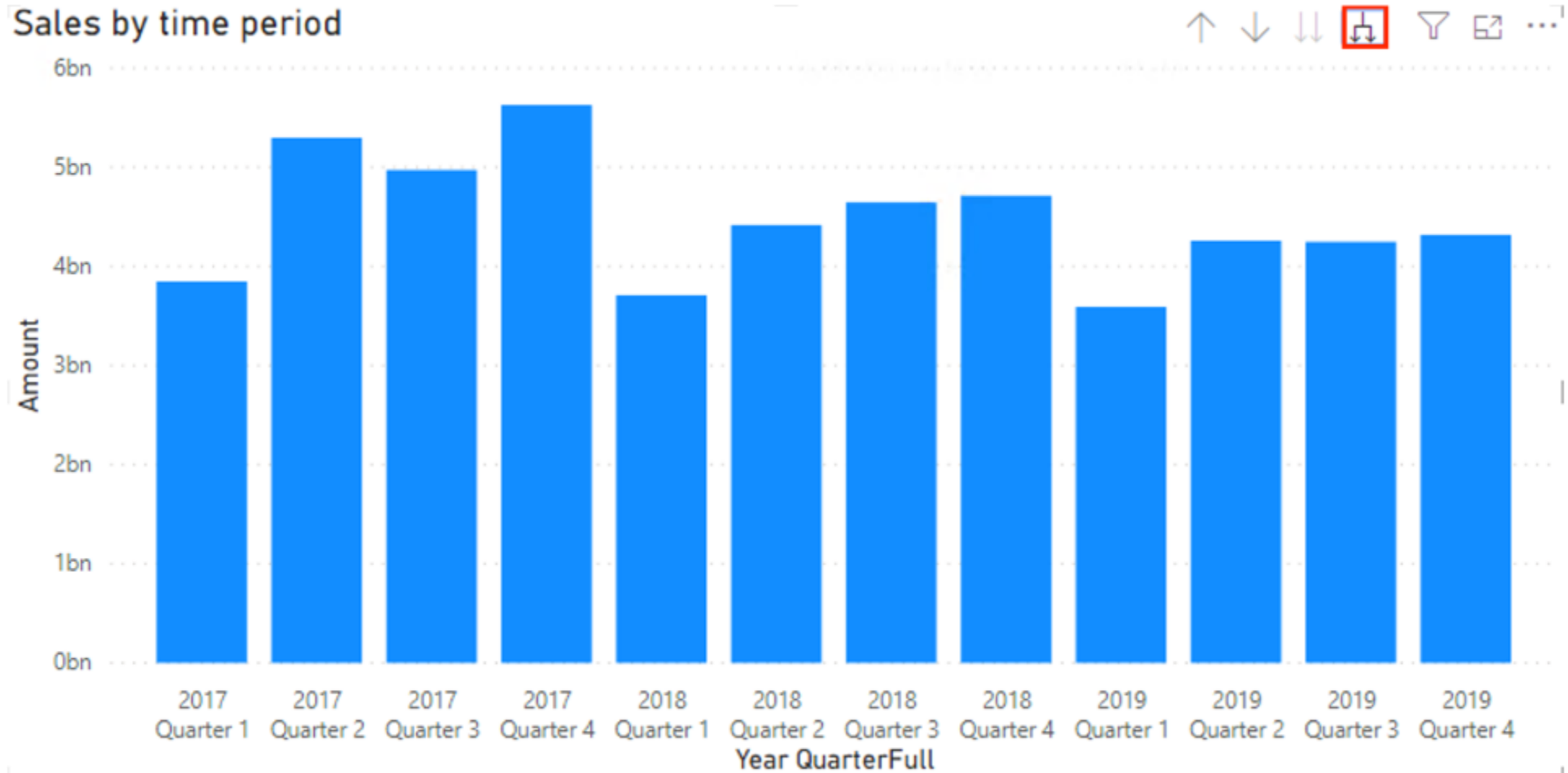
Drill down all fields at once



Expand all fields at once

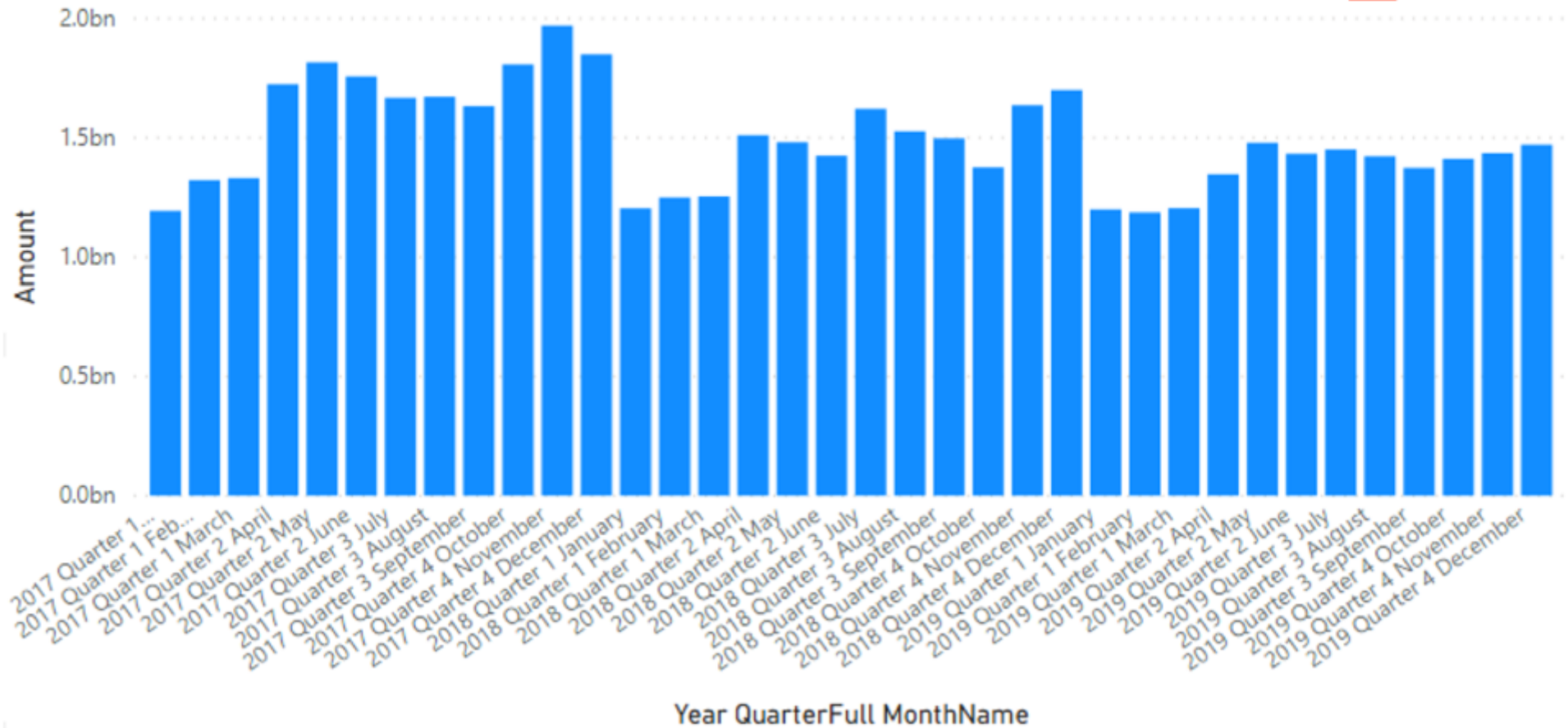


Expand all fields at once

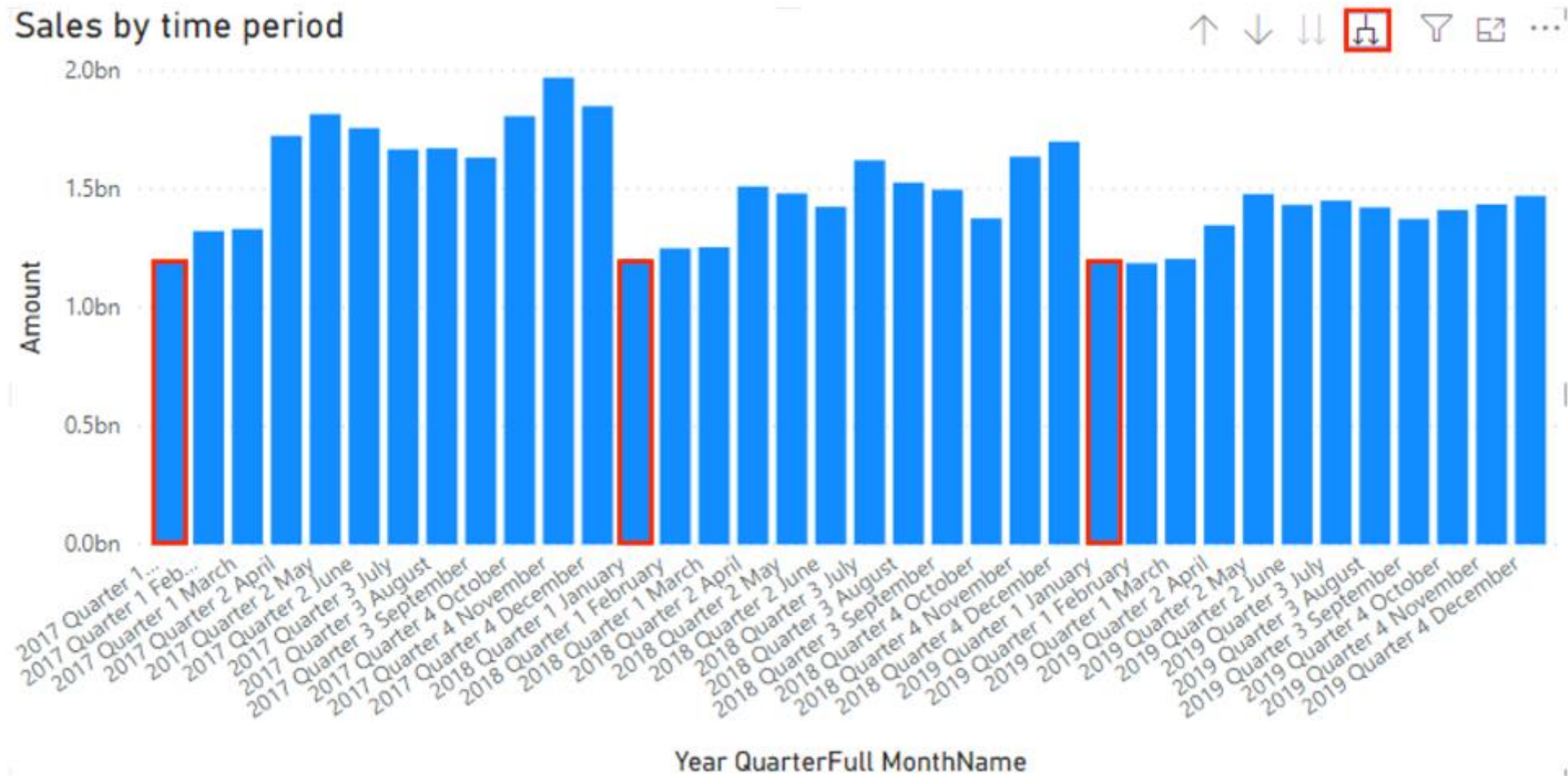


Expand all fields at once

Sales by time period



Expand all fields at once



Filtering



- Display data based on some selected criteria
- Examples:
 - Filter on one year or one customer
 - Show the top 5 regions
- Types of filters in Power BI:
 - Visual-level filters
 - Page-level filters
 - Report-level filters

