TABLEAU

Day 21

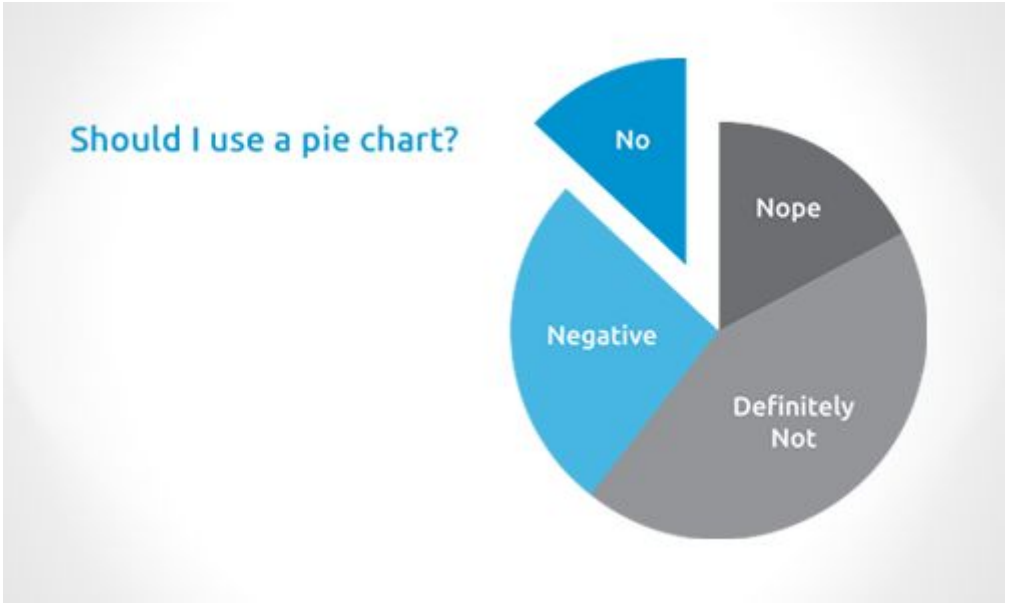
Donut Chart

Donut charts are essentially pie charts with a circle in the middle. It often also makes the proportion of the slice slightly easier to read.

Why use a donut chart when we already have a pie chart?

As all good things can always be better, when we have an empty space in the middle of a pie chart (making it a donut chart) we can include cumulative figures on them along with the values pertaining to individual categories in a pie chart.

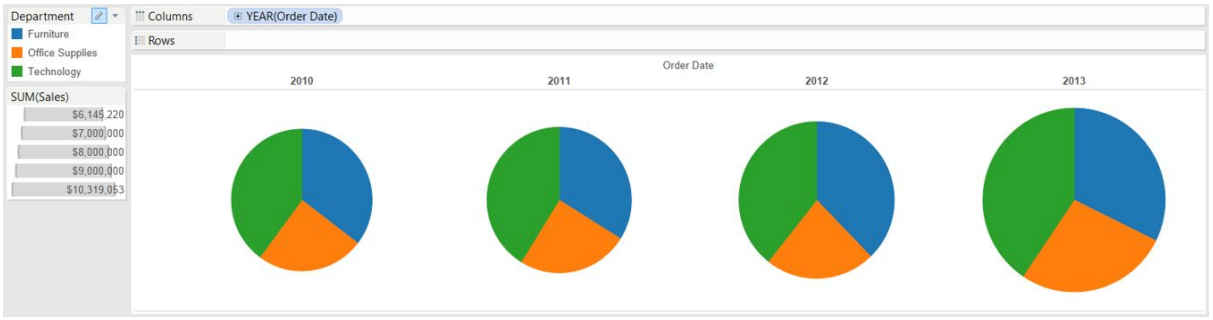
But the question comes why we shouldn't use pie charts?



