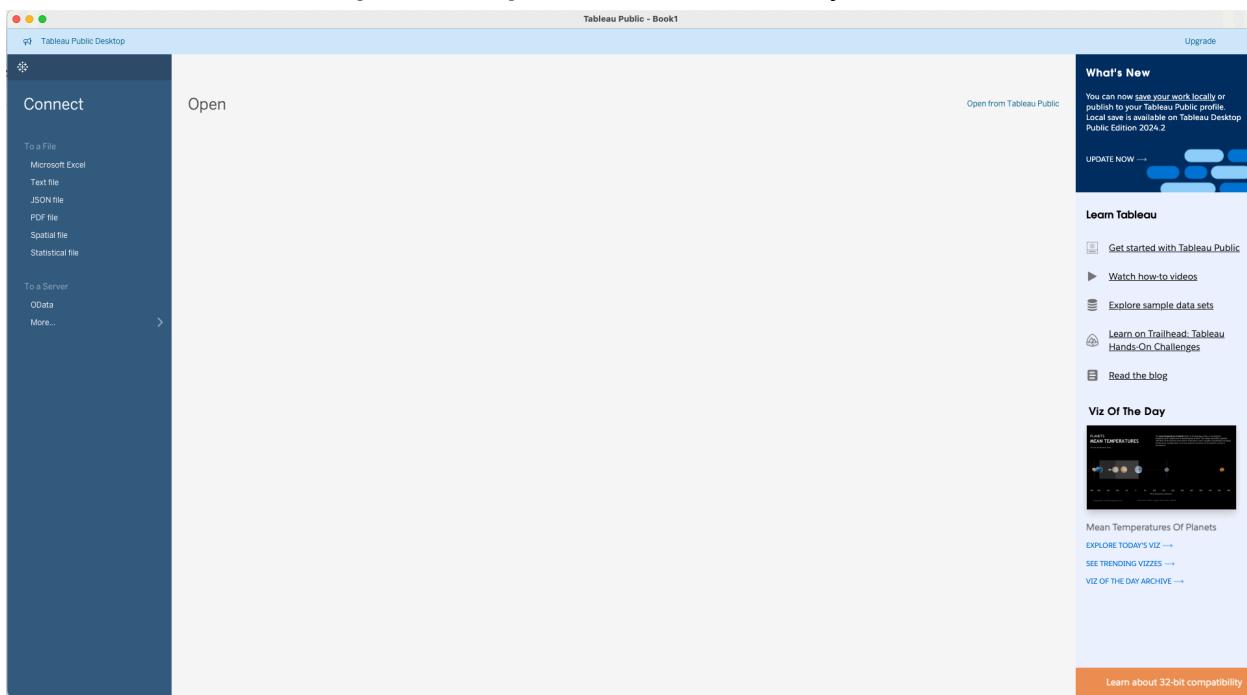


## Step 1: Download and Connect to Data source

### Access Sample Data Sets

On the right side of the landing page you will see the Learn Tableau section. Underneath that is an **Explore sample data sets** link that you will want to click into.



### Download Superstore Sales Data

The **Superstore Sales** data set is one that we will be working with, so take a moment to download it now by selecting the link pictured below. When you click on the link a dialogue box will open to choose the location to save the file. For ease of access, choose the **Datasources** folder in the **My Tableau Repository** directory.

**\*\*Documents/My Tableau Repository/Datasources** was automatically created when you installed Tableau. There might be sub-folders for dates/updates please use the newest one.

If Sample - Superstore.xls already exists in your /My Tableau Repository/Datasources directory, it is OK to overwrite it.

The screenshot shows the Tableau Public website interface. At the top, there's a navigation bar with the Salesforce logo, the Tableau Public logo, and links for 'Create', 'Resources', 'Sign In', and a search icon. Below the navigation is a blue banner with the text 'New to Tableau Public? Read our step-by-step guide to getting started on your own data visualization journey.' In the main content area, there's a section titled 'Resources' with a sub-section 'Sample Data' highlighted by an orange underline. A descriptive text follows, followed by a list of sample datasets categorized under 'Business'. Each dataset entry includes a brief description, a red button labeled 'Click to download Superstore Sales', and a download link for 'Dataset (xls)'.

## Resources

Explore how-to videos, sample data, and community resources to help you get started or to take your skills to the next level.

Learn    Sample Data    Community Resources

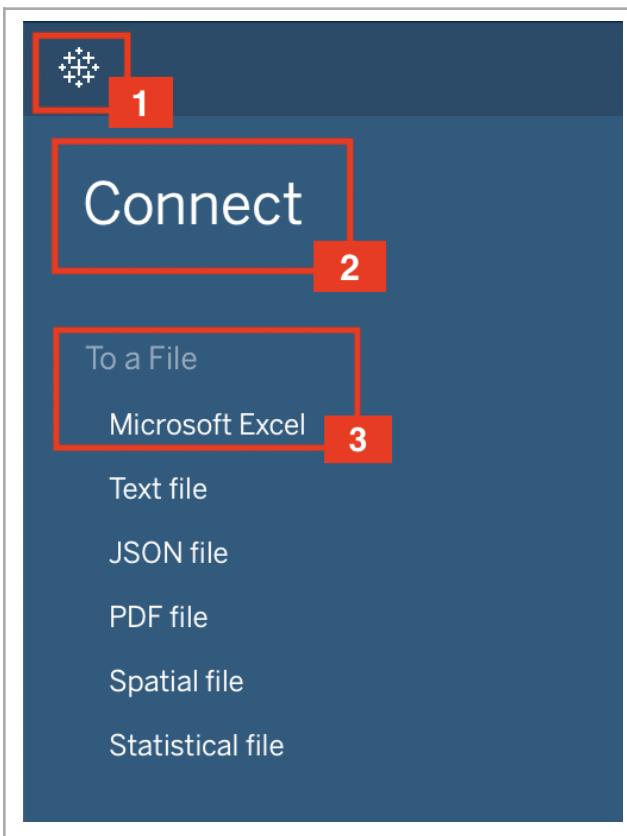
Explore these sample data sets, data sources, and web data connectors to get started on your next visualization project. Download a data set and connect to it from Tableau to start creating. Data sets may be available in English only.

### Business

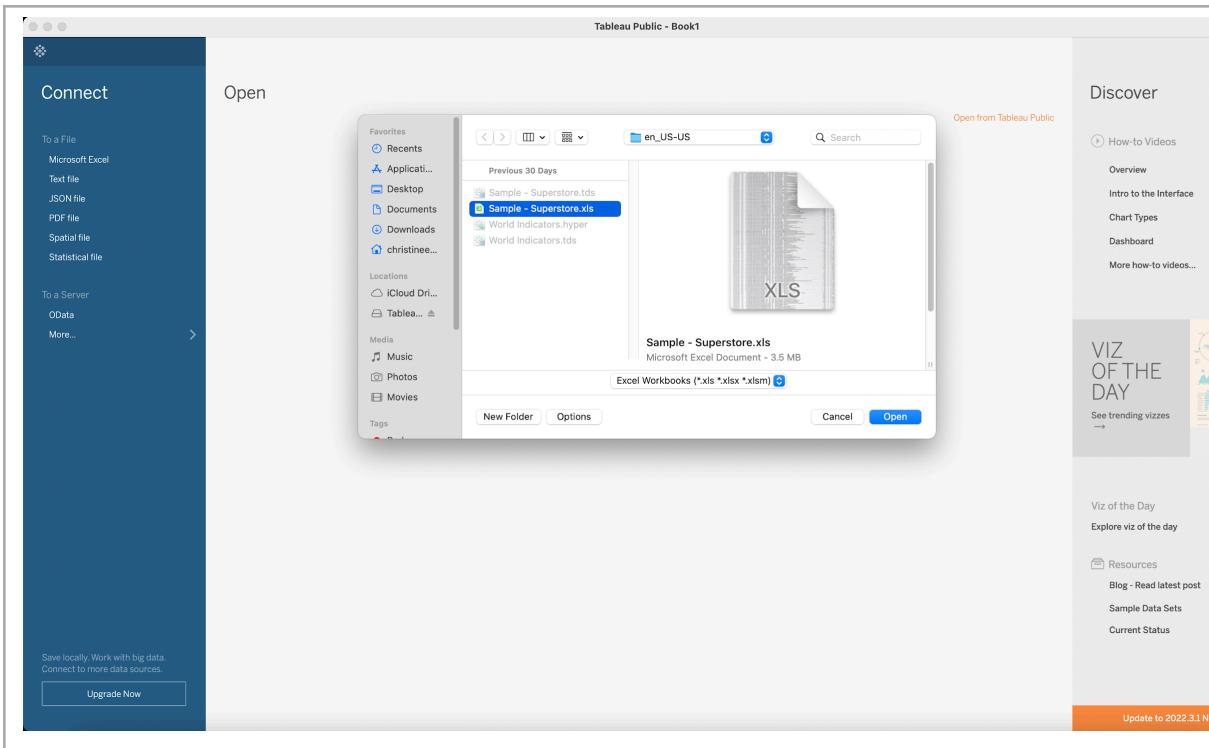
<b>Superstore Sales</b>	Contains information about products, sales, and profits that you can use to identify key areas of improvement within this fictitious company.	<b>Click to download Superstore Sales</b>	<a href="#">Dataset (xls)</a>
<b>The Inc. 5000</b>	The Inc. 5000 is Inc. Magazine's annual list of the 5000 fastest growing private companies in the United States. The list is compiled by measuring each company's percentage revenue growth over a four-year period.		<a href="#">Dataset (csv)</a>
<b>Employment Changes in Great Britain by Industry</b>	Employment data by industry for 2011 and 2014 by city for Great Britain. The 1-digit sheet has data aggregated at the industry level whereas the 2-digit sheet aggregates the data at the sub-industry level. Source: <a href="#">Economic Modeling Specialists Inc (EMS)</a>		<a href="#">Dataset (xlsx)</a>
<b>Millennial vs Baby Boomer Employment</b>	Employment data in the United States for the millennial and baby boomer generations, broken up by state, MSA, and industry for 2000-2013. Source: <a href="#">Economic Modeling Specialists Inc (EMS)</a>		<a href="#">Dataset (xls)</a>

Connect to Data within Tableau

Next, we will navigate to the Connect pane (2) in the upper left-hand corner of the screen, directly below the Tableau icon (1) and select To a File > Microsoft Excel(3).