Turning off filtering

- Don't allow the end-user of your report to change the filters
- In Power BI: turning off interactions
 - Visual will not change when another field is selected



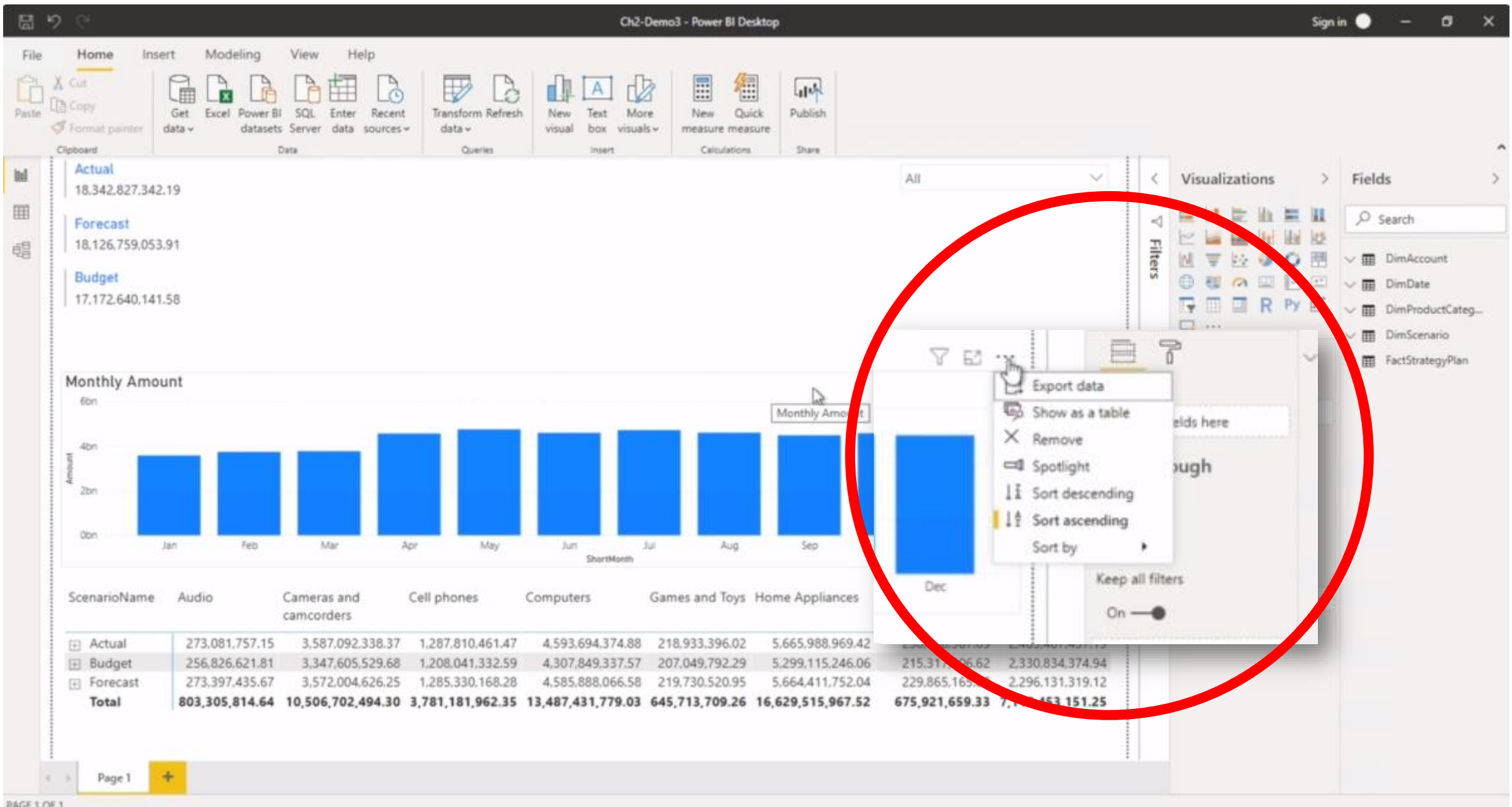
Let's practice!

Working with hierarchies

You don't always want to look at all the available data in your Power BI visualizations. Depending on the business question you are trying to answer, you may want to drill down to look at additional relevant details. Drilling down accomplishes this by using hierarchies. But how much do you know about hierarchies?

Which statement about hierarchies is true?

- A. A hierarchy is a new column type.
- B. A hierarchy enables the ability to show different levels of data without having to create new visuals.
- C. A hierarchy is a specific drill-down visual you can use in Power BI.
- D. A hierarchy is an add-on to the data view.



Ch2-Demo3 - Power BI Desktop

File Home Insert Modeling View Help Format Data / Drill

Clipboard Data Queries Insert Calculations Share

Back to report MONTHLY AMOUNT

Amount

6bn

4bn

2bn

0bn

Jan Feb

ShortMonth Amount

Jan	3,597,578,431.38
Feb	3,758,645,504.09
Mar	3,790,438,158.33
Apr	4,582,523,210.83
May	4,776,082,316.92
Jun	4,614,969,805.86
Jul	4,739,083,940.00
Aug	4,621,200,022.72
Sep	4,503,667,439.87
Oct	4,594,942,500.00
Nov	5,042,191,212.87
Dec	5,020,903,994.80

Save As

This PC > Local Disk (C:) > Users > Public > Public Documents > Power BI Exercises

Search Power BI Exercises

Organize New folder

3D Objects Desktop Documents Downloads Music Pictures Videos Local Disk (C:)

No items match your search.