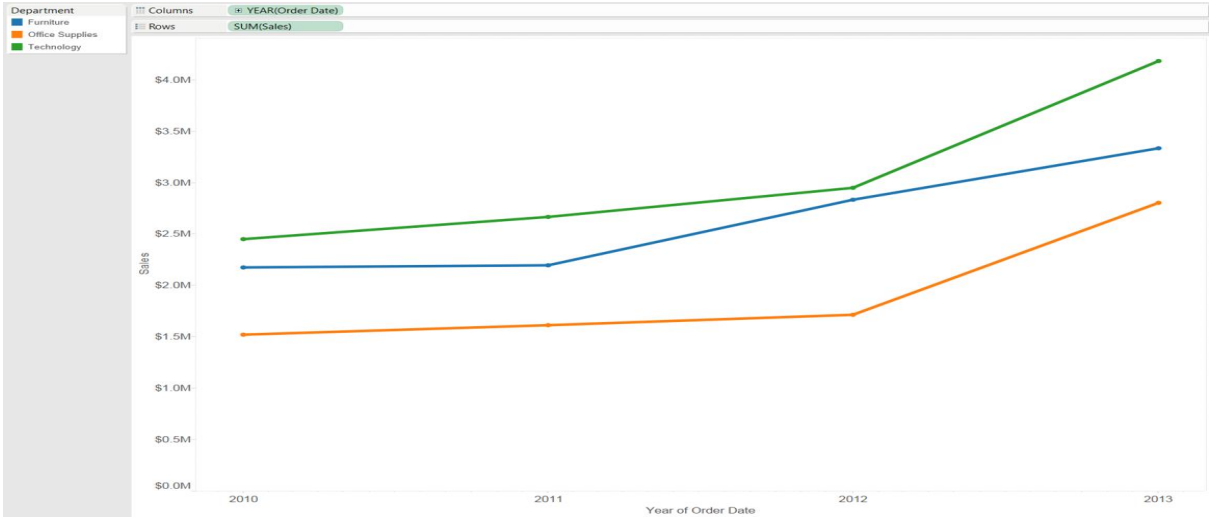
Study has shown that pie charts are not the most effective means of communicating data. The pie chart's primary limitation is that people are much better at comparing lengths and heights, as you would see in a bar or line chart, than they are at comparing areas within a pie. Further, the long tail results, or the thinner pieces of a pie, tend to become unreadable.

To help you understand better, here is a simple exercise to illustrate the reduction in time to insight from a pie chart to more appropriate chart types.

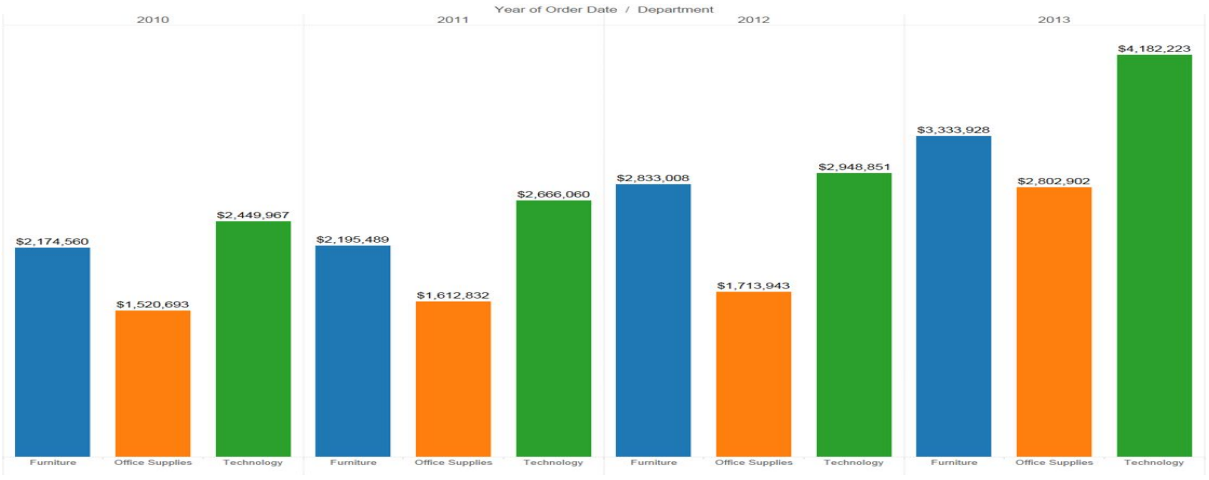
First, have a look at this series of pie charts, showing the sales by department over a four-year period. Take 15-30 seconds and think of a couple of insights that the charts provide:



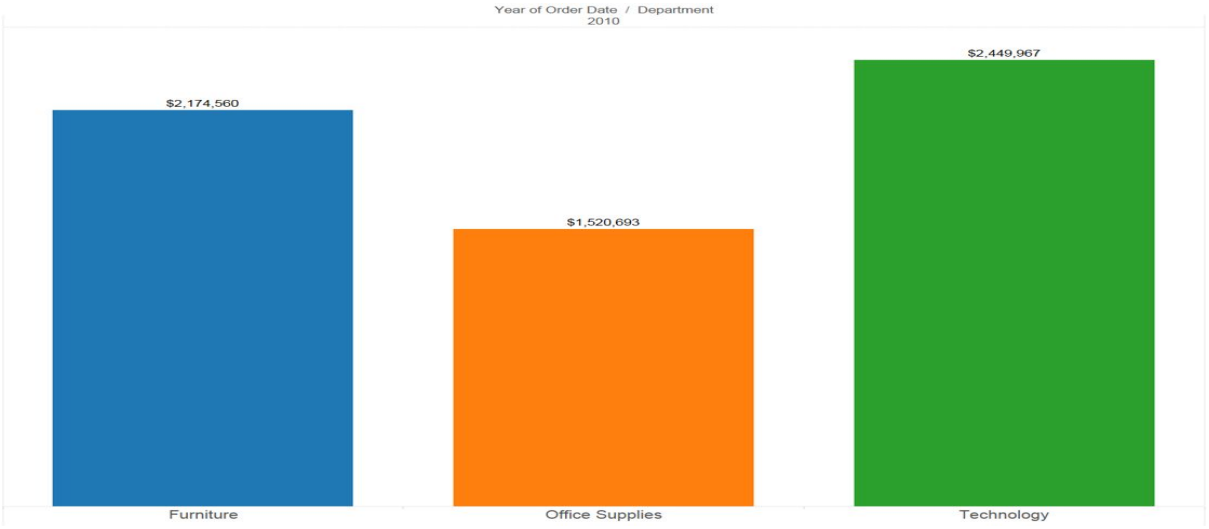
You likely gathered that the entire pie was getting slightly larger over time (though it was hard to tell by how much and what that means), but it is pretty difficult to ascertain which pieces of the pie are causing the growth. With an easy tweak in Tableau, look at the exact same data as a line chart. Take the same 15 – 30 seconds to understand what the data is telling you – though it likely won't take you nearly that long.



Much easier, right? By converting our pie chart to a line chart, we can easily see that all three categories are on the rise, and by how much. We were able to process the visual and get to the insight much faster. If you are not as interested in the performance over time, and want to see how each category performed compared to each other each year, use a bar chart:



Again, your brain processes heights of bars more easily than it processes areas in a pie. Using a bar chart also provides you more real estate to display the values, either as dollar amounts and/or percents of the whole (as you were trying to convey by using a pie chart). To take this one final step further, if you only care about comparing how each category performed against the others for one period in time, you can isolate the bar chart to show just the year in question:



I understand that you may have a stakeholder that has a hard time letting go of pie charts. If you or a boss can't quite go cold turkey, here are a couple of tips for using pie charts while you transition away from them:

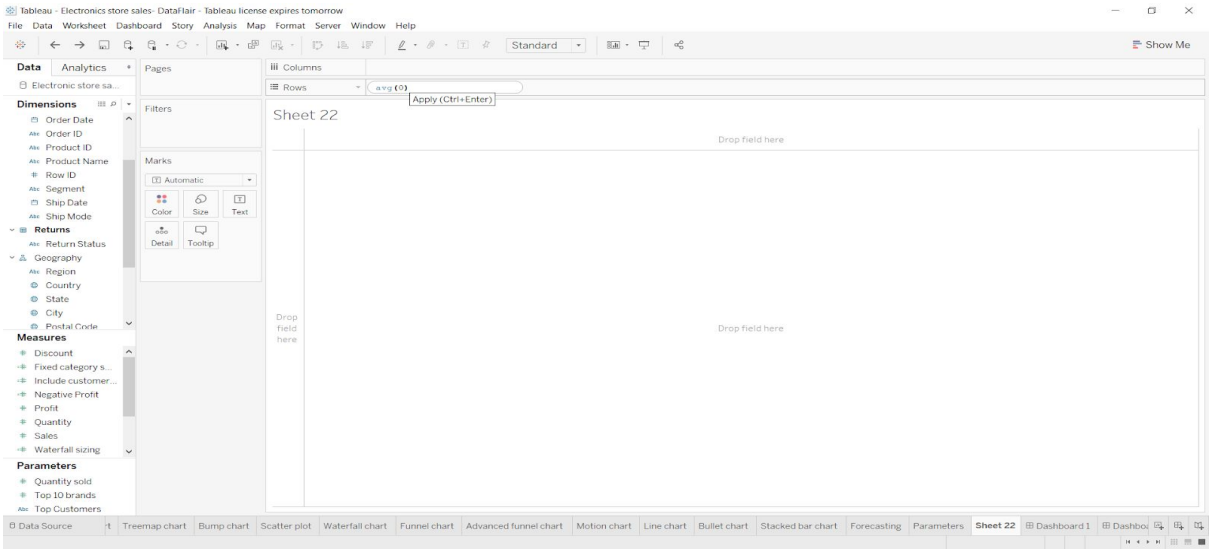
- Stick to five slices or less, including the "other" category. As mentioned previously, the thinner, long tail, slices become unreadable. If you find yourself saying, "but I have to represent all fifteen of my categories", that is another vote for you moving away from pie charts.
- Only use pie charts to show comparisons for one point in time. Avoid using them in a time series analysis as shown above.

Now, jumping back to donut chart!

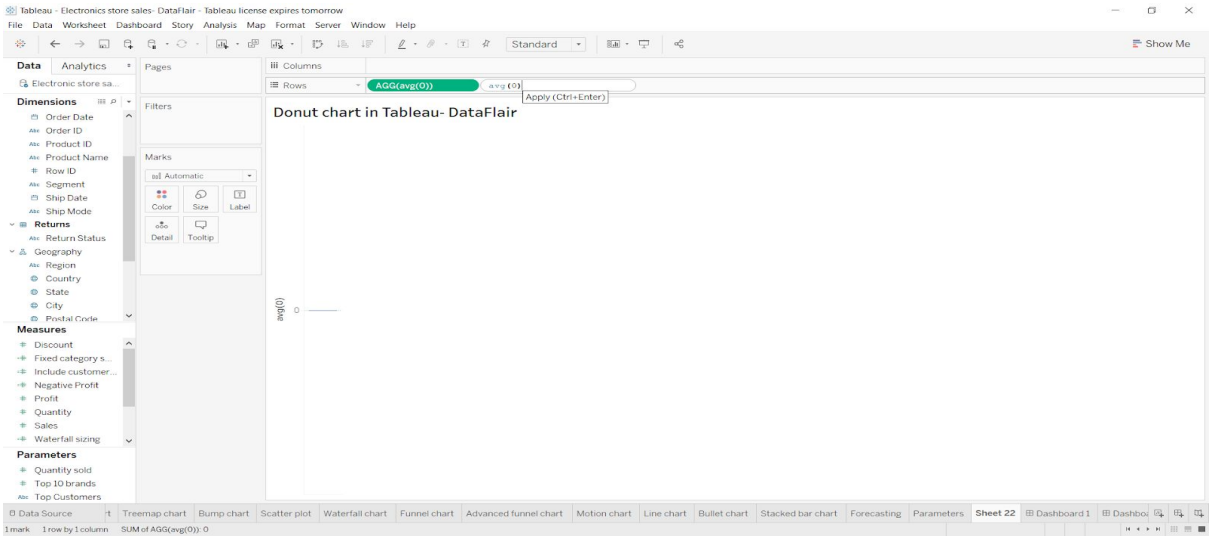
How to make a Donut Chart in Tableau?

Step 1: Create Two Aggregate Measure Fields

We will start by creating two aggregate measure fields in the Rows section. In this section, we double-click and write *avg(0)* then click enter.

