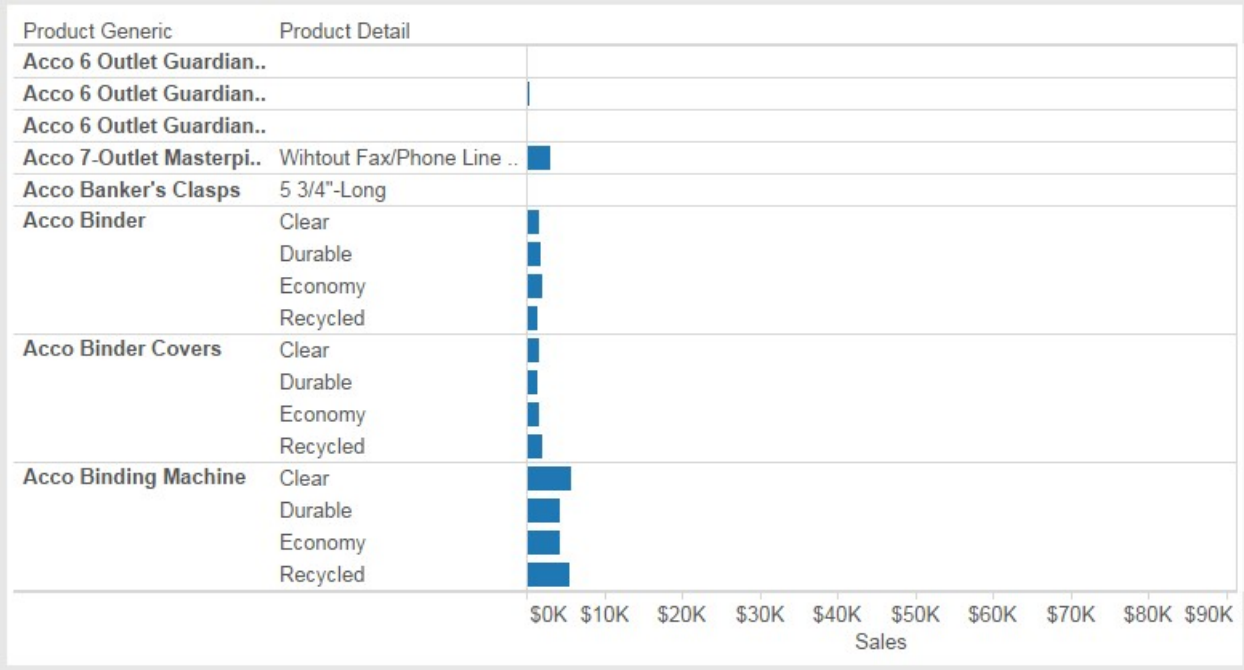
Connect & Manage



Goal: The first step in visualizing data is telling Tableau where your data is located and how it should look. We will build a re-usable data source that can be used across the entire company.

Steps:

1) In the Data Window, click Connect to Data

The next few steps will navigate you away from these instructions. Read through step 5 beforehand. You can return here by clicking the tab at the bottom of the screen at any time.

2) Select **Excel.**

3) Locate the **Global Superstore.xlsx** file in the S:\90DayShare\Desktop Internal Training\Data folder. Open it.

4) Drag the **Orders** sheet into the connection-building pane.

5) At the bottom of the screen, click the **Connect and Manage** tab to return to the viz.

6) Drag the **Product Name** field out to the Row shelf.

The **Product Name** field is actually more than one piece of information joined using a comma. Let's split them up into 3 fields.

7) In the left data window, right click on **Product Name** and use the **Transform** pop-out menu to select "Custom Split"

8) In the **Use the separator** text box, type the comma: **,**

9) In the **Split off** menu, ensure "First" is select and select **2** columns.

10) Remove the existing **Product Name** from Rows and add **Product Name - Split 1** and **Product name – Split 2** to rows in that order, left to right.

11) Add **Sales** to Columns.

How has separating the **Product Name** field enhanced our understanding of the data?

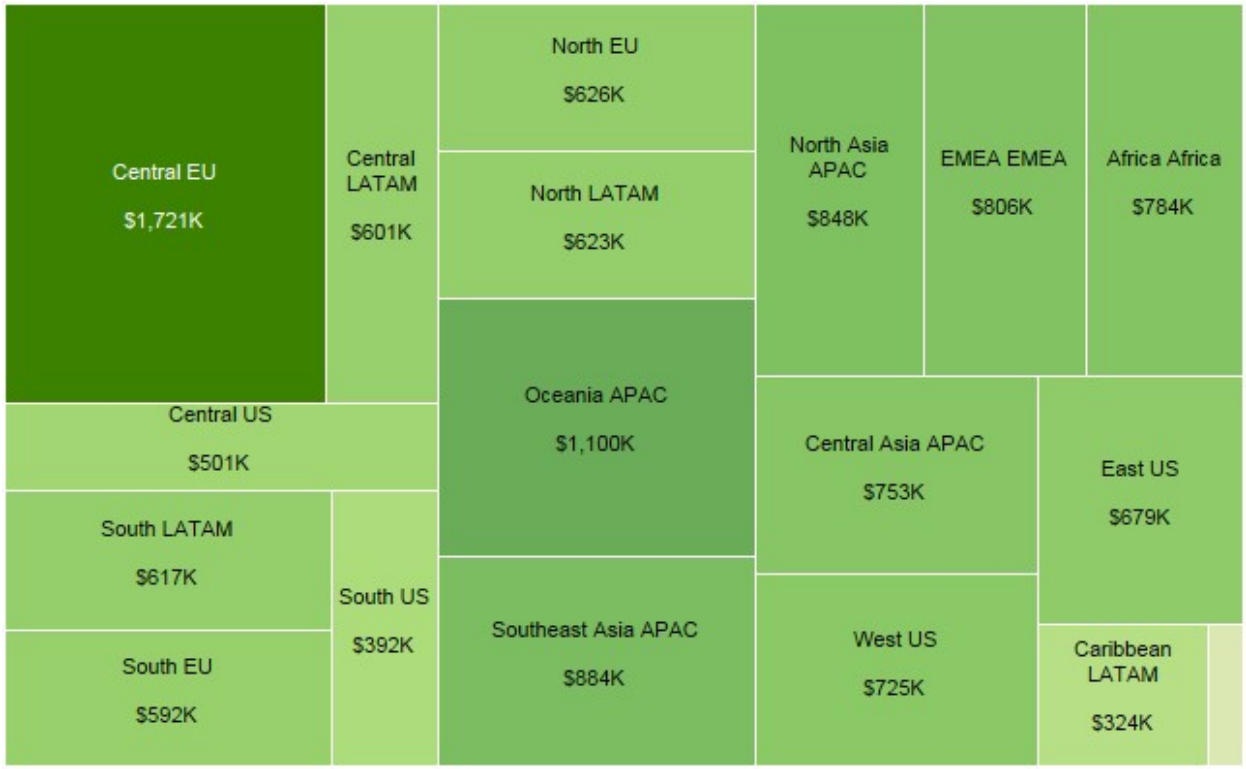
12) In the left data window, right click (or use the carat) on **Product Name - Split 1** and rename to **Product Generic**