Name Date modified Type Size

File name: Monthly Amount

Save as type: CSV File

Hide Folders

Save Cancel

Visualizations

Fields

Search

- DimAccount
- DimDate
- DimProductCateg...
- DimScenario
- FactStrategyPlan

ReportMonth

Legend

id data fields here

ue

ount

tips

id data fields here

ill through

ss-report

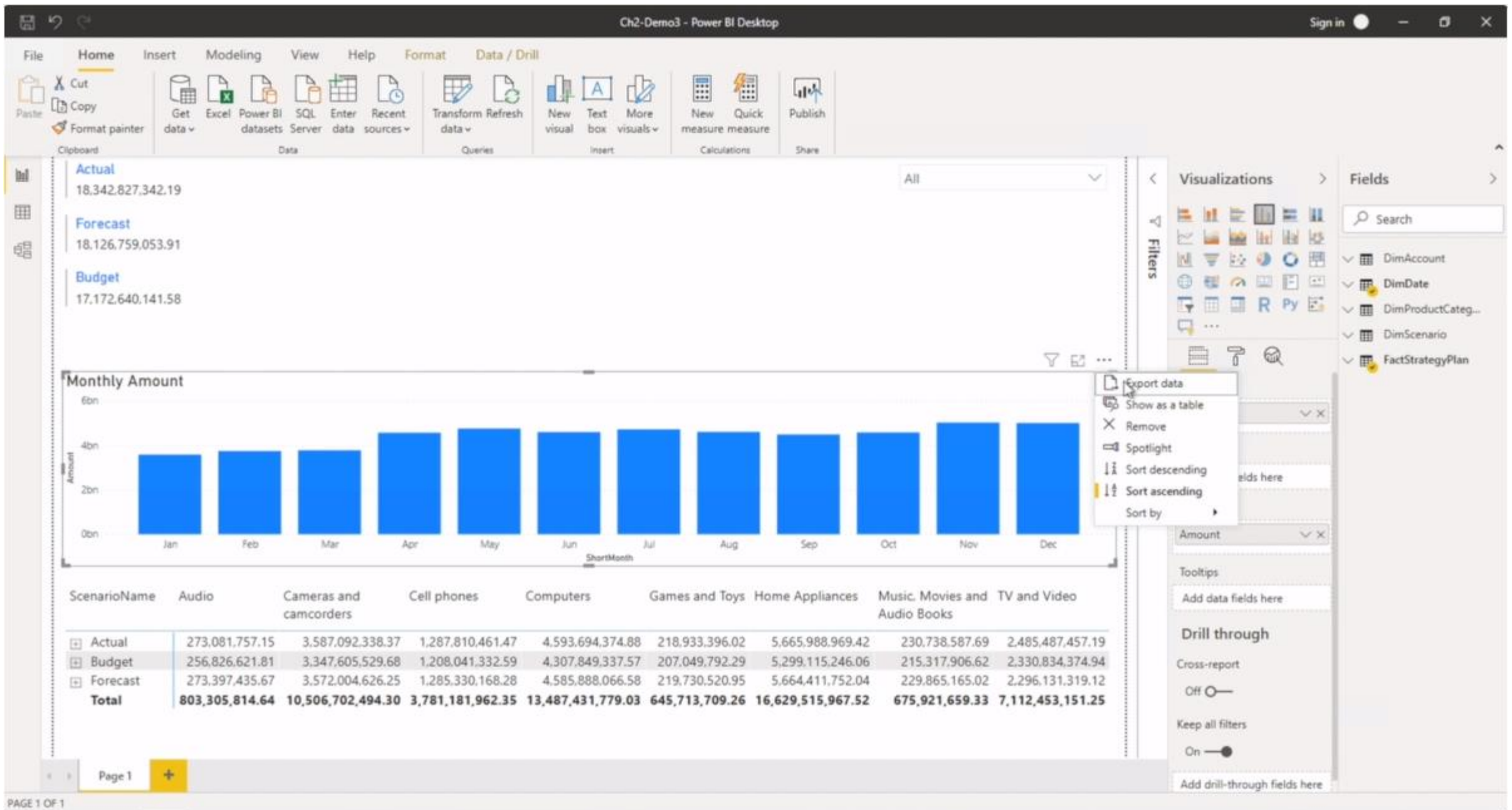
Off

Keep all filters

On

Add drill-through fields here

PAGE 1 OF 1



Ch2-Demo3 - Power BI Desktop

Sign in

File Home Help Table tools

Name DimAccount

Mark as date table ~

Manage relationships

New measure Quick measure New column New table

Structure

AccountKey	ParentAccountKey	AccountLabel	AccountName	AccountDescription	AccountType	Operator	CustomMembers	ValueType	CustomMemberOptions	ETLLoadID
1	NULL	100000	Profit and Loss after tax	Profit and Loss after tax	NULL	NULL	NULL	NULL	NULL	1
2	24	111000	Income	Income	Income	+	NULL	Income	+	1
3	24	112000	Expense	Expense	Expense	-	NULL	Expense	-	1
4	2	110100	Sale Revenue	Sale Revenue	Income	+	NULL	Income	+	1
5	3	112100	Cost of Goods Sold	Cost of Goods Sold	Expense	+	NULL	Expense	+	1
6	3	112200	Selling, General & Administrative Expenses	Selling, General & Administrative Expenses	Expense	+	NULL	Expense	+	1
7	6	112300	Administration Expense	Administration Expense	Expense	+	NULL	Expense	+	1
8	6	112400	IT Cost	IT Cost	Expense	+	NULL	Expense	+	1
9	6	112500	Human Capital	Human Capital	Expense	+	NULL	Expense	+	1
10	6	112600	Light, Heat, Communication Cost	Light, Heat, Communication Cost	Expense	+	NULL	Expense	+	1
11	6	112700	Property Costs	Property Costs	Expense	+	NULL	Expense	+	1
12	6	112800	Other Expenses	Other Expenses	Expense	+	NULL	Expense	+	1
13	6	112900	Marketing Cost	Marketing & Advertisement Cost	Expense	+	NULL	Expense	+	1
14	13	112910	Holiday Ad Cost	Holiday Ad Cost	Expense	+	NULL	Expense	+	1
15	13	112920	Spring Ad Cost	Spring Ad Cost	Expense	+	NULL	Expense	+	1
16	13	112930	Back-to-School Ad Cost	Back-to-School Ad Cost	Expense	+	NULL	Expense	+	1
17	13	112940	Business Ad Cost	Business Ad Cost	Expense	+	NULL	Expense	+	1
18	13	112950	Tax Time / Summer Ad Cost	Tax Time / Summer Ad Cost	Expense	+	NULL	Expense	+	1
19	1	110000	Taxation	Taxation	Taxation	-	NULL	Taxation	-	1
20	14	112911	Radio & TV	Holiday Ad Cost by Radio & TV	Expense	+	NULL	Expense	+	1
21	14	112912	Print	Holiday Ad Cost by Print	Expense	+	NULL	Expense	+	1
22	14	112913	Internet	Holiday Ad Cost by Internet	Expense	+	NULL	Expense	+	1
23	14	112914	Other	Holiday Ad Cost by Other	Expense	+	NULL	Expense	+	1
24	1	110000	Profit and Loss before tax	Profit and Loss before tax	NULL	+	NULL	NULL	+	1

Fields

Search

DimAccount

DimDate

DimProductCateg...

DimScenario

FactStrategyPlan

TABLE: DimAccount (24 rows)

Ch2-Demo3 - Power BI Desktop

File Home Help Table tools Column tools

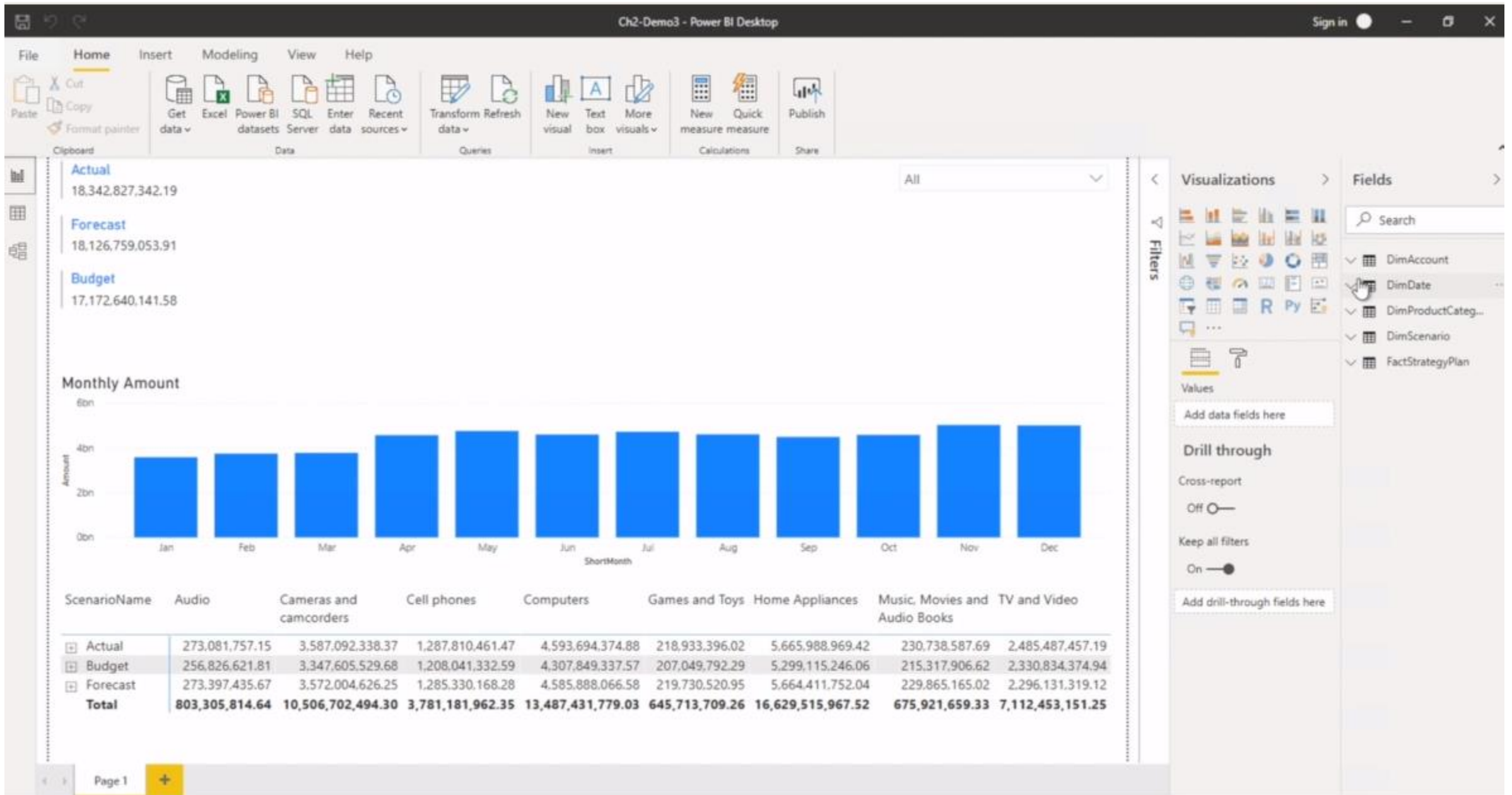
Name: Datekey Data type: Date Format: Wednesday, March... Summarization: Don't summarize Data category: Uncategorized

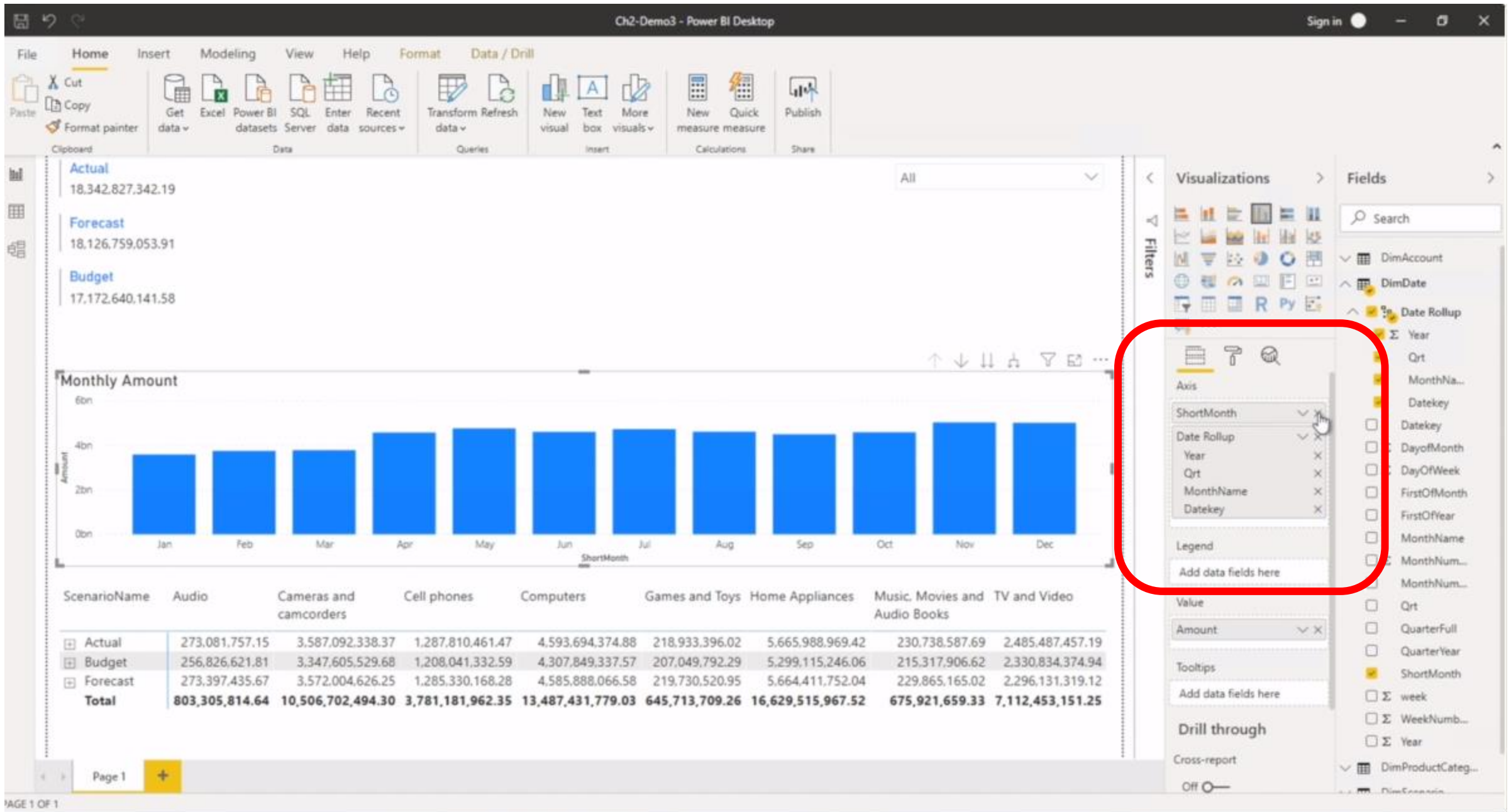
Sort by column Data groups Manage relationships New column