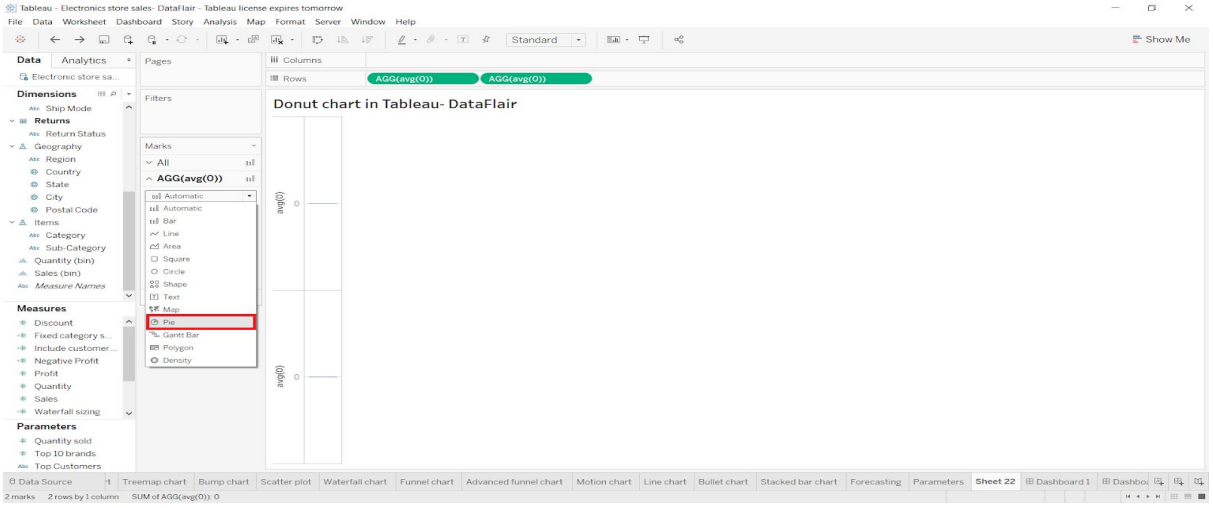


Similarly, we enter another aggregate measure.



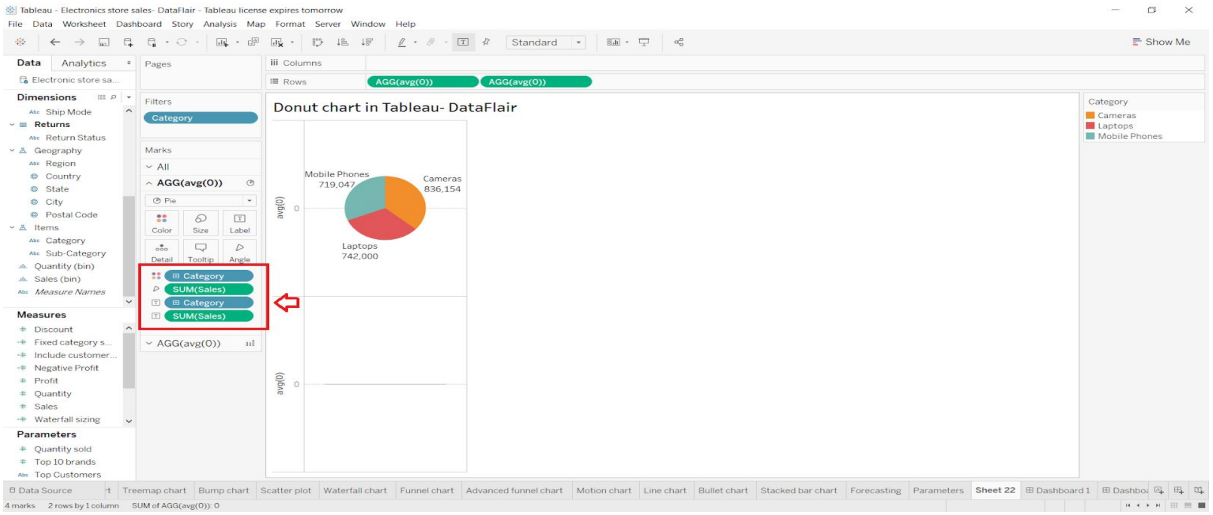
Step 2: Select Mark Type for Measures

Next, we select the mark type for the first measure as Pie from the Marks list. Also, note that by creating two aggregate measures, we have two sections for each measure in the Marks card. We will use these two sections for both measures discreetly to create our Tableau donut chart.

