

Power BI

Data Visualization

Overview

The estimated time to complete this lab is 4 hours.

In this lab, you will learn how to add a number of different charts, as well as different formatting techniques. You will also learn how to add conditional formatting to charts. You will learn how to work with filters and slicers and how to edit interactions between charts. By the end of the labs you will learn how to add bookmarks to a file to create a story, how to add report accessibility and use a smart narrative visual.

Please note the labs are numbered to how they correspond to the Powerpoint presentation, the first lab will start with 5 instead of 1.

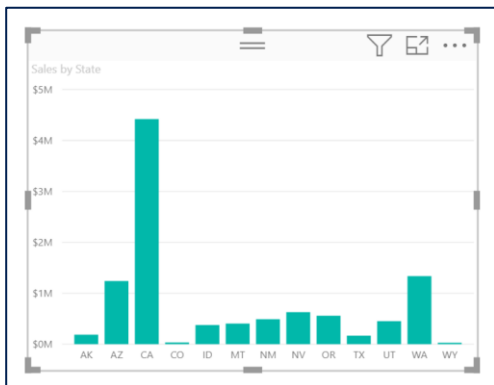
Lab 5a: Formatting a chart

Task: Create a new chart using the left chart as a starting point and format the new chart to look like the chart on the left.

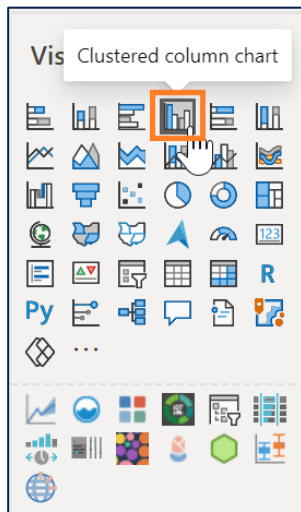
The estimated time to complete this lab is 15 minutes.



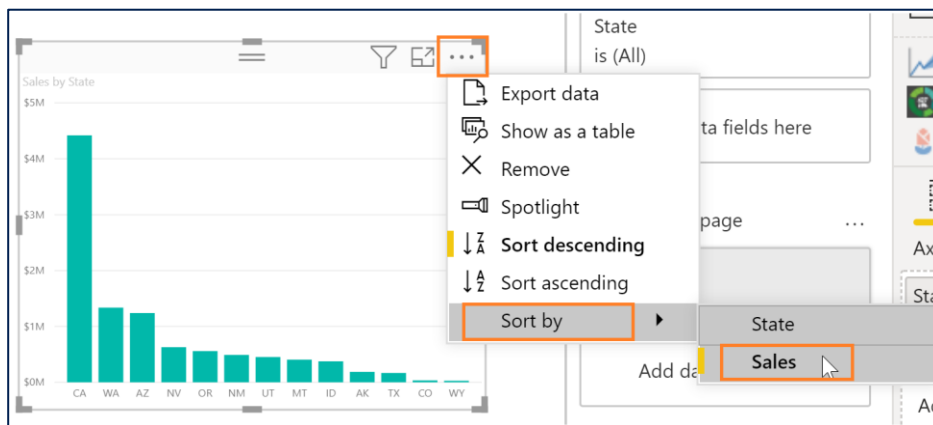
1. Copy the current Line and Clustered Column chart



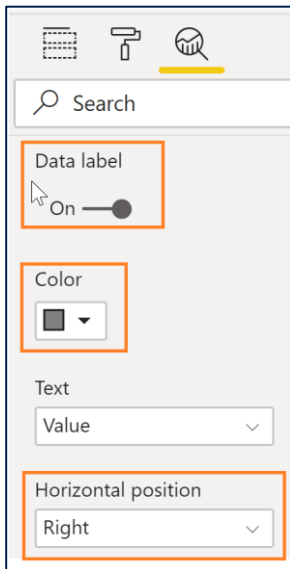
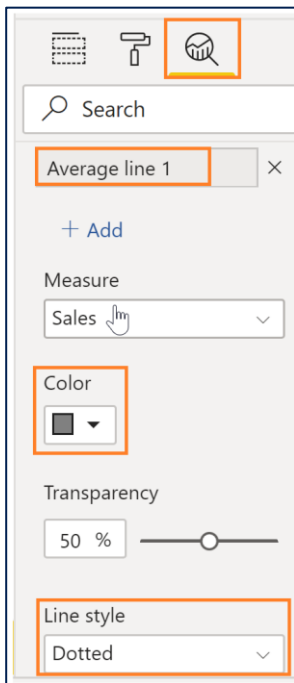
2. Change it to a Clustered Column Chart



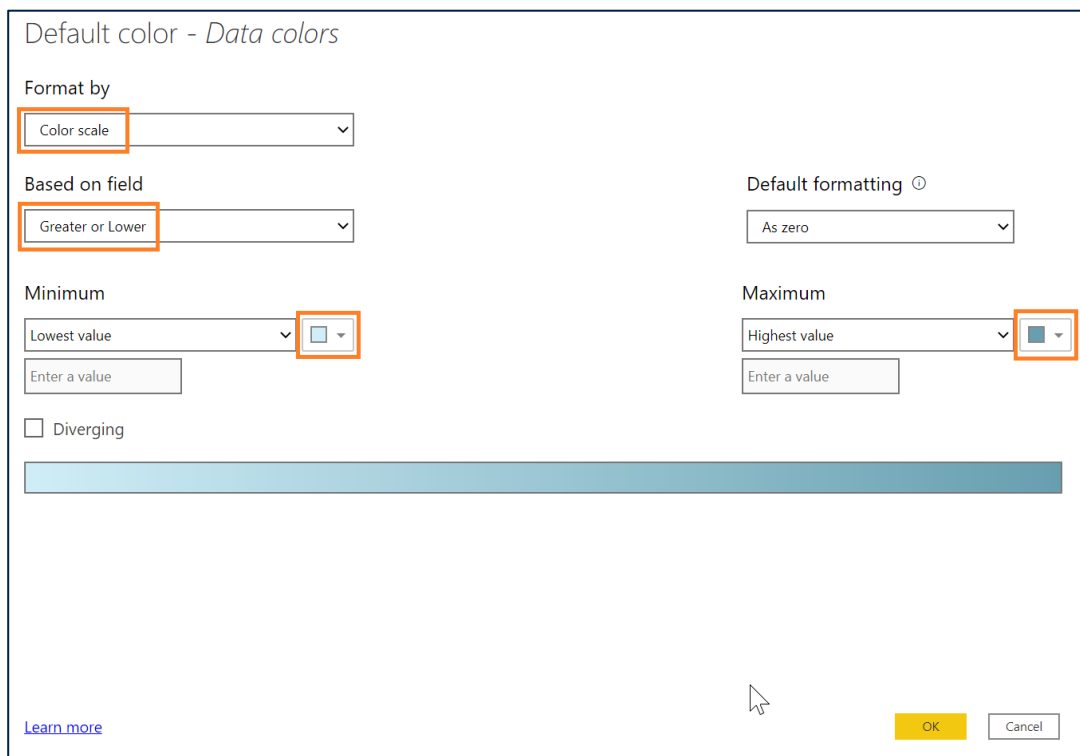
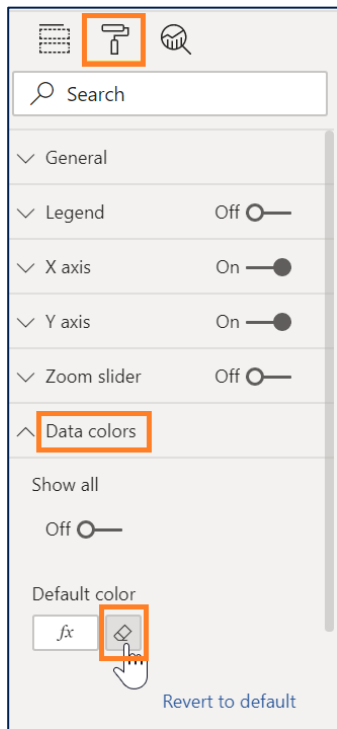
3. Set Sort to Sales > Decreasing in the chart using the ellipsis (... in the upper right)



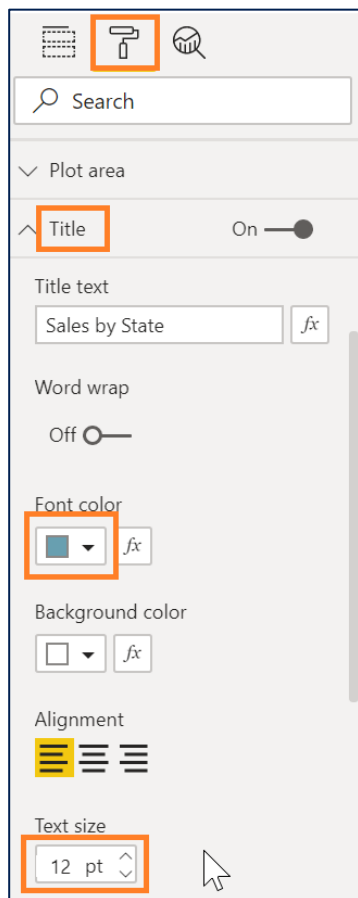
4. Use the Analytics tab to add an Average Line: (grey, dotted, in front), then add a data label (grey, right)



5. Add the "Greater or Lower" measure to the color saturation in the data colors section, and set the light blue and dark blue



6. Format the title with a Medium blue of the same family and Text (12 point, dark grey, centered)



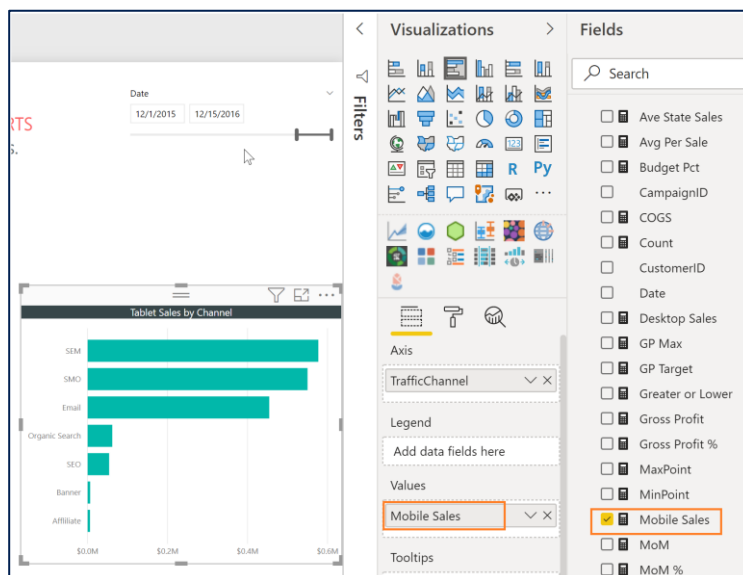
Lab 5b: Sorting a chart

Task: Create the chart on the right which contains Sales of Mobile Devices so that it **SORTS IN THE SAME ORDER** as the chart on the left which contains Sales of Tablet Devices.

The estimated time to complete this lab is 15 minutes.



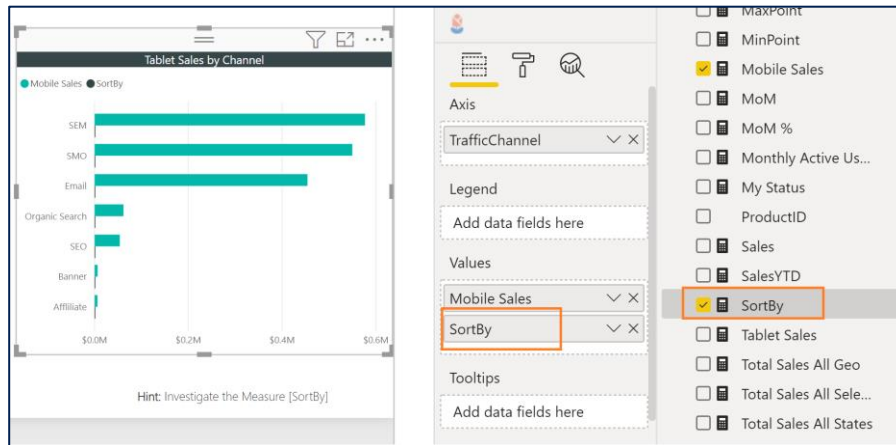
1. Copy first chart and change the measure to Mobile Sales



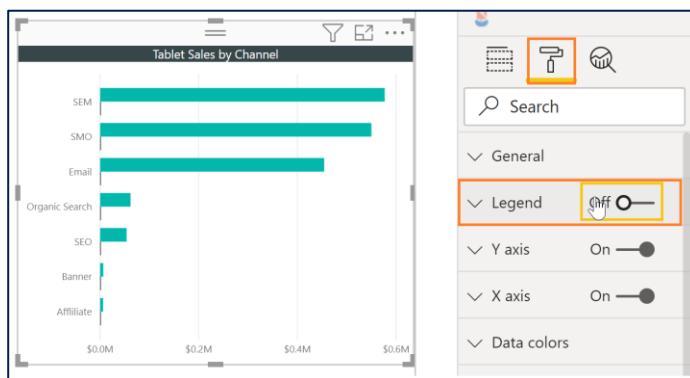
2. Click on the measure "SortBy" to view the formula which is TabletSales divided by a million

```
1 SortBy = DIVIDE([Tablet Sales],1000000)
```

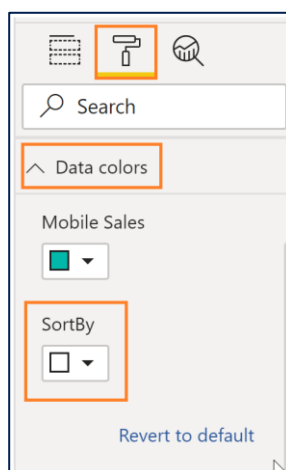
3. In the Model there is a measure called "SortBy" place it into the new chart by dropping it in the values field under Mobile Sales.