Datekey	DayOfMonth	MonthNumber	FirstOfMonth	ShortMonth	MonthName	MonthNumberYear	week	WeekNumber	DayOfWeek	QuarterFull	Qrt	QuarterYear	Year	FirstOfY
Wednesday, July 1, 2015	1	7	Wednesday, July 1, 2015	Jul	July	2015-7	27	27	4	Quarter 3	Q 3	Mar-15	2015	Thursday
Thursday, July 2, 2015	2	7	Wednesday, July 1, 2015	Jul	July	2015-7	27	27	5	Quarter 3	Q 3	Mar-15	2015	Thursday
Friday, July 3, 2015	3	7	Wednesday, July 1, 2015	Jul	July	2015-7	27	27	6	Quarter 3	Q 3	Mar-15	2015	Thursday
Saturday, July 4, 2015	4	7	Wednesday, July 1, 2015	Jul	July	2015-7	27	27	7	Quarter 3	Q 3	Mar-15	2015	Thursday
Sunday, July 5, 2015	5	7	Wednesday, July 1, 2015	Jul	July	2015-7	28	27	1	Quarter 3	Q 3	Mar-15	2015	Thursday
Monday, July 6, 2015	6	7	Wednesday, July 1, 2015	Jul	July	2015-7	28	28	2	Quarter 3	Q 3	Mar-15	2015	Thursday
Tuesday, July 7, 2015	7	7	Wednesday, July 1, 2015	Jul	July	2015-7	28	28	3	Quarter 3	Q 3	Mar-15	2015	Thursday
Wednesday, July 8, 2015	8	7	Wednesday, July 1, 2015	Jul	July	2015-7	28	28	4	Quarter 3	Q 3	Mar-15	2015	Thursday
Thursday, July 9, 2015	9	7	Wednesday, July 1, 2015	Jul	July	2015-7	28	28	5	Quarter 3	Q 3	Mar-15	2015	Thursday
Friday, July 10, 2015	10	7	Wednesday, July 1, 2015	Jul	July	2015-7	28	28	6	Quarter 3	Q 3	Mar-15	2015	Thursday
Saturday, July 11, 2015	11	7	Wednesday, July 1, 2015	Jul	July	2015-7	28	28	7	Quarter 3	Q 3	Mar-15	2015	Thursday
Sunday, July 12, 2015	12	7	Wednesday, July 1, 2015	Jul	July	2015-7	29	28	1	Quarter 3	Q 3	Mar-15	2015	Thursday
Monday, July 13, 2015	13	7	Wednesday, July 1, 2015	Jul	July	2015-7	29	29	2	Quarter 3	Q 3	Mar-15	2015	Thursday
Tuesday, July 14, 2015	14	7	Wednesday, July 1, 2015	Jul	July	2015-7	29	29	3	Quarter 3	Q 3	Mar-15	2015	Thursday
Wednesday, July 15, 2015	15	7	Wednesday, July 1, 2015	Jul	July	2015-7	29	29	4	Quarter 3	Q 3	Mar-15	2015	Thursday
Thursday, July 16, 2015	16	7	Wednesday, July 1, 2015	Jul	July	2015-7	29	29	5	Quarter 3	Q 3	Mar-15	2015	Thursday
Friday, July 17, 2015	17	7	Wednesday, July 1, 2015	Jul	July	2015-7	29	29	6	Quarter 3	Q 3	Mar-15	2015	Thursday
Saturday, July 18, 2015	18	7	Wednesday, July 1, 2015	Jul	July	2015-7	29	29	7	Quarter 3	Q 3	Mar-15	2015	Thursday
Sunday, July 19, 2015	19	7	Wednesday, July 1, 2015	Jul	July	2015-7	30	29	1	Quarter 3	Q 3	Mar-15	2015	Thursday
Monday, July 20, 2015	20	7	Wednesday, July 1, 2015	Jul	July	2015-7	30	30	2	Quarter 3	Q 3	Mar-15	2015	Thursday
Tuesday, July 21, 2015	21	7	Wednesday, July 1, 2015	Jul	July	2015-7	30	30	3	Quarter 3	Q 3	Mar-15	2015	Thursday
Wednesday, July 22, 2015	22	7	Wednesday, July 1, 2015	Jul	July	2015-7	30	30	4	Quarter 3	Q 3	Mar-15	2015	Thursday
Thursday, July 23, 2015	23	7	Wednesday, July 1, 2015	Jul	July	2015-7	30	30	5	Quarter 3	Q 3	Mar-15	2015	Thursday
Friday, July 24, 2015	24	7	Wednesday, July 1, 2015	Jul	July	2015-7	30	30	6	Quarter 3	Q 3	Mar-15	2015	Thursday
Saturday, July 25, 2015	25	7	Wednesday, July 1, 2015	Jul	July	2015-7	30	30	7	Quarter 3	Q 3	Mar-15	2015	Thursday
Sunday, July 26, 2015	26	7	Wednesday, July 1, 2015	Jul	July	2015-7	31	30	1	Quarter 3	Q 3	Mar-15	2015	Thursday
Monday, July 27, 2015	27	7	Wednesday, July 1, 2015	Jul	July	2015-7	31	31	2	Quarter 3	Q 3	Mar-15	2015	Thursday
Tuesday, July 28, 2015	28	7	Wednesday, July 1, 2015	Jul	July	2015-7	31	31	3	Quarter 3	Q 3	Mar-15	2015	Thursday
Wednesday, July 29, 2015	29	7	Wednesday, July 1, 2015	Jul	July	2015-7	31	31	4	Quarter 3	Q 3	Mar-15	2015	Thursday

TABLE: DimDate (2,192 rows) COLUMN: Datekey (2,192 distinct values)

Fields: Search DimAccount DimDate Date Rollup Datekey DayOfMonth DayOfWeek FirstOfMonth FirstOfYear MonthName New hierarchy Add to hierarchy New measure New column New quick measure Rename Delete Hide in report view Unhide all New group DimScenario FactStrategyPlan





Ch2-Demo3 - Power BI Desktop

File Home Insert Modeling View Help Format Data / Drill

Paste Cut Copy Format painter Get data Excel Power BI datasets SQL Server Enter data Recent sources Transform Refresh data New visual Text box More visuals New measure Quick measure Publish

Clipboard Data Queries Insert Calculations Share

Actual
18,342,827,342.19

Forecast
18,126,759,053.91

Budget
17,172,640,141.58

Drill Mode is on: Click a data point to drill

Monthly Amount

ScenarioName Audio Cameras and camcorders Cell phones Computers Games and Toys Home Appliances Music, Movies and Audio Books TV and Video

ScenarioName	Audio	Cameras and camcorders	Cell phones	Computers	Games and Toys	Home Appliances	Music, Movies and Audio Books	TV and Video
Actual	273,081,757.15	3,587,092,338.37	1,287,810,461.47	4,593,694,374.88	218,933,396.02	5,665,988,969.42	230,738,587.69	2,485,487,457.19
Budget	256,826,621.81	3,347,605,529.68	1,208,041,332.59	4,307,849,337.57	207,049,792.29	5,299,115,246.06	215,317,906.62	2,330,834,374.94
Forecast	273,397,435.67	3,572,004,626.25	1,285,330,168.28	4,585,888,066.58	219,730,520.95	5,664,411,752.04	229,865,165.02	2,296,131,319.12
Total	803,305,814.64	10,506,702,494.30	3,781,181,962.35	13,487,431,779.03	645,713,709.26	16,629,515,967.52	675,921,659.33	7,112,453,151.25

Visualizations Fields

Search

DimAccount

DimDate

Date Rollup

Year

Qrt

MonthName

Datekey

Datekey

DayOfMonth

DayOfWeek

FirstOfMonth

FirstOfYear

MonthName

MonthNum

MonthNum

Qrt

QuarterFull

QuarterYear

ShortMonth

week

WeekNum

Year

DimProductCateg...