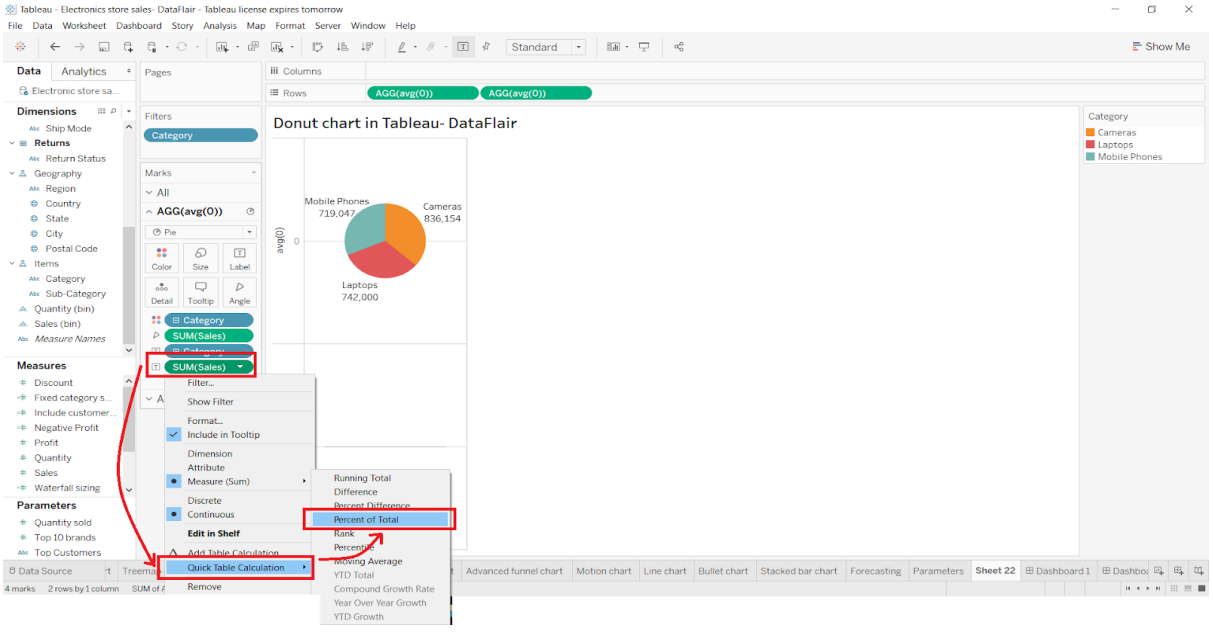


Step 3: Add Set of Fields to Get Pie Chart

Now, we will add a set of fields in *Color*, *Angle*, and *Label* cards of the Marks section. Please note that we are adding these fields in the first *AGG(avg(0))* field column. By adding these fields in the appropriate columns, we get a pie chart as seen in the screenshot below, with three sections, name labels, and value labels.