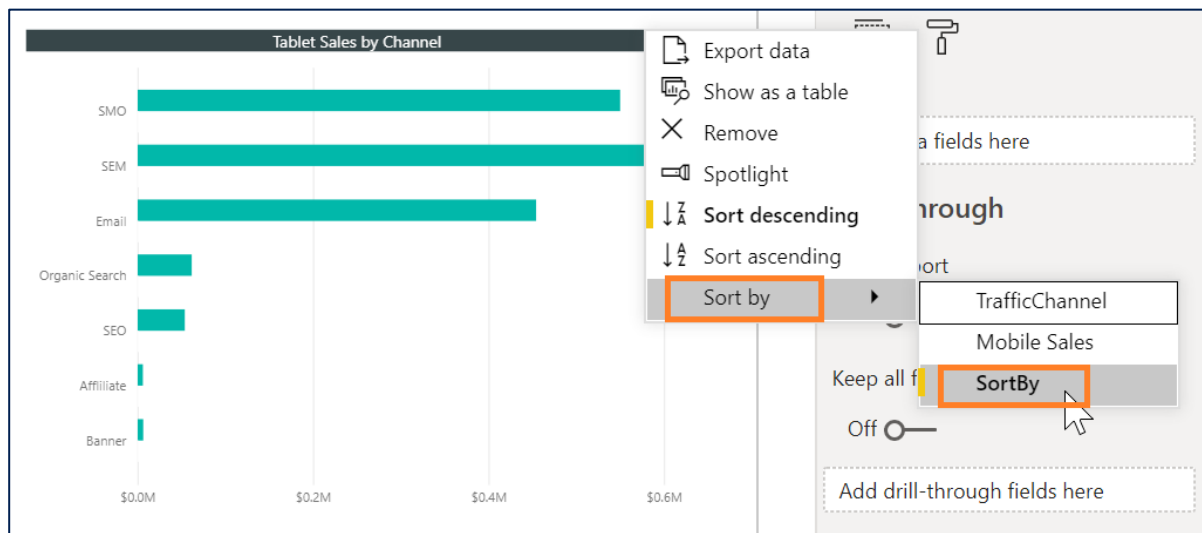
4. Remove the Legend



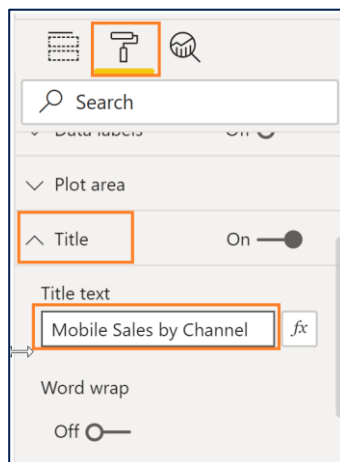
5. Update the data color of "SortBy" to white



6. Click on the ellipsis and Sort by the **SortBy** measure



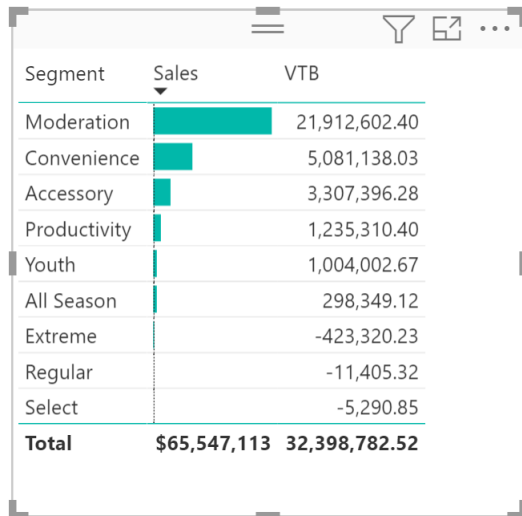
7. Update the title



Lab 5c: Create a table visual with conditional formatting

Task: Create a table and add conditional formatting

The estimated time to complete this lab is 15 minutes.



The screenshot shows a table visual in Power BI. The table has three columns: Segment, Sales, and VTB. The Sales column is formatted with horizontal bars of varying lengths and colors (shades of teal/green) to represent the magnitude of the values. The VTB column contains numerical values. The table is sorted by Sales in descending order. A 'Total' row is at the bottom.

Segment	Sales	VTB
Moderation	21,912,602.40	21,912,602.40
Convenience	5,081,138.03	5,081,138.03
Accessory	3,307,396.28	3,307,396.28
Productivity	1,235,310.40	1,235,310.40
Youth	1,004,002.67	1,004,002.67
All Season	298,349.12	298,349.12
Extreme	-423,320.23	-423,320.23
Regular	-11,405.32	-11,405.32
Select	-5,290.85	-5,290.85
Total	\$65,547,113	32,398,782.52

1. Create a table visual with **Segment** from the CatSegDim table, **Sales** from the Sales table and **VTB** from the BudgetFact table.

CustomerID

1 175525

Segment	Sales	VTB
Accessory	\$3,566,905	882,969.17
All Season	\$768,092	-111,799.45
Convenience	\$8,613,502	220,765.90
Extreme	\$221,704	-538,600.51
Moderation	\$26,205,280	7,519,513.20
Productivity	\$1,722,832	283,104.51
Regular	\$12,930	-17,074.40
Select	\$4,265	-7,423.59
Youth	\$805,723	541,451.01
Total	\$41,921,234	8,772,903.43

Visualizations

Values

- Segment
- Sales
- VTB

2. Increase column headers and values font to 12

Search

URL icon

Off

Word wrap

Off

Font family

Segoe UI

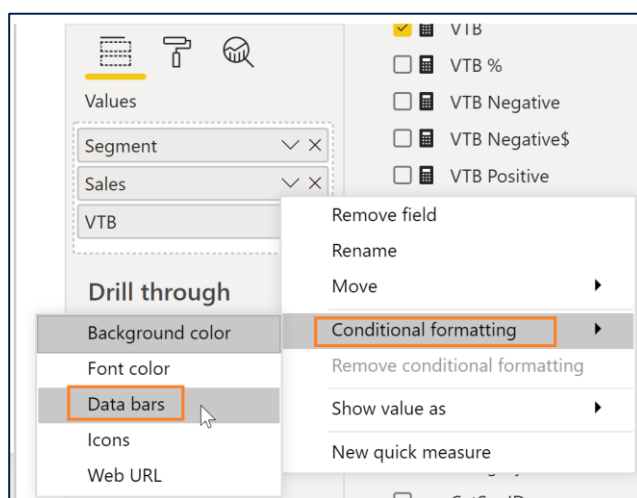
Text size

12 pt

3. Change table style to minimal

Segment	Sales	VTB
Accessory	\$5,991,333	3,307,396.28
All Season	\$1,178,241	298,349.12
Convenience	\$13,473,874	5,081,138.03
Extreme	\$336,984	-423,320.23
Moderation	\$40,598,370	21,912,602.40
Productivity	\$2,675,040	1,235,310.40
Regular	\$18,599	-11,405.32
Select	\$6,398	-5,290.85
Youth	\$1,268,274	1,004,002.67
Total	\$65,547,113	32,398,782.52

4. Add data bars conditional formatting to the Sales column



5. Click on the Show bar only box and click ok

Data bars - *Sales*

Format cells with bars based on their values.

☒ Show bar only

Minimum: Lowest value (dropdown), Enter a value (text box)

Maximum: Highest value (dropdown), Enter a value (text box)

Positive bar: [Color selection box]

Bar direction: Left to right (dropdown)

Negative bar: [Color selection box]

Axis: [Color selection box]

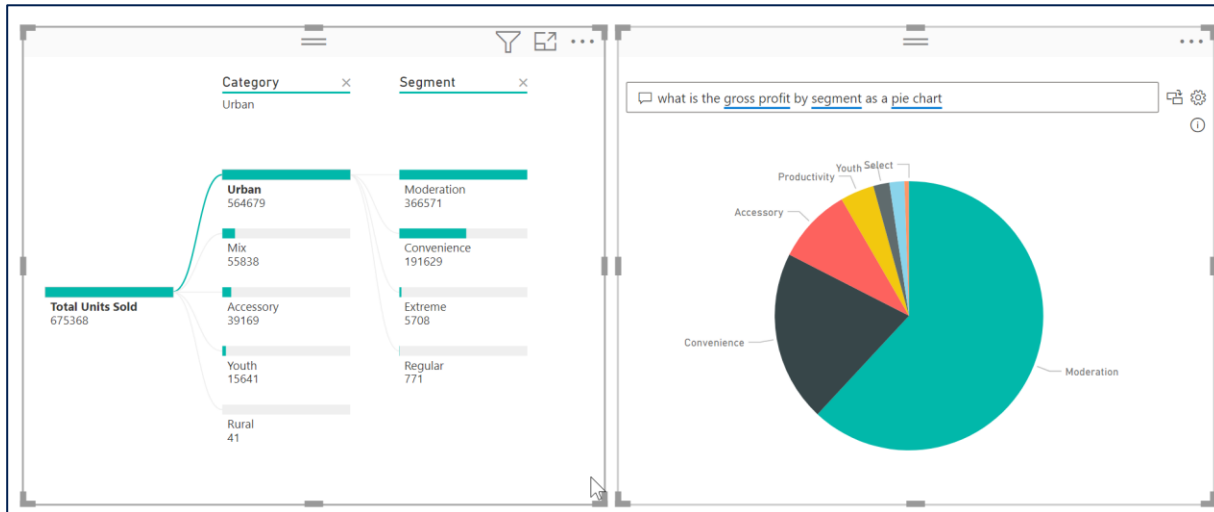
6. Click on the ellipsis and Sort by **Sales**

Segment	Sales	VTB
Moderation	<div></div>	21,912,602.40
Convenience	<div></div>	5,081,138.03
Accessory	<div></div>	3,307,396.28
Productivity	<div></div>	1,235,310.40
Youth	<div></div>	1,004,002.67
All Season	<div></div>	298,349.12
Extreme	<div></div>	-423,320.23
Regular	<div></div>	-11,405.32
Select	<div></div>	-5,290.85
Total	\$65,547,113	32,398,782.52

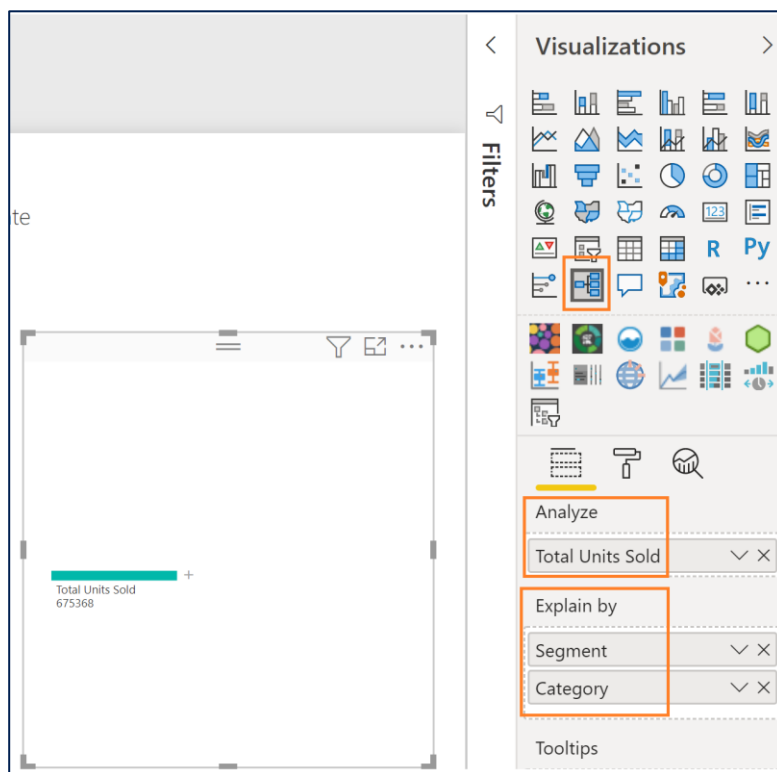
Lab 5d: Create a composition tree and a Q&A visual

Task: Create a composition tree visual and a Q&A visual

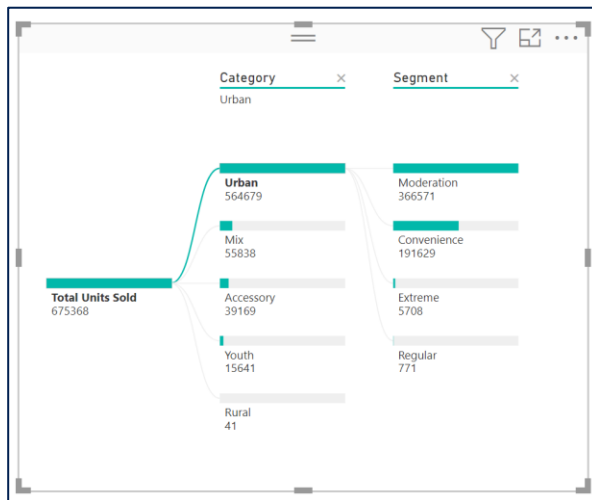
The estimated time to complete this lab is 15 minutes.