DimScenario

Axis

Date Rollup

Year

Qrt

MonthName

Datekey

Legend

Add data fields here

Value

Amount

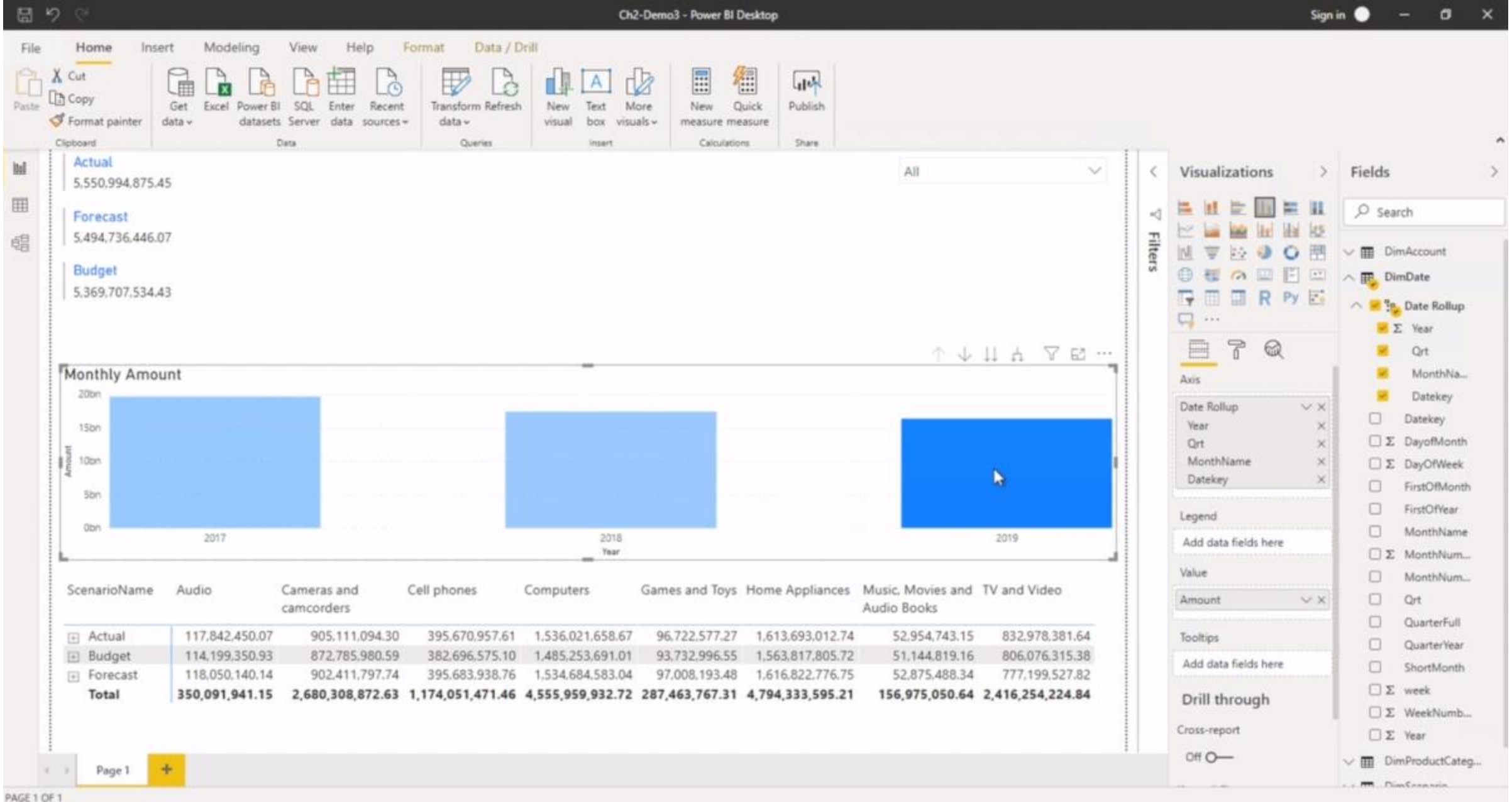
Tooltips

Add data fields here

Drill through

Cross-report

Off



If you'd like to see the data that Power BI uses to create a visualization, you can display that data. You can even export the data as an `.xlsx` or `.csv` file so you can open it in Excel later. In this exercise, you'll look at the data and export it to a csv file that you will then open up with Windows' default text editor, Notepad. Notepad will open automatically if you double-click on any text file, like a `.csv` file.

Close any open reports and open the `4_1_looking_at_the_data.pbix` report from the Exercises folder on the desktop.

- Select the clustered column chart.
- Display the underlying data.

Export the data as a `.csv` file and save it on the desktop.

Open the `.csv` file with Notepad to look at the data.

What is the last character in the csv file?

Sometimes you want to drill down into a chart and see different levels of your data. With hierarchies, you can add this functionality to your Power BI reports. Let's create a date hierarchy that looks like this: Year-Quarter-Month-Day.

If you lost progress, close any open reports and load 4_2_creating_a_hierarchy.pbix from the Exercises folder on the desktop.

Navigate to the DimDate table in the Data View.

Create a hierarchy that starts with Year, goes on to the QuarterFull, then the MonthName, and ends with the DateKey.

If the drag functionality isn't working, you can right-click DimDate's Year in the Fields pane and select "Create hierarchy". From there, you can right-click the necessary fields and select "Add to hierarchy".

Rename the hierarchy to Date Hierarchy.

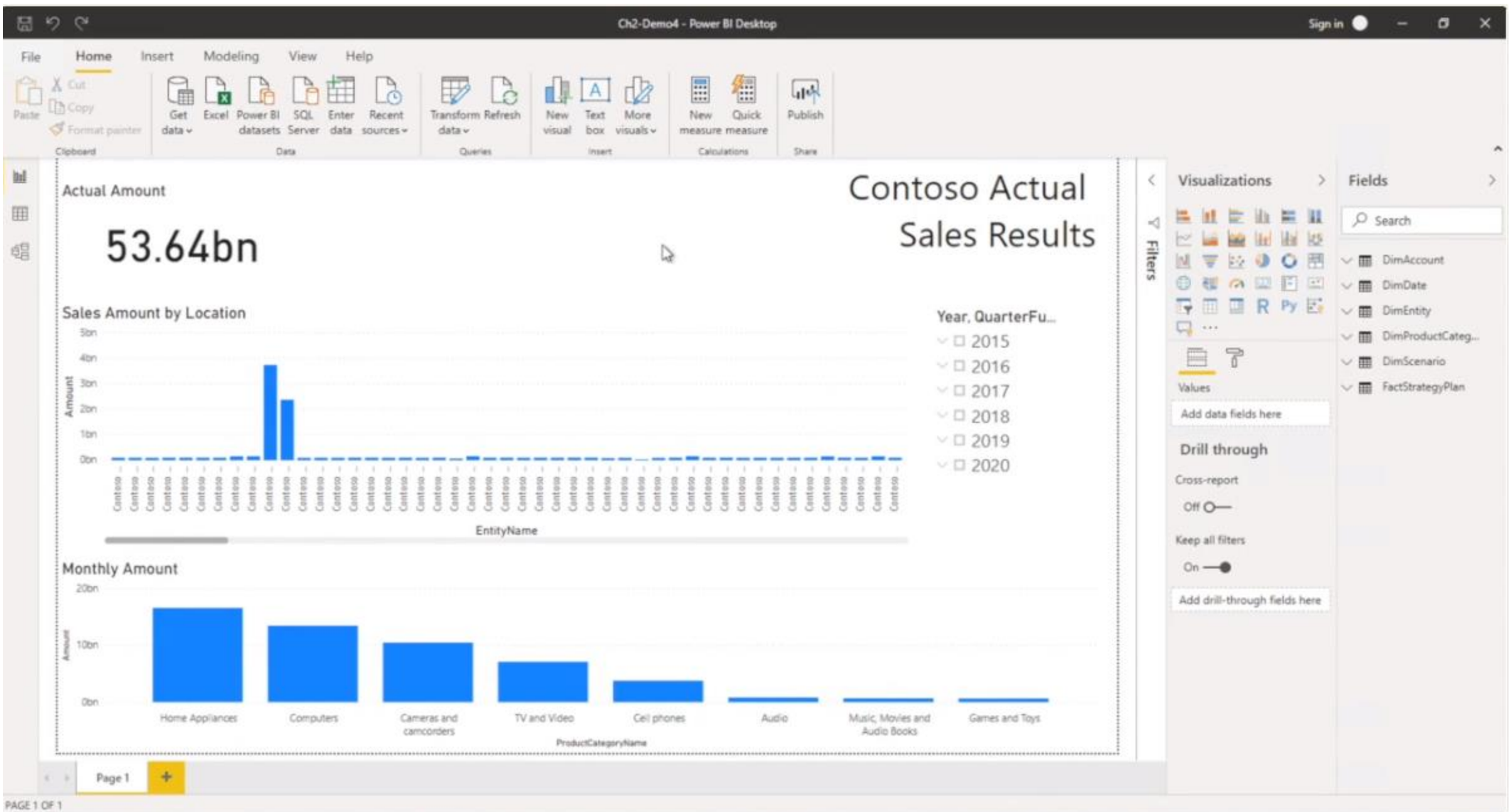
In the column chart on the Report view, replace the ShortMonth Axis value of the column chart by the Date Hierarchy.

Use the drill controls in the top right corner of the visual to explore the different levels. Click the single down arrow to enable drill mode.

Which quarter across all years had the highest amount (format example: Y2020 Q1)?



Filters



Ch2-Demo4 - Power BI Desktop

File Home Help

Paste Cut Copy Get data Excel Power BI datasets SQL Enter data Recent sources Transform Refresh data Manage relationships Manage roles View as Q&A Language Linguistic schema Publish

Clipboard Data Queries Relationships Security Q&A Share

DimScenario

- ScenarioDescription
- ScenarioKey
- ScenarioLabel
- ScenarioName

FactStrategyPlan

- AccountKey
- Amount
- CurrencyKey
- Datekey
- EntityKey
- ProductCategoryKey
- ScenarioKey
- StrategyPlanKey

DimAccount

- AccountDescription
- AccountKey
- AccountLabel
- AccountName
- AccountType
- CustomMemberOptions
- CustomMembers
- ETLLoadID
- Operator
- ParentAccountKey
- ValueType

DimDate

- Datekey
- DayOfMonth
- DayOfWeek
- FirstOfMonth
- FirstOfYear
- MonthName
- MonthNumber
- MonthNumberYear
- Qrt
- QuarterFull
- QuarterYear
- ShortMonth
- week

DimProductCategory

- ETLLoadID
- ProductCategoryDescripti...
- ProductCategoryKey
- ProductCategoryLabel
- ProductCategoryName

DimEntity

- EndDate
- EntityDescription
- EntityKey
- EntityLabel
- EntityName
- EntityType
- ParentEntityKey
- ParentEntityLabel
- StartDate
- Status