Then, use the Open dialogue box to retrieve and open the previously downloaded data file **Sample - Superstore**



## Launch the Data Source Page

After completing the steps above, Tableau will launch the **Data Source page**.

From the Data Source page, drag the **Orders** sheet to the canvas.

You should notice that two more panes appear in the lower portion of your screen. This is the **Data Grid** on the right, which displays a preview of the first 1,000 rows of the data contained in the data source that we selected, and the **Metadata grid** on the left displays the fields in your data source as rows.

The screenshot shows the Tableau Public Desktop interface. On the left, the Connections pane lists "Sample - Superstore Microsoft Excel". The Sheets pane shows "Orders (Sample - Superstore)" selected. The main canvas displays the "Orders" sheet with a table containing 21 fields and 10194 rows. The Fields pane on the left shows the detailed structure of the Orders table, including columns for Row ID, Order ID, Order Date, Ship Date, Ship Mode, Customer ID, Customer Name, Segment, Country/Region, City, and State. A relationship line connects the Order ID field in the Orders table to the Order ID field in the Returns table.

Next, drag the **Return** sheet to the canvas as well. Since the tables have an existing link and shared field (`OrderID`), a line appears to form an automatic relationship between the tables.

If no automatic relationship was detected by Tableau, the **Edit Relationship** dialog would open. Then, you can indicate which field should be used to relate the two tables.

For our purposes, we will use two tables, but in the future, you can use as many tables as needed.

Note: This data file is updated periodically by Tableau, newer versions might display different names/numbers than shown below.

The screenshot shows the Tableau Public Desktop interface. On the left, the 'Connections' pane displays a single connection to 'Sample - Superstore Microsoft Excel'. The 'Sheets' pane lists four sheets: 'Orders', 'People', 'Returns', and 'New Union'. A 'Relationships' section indicates a relationship between 'Orders' and 'Returns' with the operator '='. The main workspace shows a data grid titled 'Orders — Returns' with 100 rows. The columns are 'Returns Returned' and 'Order ID (Returns)'. The data consists of 10 rows of 'Yes' values followed by 10 rows of 'US-2021-100762'.

Returns Returned	Order ID (Returns)
Yes	US-2021-100762
Yes	US-2021-100867
Yes	US-2021-102652
Yes	US-2021-103373

## Step 2: Visualizing Profits

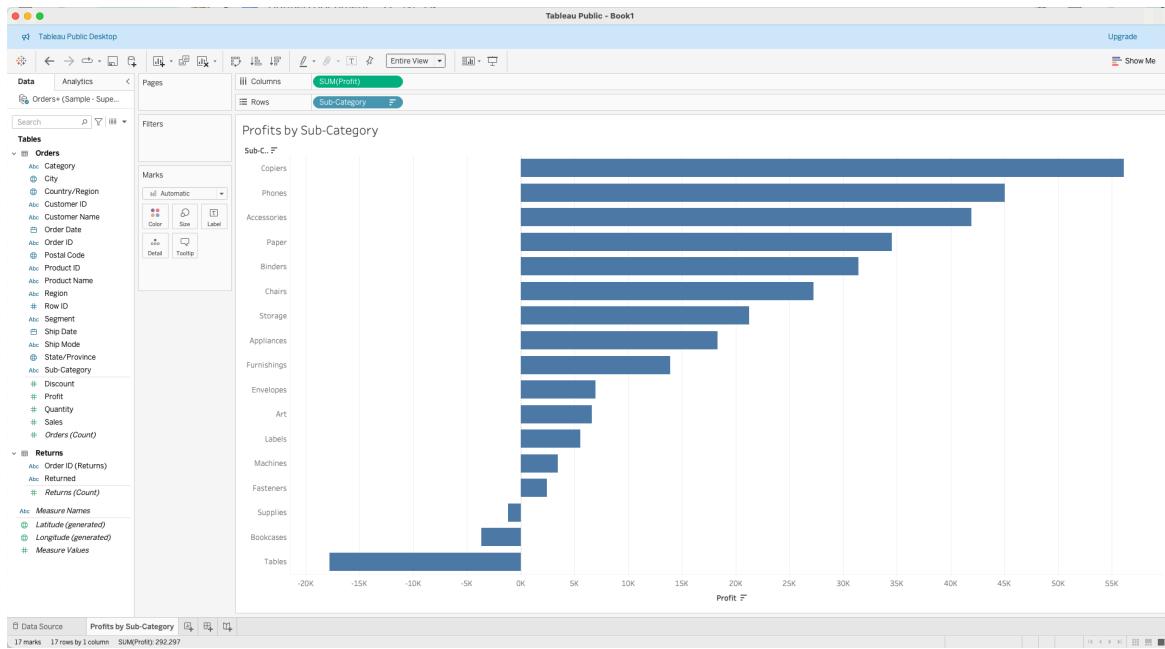
Suppose you want to create a visualization that will communicate which kinds of products yield the most profits. A bar chart is a great choice for conveying this kind of information.

Select Sheet 1 from the Sheets tab to launch the Tableau Workspace.

### Create a Bar Chart

1. Lets rename the new worksheet "Profits by Sub-Category".
  - a. Right click Sheet 1 on the bottom tab → select Rename option.
  - b. In the Menu bar navigate to the Fit dropdown, should default to Standard, and select the Entire View option.
2. Drag the **Orders.Sub-Category** pill, a Dimension, into the data pane to the Columns shelf. Then drag the **Orders.Profit** pill, a Measure, into the Rows shelf.
  - a. Notice that Tableau automatically switches to **SUM(PROPIT)** appropriately.
  - b. This can be changed by accessing the dropdown menu of the pill itself within the Row shelf and selecting the Measure option.
  - c. We want to leave it at sum for this instance.
3. This looks great, but it is a little difficult to read the sub-categories at the bottom of the chart. One simple fix for this instance would be to swap the axes so the sub-categories become the rows and the profit becomes the columns.

- a. We can use the swap-axis button in the Menu bar to see how it affects the visualization.
4. Now that we have a good-looking bar chart, we can make it a little more informative. For instance, we would likely want the profit sorted so that it is easier to quickly find the highest or lowest profit-earning sub-categories. Fortunately, Tableau has a tool for this!
- a. We can use the **Sort Descending** button in the Menu bar and apply it to the bar chart. And, just like that, we have a graph that helps us to find the information we are looking for.

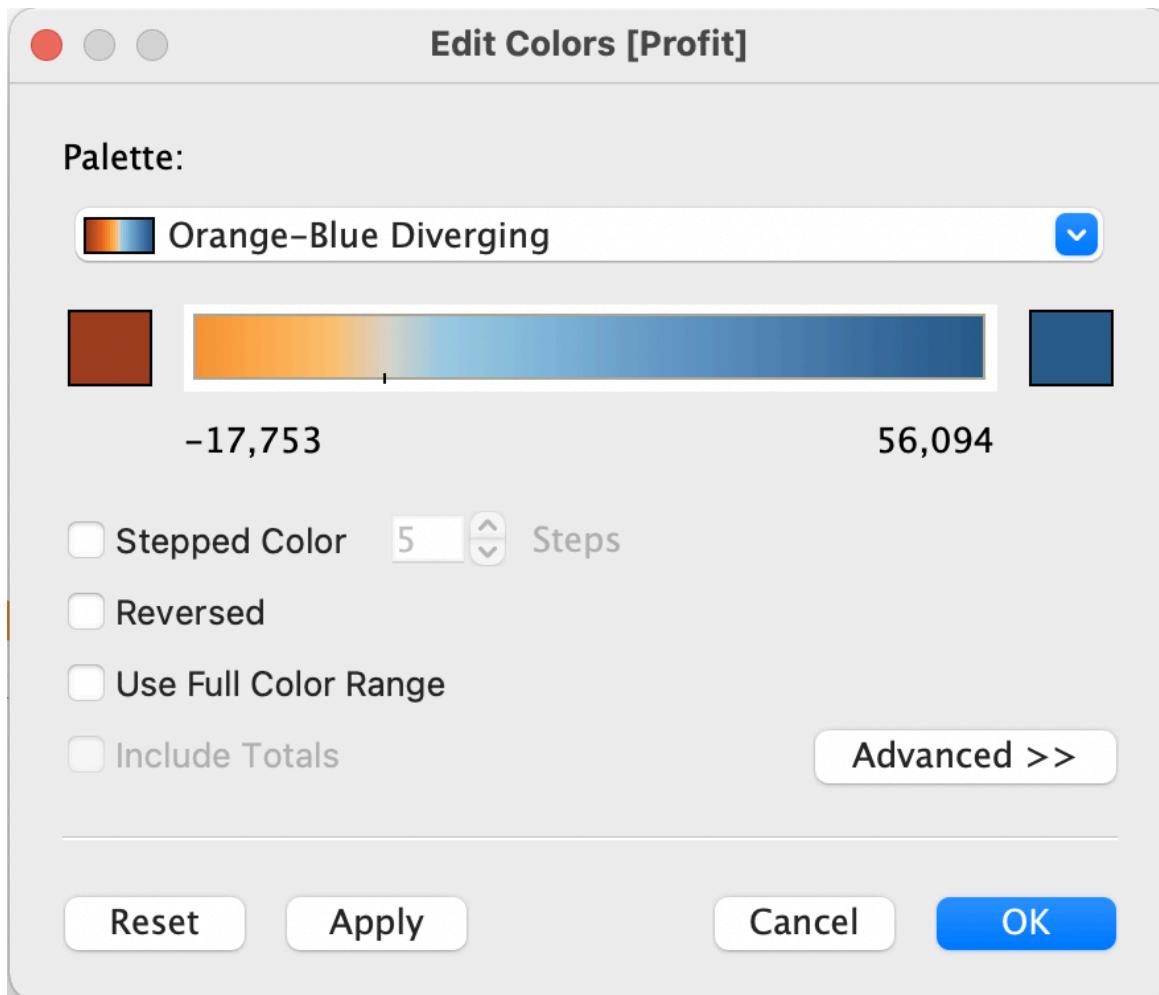


## Customizing and Styling

With so many sub-categories, it may be a bit difficult to connect the sub-category with the corresponding value. Let's make a few tweaks to improve the visibility of our visualization.