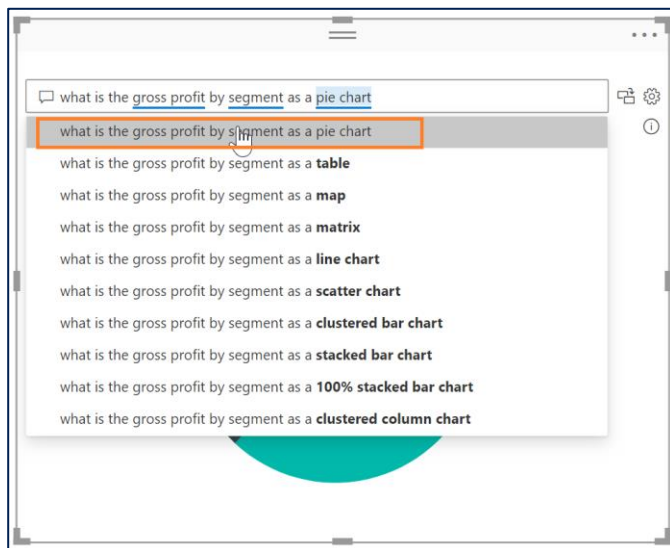
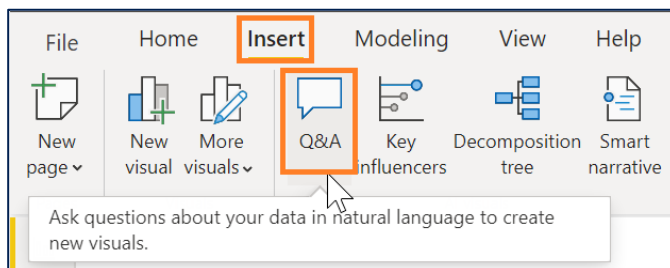
1. Create a decomposition tree of Total Units Sold by Segment and Category

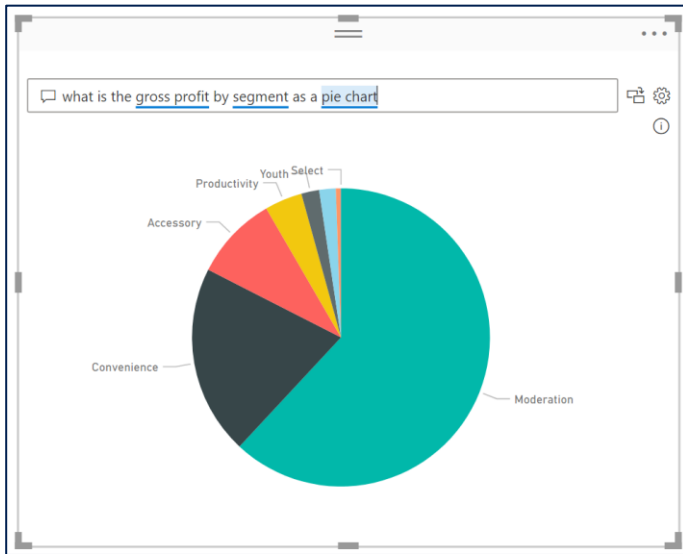


2. Expand Total Units Sold by Category and the Urban category by Segment



3. Add a Q&A chart to the canvas by asking “**what is the gross profit by segment as a pie chart**”



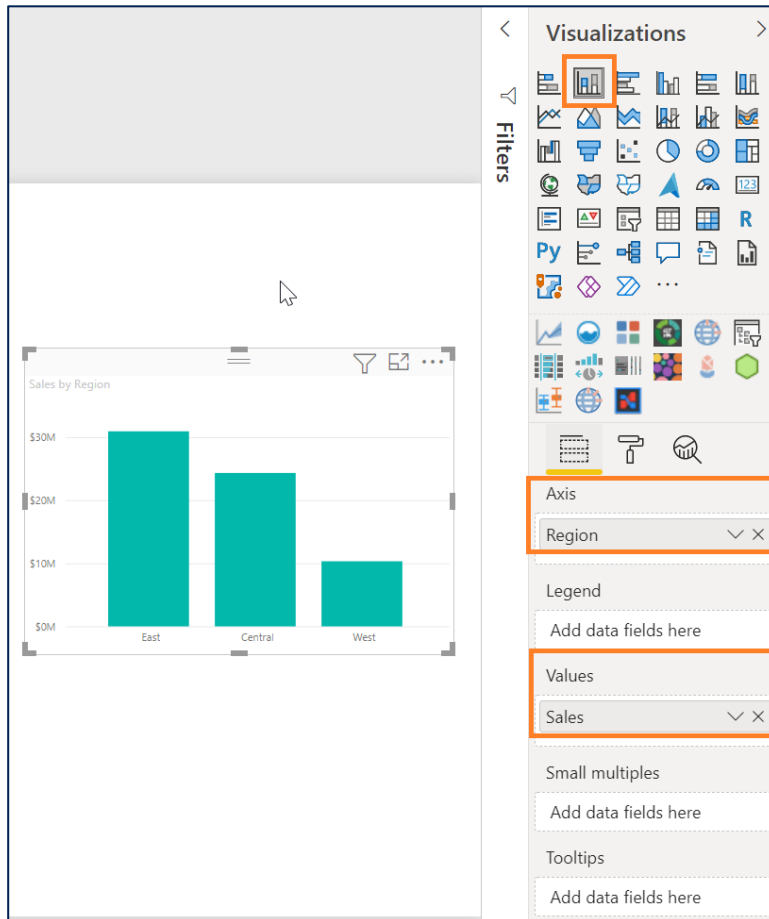


Lab 5e: Working with Small Multiples

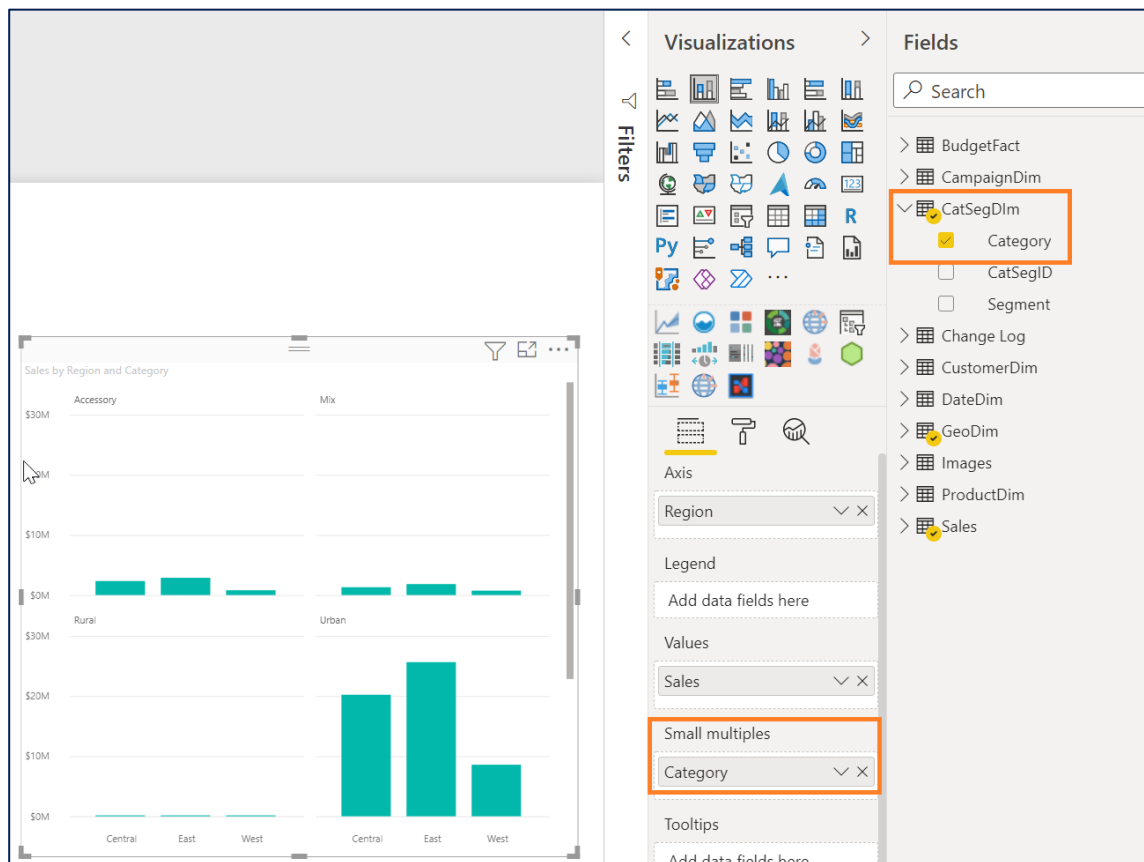
Task: Create a set of column charts showing Sales by Region and Category using small multiples

The estimated time to complete this lab is 10 minutes.

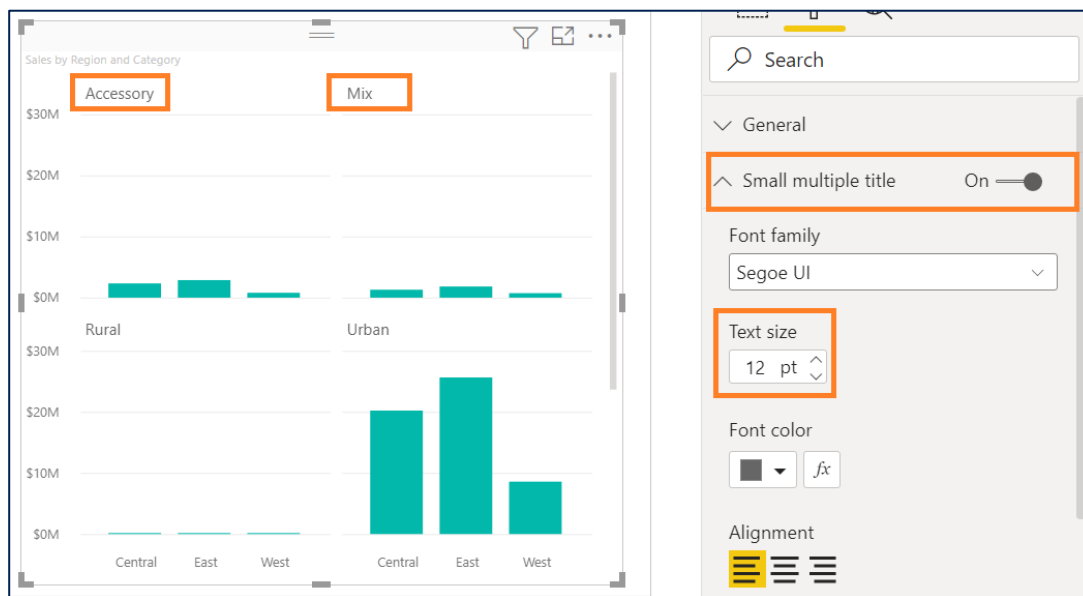
1. Add a stacked column chart to the canvas
2. Add Sales in Values and Region in Axis



3. Add Category field to the Small Multiples well



4. Format the Small multiple title to use 12 pt font.

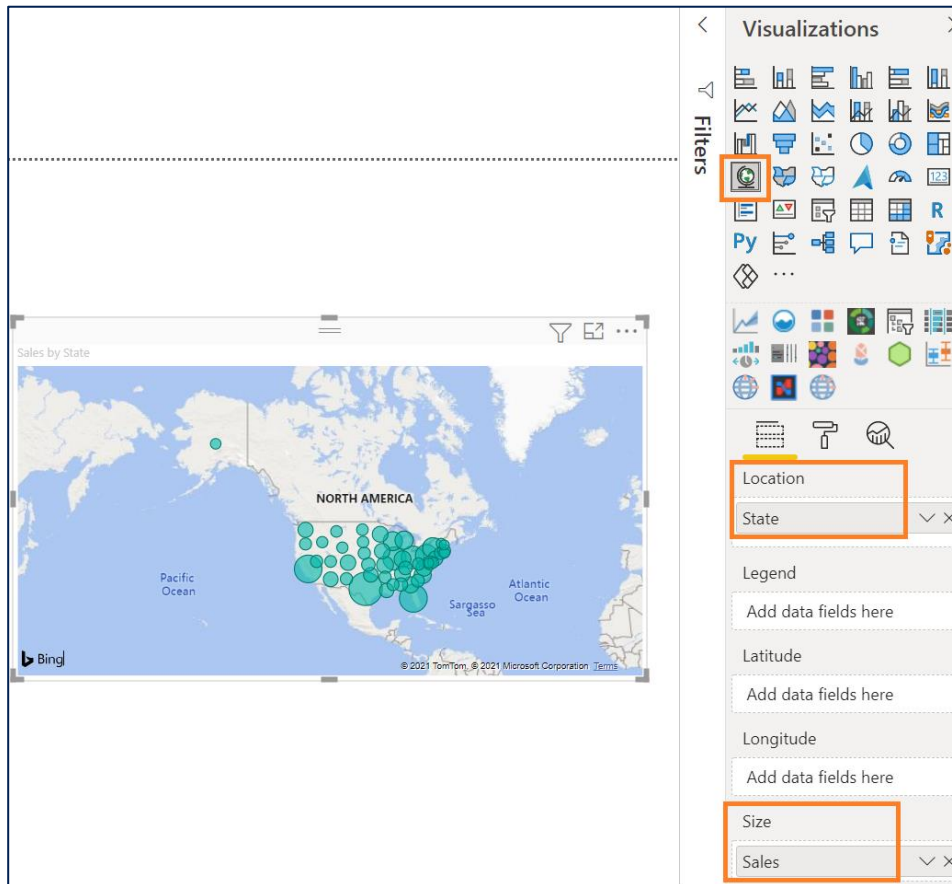


Lab 6a: Adding a Custom Visual

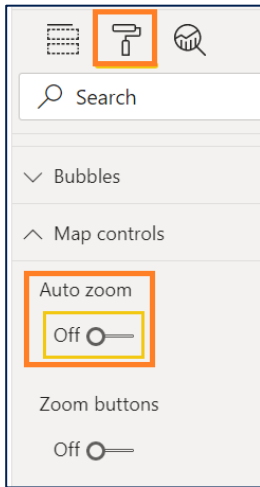
Task: Import and add a custom visual

The estimated time to complete this lab is 20 minutes.