Properties

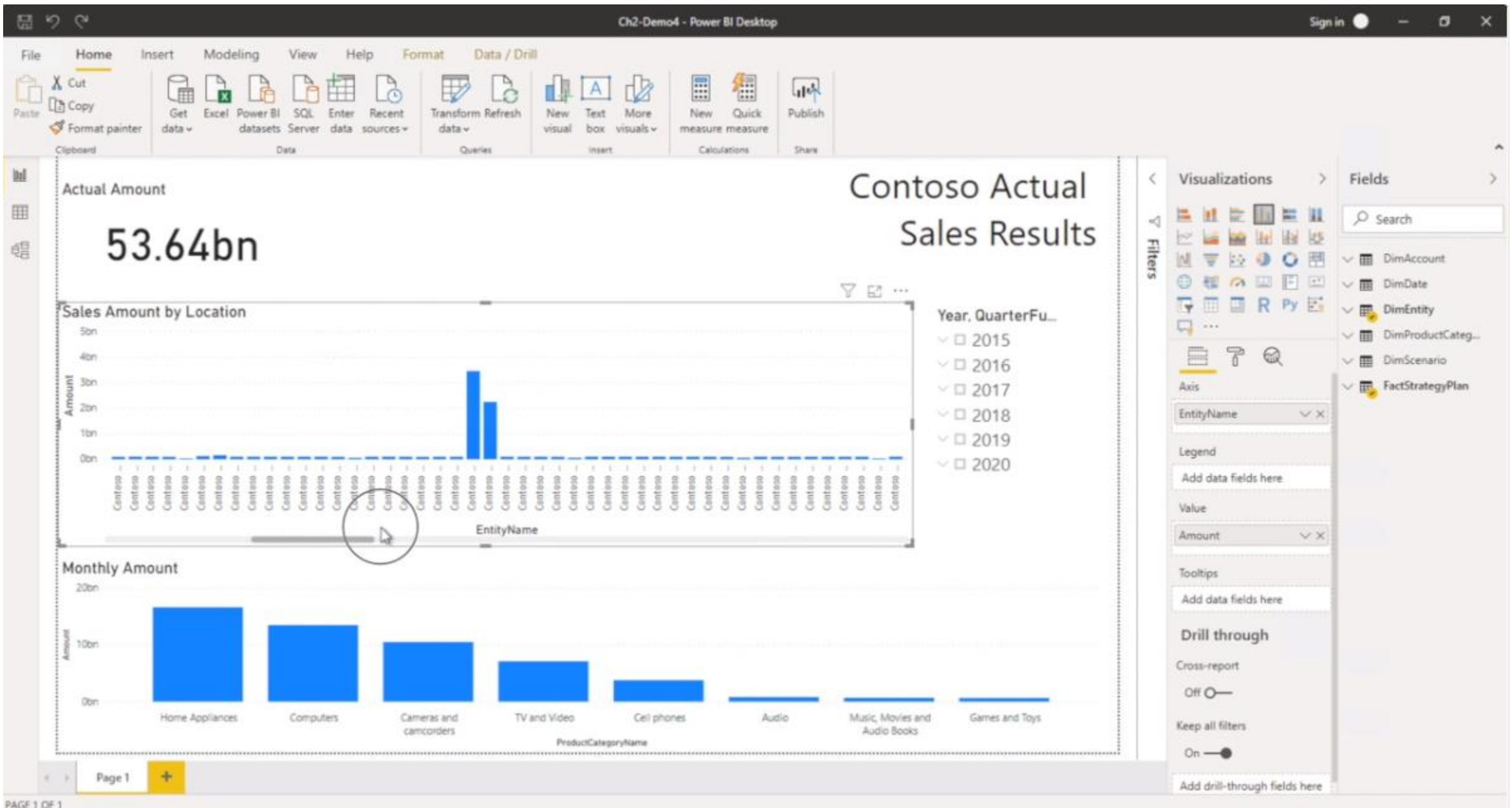
Select one or more model objects to set their properties.

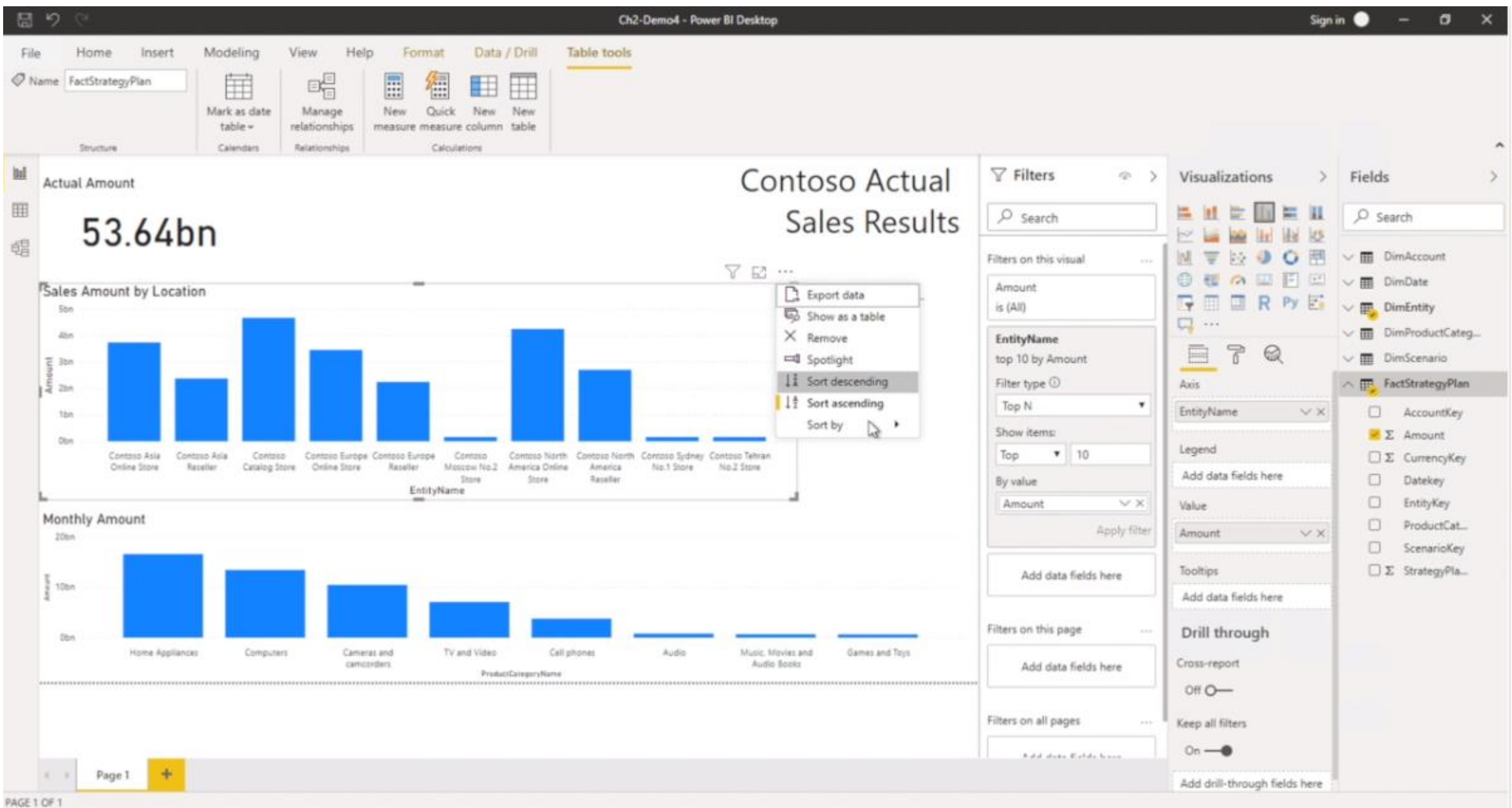
Fields

Search

- DimAccount
- DimDate
- DimEntity
- DimProductCategory
- DimScenario
- FactStrategyPlan

All tables +





Ch2-Demo4 - Power BI Desktop

File Home Help Table tools

Name FactStrategyPlan

Mark as date table =

Manage relationships

New measure Quick measure New column New table

Structure

StrategyPlanKey	Datekey	EntityKey	ScenarioKey	AccountKey	CurrencyKey	ProductCategoryKey	Amount
84776	10/1/2019 12:00:00 AM	895	1	5	1	3	98046.06
85426	10/1/2019 12:00:00 AM	812	1	5	1	3	109234.1
85595	10/1/2019 12:00:00 AM	698	1	5	1	3	68131.29
85917	10/1/2019 12:00:00 AM	926	1	5	1	3	127200.62
86006	10/1/2019 12:00:00 AM	717	1	5	1	3	82465.22
86288	10/1/2019 12:00:00 AM	748	1	5	1	3	48255.24
86346	10/1/2019 12:00:00 AM	945	1	5	1	3	2213897.81
86502	10/1/2019 12:00:00 AM	831	1	5	1	3	79593.24
86801	10/1/2019 12:00:00 AM	882	1	5	1	3	65712.36
87101	10/1/2019 12:00:00 AM	736	1	5	1	3	61360.31
87374	10/1/2019 12:00:00 AM	767	1	5	1	3	28601.79
87558	10/1/2019 12:00:00 AM	653	1	5	1	3	84588.17
87892	10/1/2019 12:00:00 AM	881	1	5	1	3	68669.22
87974	10/1/2019 12:00:00 AM	672	1	5	1	3	61323.28
88290	10/1/2019 12:00:00 AM	900	1	5	1	3	55511.45
88457	10/1/2019 12:00:00 AM	786	1	5	1	3	74757.98
88997	10/1/2019 12:00:00 AM	691	1	5	1	3	67317.59
89656	10/1/2019 12:00:00 AM	793	1	5	1	3	80368.4
90135	10/1/2019 12:00:00 AM	907	1	5	1	3	94420.25
90298	10/1/2019 12:00:00 AM	778	1	5	1	3	99687
90463	10/1/2019 12:00:00 AM	664	1	5	1	3	61438.1
90638	10/1/2019 12:00:00 AM	849	1	5	1	3	148606.4
90815	10/1/2019 12:00:00 AM	892	1	5	1	3	111582.73
91543	10/1/2019 12:00:00 AM	683	1	5	1	3	78209.39
91709	10/1/2019 12:00:00 AM	868	1	5	1	3	76603.68
91994	10/1/2019 12:00:00 AM	899	1	5	1	3	100706.26
92568	10/1/2019 12:00:00 AM	804	1	5	1	3	106035.99
92743	10/1/2019 12:00:00 AM	887	1	5	1	3	65782.1
93044	10/1/2019 12:00:00 AM	918	1	5	1	3	74682.46
93473	10/1/2019 12:00:00 AM	818	1	5	1	3	69696.46

TABLE: FactStrategyPlan (1,048,575 rows)

Fields

Search

- DimAccount
- DimDate
- DimEntity
- DimProductCateg...
- DimScenario
- FactStrategyPlan
- AccountKey
- Σ Amount
- Σ CurrencyKey
- Datekey
- EntityKey
- ProductCategory...
- ScenarioKey
- Σ StrategyPlanKey

Ch2-Demo4 - Power BI Desktop

File Home Help Table tools

Name DimScenario

Mark as date table +

Manage relationships

New Quick New New

measure measure column table

Structure

Calendars Relationships Calculations

ScenarioKey	ScenarioLabel	ScenarioName	ScenarioDescription
1		Actual	Actual
2		Budget	Budget
3		Forecast	Forecast

Fields

Search

- DimAccount
- DimDate
- DimEntity
- DimProductCateg...
- DimScenario
 - ScenarioDescripti...
 - ScenarioKey
 - ScenarioLabel
 - ScenarioName
- FactStrategyPlan
 - AccountKey
- Amount
- CurrencyKey
- Datekey
- EntityKey
- ProductCategory...
- ScenarioKey
- StrategyPlanKey

TABLE: DimScenario (3 rows)