13) Repeat this step to rename Split 2 to **Product Detail.**

14) In the left data window, right click on the **Sales** field and expand "Default Properties" to click on "Number Format..."

15) Select **Currency (Custom)**, include 0 Decimal places and set Units to "Thousands (K)"
16) In the top left of the Data Window, right click on the data source **Orders (Global Superstore)** and select "Add to Saved Data Sources." Click Save on the following screen.
We now have a permanent copy of our data source and modifications. How would we share this around the company?

Mastering Marks



Goal: Marks are the building blocks of every Tableau visualization. As such, mastering your understanding and control of Marks should be one of your top priorities. This exercise will showcase the power of the **Marks card**, and have you on your way!

A **Tree Map** is a great way to use space to compare quantities, similar to a bar chart. What makes it unique is that it has neither axis nor header labels, using only the Marks card.

1) From the left Data Window, drag the following fields to the Marks card:
Market to *Color*
Sales to *Size*
Region to *Label*
Market to *Label (this is a second copy of Market)*
Sales to *Label*

2) Double left-click on the **Market** color legend (below Marks) to change the color palette.

3) In the **Assign Color Palette** drop-down menu, select "Tableau 20." Click the **Assign Palette** button. Click OK.

4) Click on the **Color** mark in the Marks card. From the pop-up menu, use the **Border** drop-down menu to add a White border to each mark.

Color is a powerful pre-attentive visual attribute that is used to convey data. Consider this grouping of visual elements makes it easier to distinguish markets from one another.

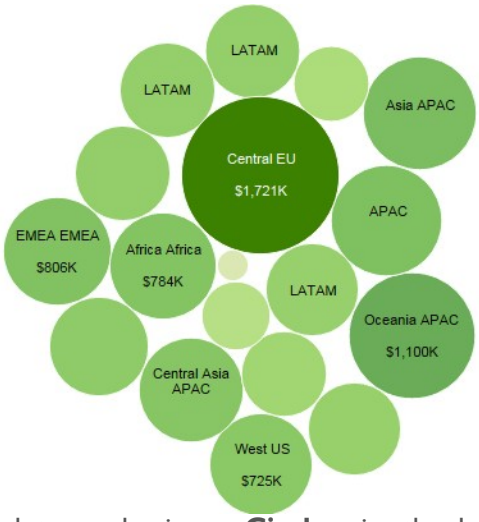
5) Click on the **Label** mark in the Marks card. From the pop-up menu, click on the ellipsis [...] next to **Text**.

6) Edit the label to appear as such, and click OK:

<Region > < Market>
< SUM(Sales)>

Note: By default there are **no spaces** between the brackets e.g. <Field Name> You may want to create a space for clarity.

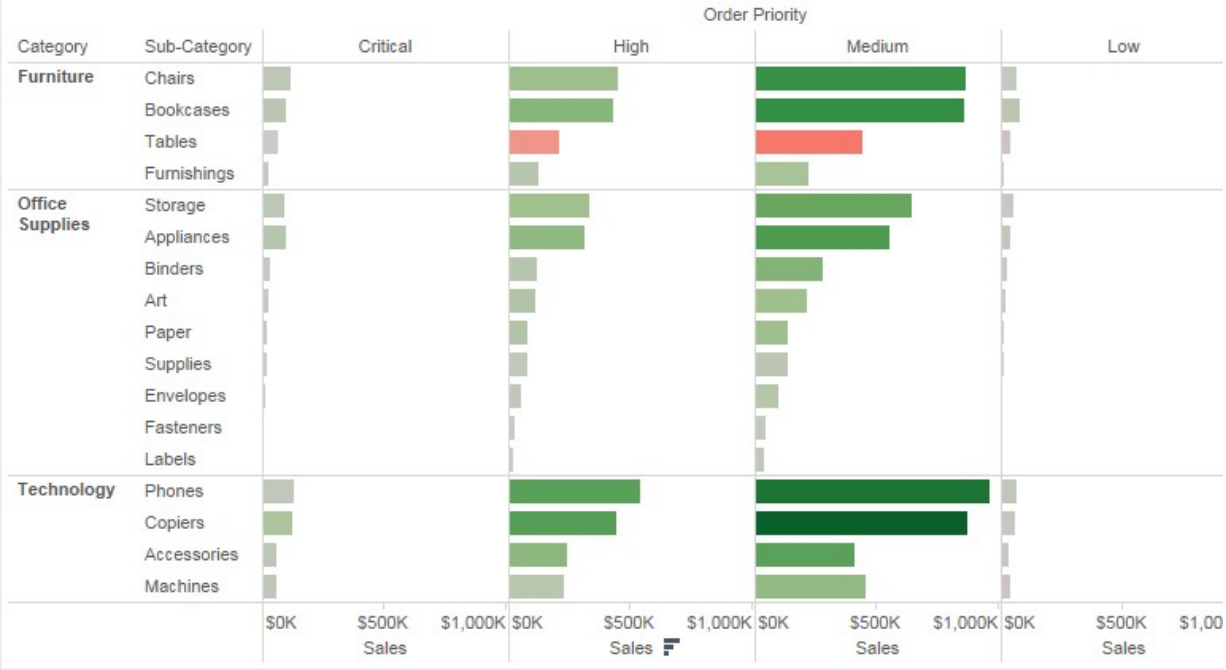
7) Click on the **Label** mark in the Marks card. From the pop-up menu, click on **Alignment.** From the drop-down menu, use the **Center** horizontal and **Middle** vertical alignment so the labels are in the center of each mark.
8) Drag a new copy of **Sales** from the Data Window to Color.
How does this change the story being told by the visualization?
9) Right click on the **Mastering Marks** tab at the bottom of the screen and select "Duplicate Sheet."