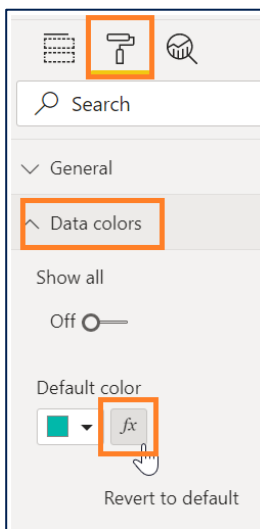
1. Click on the Map chart and add **State** for Location and **Sales** for Size



2. Click on the paint roller to format the map
3. Click on **Map controls** and turn off **Auto zoom**



- Click on Data colors and then click on the **fx** button for the Default color



- Select **Gross Profit** in the **Based on field** box and check **Diverging**, click ok

Default color - *Data colors*

Format by
Color scale

Based on field
Gross Profit

Default formatting ⓘ
As zero

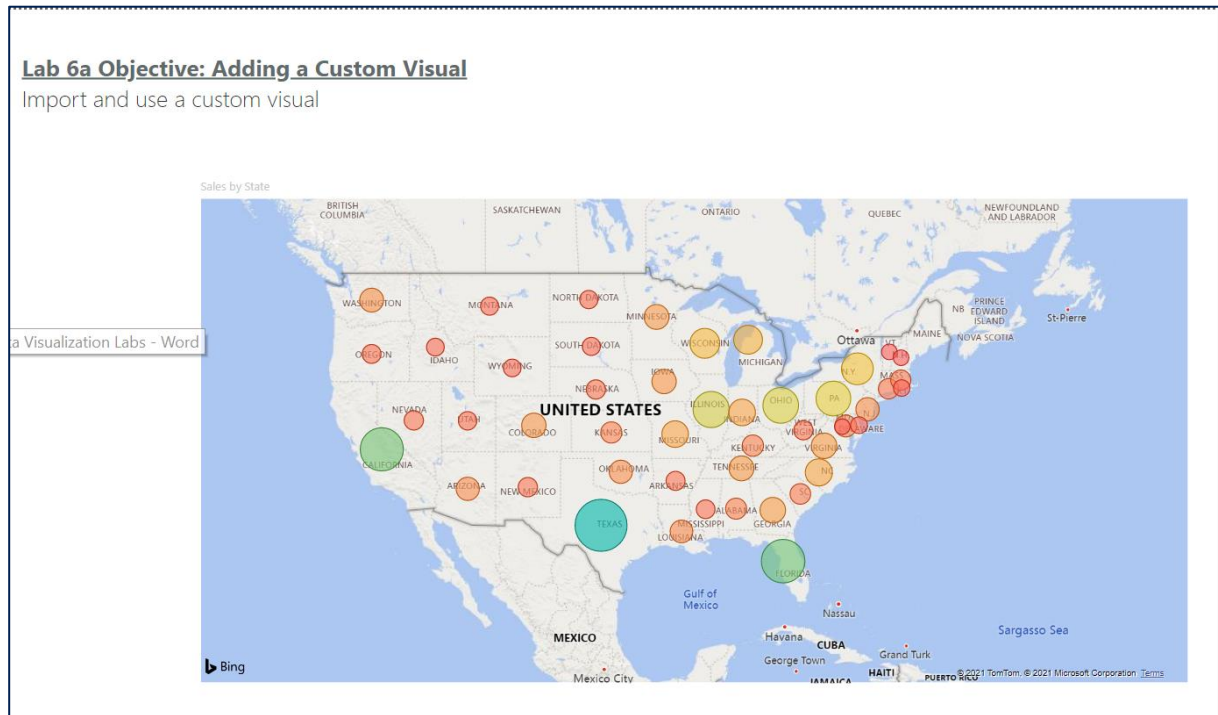
Minimum
Lowest value
Enter a value

Center
Middle value
Enter a value

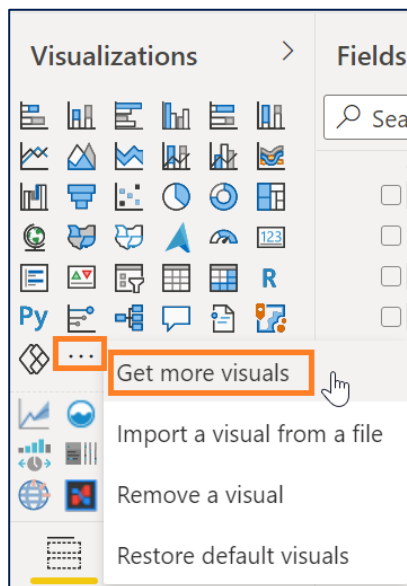
Maximum
Highest value
Enter a value

☒ Diverging

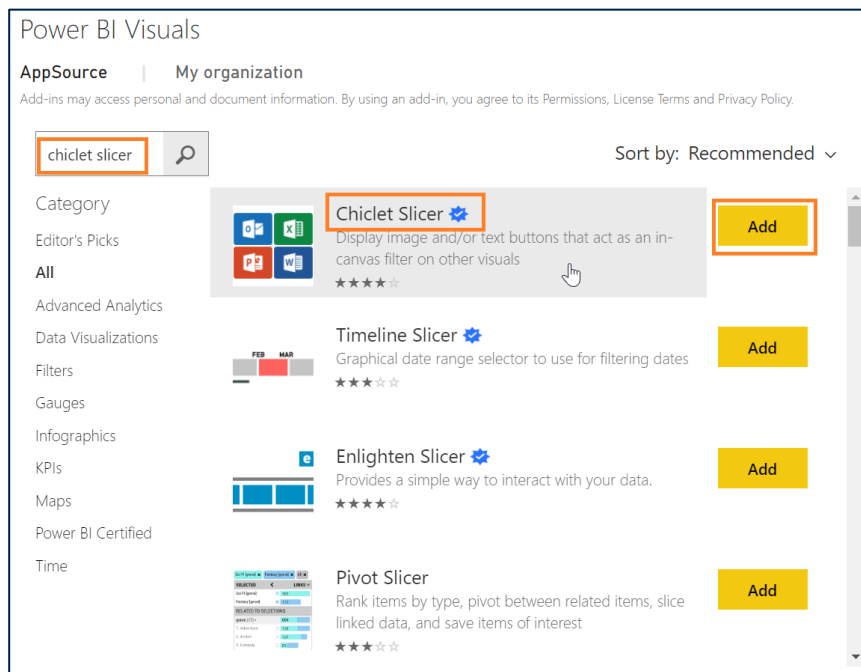
6. Zoom in and resize your map as seen below



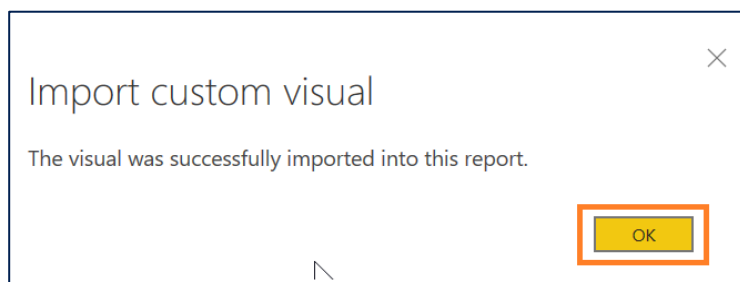
7. In the Visualizations pane click on the three dots and click **Get more visuals**



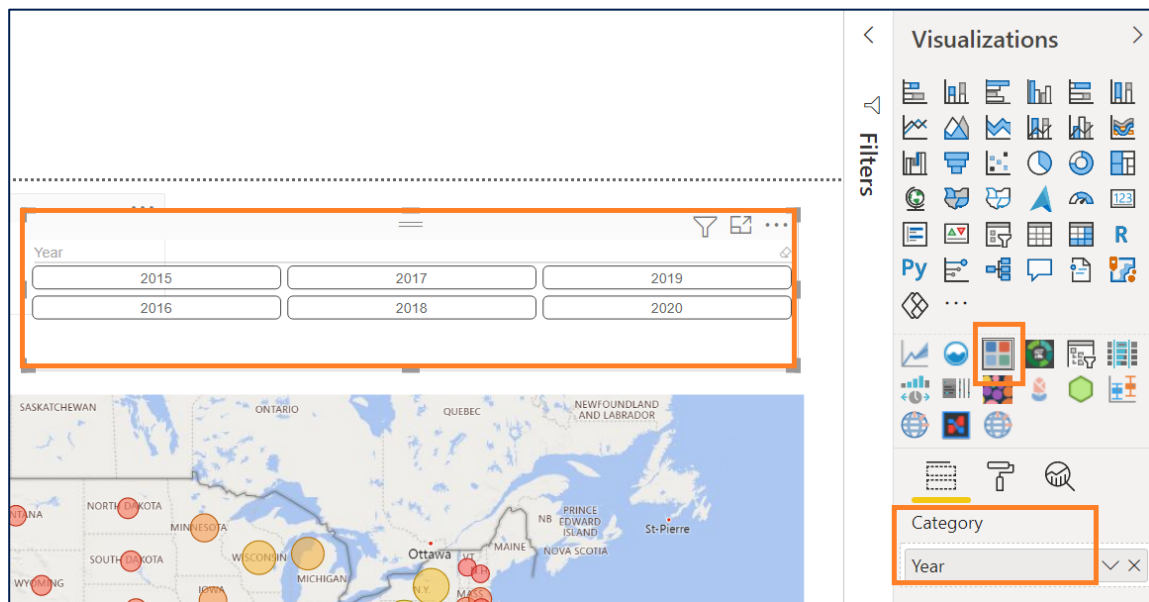
8. Use the search box to find **Chiclet Slicer** then click **Add** to add it to your file.



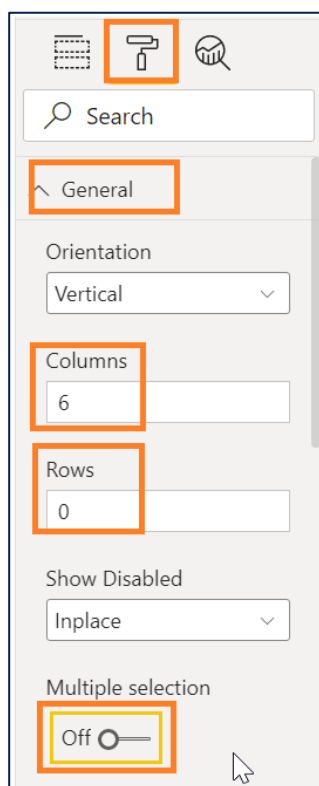
9. You should see a box saying the visual was successfully imported, click ok



10. Add the Chiclet slicer to the canvas and select **Year** for the category



11. Click on the paint roller and expand the General heading
12. Change Columns to 6 and Rows to 0
13. Turn off Multiple selection



14. Your report should look like the one below

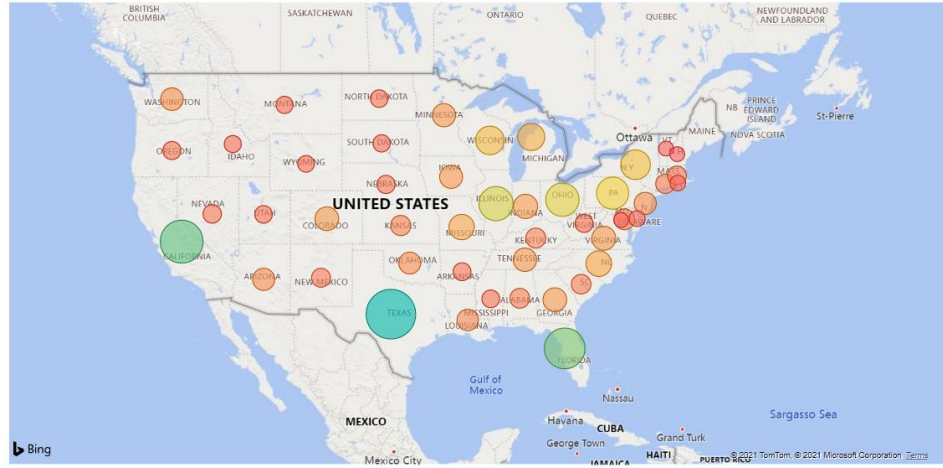
Lab 6a Objective: Adding a Custom Visual

Import and use a custom visual

Year

2015	2016	2017	2018	2019	2020
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Sales by State

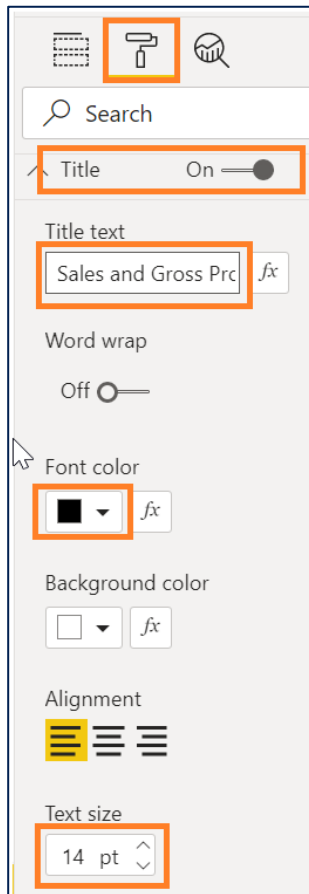


Lab 6b: Adding Report Accessibility

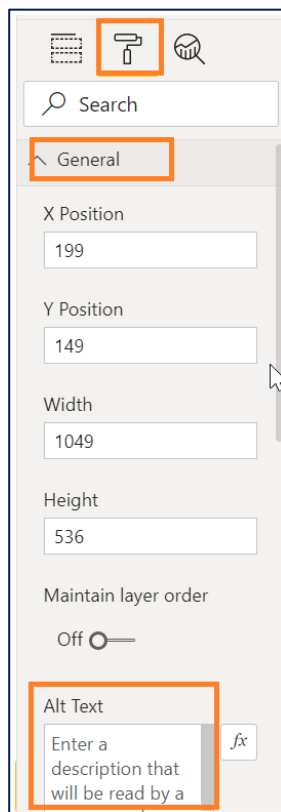
Task: Add report accessibility to all visuals on the canvas

The estimated time to complete this lab is 15 minutes.