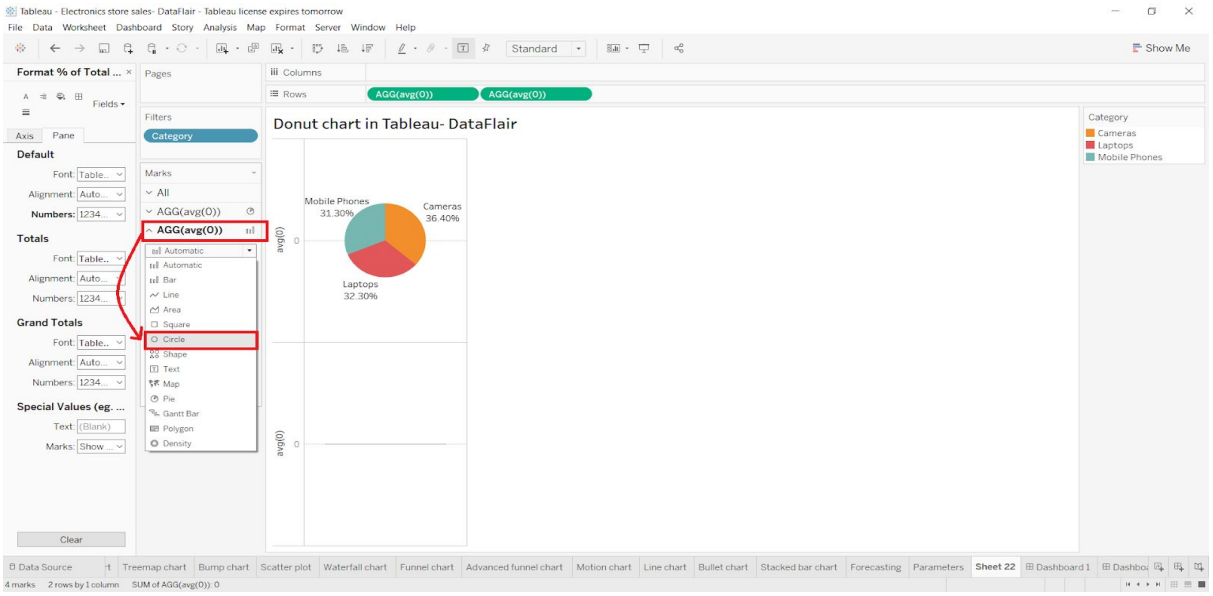


We apply a Quick Table Calculation to our SUM(Sales) field by right-clicking on it, selecting the option Quick Table Calculation and then selecting Percent of Total. This will show the percent of the total sales for each category in the labels of the chart.



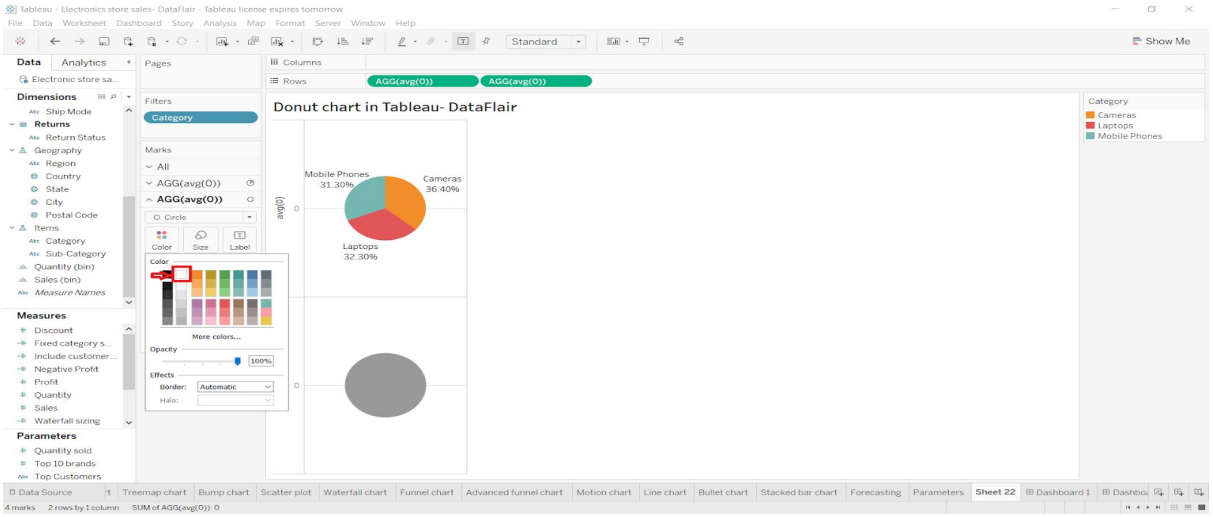
Step 4: Select Circle from Drop-Down List

Next, we right-click on our second measure field *(i.e. AGG(avg(0)))* in the Marks section and select Circle as the mark type from the drop-down list.