10) Change the **Automatic** mark type selection to **Circle** using the drop-down menu below the word "Marks" in the Marks card.
This chart is called a "Packed Bubble" chart. Where have you seen these before?
11) Double Click on the tab at the bottom to rename this sheet to **Packed Bubble.** Right click to create another duplicate of this sheet.

12) Change the **Circle** mark type selection to **Text** using the drop-down menu below the word "Marks" in the Marks card.
13) Remove **Sum(Sales)** from Text in the marks card (It will have the ABC123 beside it)
This chart is called a "Word Cloud". Where have you seen these before?
14) Double Click on the tab at the bottom to rename this sheet to **Word Cloud**

Sorting Data



Goal: Sorting data is often necessary to prioritize and focus on key data points. This exercise will showcase different methods of sorting data.

Steps:

1) Build the view:
Category to Rows
Sub-Category to Rows
Sales to Columns

This view is unsorted... or is it? Is there a **default** sort order or pattern to the dimension members?

2) From the toolbar, mouse over the Sort Descending button to see how Tableau will sort the view. Click the button.

3) Add **Profit** to Color.

4) From the Rows shelf, right click **Sub-Category** and select "Sort"

5) Click on the **Field** radio button. In the dropdown menu, select **Profit.** Click **OK.**

6) Add **Order Priority** to Columns.

7) Return to the toolbar and click on the Sort Ascending button.

Which **Order Priority** is being used for the sort?

8) Within the **High** Order Priority pane, mouse over the **Sales** axis label to expose the "context" sort button. Click twice to sort "High" Priority sales sub-categories in descending order.

9) From the Rows shelf, right click on **Sub-Category** and select "Sort" to observe how Tableau performed this sort.

Note that Tableau was able to perform this sort by first filtering all but **High Priority** orders in the back-end, and then querying **Sub-Categories** ordered by SUM(Sales) descending.

10) In the viz, Left-click and drag the **Medium** header label (above the marks, below **Order Priority),** position it between "High" and "Low"

11) From the Columns shelf, right click on **Order Priority** and select "Sort" to observe how Tableau performed this sort.

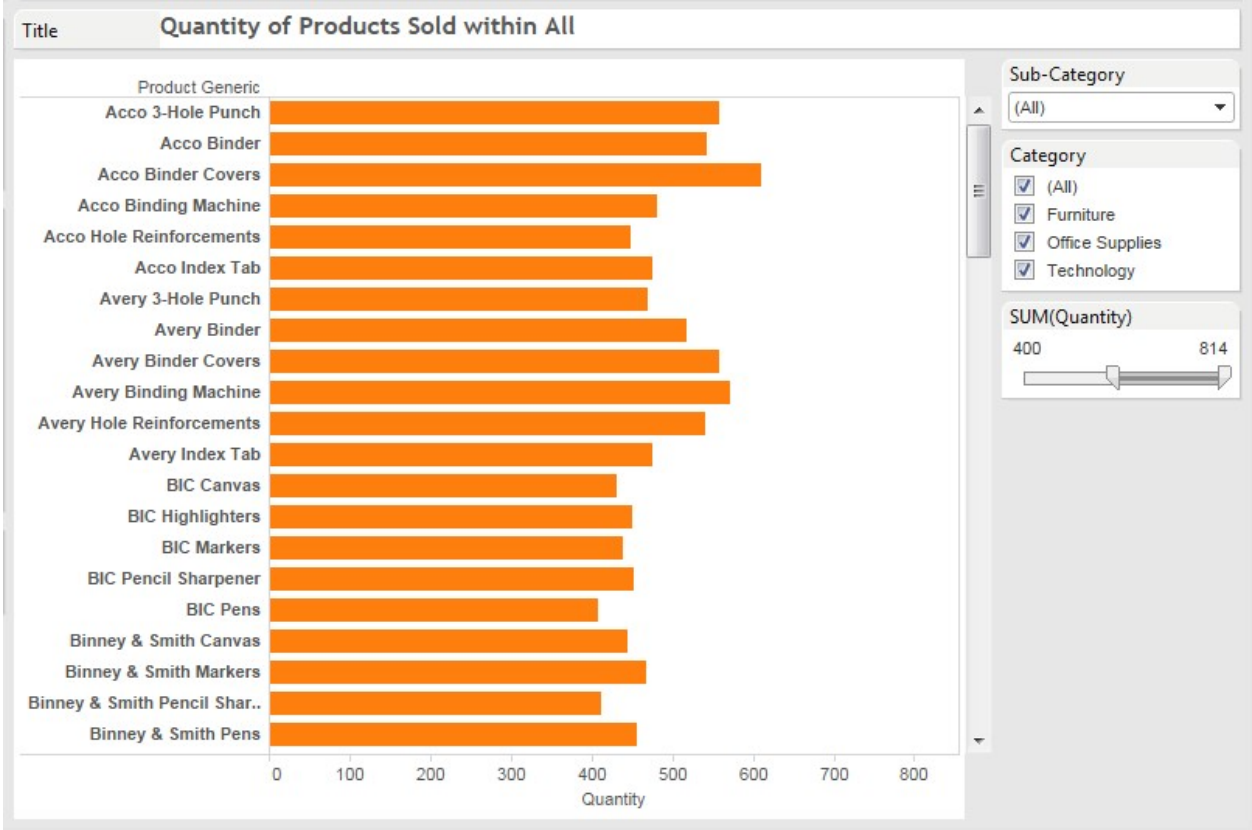
A **Manual Sort** is a local sort, performed against the data that has already been queried. There is no cost on the backend to perform this operation.