1. We can drag the **Orders.Profit** pill from the Data pane to the Color option within the Marks card. This will automatically change the color of the plot based on values from the profit pill.
  - a. We can customize by clicking on the Color card on the marks card and selecting **Edit Colors...**
  - b. This will open up a window in which you can select specific color maps/ranges. Tableau has a great set of options via the Palette dropdown

- but you can also select your own colors too. You can even enter hex codes for color to help with specific brand matching!
- Let's choose the Orange-Blue Diverging Palette option, a good option to use for heat mapping numerical values.



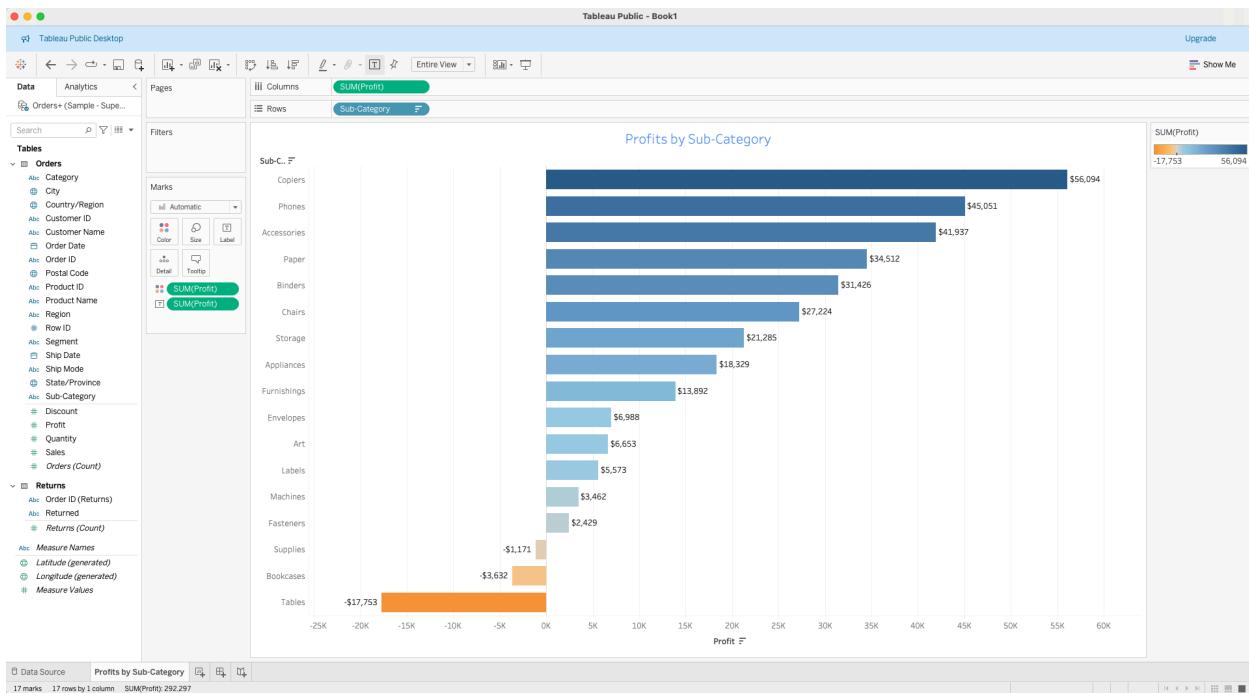
- We can also drag the other **Orders.Profit** pill from the Data pane to the Label card option within the Marks card. This will automatically apply a label at the end of each bar on the chart to indicate the sum of profit for that sub-category.
  - We can do even more formatting for these labels as well by right clicking one of the **SUM(PROFIT)** pills and selecting Format.
  - The Format pane will appear to the far left of your screen.
  - Within the Default section, we can customize how the value is displayed by selecting the Number drop-down and choosing Currency (Custom), and setting the decimal places to zero.
  - We now have our values being displayed in true monetary format, complete with dollar signs. There is lots of customization and formatting

that can be done in a similar manner including changing background colors on the chart, title and axis.

## Adding a Title

Having a visualization is great, but we want to make it look professional and make it convey the information that is being shared by the visualizations. To do this, we will give the worksheet a meaningful title.

1. The default name of the worksheet is the default name of the tab you are working in, but we can customize this.
  - a. If you right-click or double-click on the title of the visualization, which at the moment should be *Profits by Sub-Category*, you will be able to format and change it.
2. In the dialogue box that appears, you can see that the name of the worksheet is forced as the <Sheet Name>, hence the default naming.
  - a. You could change the name by simply replacing the default <Sheet Name> with any meaningful name. For now let's leave it as, we changed the sheet name to be verbose
  - b. We can go ahead and change the color to blue by highlighting the text and selecting the color dropdown.
  - c. We can also center the title above our visual using the standard format options for centering text.
  - d. Click *Apply* and *OK* to save the changes.

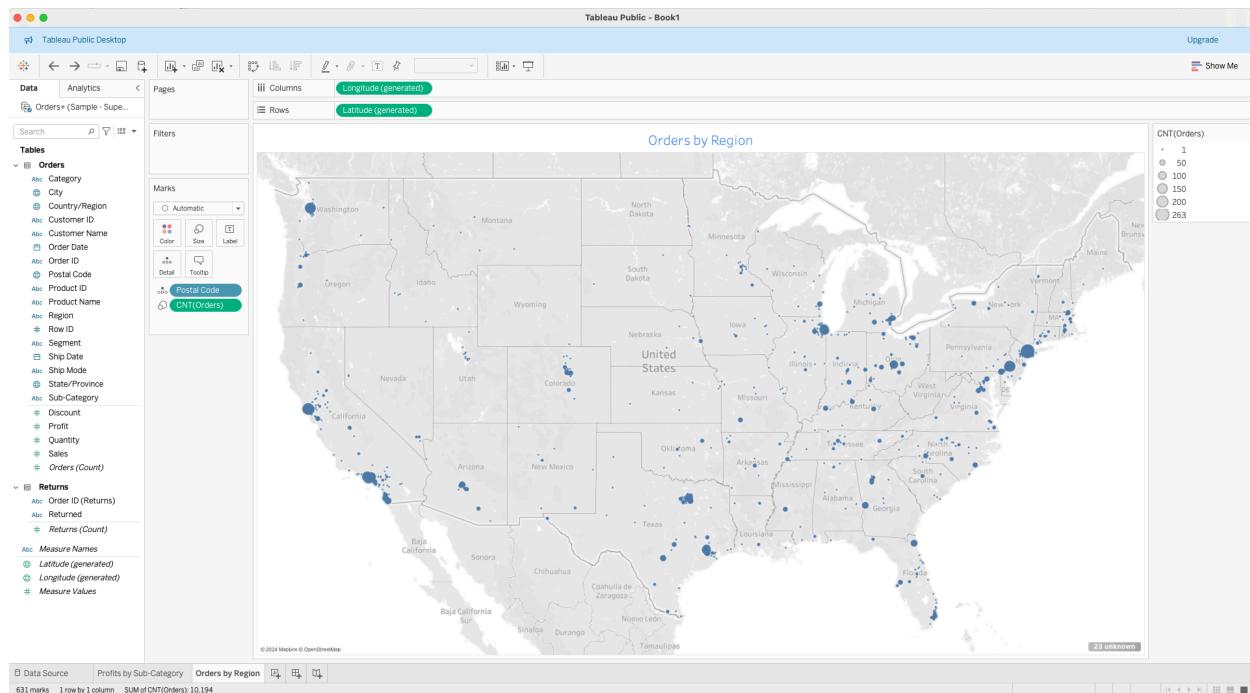


## Step 3: Visualizing Orders by Region

Next, let's create a chart that visualizes the number of orders by region so we can get a good idea of where to focus our next marketing campaigns.

### Create a Regional Map

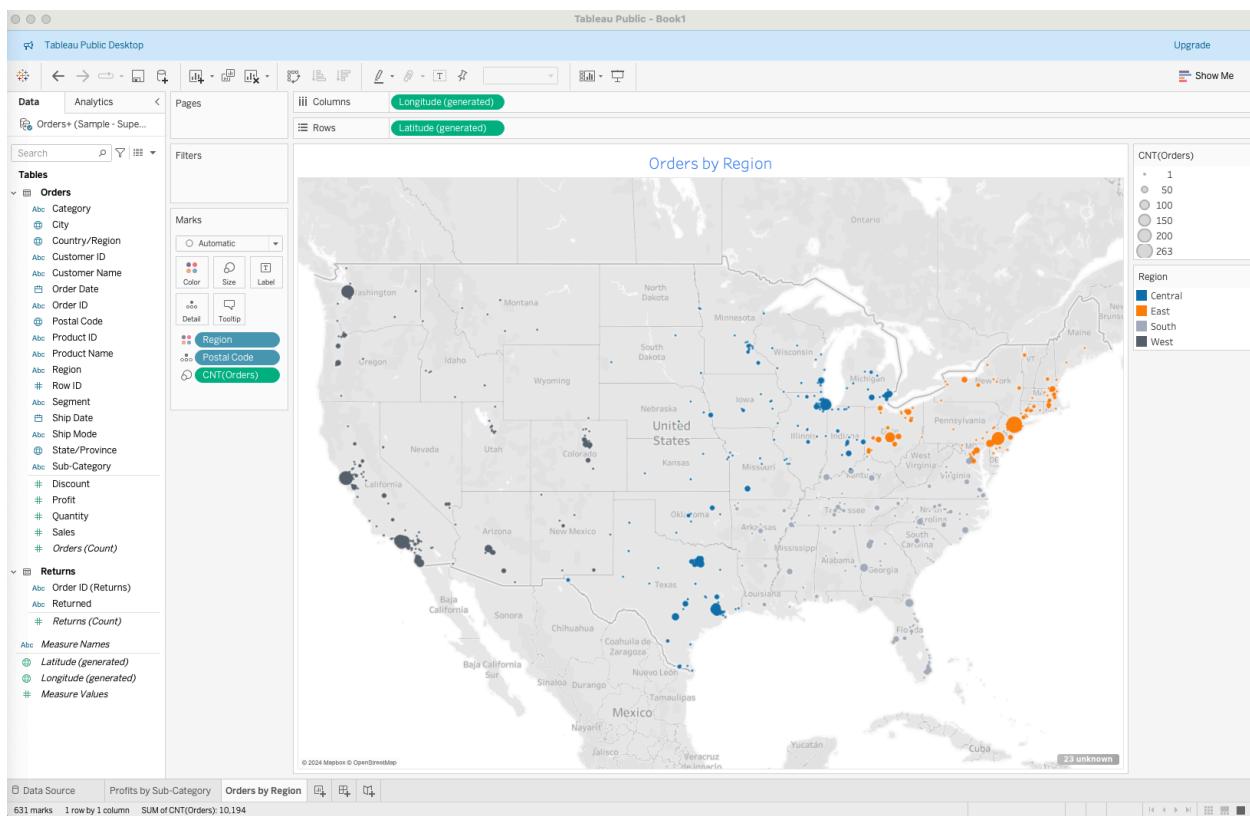
1. Let's select the New Worksheet Icon from the sheets tab again and rename it "Orders by Region". Let's also center the title and change the font color to blue to match our first viz.
2. Drag the **Orders.Orders (Count)** pill from the Data pane to the Rows shelf. Then, drag the **Orders.Postal Code** pill to the Columns shelf. This will look a little messy and should create a bar chart for you.
3. This is where the Show Me Pane can come in really handy. By selecting the Show Me Pane from the upper right-hand corner and choosing the symbol maps visualization Tableau will automatically rearrange the pills to generate longitude and latitude based on postal code.
  - a. Notice how it automatically created Marks cards for us. One for CNT(Orders) pertaining to size and the other for Postal Code as a Detail (important for Lat, Long).