File Home Insert Modeling View Help

Paste Cut Copy Format painter

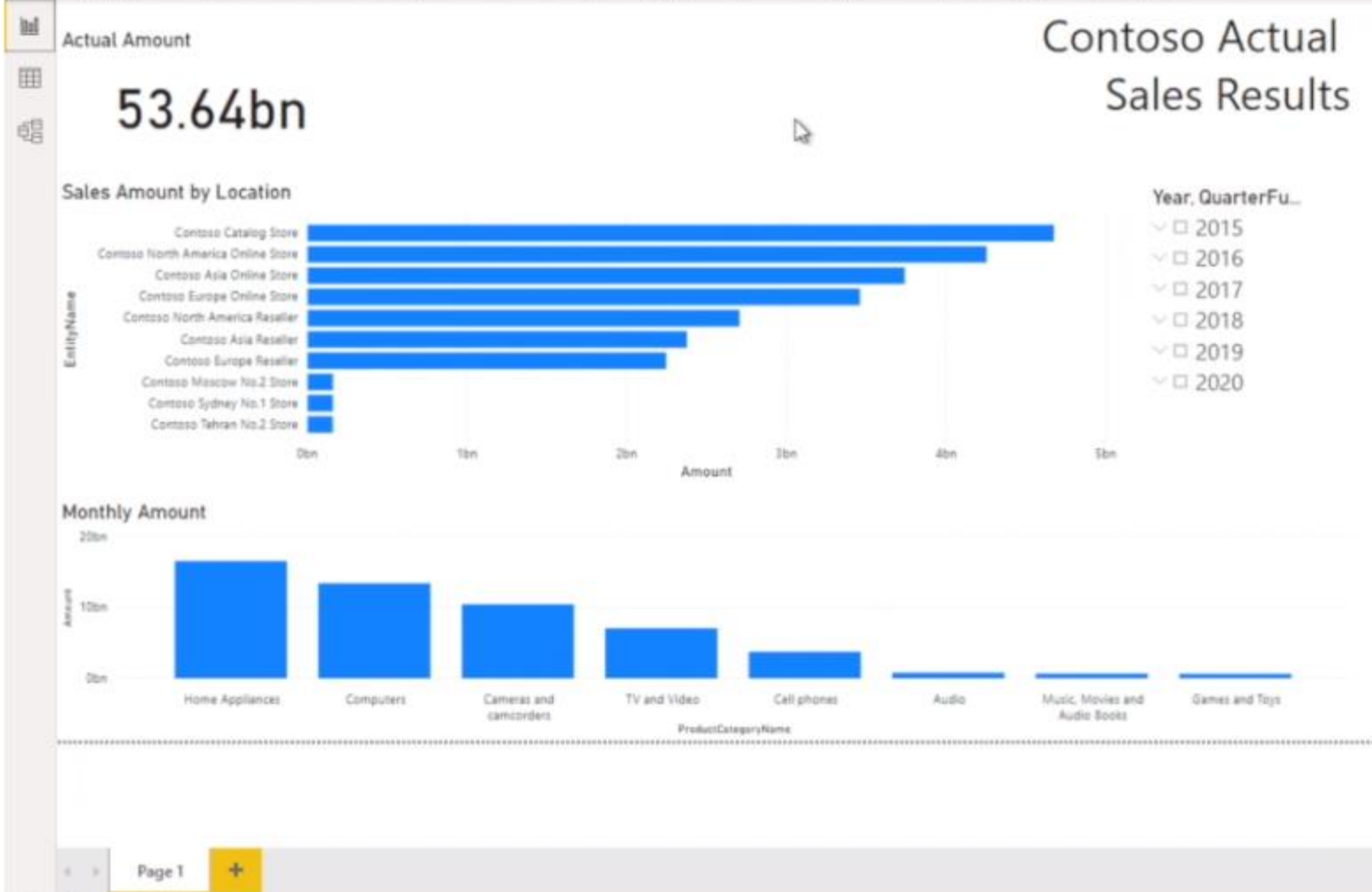
Get data Excel Power BI datasets SQL Server Enter data Recent sources