12) From the left Data Window, right click on the **Order Priority** field. Use the **Default Properties** pop-out menu to select **Sort.**

13) Select the **Manual** radio button and rearrange the members from Critical to Low as seen in the viz.

Manual Sorts can be part of the data source's metadata layer. **Order Priority** will always be sorted in the view this way by default, and it will retroactively apply to any viz's that have used **Order Priority** in an unsorted fashion.

Filter Data



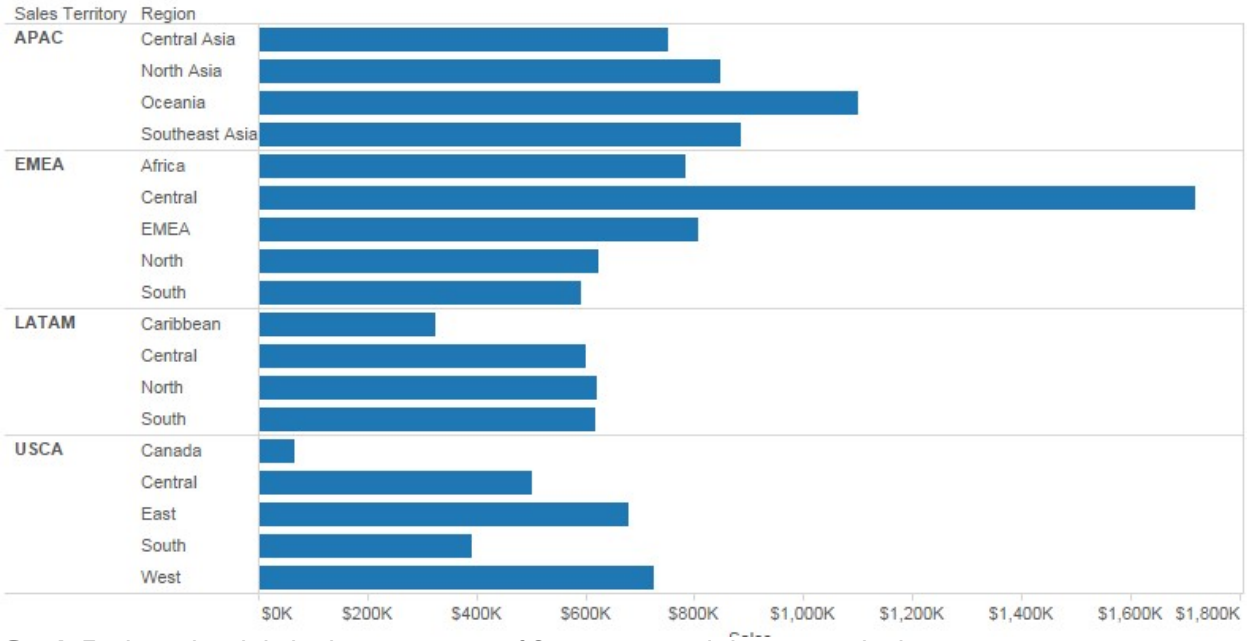
Goal: Understand the importance of paring down data to just what's relevant using filters on both Dimensions and Measures. Implement Quick Filters to allow for user interactivity.

Steps:

1) Build the Viz:
Quantity to Columns
Product Generic to Rows
2) From the left Data Window, drag **Category** to the Filters shelf.
3) Select the **Technology** checkbox and click OK.
4) From the top "Worksheet" dropdown menu, click **Describe Sheet** (ctrl + e)
The sheet description calls out that only one category is being shown. Normally the caption would too. Alas, your caption contains instructions.
5) In the left Data Window, right click **Sub-Category** and select **Show Quick Filter**
6) In the Quick Filter multi-select box, Deselect **Bookcases, Fasteners,** and **Storage.**
Did the mark count change? Why wasn't anything filtered out? We seem to have some do-nothing buttons in our viz.
7) Click the carat next to **Sub-Category** in the Quick Filter, click "Only Relevant Values"
6) Deselect and Reselect "Copiers" in the Quick Filter.
7) In the Filters shelf, right-click on **Category: Technology** and select "Show Quick Filter"
8) Right-Click anywhere in the **Category** Quick Filter card and select **Single Value (Dropdown).**
9) Filter the view down to just the **Furniture** category.
10) From the top "Worksheet" dropdown menu, select **Show Title.**

11) Double-click on the title text to open the **Edit Title** dialogue. Type "Quantity of Products sold within" and then click on the **Insert** drop-down menu. Select "Sub-Category" from the list to insert this field's domain members dynamically.
The text should appear as: **Quantity of Products sold within <Sub-Category>**
Try interacting with both quick filters. When this viz is published, end users will get the same power to focus on what's relevant to them using this interactive filter!
12) In the Rows shelf, right click on **Product Generic** and select "Filter..."
13) Switch to the **Wildcard** tab and type "Hon" within the **Match Value** text box. Click the radio button next to "Starts with" and click OK.
14) Set both Quick Filters to **(All)** and add **Category** to Color.
How many Hon products do we sell in Office Supplies? How many in Furniture?
15) Return to the **Product Generic** filter dialogue and switch to the **Top** tab. Select the **By field:** radio button and change the **Quantity** drop-down menu to **Sales.**
How many of the top 10 selling Hon products are in Furniture?
16) Drag the **Product Generic** field out of the Filters shelf to remove the filter.
17) From the Columns shelf, right click on **Quantity** and select "Show Quick Filter." Use the slider to show only Products with at least 400 quantity sold.
Are there any products *other than* Office Supplies with at least 400 quantity sold?

Explore & Organize Data



Goal: Explore the global sales territories of Superstore and determine the best way to compare regional Sales & Profit within our 4 markets: APAC, EMEA, LATAM, and USCA.

Steps:

1) **Sales** to Columns
2) **Region** to Rows
3) **Market** to Rows, to the right of Region.

Take a moment to study our territories, what do you notice?

4) Swap **Region** and **Market**.

Does this view make more sense?