### Customize the Regional Map

Just like with the bar chart previously we want to explore some further customization options. We already have size being used to denote the number of orders for each postal code, let's consider how we could use color as well.

1. Utilizing the Marks cards again, lets drag the **Orders.Region** pill into the Color card. This will act to separate out our data points by the 4 regions present in our data.
2. We could adjust the colors as we see fit or again use a standard Tableau color palette. Let's select Color Blind and then Assign the Palette. Notice you can also change individual colors via selecting them on the left and then selecting the specific color.
5. Navigate to the Fit drop-down on the Command bar at the top of the screen. Select "Entire View".

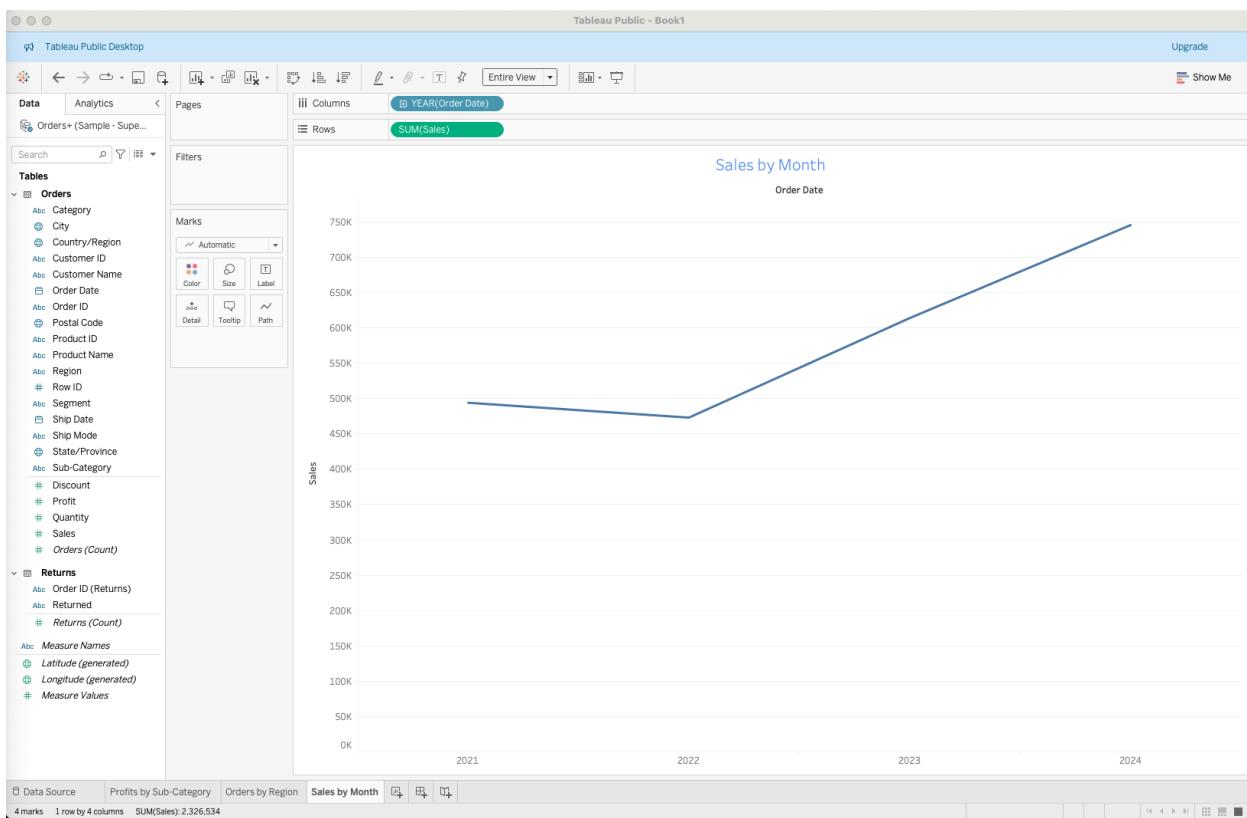


#### Step 4: Visualize Sales Over Time

Finally for our last visualization, we want to visualize monthly sales on a time series plot, which is a version of a line graph, to try and showcase any sales trends or patterns.

Create a Line Chart

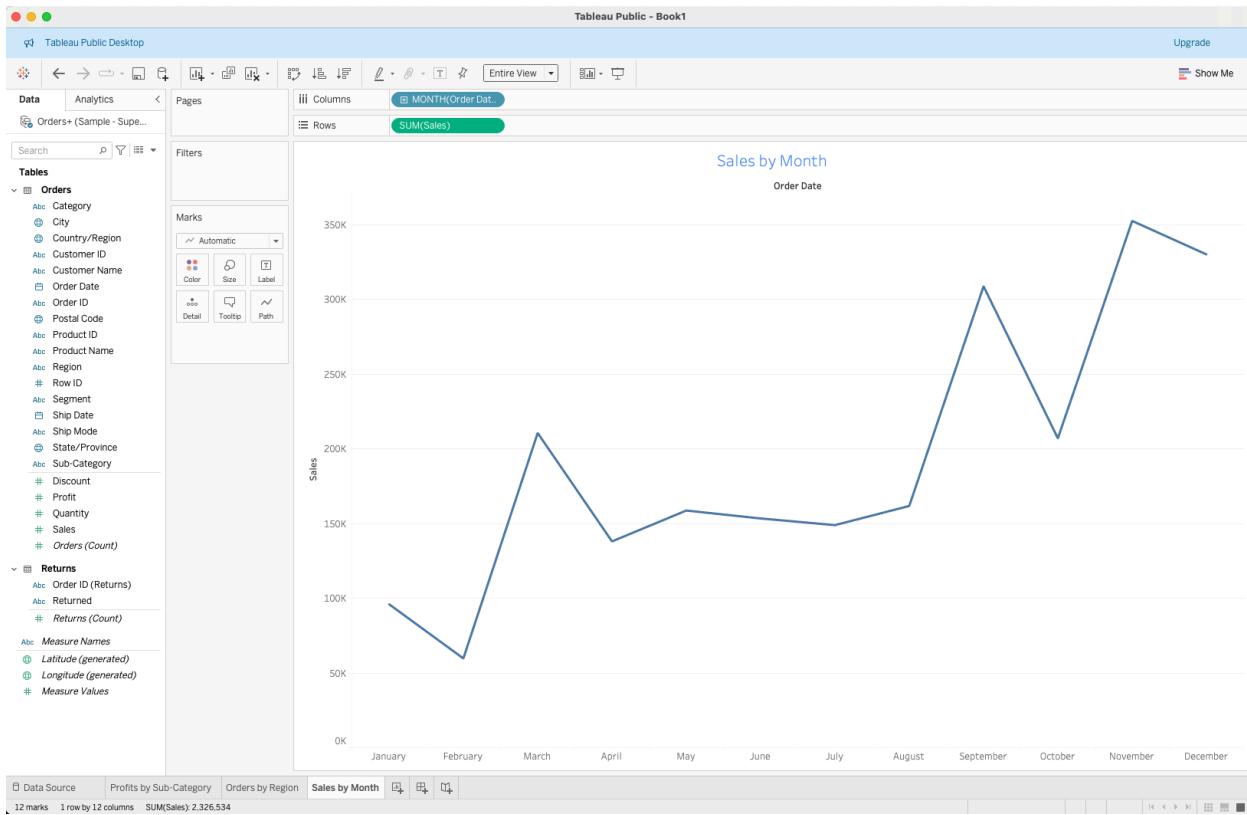
1. Select the New Worksheet Icon from the sheets tab and rename it “Sales by Month”. Let’s also go ahead and mirror the title formatting from our previous vizzes, blue and centered.
2. Before we start in let’s also navigate to the Fit drop-down on the Menu bar and select "Entire View".
3. We want to drag the **Orders.Order Date** pill from the Data pane to the Columns shelf. Notice that the pill is transformed and now reads **YEAR(OrderDate)**.
4. Next we will drag the **Sales** pill to the Rows shelf. Notice again that it becomes **SUM(Sales)**.