1. Click on the map visual and click on the paint roller icon to format
2. Click on the Title section, add Sales and Gross Profit by State as the title, change the Font color to black and the Text size to 14



3. Expand the General heading and enter a meaningful description in the Alt text box



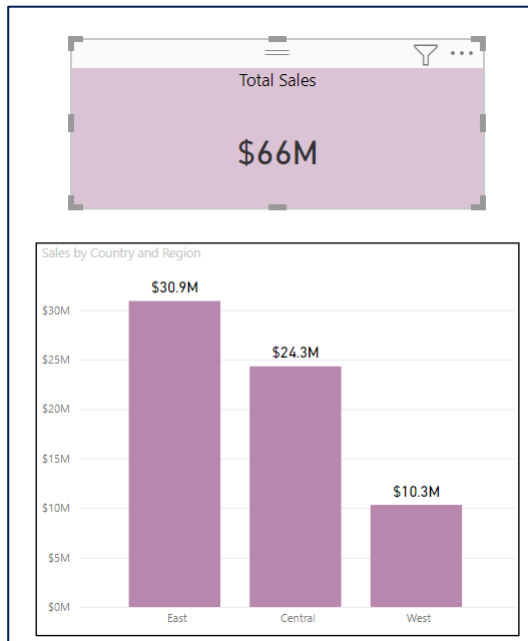
4. Repeat the last step for the Chiclet slicer as well
5. Click the View ribbon and expand the Theme section
6. Click the colorblind safe theme



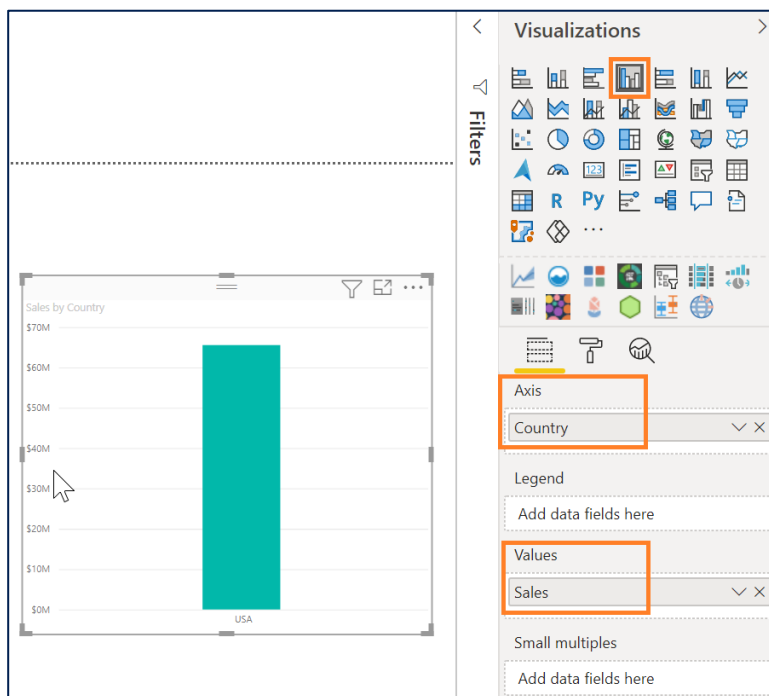
Lab 7a: Product Sales and Geography

Task: Analyze Product Sales by Geography. Create the following reports

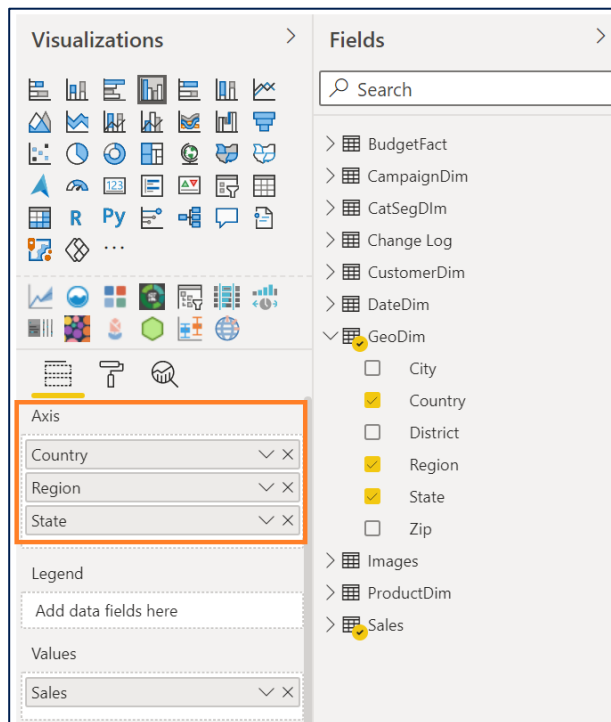
The estimated time to complete this lab is 15 minutes.



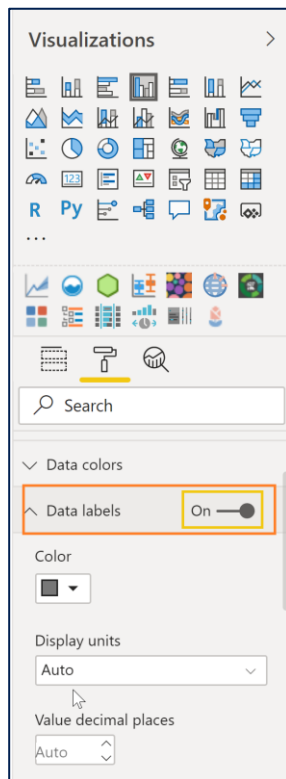
1. Add a clustered column chart to the canvas that analyzes Sales by Country



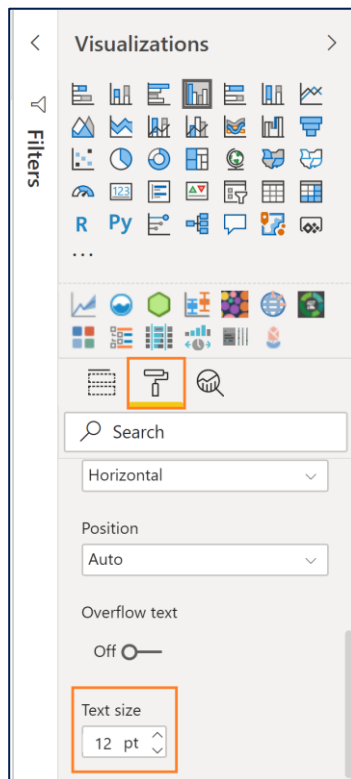
2. Create Geography hierarchy in Clustered column chart by adding Region and State



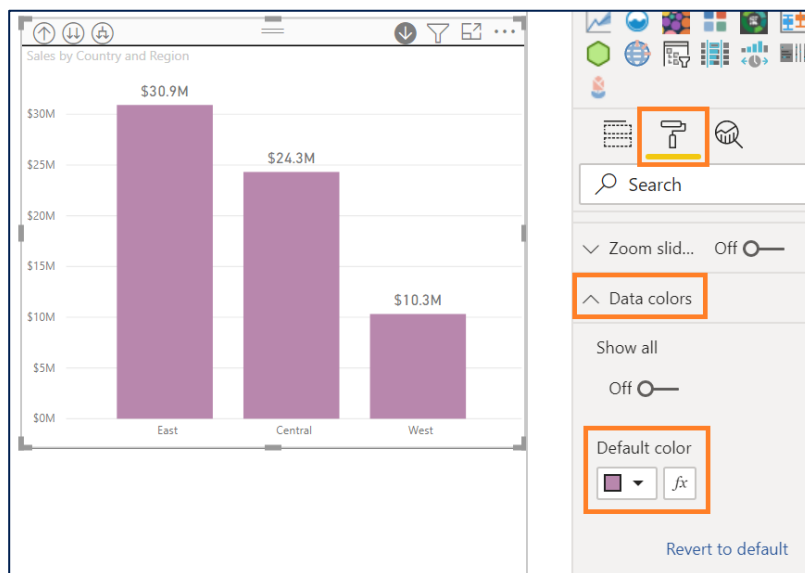
3. Add data labels



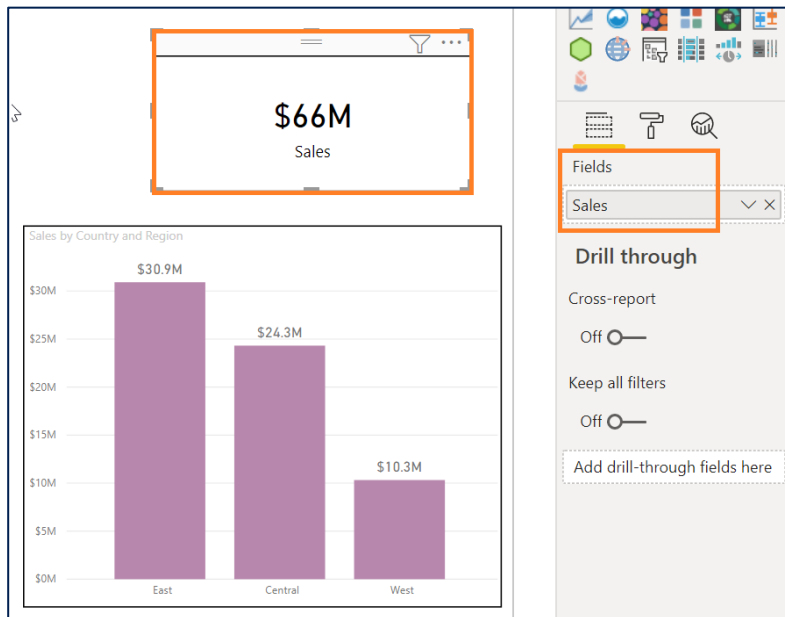
4. Change size of the data labels to font 12 in the Clustered column chart



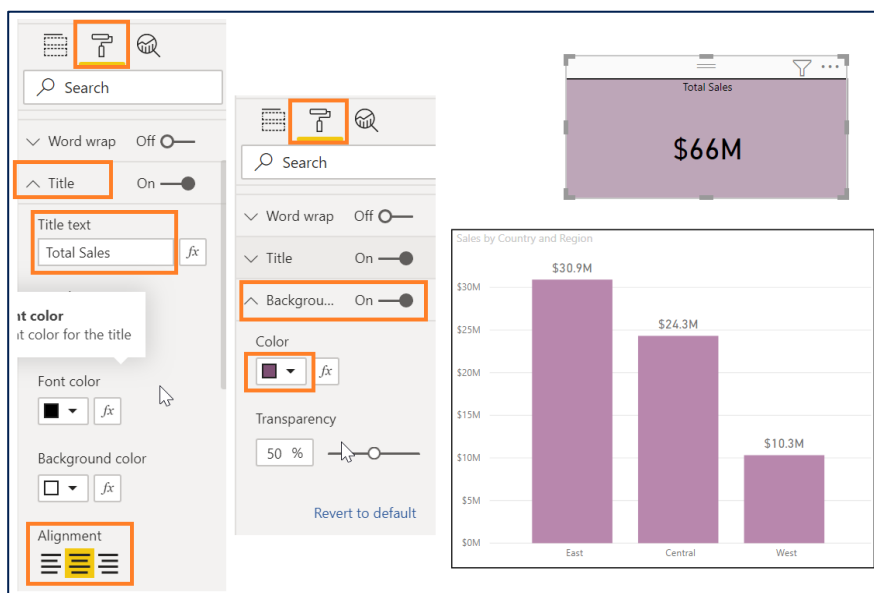
5. Add border and change the data colors to purple than drill down to **Region**



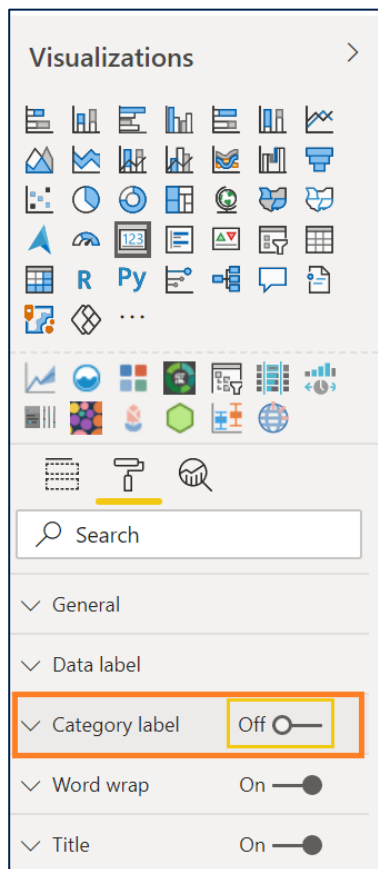
6. Create a Card visual which displays Sales



- Format Card visual by adding Total Sales Title with black font and center alignment and changing the background color to purple