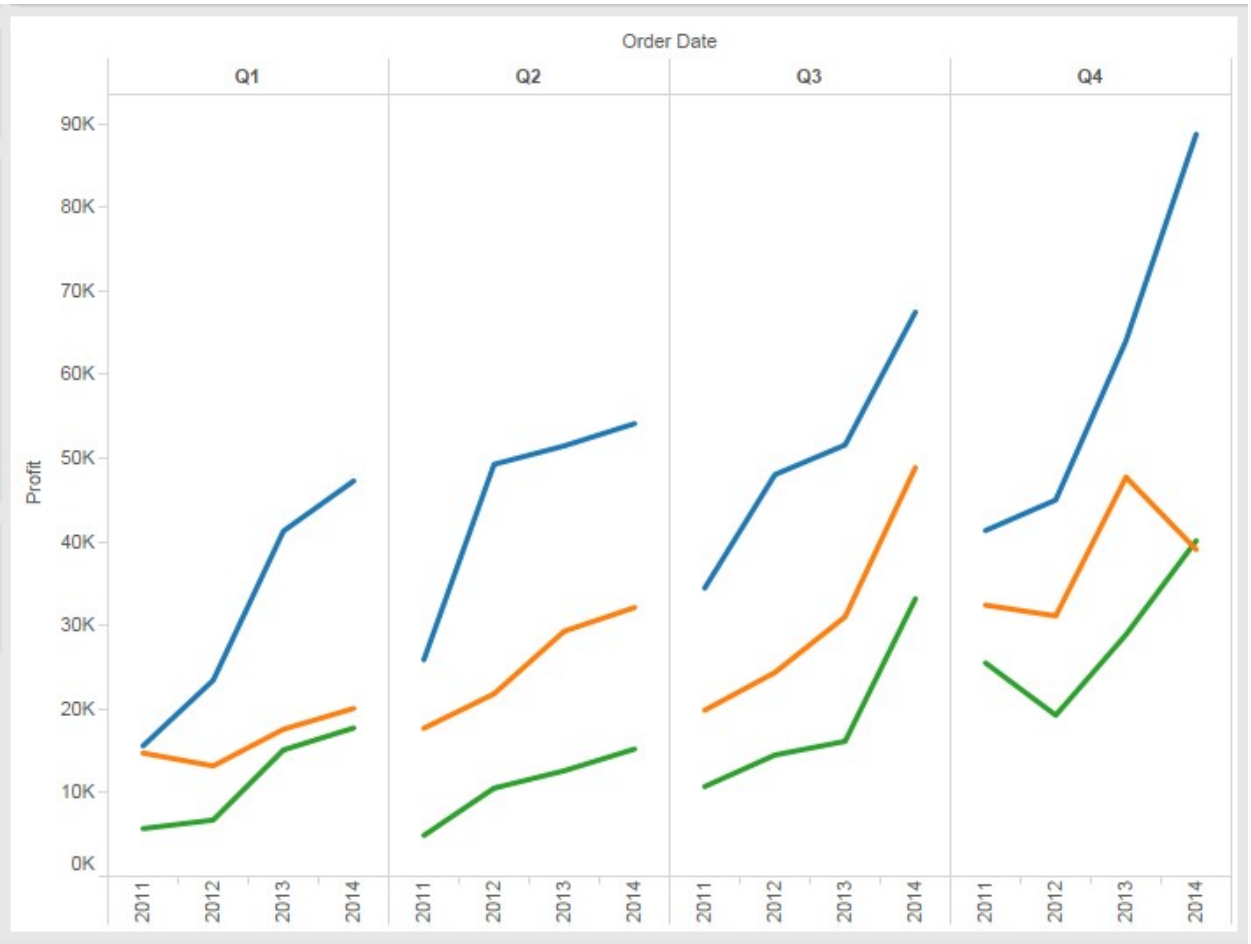
5) From the left side of the viz beneath the **Market** header, hold the **Ctrl** key to multi-select **Africa, EMEA,** and **EU** labels**.**
6) Click the paperclip icon in the tooltip to Group these members.
7) Repeat this for **Canada** and **US**.
8) Right-click on **Africa, EMEA, EU** and select "Edit Alias..." in the popup dialogue.
9) Rename this alias to **EMEA.**
10) Repeat these steps for **Canada & US** to create the **USCA** market.
11) In the left Data Window, rename the **Market (group)** field to **Sales Territory**

A Hierarchy would make this viz useful for different audiences.

12) In the left Data Window, drag the **Region** field on top of the **Sales Territory** field. Name this Hierarchy "Geo"
13) In the left Data Window, drag the **Country** field below Region in the newly created hierarchy.

Try drilling down/up from Sales Territory to Country in the viz!

Working with Discrete Dates



Goal: Working with Dates can be incredibly complex, fortunately Tableau has a lot of great features built into the UX to make them much easier. We will learn and apply those features to build a variety of visualizations.