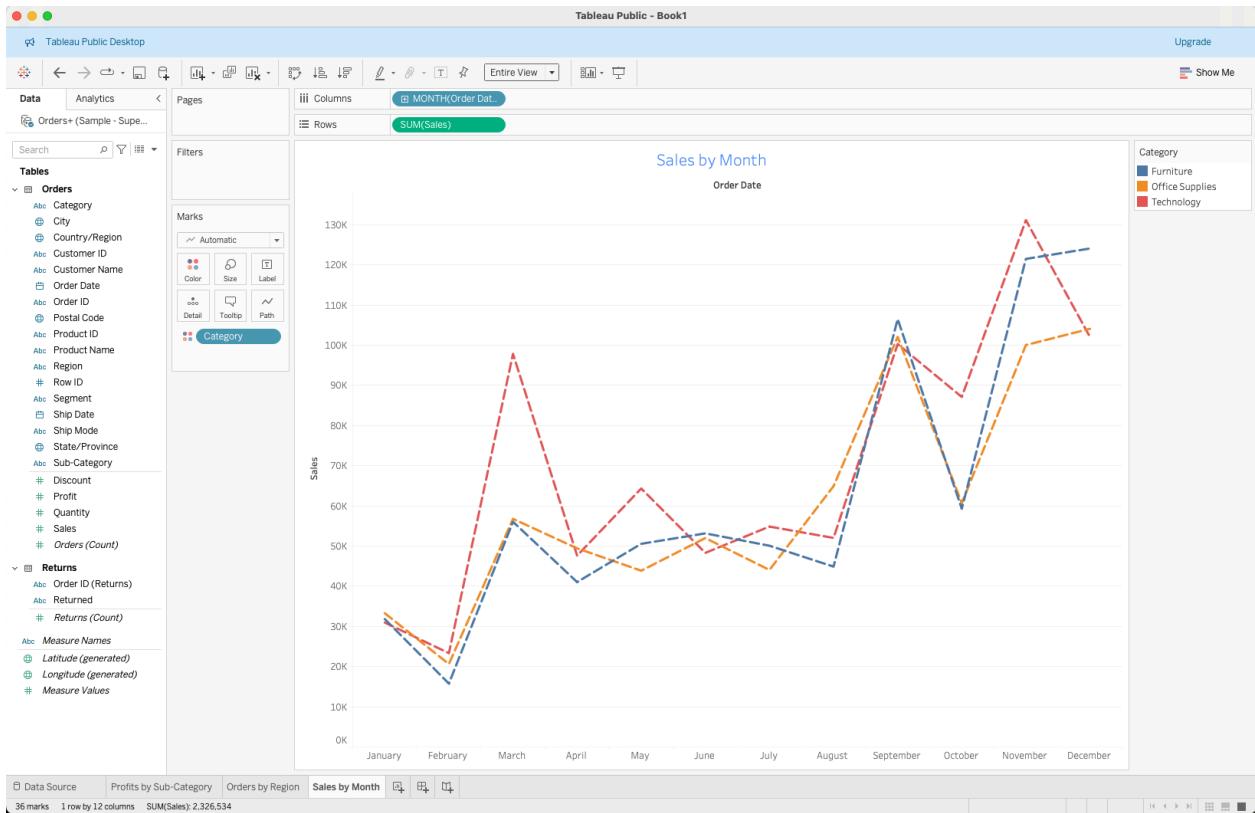
## Customize the Line Chart

While the above chart gives us a decent look across years it really isn’t granular enough to tease out any subtle differences in sales. We can dive a little deeper into it by breaking out years into months instead and using some Color to represent a third variable.

1. Navigate to the Columns shelf and select the down-arrow on the **YEAR(OrderDate)** pill and select "Month" instead of "Year".



2. We then want to drag the **Orders.Category** pill to the Colors card within the Marks card. You should notice a legend that provides the product category for each color.
3. While the color helps it can still be a little difficult to read. We could go one step further and actually change the line path, or style. By selecting the Path Marks card without dragging anything into it will let you select a few options for line style, let's change it to medium dashed so we can distinguish between lines a little better.



## Step 5: Building a Simple Dashboard

Now that we have created several visualizations helping us explore and display profit and sale metrics we can think about combining all three into a single dashboard for ease of access.

Recall our process for Dashboarding:

1. Plan (done)
2. Create vizzes (done)
3. Create Dashboard
4. Layout
5. Add sheets to dashboard (vizzes)
6. Arrange and resize as needed
7. Add interactivity/filters if desired
8. Add any extra tiles, text, images, etc...
9. Customize and style with color, font etc...
10. Publish and share

## *Dashboard Planning*

To complete step one, we have to understand our use case and plan our dashboard.

For this lesson, our use case is to create a dashboard that will communicate Profit and Sales metrics across several dimensions:

- Profits by Sub-Category
- Orders counts across Regions
- Sales across months for the major product categories

To communicate these data visualization needs we have created a bar chart, a regional map, and a multi-line time series chart.

## *Dashboard Creation and Layout*

Now that we have our three vizzes, we can build a dashboard by selecting the New Dashboard icon from the Sheets tab.

1. Let's give it a meaningful title "Profit and Sales Metrics"
  - a. In the Size dropdown select Fixed Size → Generic Desktop
    - i. We won't get into different sizing here at all but this should be considered depending on your audience, is it going into a powerpoint or will it be embedded on a website etc...
    - ii. You might need to make your Tableau Window larger to see the full dashboard canvas.
  - b. Select Custom Layout, Tiled, and Show Dashboard Title.
  - c. Right-click the dashboard title and select Edit Title. Make sure that the title is centered, the font size is 18, and the color is blue.
2. Let's next drag a Vertical Container from the Objects card and add it beneath the title.
  - a. Drag in a 2nd Vertical Container and place it next to the first.
  - b. Let's also do the same for a Horizontal Container from the Objects card and drop it underneath the two Vertical Containers.
  - c. We will populate these containers in the next section.
  - d. It can be a little frustrating at time to line up the tiled containers right. It will highlight in Grey where that container will fit, when dragging in a new container to help.

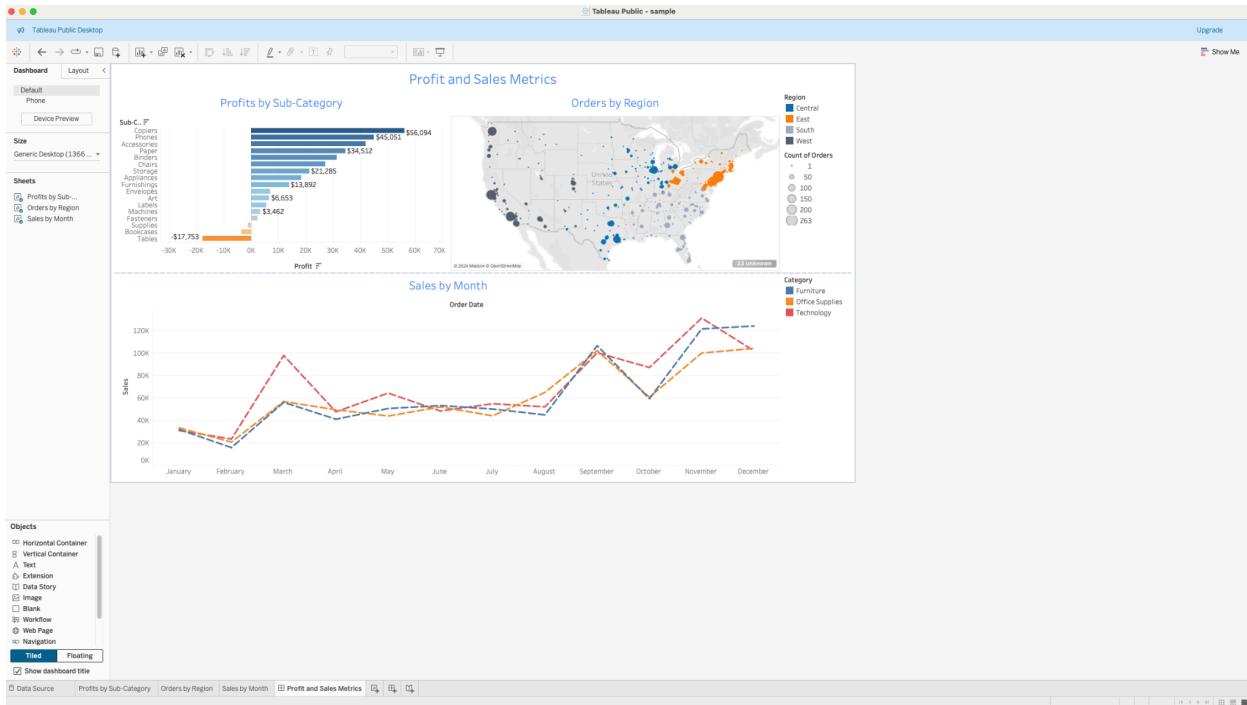
## *Adding Sheets and Rearranging*

Now that we have a container in place for each of our three vizzes we can begin to actually populate them into the dashboard.