- Remove the Category label



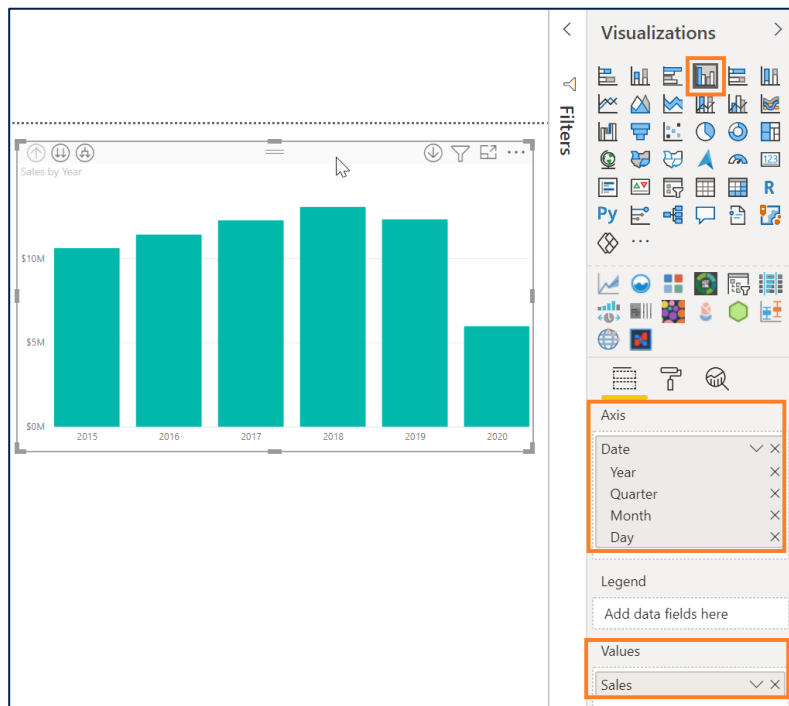
Lab 7b: Edit interactions

Task: Format a chart and change interactions between charts

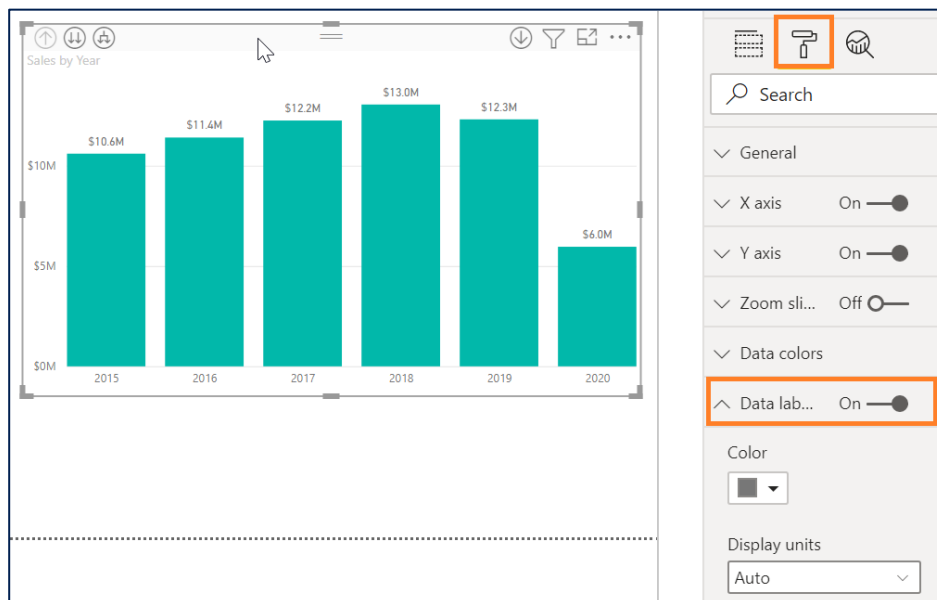
The estimated time to complete this lab is 15 minutes.



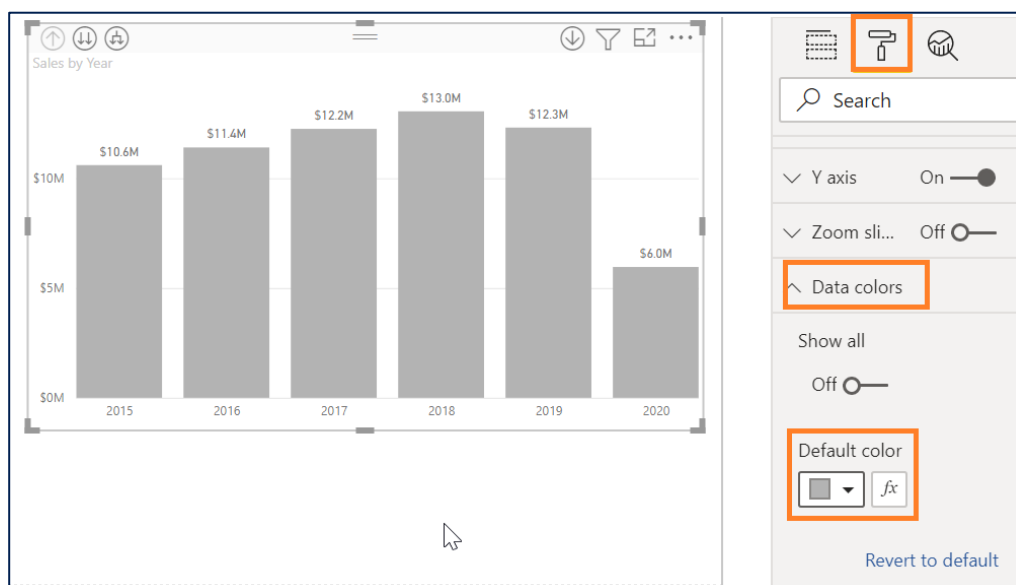
1. Create another Clustered column chart this time with Date hierarchy and Sales



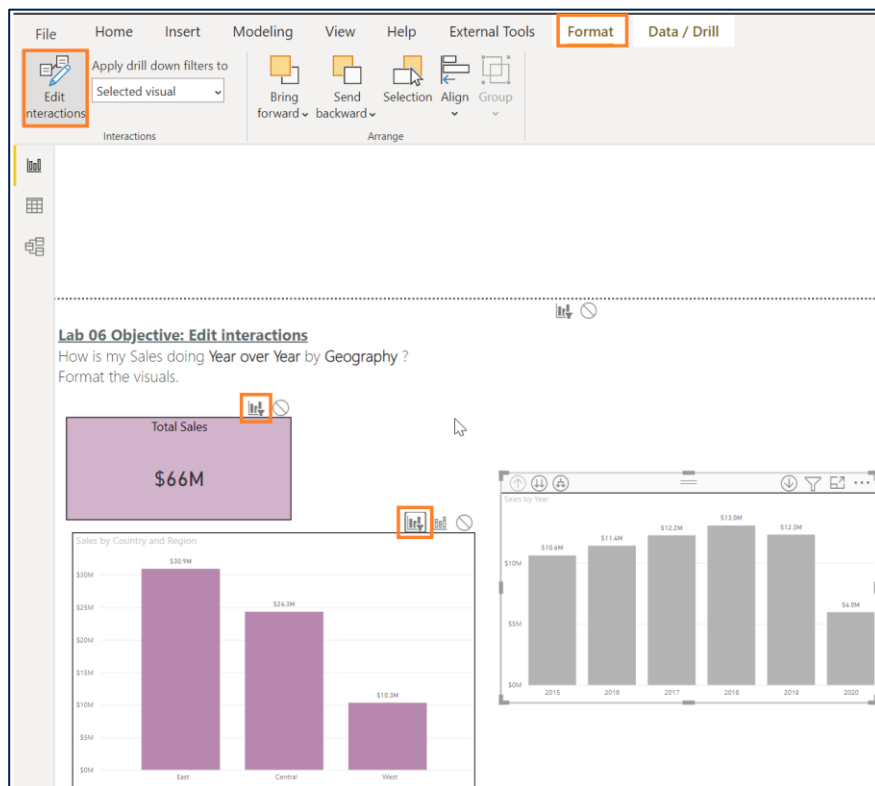
2. Add data labels and change the font of the data labels to 12 in the Clustered column chart



3. Add border and change the Data colors to grey in the Clustered column chart



4. Using Edit Interaction functionality change the interaction between all of the visuals to filter



Lab 7c: Create a tree map

Task: Format a treemap visualization

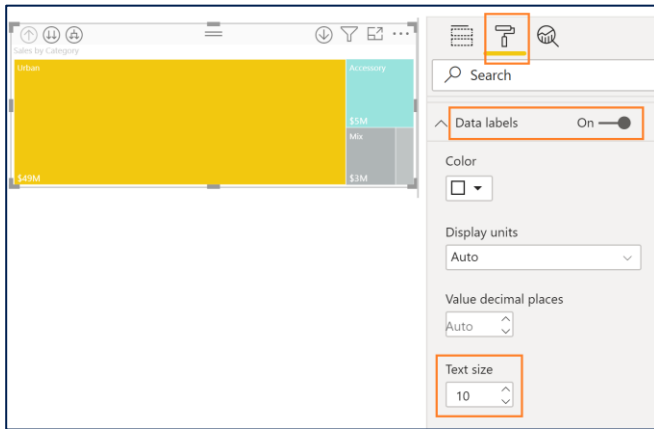
The estimated time to complete this lab is 15 minutes.



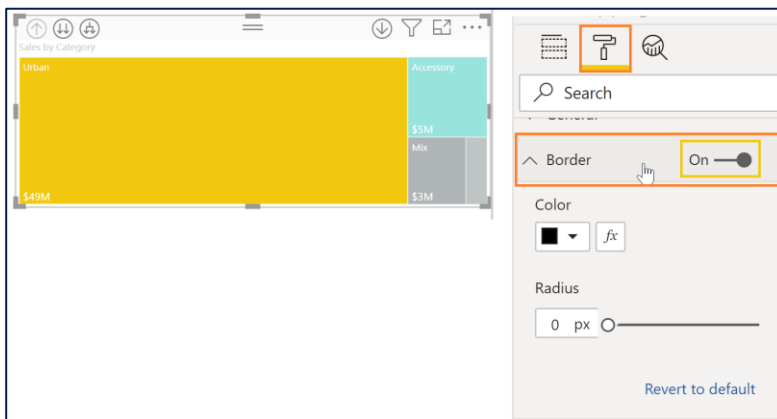
1. Create Tree Map visual with a Product hierarchy **Category** (CatSegDim table), **Segment** (CatSegDim table), **Product** (Product table) by Sales



2. Add data labels and change size of data labels in Tree Map to font 10



3. Add border to Tree Map

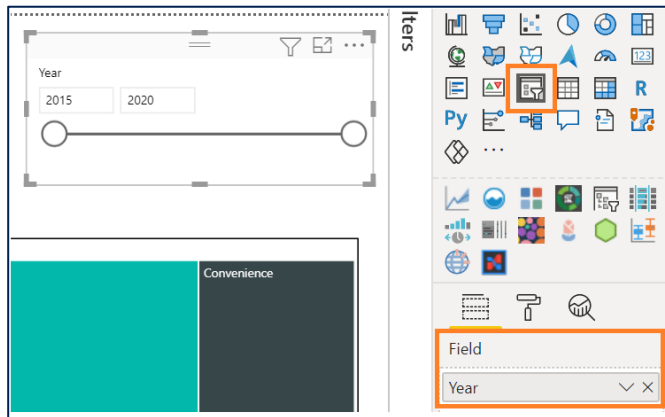


Lab 7d: Working with filters

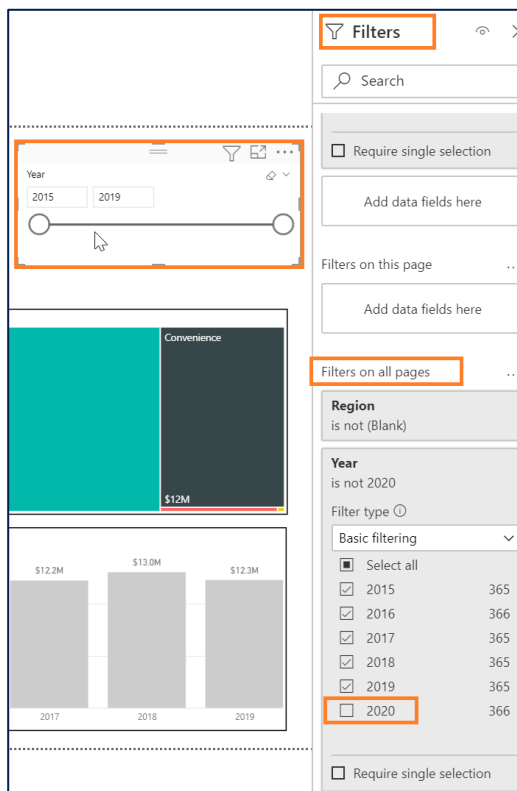
Task: Add Year slicer and use basic filtering

The estimated time to complete this lab is 10 minutes.

1. Add a **Year** slicer to the canvas



2. In the Filters pane drag **Year** from the Fields list to the **Filters on all pages** box. Use basic filtering to filter out 2020. This will remove 2020 from all pages you are working on

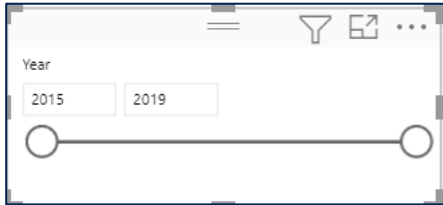


Lab 7e: Sync Slicers

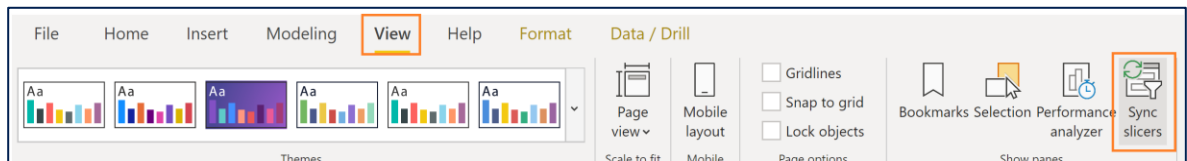
Task: Sync slicers across multiple pages

The estimated time to complete this lab is 15 minutes.