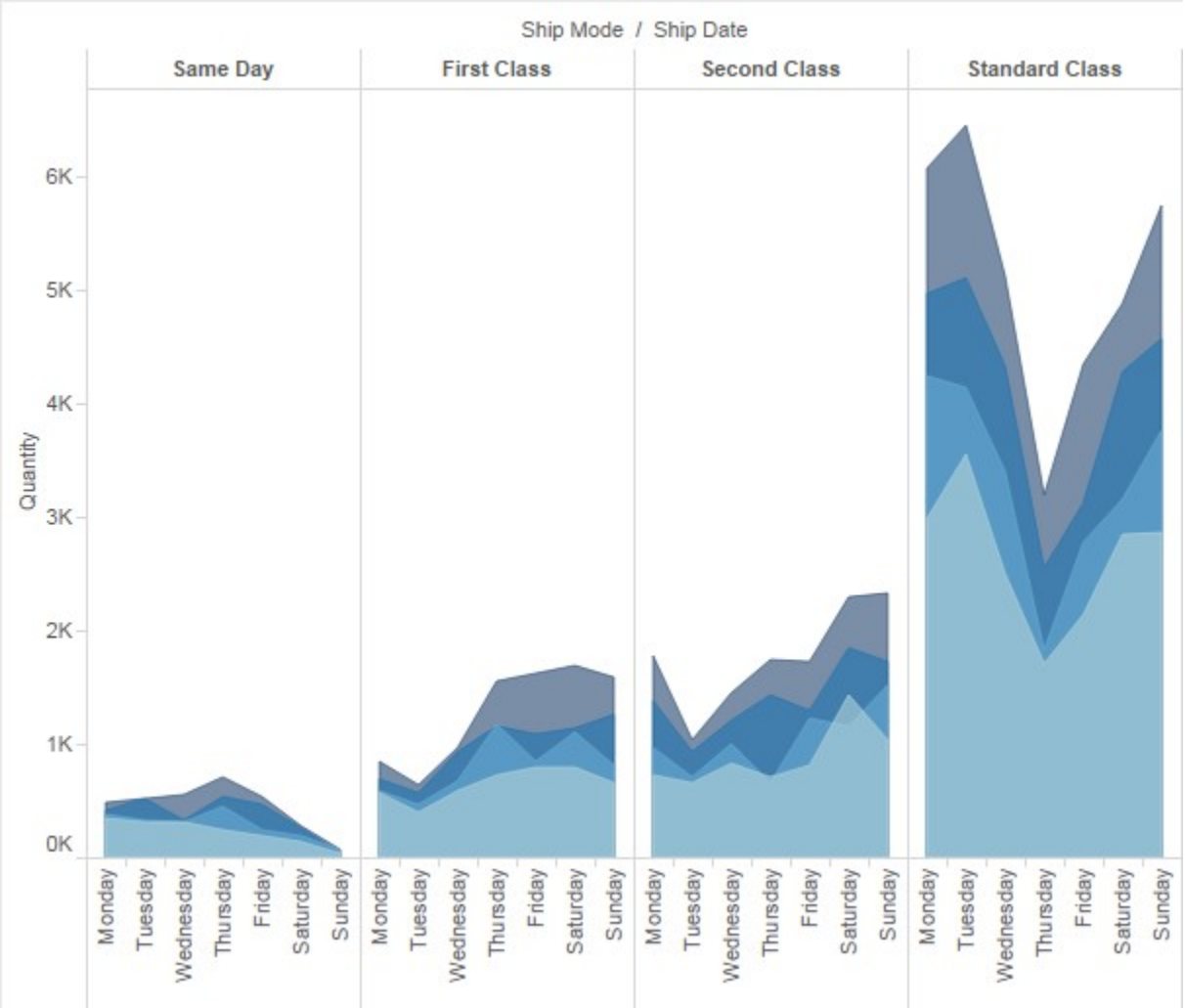
Steps:

1) Drag **Profit** to Rows
2) Drag **Order Date** to Columns.
3) Click the **+** next to **YEAR(Order Date)** to add quarter level-of-detail to the viz.
4) Swap YEAR() and QUARTER() of **Order Date.**
5) From the Columns shelf, drag **Segment** to Color.

What does this view tell us about our first three quarters compared to our fourth?

Proceed to the "Discrete Dates (p2)" Sheet

Working with Discrete Dates (Part 2)



Goal: We are tasked with coming up with a weekly staff plan for our global distribution center. We need a visualization that can show how many orders are shipped on weekends vs weekdays, and how shipping mode affects the results.

Steps:

1) Drag **Quantity** to Rows
2) Hold Right-click to drag **Ship Date** to Columns.
3) In the Drop Field dialogue, select **# WEEKDAY(Ship Date)**
4) Drag a new copy of **Ship Date** to color to invoke the default Yearly view.
5) Right click on "2015" in the **YEAR(Ship Date)** and select **Exclude**

Why might we **not** want to include this data**?**

6) Set the Mark Type to **Area** in the drop-down menu on the marks card.
7) From the **Analysis** drop-down menu at the top of the screen, use the pop-out menu on **Stack Marks** and set to **Off.**
8) Double-click on the color palette for YEAR(Ship Date), select the **Blue** color palette and click **Assign Palette**. Click **OK.**

How did unstacking these marks give us a better understanding of the data**?** Are there any weekdays that are **consistently** less demanding for the distribution center? Does this give us the full picture of the story, or what other variables might we factor?

9) Drag **Ship Mode** onto Columns, positioning before **WEEKDAY(Ship Date)**

10) Using the field Label for Ship Mode, left-click and drag "First Class" to the right of "Same Day"

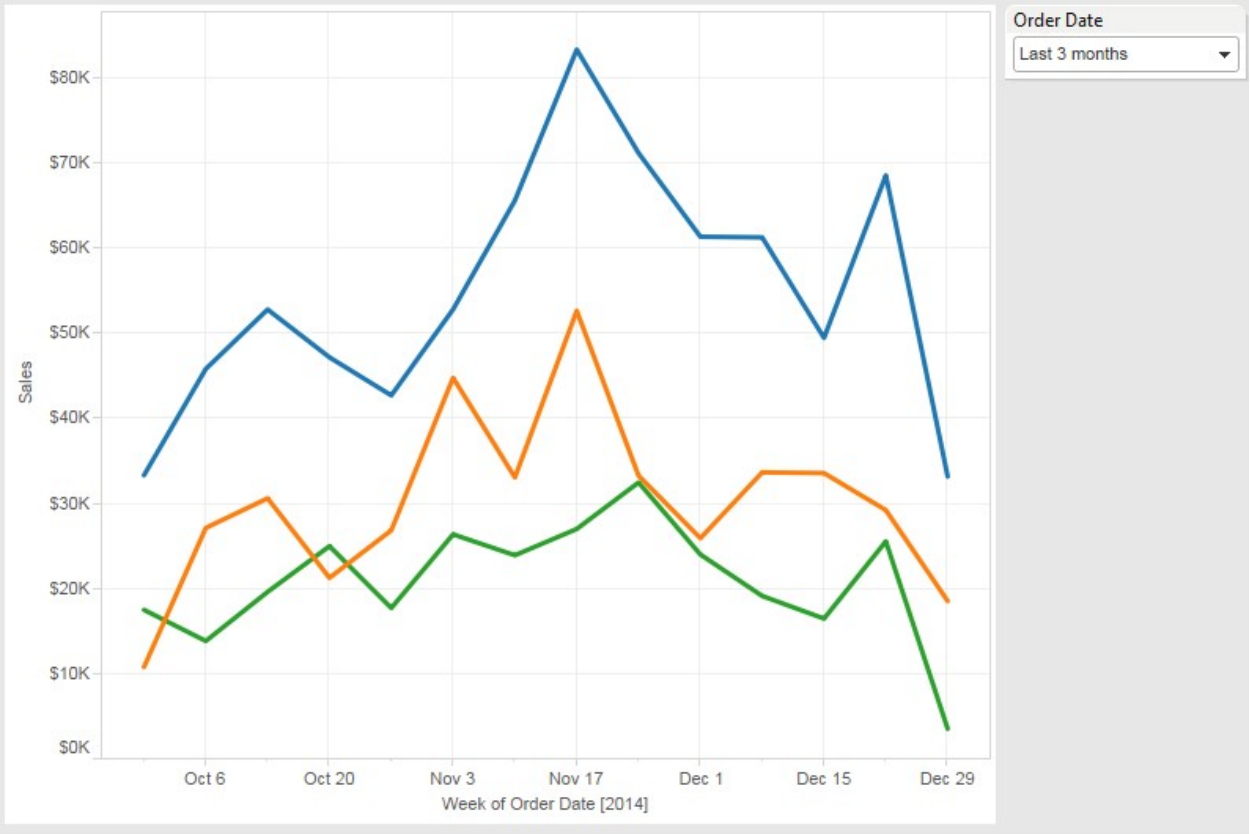
Same Day and **First Class** orders seem to have an opposite trend for mid-week orders when compared to **Standard Class.** Even though they are a small % of our daily orders, this should be factored into our strategy and is a critical factor of the story.