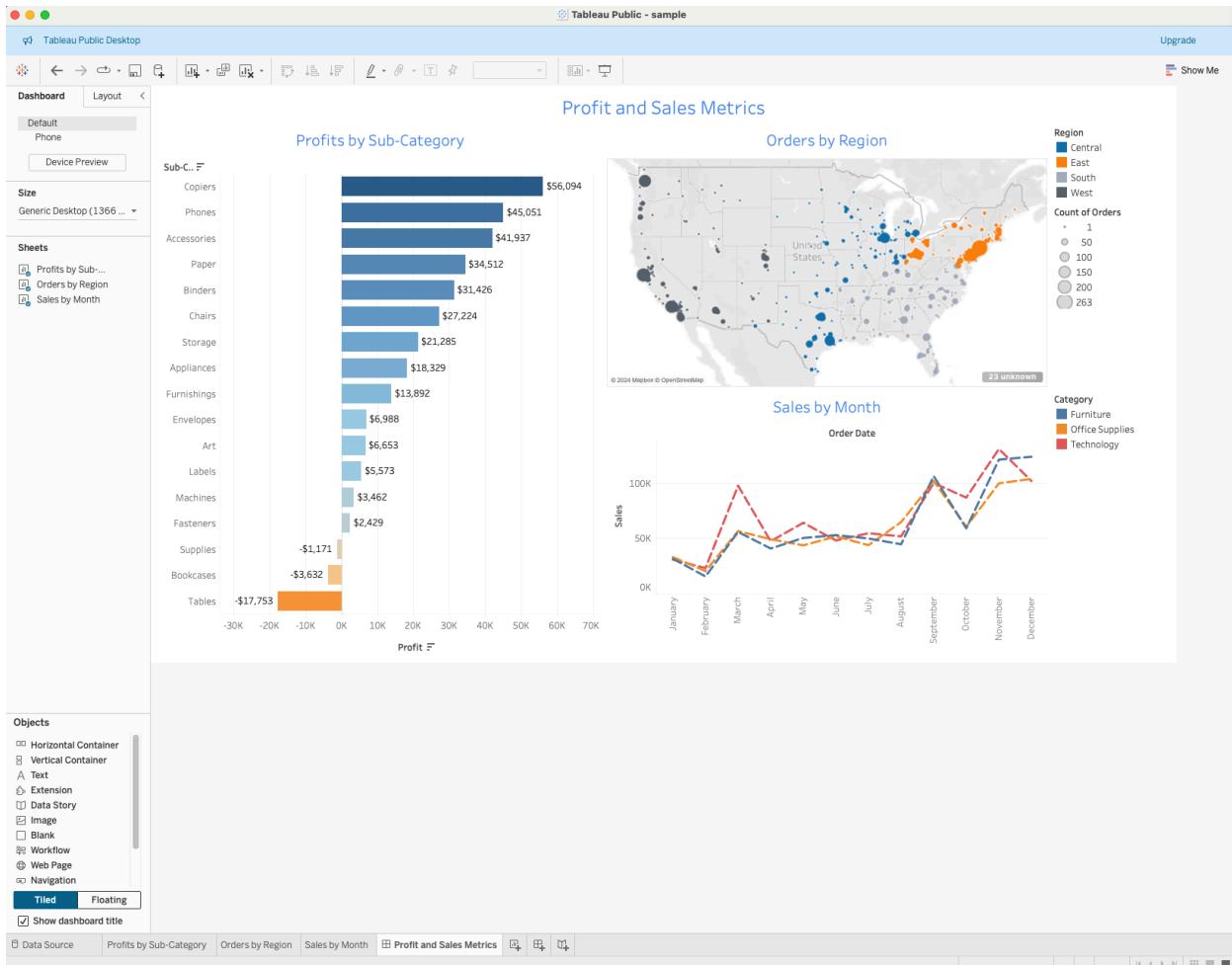
1. Let's consider information importance and the F-Pattern. A lot of this is subjective to the goal and audience of the dashboard, which viz do you think is the most important?
  - a. Let's consider **Profits by Sub-Category** as the most important as it can allow business to focus on the money making products. This will go in our top left container. We can drag and drop it into place from the Sheet pane on the left.
  - b. Next we might consider **Sales by Month** as the next important given it's slight connection to sub-category and should be placed in the top right container.
  - c. Finally our third visualization **Sales by Month** will be placed in the bottom container. This also allocates the most elongated space on our dashboard to the time series chart so it won't get squished.
  - d. NOTE: The title box can get wonky when placing containers, reselecting the "Show Dashboard Title" button in the Objects card will make it span the full top of the dashboard again.
2. Notice that the legends, for colors and size in our case, automatically get populated over into their own containers when you drag the appropriate sheet into its container. This is on purpose so you can place them individually as necessary, but can get messy initially.
  - a. Let's place/move our legends for the **Sales by Month** and **Orders by Region** so that they are on top of each other to the far right of our dashboard.
  - b. Drag both the Region legend and the Count size legend containers to the far right to create a new section to contain them both.
  - c. Let's do something similar for **Sales by Month** color legend but place it half way down, aligned with the top of our line chart.
    - i. We could also drag it in as a Floating container for even more flexibility and control.
    - ii. This would allow us to overlay the legend onto the time series given the amount of whitespace.
    - iii. You might need to adjust the size/length of the container for the other two legends to accommodate placement.
  - d. The **Profits by Sub-Category** doesn't really need the color scale label given that we labeled/provided the actual values on the figure itself so lets go ahead and save space by deleting it.

Once placed the size and location of containers and their associated visual can be further manipulated and rearranged to adapt the initial layout design if needed or desired. For instance, let's say that after looking at the 'finished' dashboard from above, pictured here, we decided to place even more emphasis on the first chart **Profit by**

Sub-Category, by making it encompass the entire left side of our dashboard. This is easily accomplished via our use of containers, we can just add in a new vertical container and replace the existing one.



Take Two:



**IMPORTANT NOTE:** Dashboarding is truly an iterative process especially concerning the design, layout, and choice of visuals to include. There is no "one size fits all" solution, it behooves you to change, adapt and improve your dashboards as you create them. Don't feel stuck into a certain layout just because you initially thought it would be best.

### Filters and Other Objects

The main goal of creating a dashboard is of course to visualize and convey pertinent information for stakeholders in a convenient and easy to interpret manner. The primary focus should be on the actual visualizations that are included in the final dashboard.

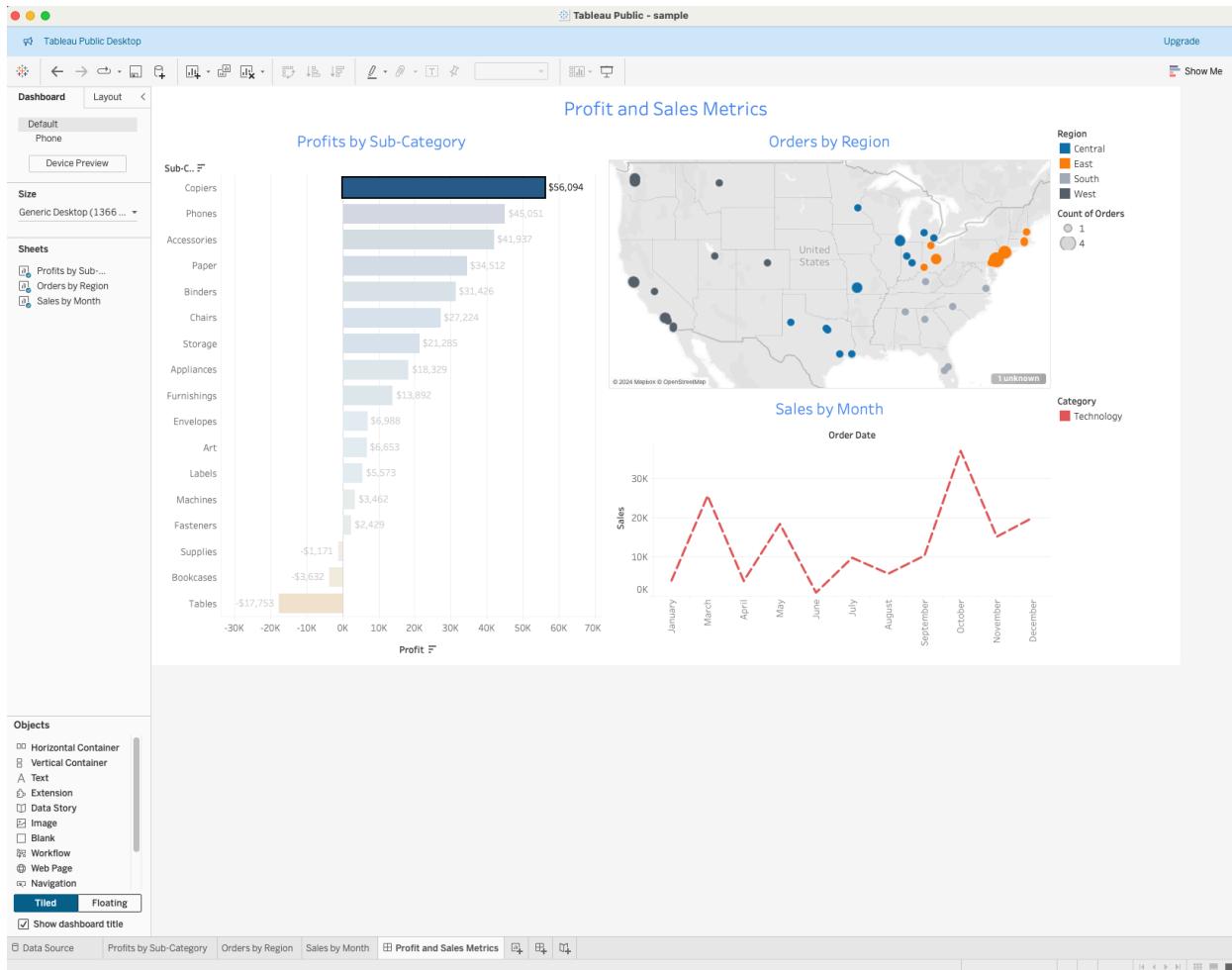
That being said, it is also important to include design elements into your dashboard to add flair and make it more engaging and visually appealing. This includes incorporating user interactivity through use of filter selections that allow a specific user to hone in on a particular aspect of the data they are interested in.

1. Let's consider how we might be able to filter our dashboard for a bit more interactivity and granularity.
2. We have several good options we could consider, including filtering by region or sub-category. Let's implement both.
3. There are several ways to implement filters within Tableau ranging from simple chart filters to an actual filter selection menu for the user, all the way to advance dashboard and worksheet actions.
  - a. Today we are going to take a look at the first two methods. If you want to dive in deeper and learn more about advance interactivity here is a good place to start: [Tableau Actions](#)
  - b. Probably the most straightforward way to add interactive filtering is by allowing the user to select elements on a visual and have it filter the rest of the dashboard.
    - i. When a container is selected that contains a viz we can see a toolbar in the top right corner of the container.