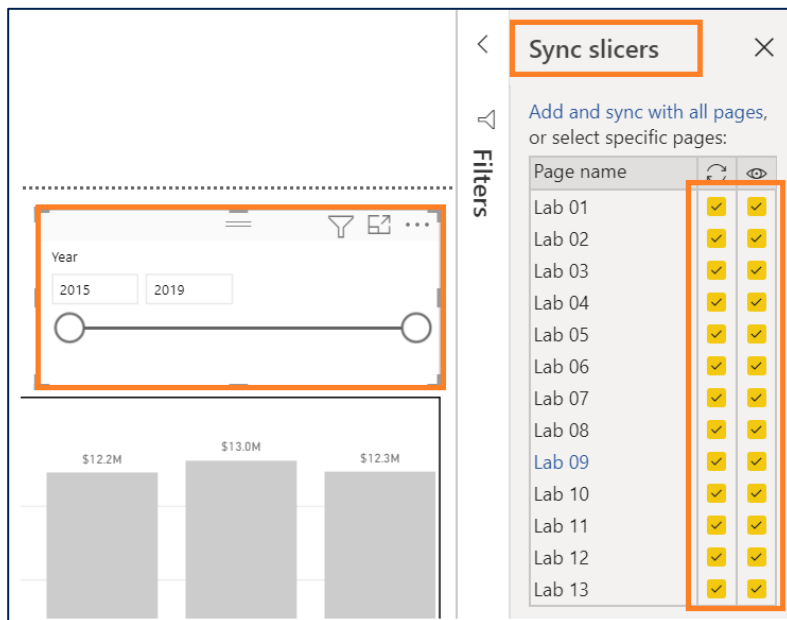
1. Select Year Slicer



2. From ribbon select View -> Sync Slicers



3. The Sync slicers box opens. Use this to sync Year slicer across all pages

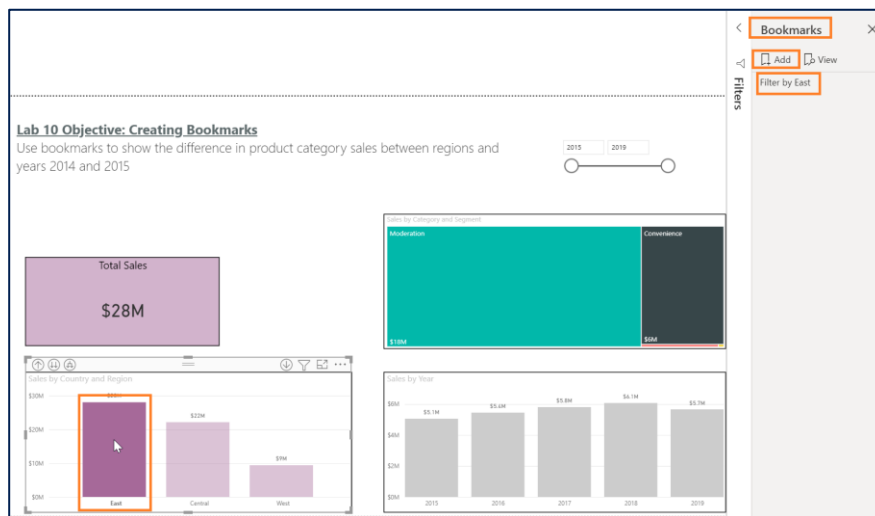


Lab 7f: Creating bookmarks and an action button

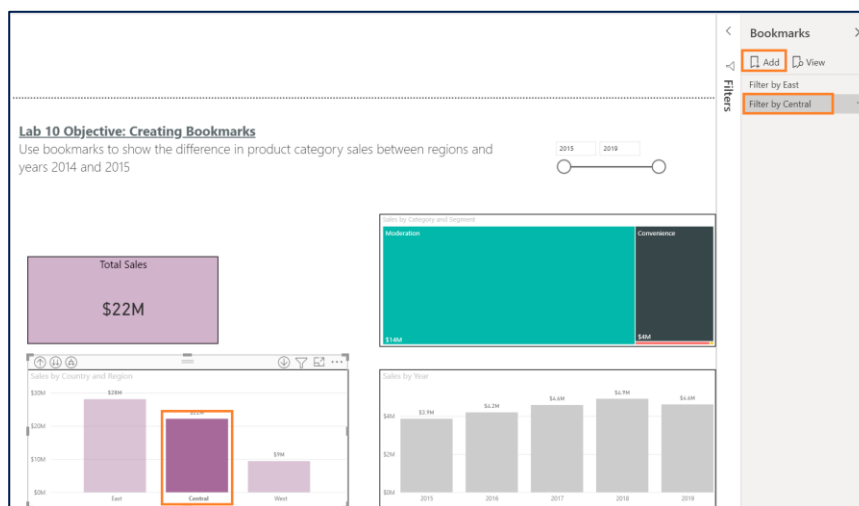
Task: Create bookmarks to tell a story and add an action button

The estimated time to complete this lab is 30 minutes.

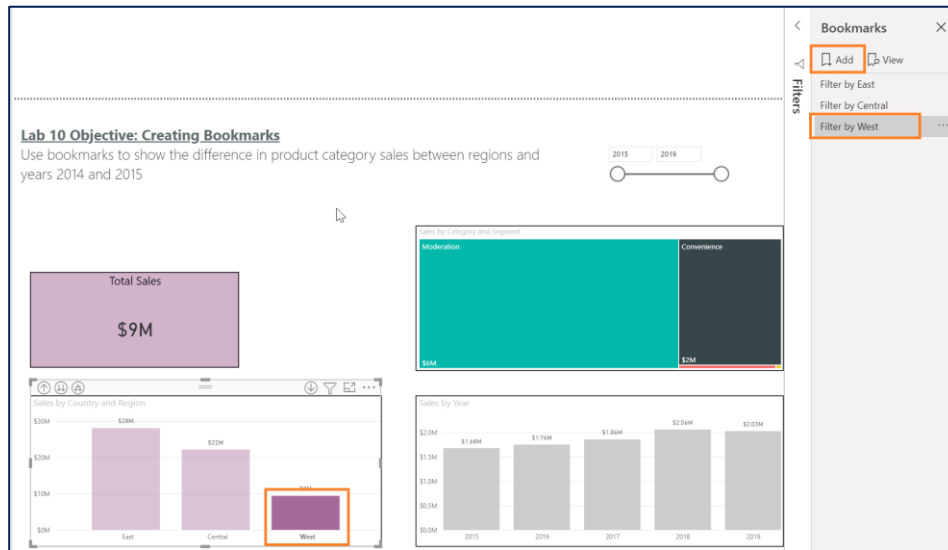
1. Filter by **East** Region on the Sales by Category and Segment chart and open the Bookmarks pane and add a bookmark titled **Filter by East**. Sales was on an upward trend, but dropped in 2019.



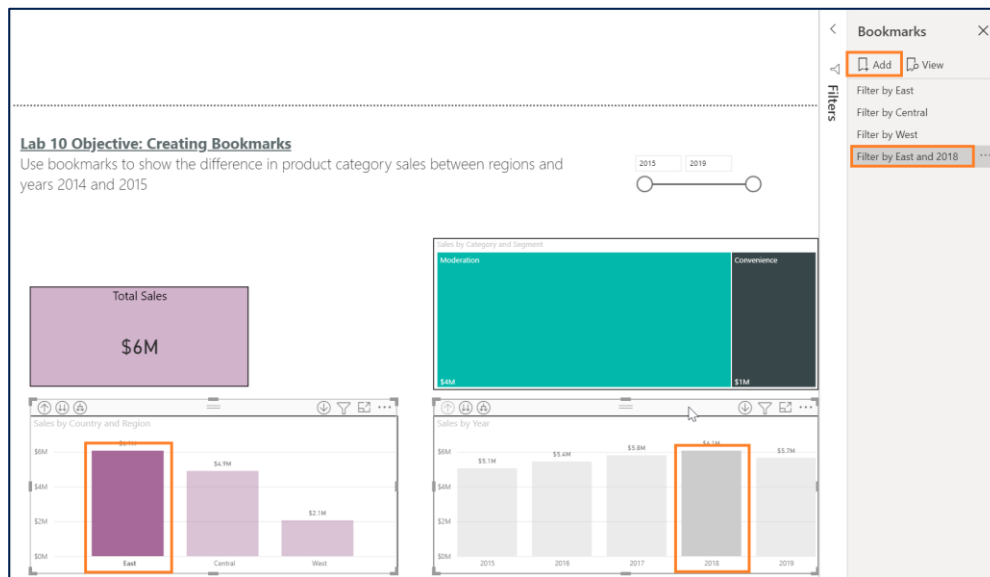
2. Filter by **Central** Region and add a new bookmark. Similar story in Central Region.



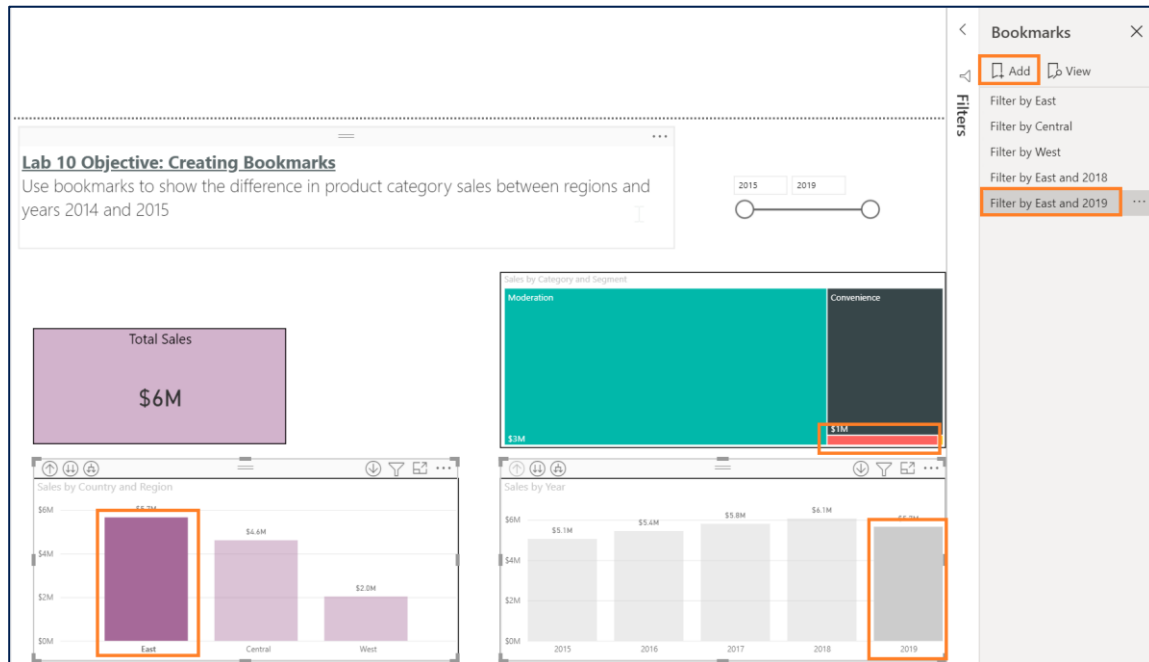
- Filter by **West** Region and add a new bookmark. Sales was on an upward trend, but dropped in 2019 but not as drastic as East and Central region.



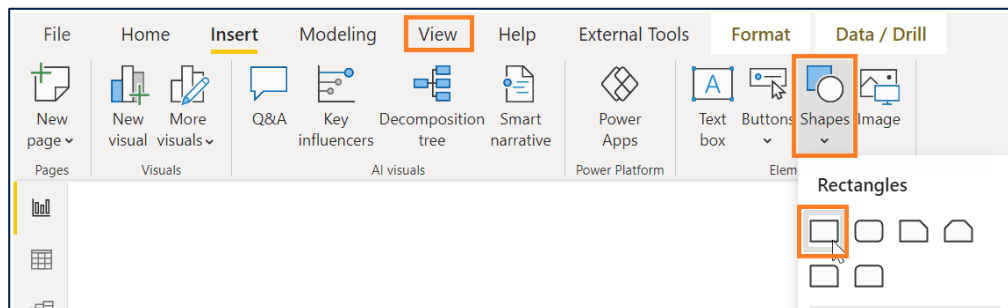
- Cross filter by **East** Region and **2018** and add a new bookmark, notice there is no Sales in Extreme Segment on the tree map



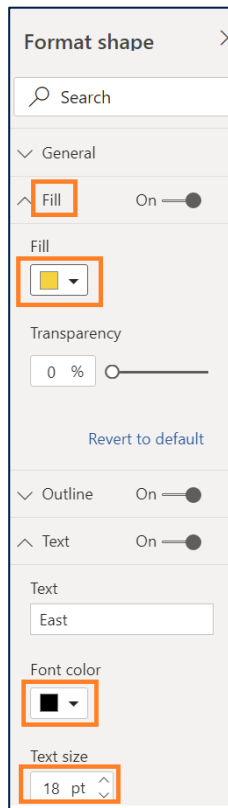
- Cross filter by **East** Region and **2019** and add a new bookmark, notice there is Sales in Extreme Segment.



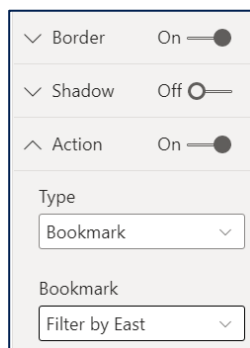
- Click the View ribbon and insert a shape, select rectangle



- Format the shape to have a yellow fill and 18pt text that says **East**



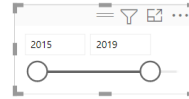
8. Turn on Border and Action. Choose the Bookmark action and Filter by East bookmark



9. Test the new button. Click on Central then click Ctrl + East button. Your page should filter by East using the newly created button. Feel free to create buttons for other bookmarks.