11) From the left Data Window, right-click on **Orders (Global Superstore)** data source and select "Date Properties"

12) Set the **Week start:** dropdown to **"Monday"** and click **OK.**

Some organizations prefer to view their calendar with **Monday** as the start-of-business for the week. This option will change **ALL** data fields within the data source to behave this way.

Working with Continuous Dates

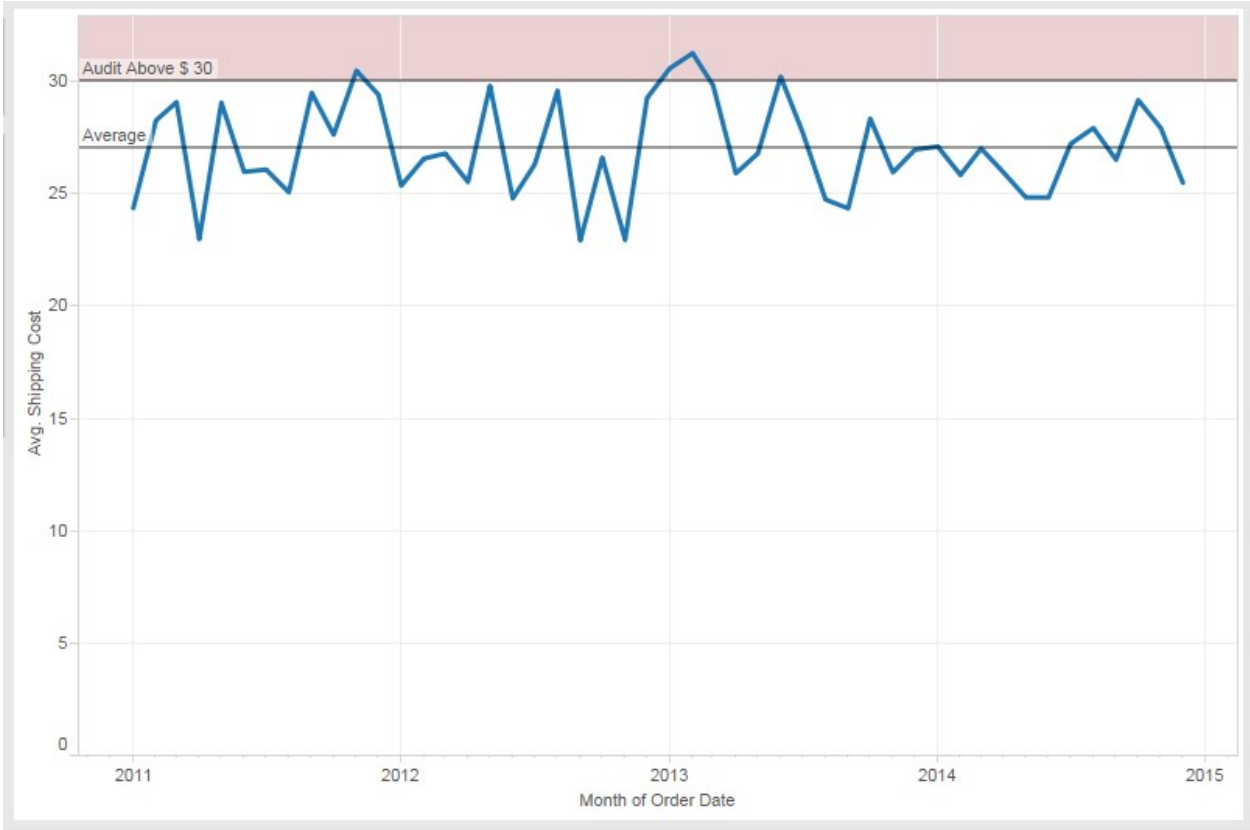


Goal: When someone wants to look at historical trends, they're usually looking for a time series. We will build a time series with a continuous time axis, and another axis for the measure being tracked over time.

Steps:

1) Drag **Sales** to Rows
2) Hold Right-click (*Mac: use Option*) to drag **Order Date** to Columns.
3) In the Drop Field dialogue, select the lower **MONTH(Order Date)** with the calendar icon left of it.
This is a **continuous** version of Order Date that will plot individual month values along a time axis.
4) Drag **Segment** to color.
5) Drag **Order Date** to the **Filters** shelf.
6) In the Filter Field [Order Date] dialogue, select **Relative date**
7) In the Filter [Order Date] dialogue, select **Months** and click the radio button next to **Last *n* months.** Click OK.
Why is there nothing showing in the viz now?
8) Right click on **Order Date** in the Filters shelf and return to the Filter [Order Date] dialogue, click the **Anchor relative to** checkbox.
9) Click on the date shown to access the calendar view, use this to set the anchor date to **12/31/2014**
10) In the Columns shelf, click the **+** next to MONTH(Order Date) to drill down to a weekly view.
11) Right click on **Order Date** in the Filters shelf and select "Show Quick Filter"
Relative Date Filter is a very intuitive way for an end-user to capture a range of data without getting hung up on the individual start-end dates.