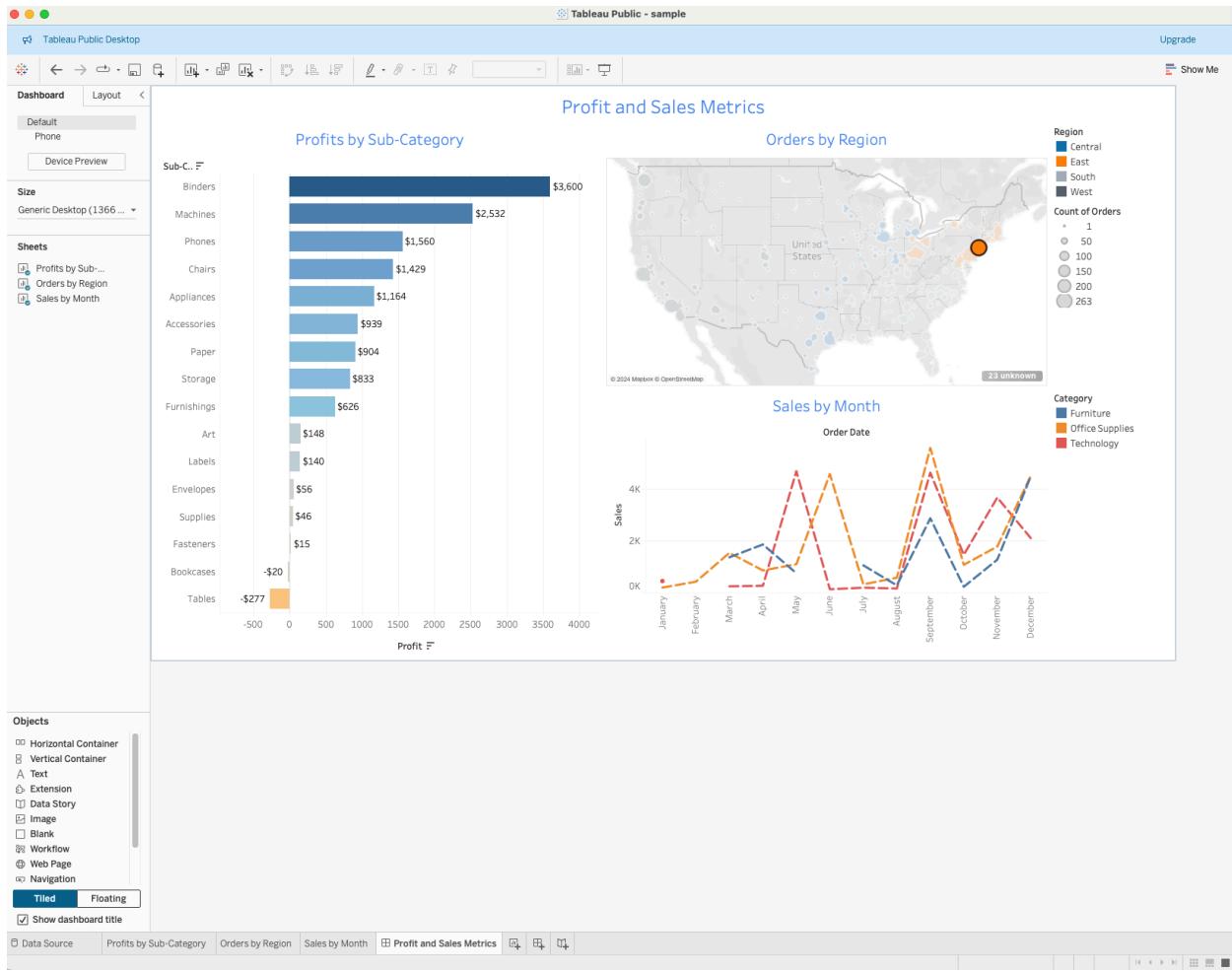


- ii. The third icon, the funnel shape, is the **Use as Filter** option. By selecting this for all three vizzes we have we can accomplish the first way to filter. If I, as a user, click on one of the sub-category bars, it should filter the rest of the charts as well.

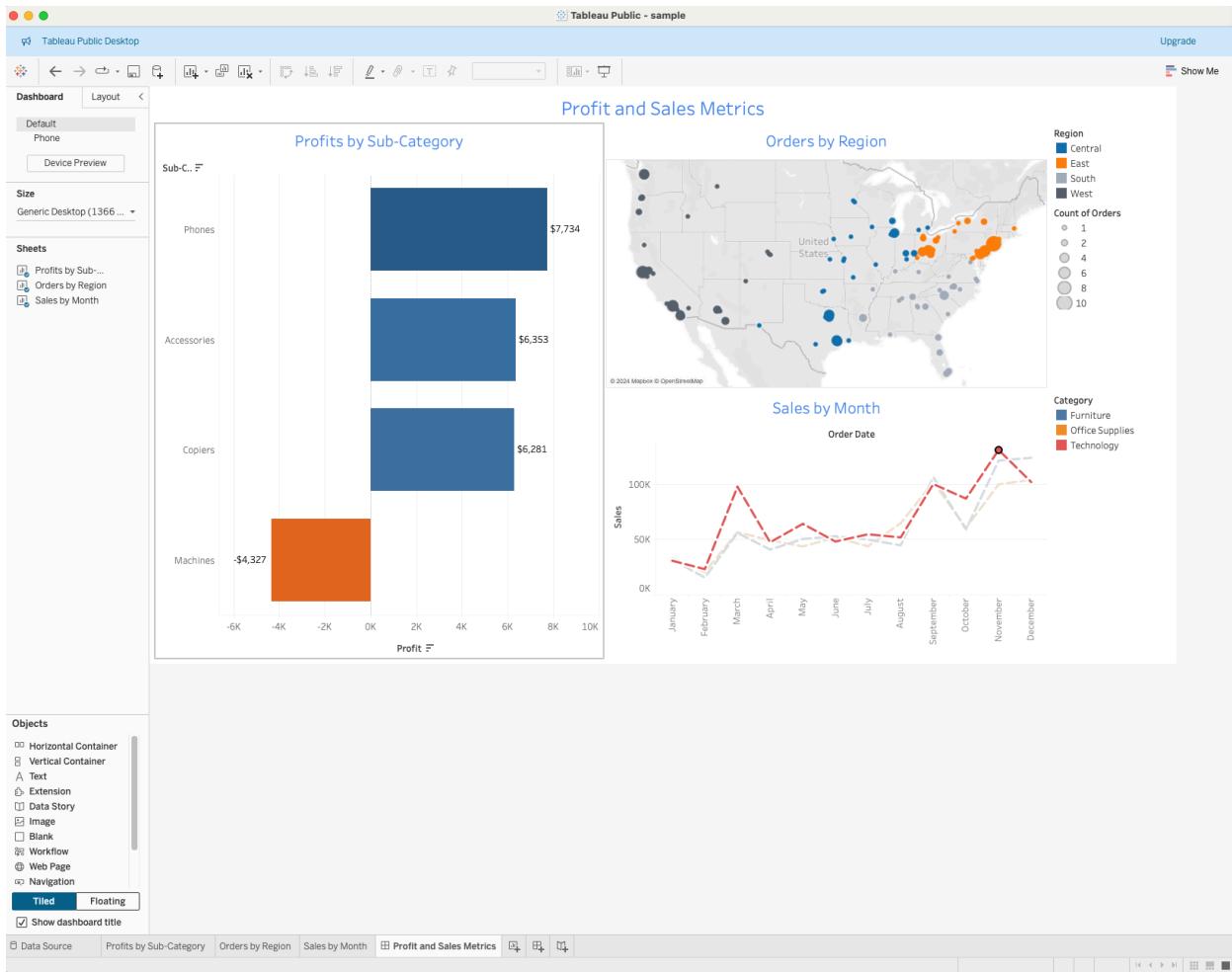
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Only one Postal Code:

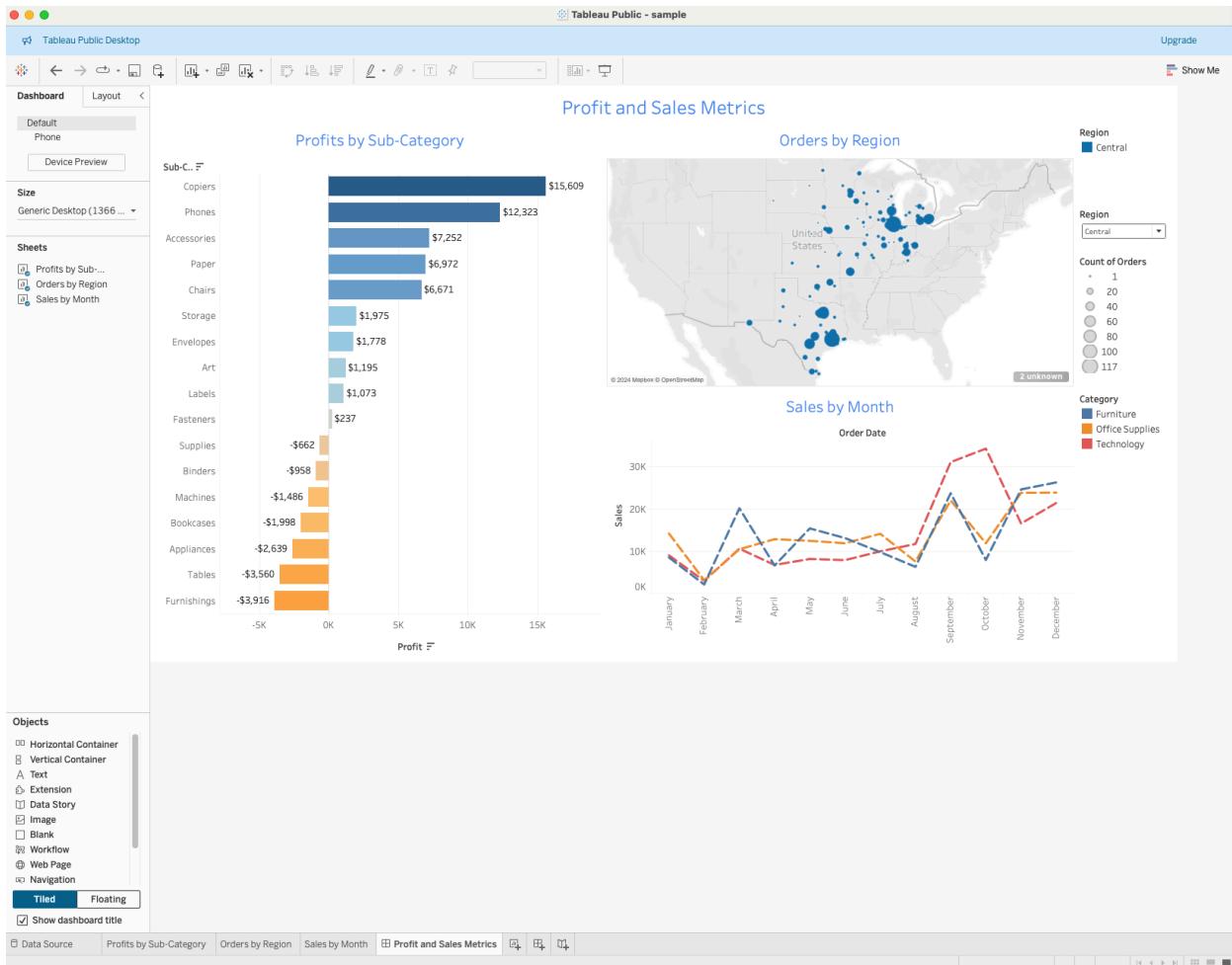


Only November & Technology:



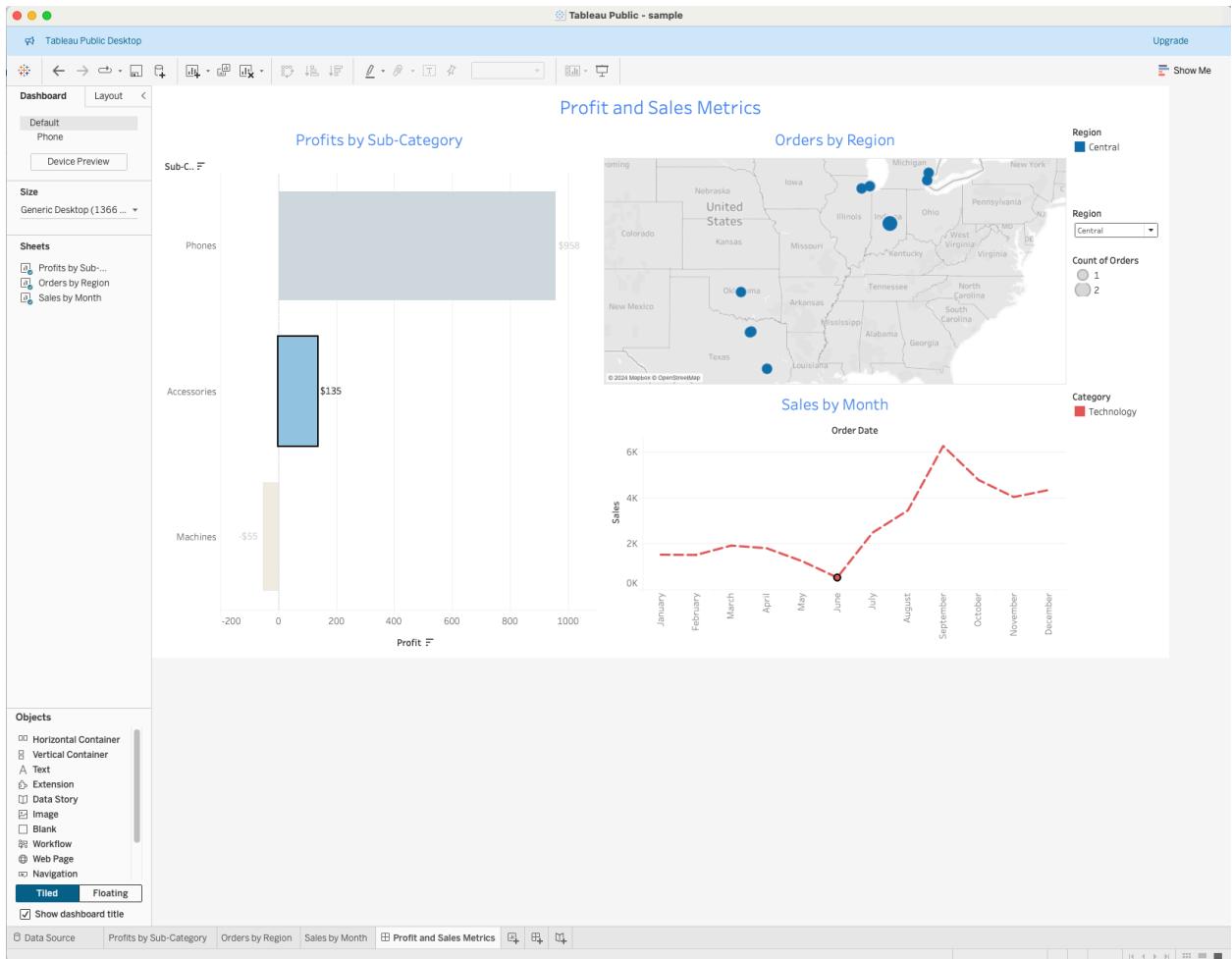
- c. The second way we are going to showcase how to filter is using a dropdown selection menu. Let's create a region filter that acts on all three charts.
- Using the same container toolbar for the **Orders by Region** chart select the more options arrow at the bottom and then select the Filters menu followed by Region.
  - This will populate filter box selections for the regions. We need to select the filter container and then More Options from the toolbar and then Apply to Worksheets and choose the first option in order to have this filter work on all three vizzes.
  - We can also change the format or style of the filter selection via More Options to something like a dropdown list to save some space.

Only the Central Region:



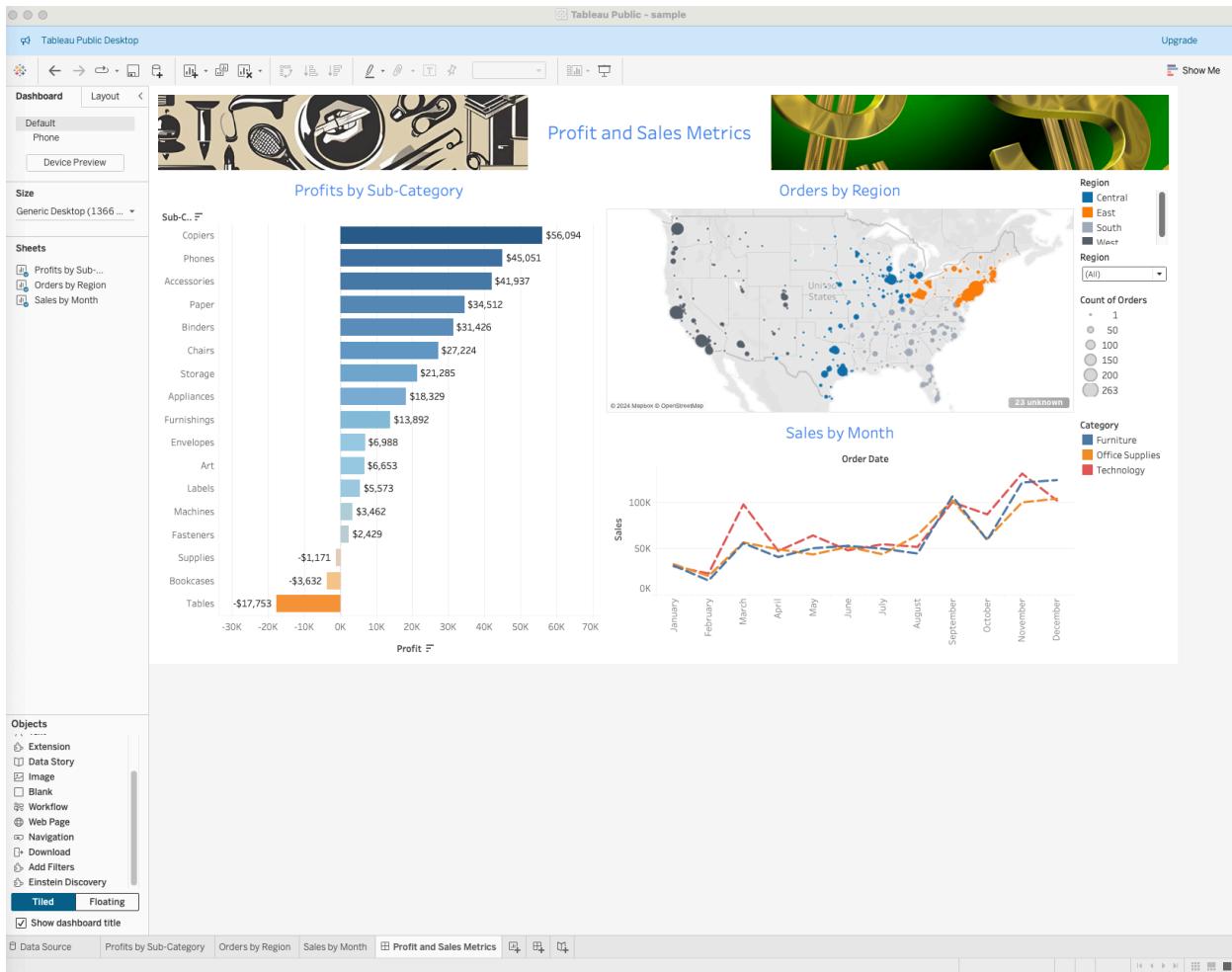
Note how both of these filter systems can work to interact dynamically with each other and our users to allow one to really hone in a very particular aspect of the data/business/sales. Using filters is an incredibly powerful tool to increase the engagement, usage, and benefit of your dashboards.

Only Accessories in Central Region from June:



To wrap things up let's consider adding in just a little bit of graphic flair to our dashboard. You can add in text boxes for explanation, maybe explaining the filtering actions a user can take or really highlighting a particular point. You can also add in images and other graphics. Let's keep it simple and add in a "logo" and some dollar signs for our fictitious company here.

1. The object card contains its own container for images and text as well as other elements to explore on your own.
2. We can drag in two image containers on either side of our title. The image container will prompt you for an image upload or web url to display as well as centering and fit to container options.



### Customize and Share/Save/Publish

We have only really introduced the tip of the iceberg here for what is possible in Tableau in terms of customizing style, colors, format, and layout. I would encourage you to step through some of the Tableau examples and training materials as well as the Viz of the Day regularly to get a good look at some of the advanced possibilities within Tableau. Pretty much every element of the dashboard from the container background color to advance interactivity is customizable in some capacity.

The final, and very important, step is to save your dashboard and connected worksheets so that it can be shared with the appropriate users/audience. On the newest version of Tableau Public you can both save locally as well as save or publish to your Tableau Public cloud account.

- This second option provides a great way for beginner users to share their dashboards not only with the large Tableau community but also with others, outside of any internal organization system or hosting.

- Clicking the Save icon within Tableau will default to Tableau Public, you can save locally by accessing the File menu dropdown and selecting Save As.
- When saving to Tableau Public it will prompt you for your account login and then open up the workbook (dashboard and sheets) in Tableau Public. From there you can create embedding or a share link for others. Take a look at this lesson from my account [here](#).

## Summary

In this lesson, we reviewed the essential steps for building a dashboard and walked through an example using data from Tableau. The steps include planning the dashboard, choosing a layout, adding sheets, arranging and resizing sheets, adding filters, adding titles and text, and customizing the appearance. Then, we walked through creating a simple dashboard for communicating Profit and Sales in three different ways.

We highlighted some crucial design formatting and filtering techniques that can allow you to incorporate user interactivity into your dashboard to improve user experience and broaden its potential use cases.

By now, you should have a fairly good understanding of dashboarding basics in Tableau. In the practice, you will have a chance to apply your skills and create an interactive dashboard on your own.