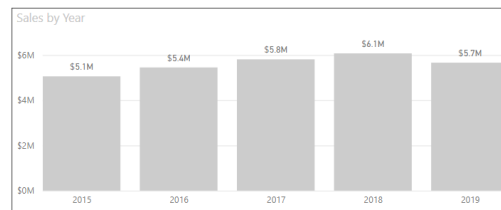
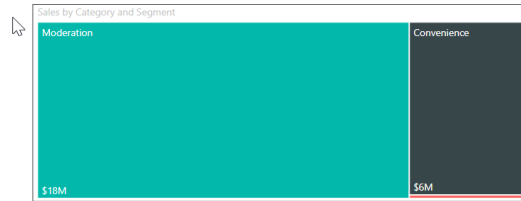
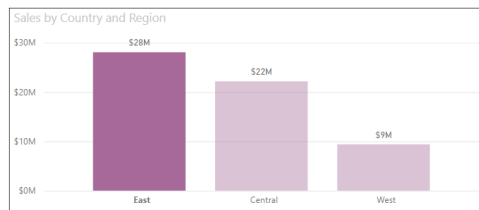
Lab 10 Objective: Creating Bookmarks

Use bookmarks to show the difference in product category sales between regions and years 2014 and 2015



East

Total Sales
\$28M

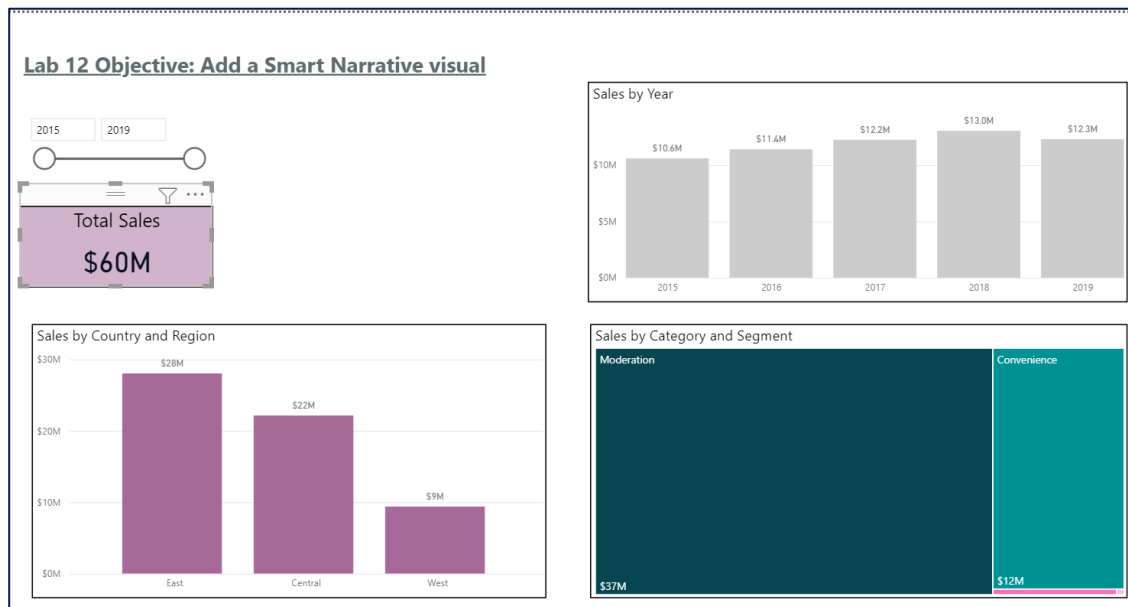


Lab 7g: Add a Smart Narrative visual

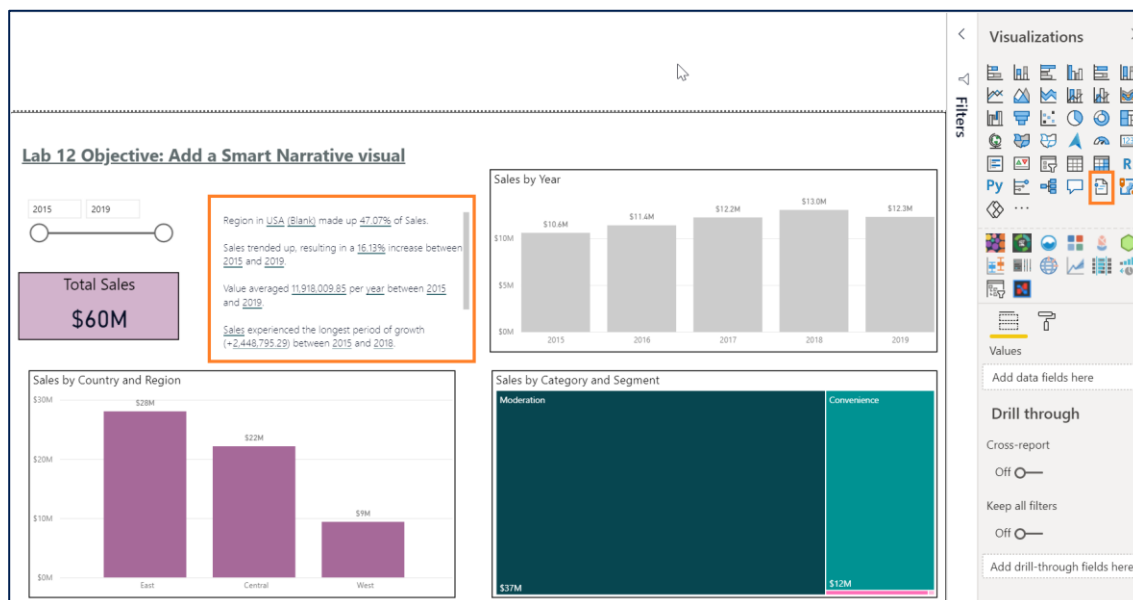
Task: Add smart narrative visual to the canvas

The estimated time to complete this lab is 15 minutes.

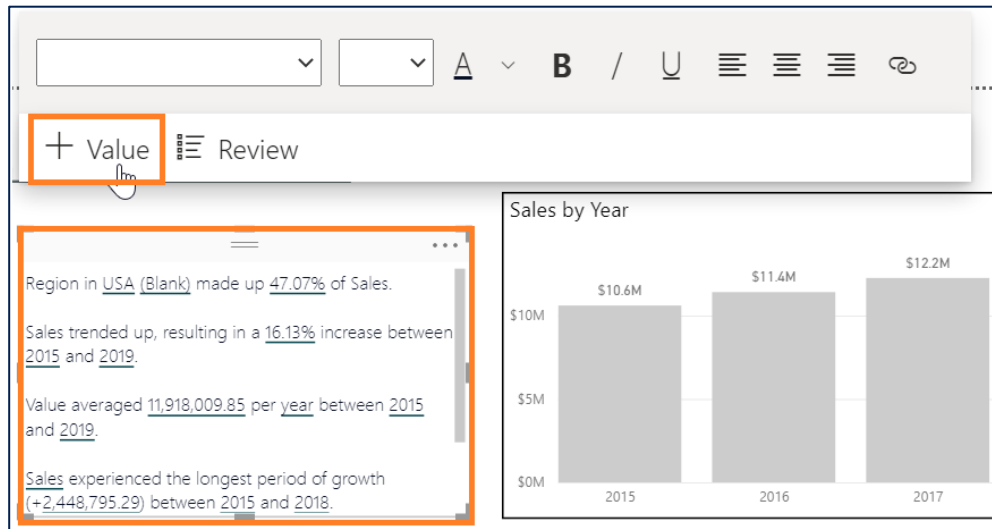
1. Resize the card visual and move it below the slicer



2. Add a smart narrative visual to the canvas



3. Click on smart narrative visual and click +Value



4. Add the value "Sales is higher in 2019 than 2018" to your chart, this will create an alert

The screenshot shows a dialog box titled 'Create a dynamic value that updates with your data'. The dialog box has a 'Value' tab and a 'Review' tab. The 'Value' tab is active, and it contains the following fields:

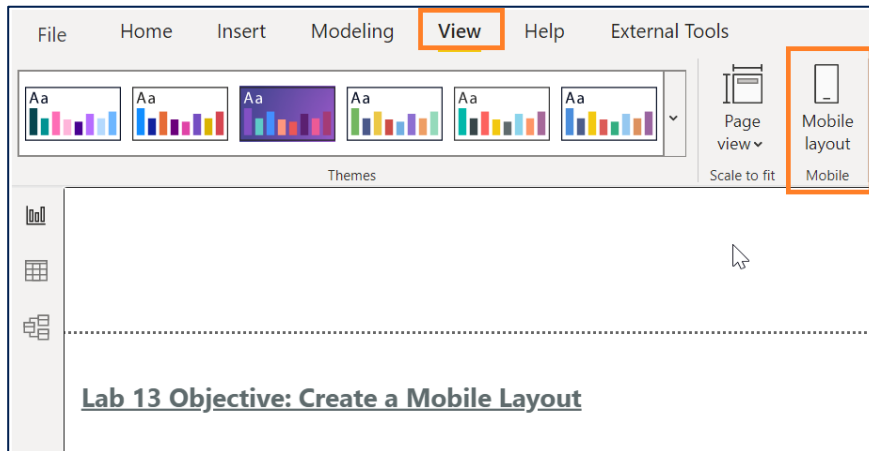
- How would you calculate this value**: A text input field containing the formula Sales is higher in 2019 than 2018.
- Result**: A text input field showing the value 392.
- Format**: A dropdown menu set to 'General', with options for currency (\$), percentage (%), and scientific notation (E).
- Name your value**: A text input field containing the name # Sales.
- Buttons**: 'Save' and 'Cancel' buttons.

Lab 7h: Create a Mobile Layout

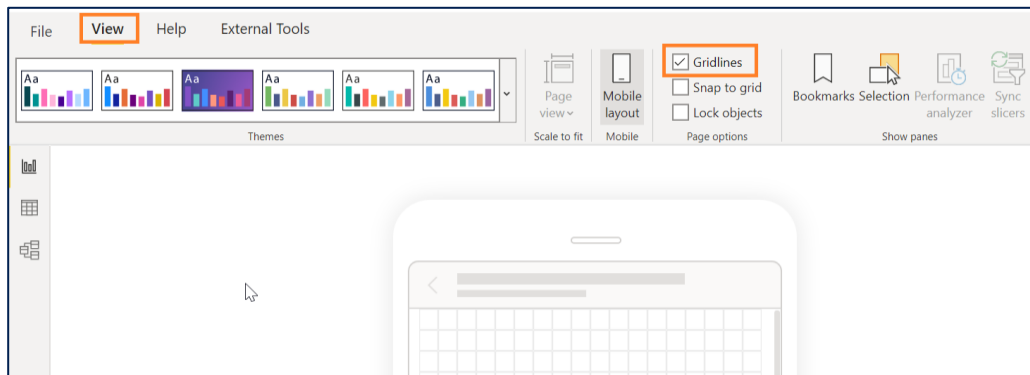
Task: Create a mobile layout

The estimated time to complete this lab is 20 minutes.

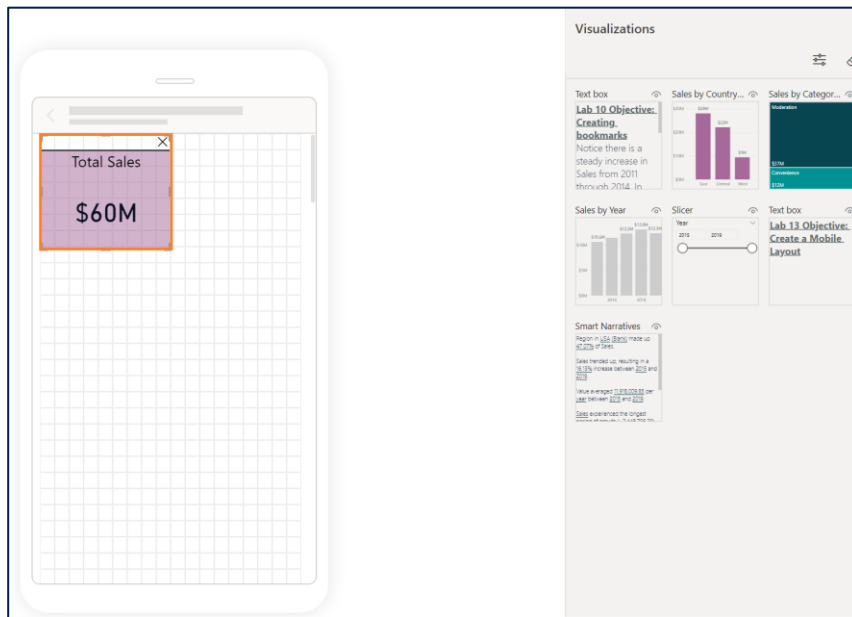
1. Click on the View ribbon and click Mobile Layout



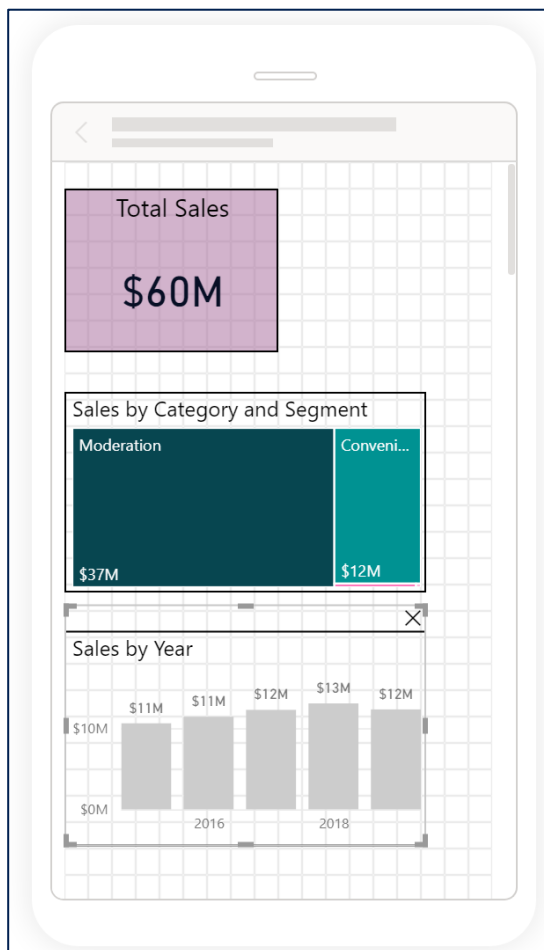
2. Click on the Gridlines box to add gridlines to the mobile layout



3. Drag the Total Sales card onto the mobile layout, resize as appropriate



4. Drag the Sales by Category treemap and Sales by Year column chart to the mobile layout



Summary

In this lab you have created multiple different visualizations. You've learned different formatting techniques and how to use filters and sync slicers. As well as learned how to create bookmarks to tell a story. You have also learned how to add alternate text to canvas visuals and create a mobile layout.

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