Transform data Refresh data

New visual Text box More visuals

New measure Quick measure Publish

Clipboard Data Queries Insert Calculations Share



Filters

Search

Filters on this page

Add data fields here

Filters on all pages

Add data fields here

Visualizations

Search

Values

Add data fields here

Drill through

Cross-report

Off

Keep all filters

On

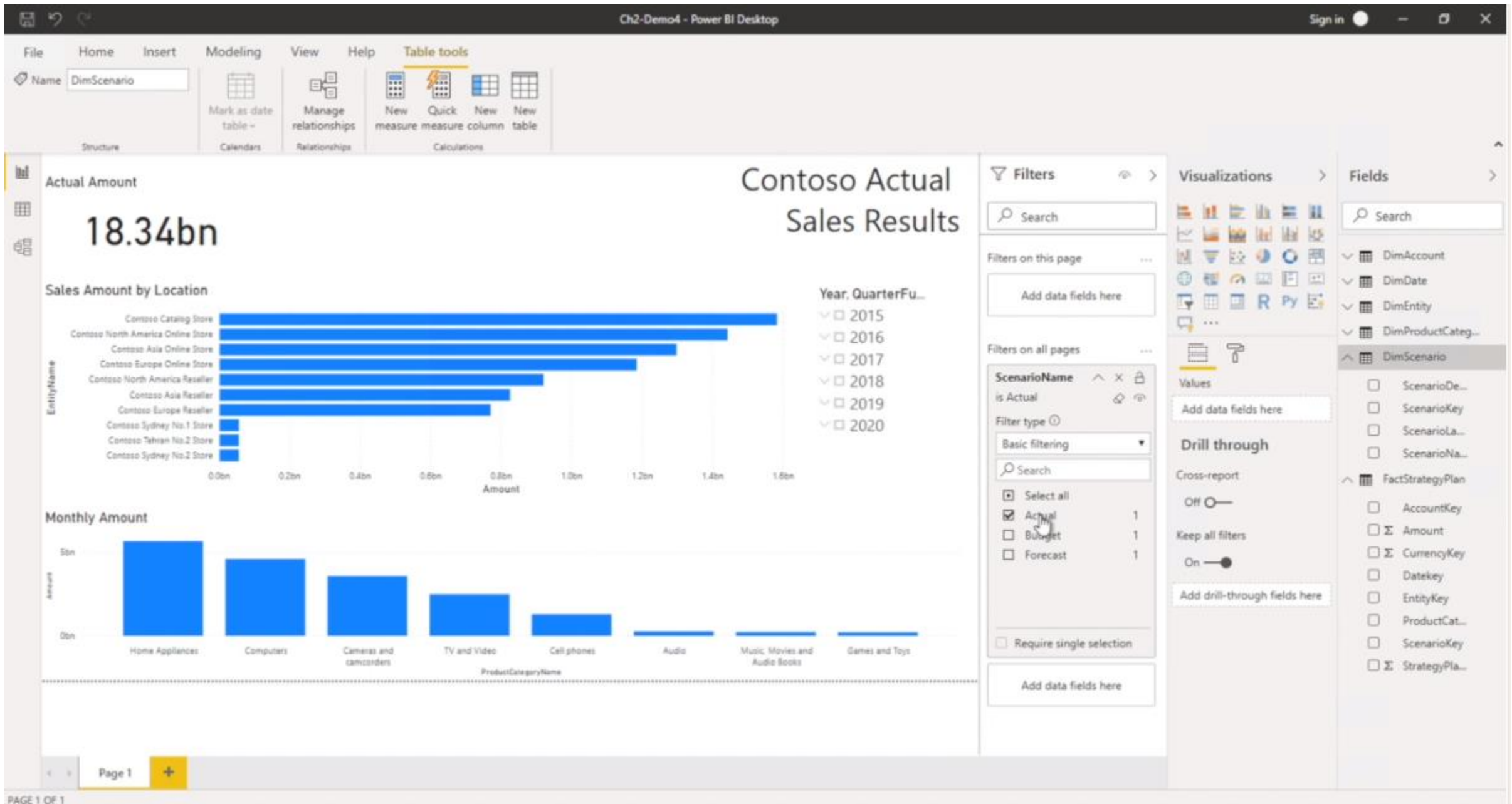
Add drill-through fields here

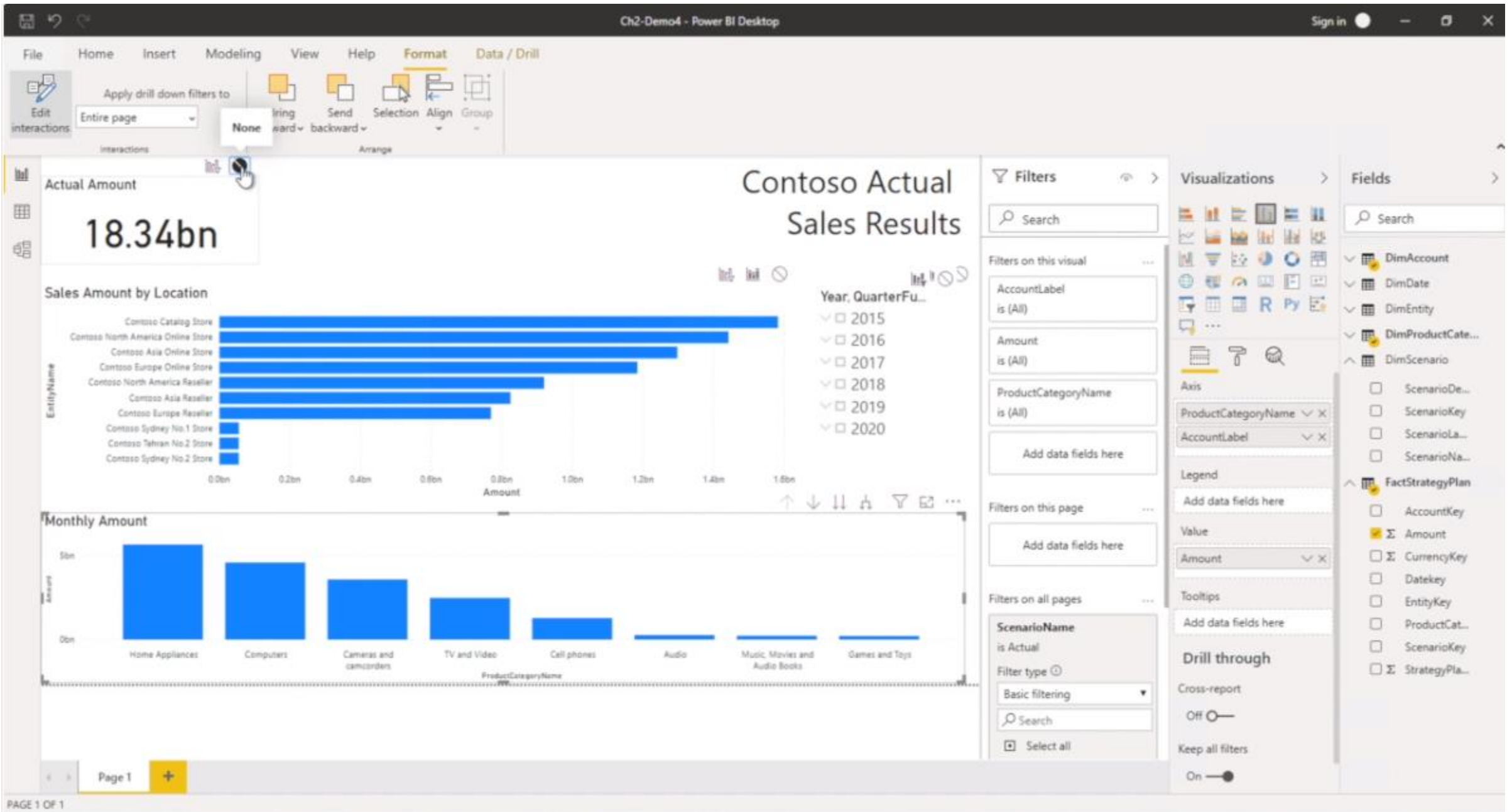
Fields

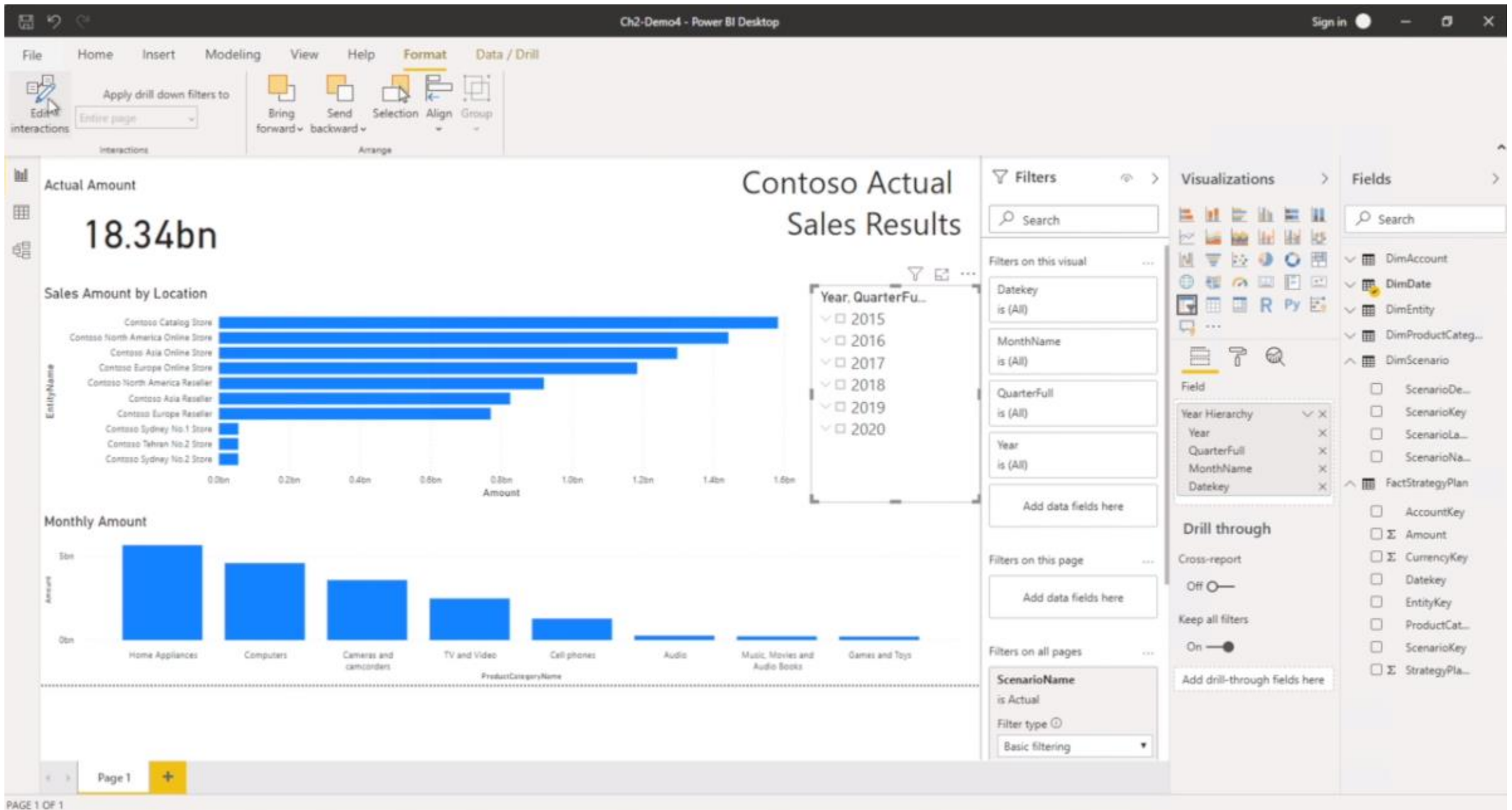
Search

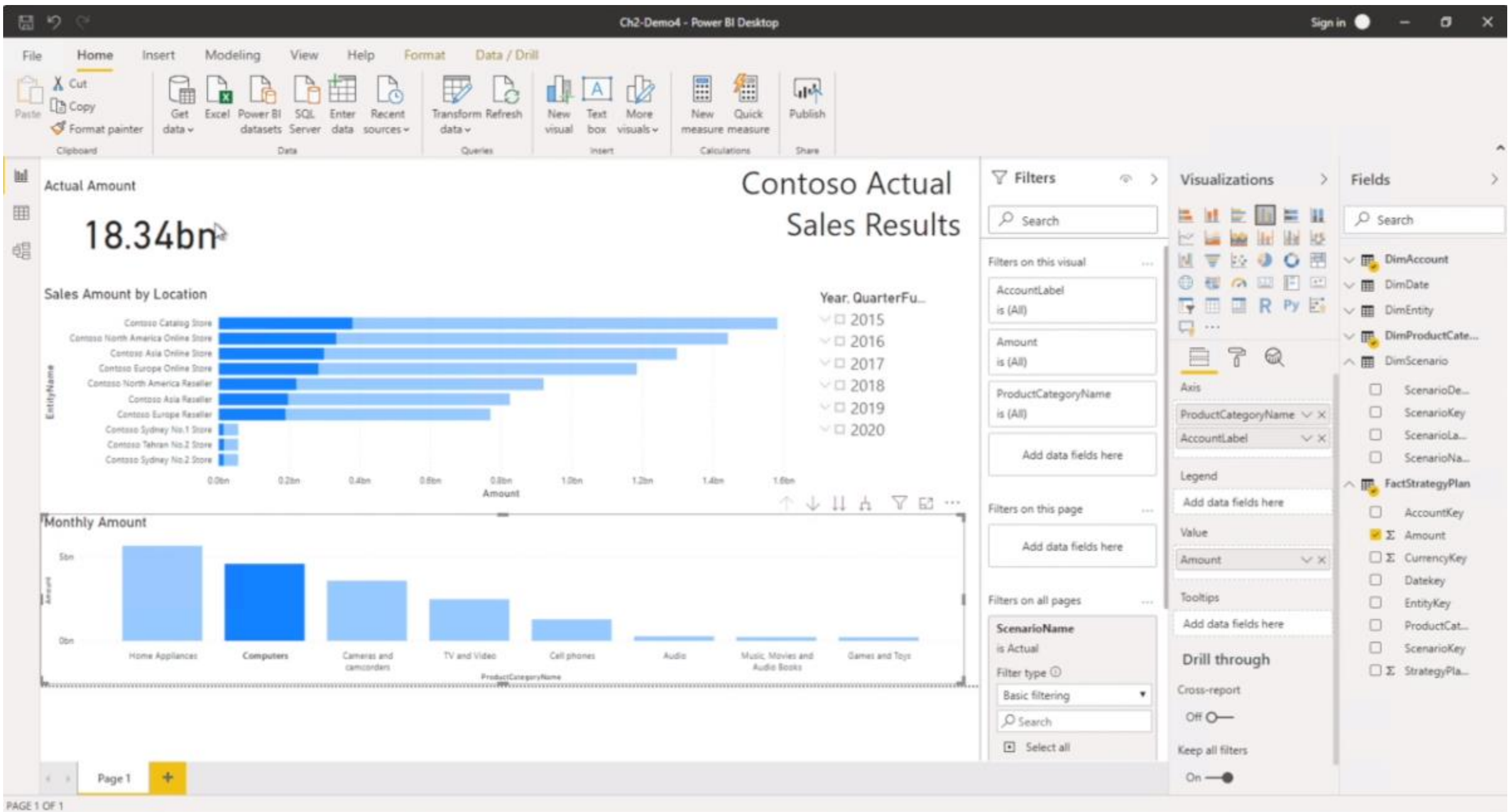
- DimAccount
- DimDate
- DimEntity
- DimProductCateg...
- DimScenario
- FactStrategyPlan

- AccountKey
- Amount
- CurrencyKey
- Datekey
- EntityKey
- ProductCat...
- ScenarioKey
- StrategyPla...









Filtering is an important tool when you're creating Power BI reports. You don't always want to look at all of the data. Limiting the data used in visuals to only a selection that is relevant can help you answer more detailed business questions.

In the report, you can see that the cards on the Sales Analysis page tab are labeled Actual, Forecast, and Budget, but they all have the same values. You'll need to apply some filters to fix this.

Close any open reports and open the 4_3_adding_a_filter.pbix report from the Exercises folder on the desktop.

- Open the *Filters* pane.
- Add a filter to the "Actual" card visual that filters on rows where ScenarioName is equal to Actual.

Add a filter to the "Forecast" card visual that filters on rows where ScenarioName is equal to Forecast.

Add a filter to the "Budget" card visual that filters on rows where ScenarioName is equal to Budget.

Question: What was the total forecasted amount?

- ☐ 53.64bn
- ☐ 18.34bn
- ☐ 18.13bn
- ☐ 17.17bn

By default, visualizations on a report page can be used to cross-filter the other visualizations on the page. Sometimes, you want to disable this functionality and keep a chart static regardless of what selections have been made elsewhere in the report. Let's turn off those interactions! Note that you might have to temporarily move a visual to be able to see the circle with the line through it.

In this report, we want to make sure the Actual, Forecast, and Budget cards don't change when other elements are selected.

If you lost progress, close any open reports and load `4_4_turning_off_interactions.pbix` from the `Exercises` folder on the desktop.

Select the "Budget Product Sold" visual.

Go into the Interaction editing mode in the *Format* tab at the top of the screen.

Turn off interactions with each of the three cards.

Exit the Interaction editing mode.

Select the "TV and Video" bar in the "Budget Product Sold" chart. What is the value of the Budget card? (format example: 11.11bn)

THANK YOU !!