Adding Reference Lines



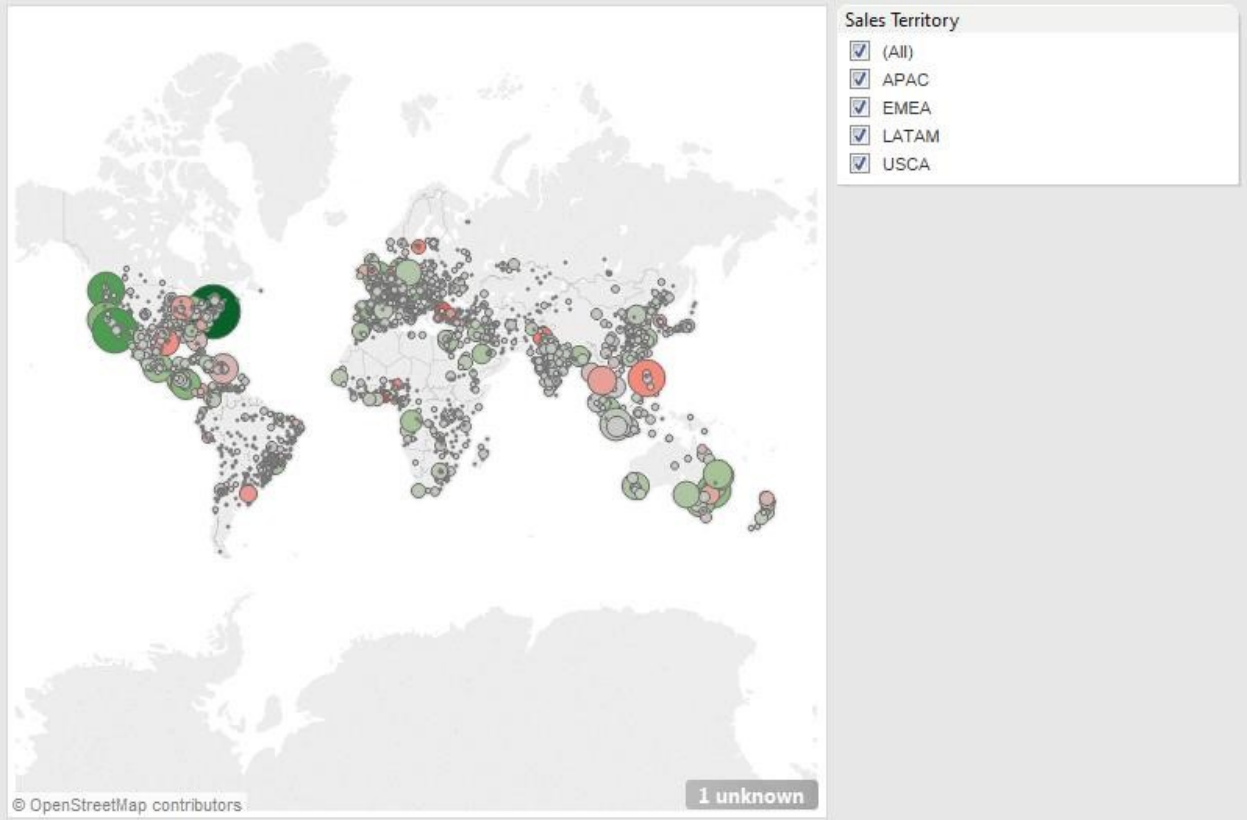
Goal: What is our average cost per shipment? How has it varied over time? Are there any months that have a shipping cost that is high enough to warrant an audit?

Steps:

1) Drag **Shipping Cost** to Rows. Change the Aggregation to Average: AVG(Shipping Cost)
2) Hold Right-click (*Mac: use Option*) to drag **Order Date** to Columns.
3) In the Drop Field dialogue, select the lower **MONTH(Order Date)** with the calendar icon left of it.
This is a **continuous** version of Order Date that will plot individual month values along a time axis.
4) In the top left data window, switch to the **Analytics** Pane.
5) Drag a **Constant Line** and drop it onto AVG(Shipping Cost) in the view.
6) For the constant value, type **30**.
When the average shipping cost goes above $30, we want to visually denote that this is important. It might trigger an audit of shipments.
7) Right Click on the Avg. Shipping Cost Axis in the viz and select Edit Reference Line.
8) Select Fill Above: and choose an *alarm color* like pink or orange.
9) Change the **Label** to Custom, and type "Audit above $". Use the **>** to insert "<Value>". Click **OK** to return to the viz.
10) Right click on the AVG(Shipping Cost) in rows and change the number format to a custom value that creates a value of $30.
The reference line should now read "Audit above $30"
11) Use the Analytics Pane to drag an **Average Line** over **Table.**

Consider: What are a few ways somebody use this viz to audit individual shipments from months that went over $30?

Visualizing Geospacial Data with a Dot Map



Goal: Which cities have the highest sales around the world? Are there any geographic regions that have issues with profit?

Steps:

1) Bring **City** to Detail
2) Drag **Sales** to Size, and **Profit** to Color.
3) In the Marks Card, click on the **Size** Mark and adjust the slider until the marks look appropriately large. Click on the **Color** Mark and add a dark grey border.

What country are you looking at? Is it your own? How do we bring in data for the entire world?

4) Drag **Country** and **State** to Detail.
5) Right click on **Sales Territory** and select "Show Quick Filter."
6) Turn the Quick Filter for **Sales Territory** into a single drop-down selection.
7) Try selecting a single market, the map should be focused on this location.

If your map isn't moving, make sure the "pin" is not active/facing down. You'll find it in the top left of the view, or at the top of the toolbar. This fixes the axis so Tableau will not recenter.