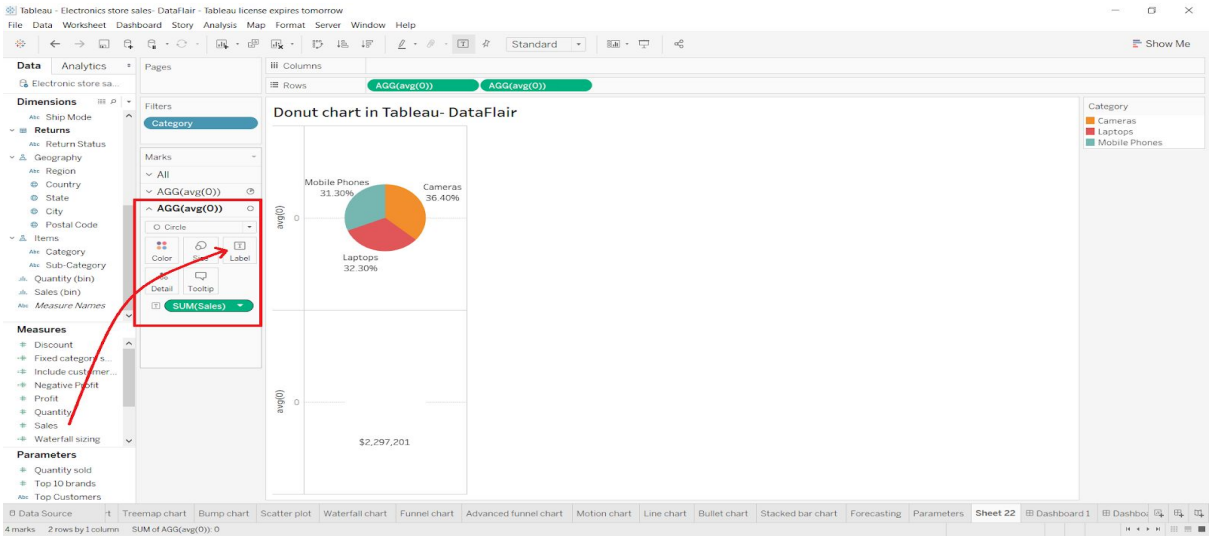
Step 5: Select Color Card to Change Circle Color

We change the color of the circle from grey to white. To do this, click on the Color card and select white from the given color palette. Again, make sure that you are performing this step for the second measure field.



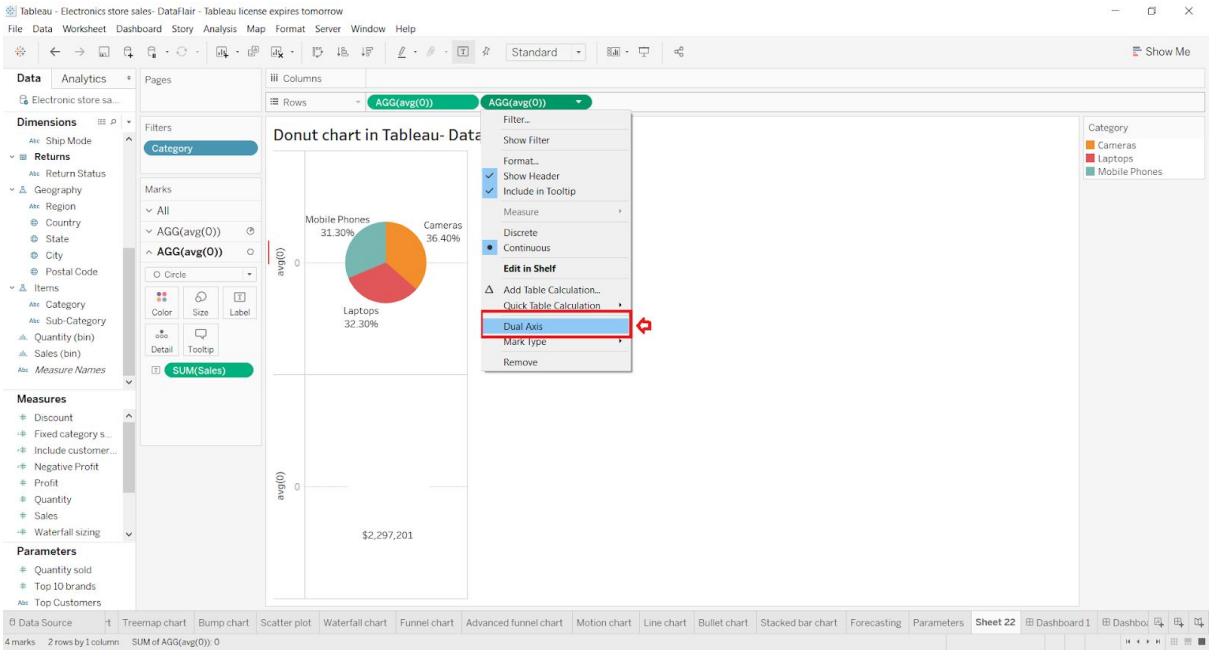
Step 6: Add Measure Field into Label Card

Look closely, our last step creates a white circle on the lower half of the plot area. Before we go ahead, we add a measure field, Sales into the Label card of the second aggregate measure section. This adds a value showing total sales for all three categories below the white circle.



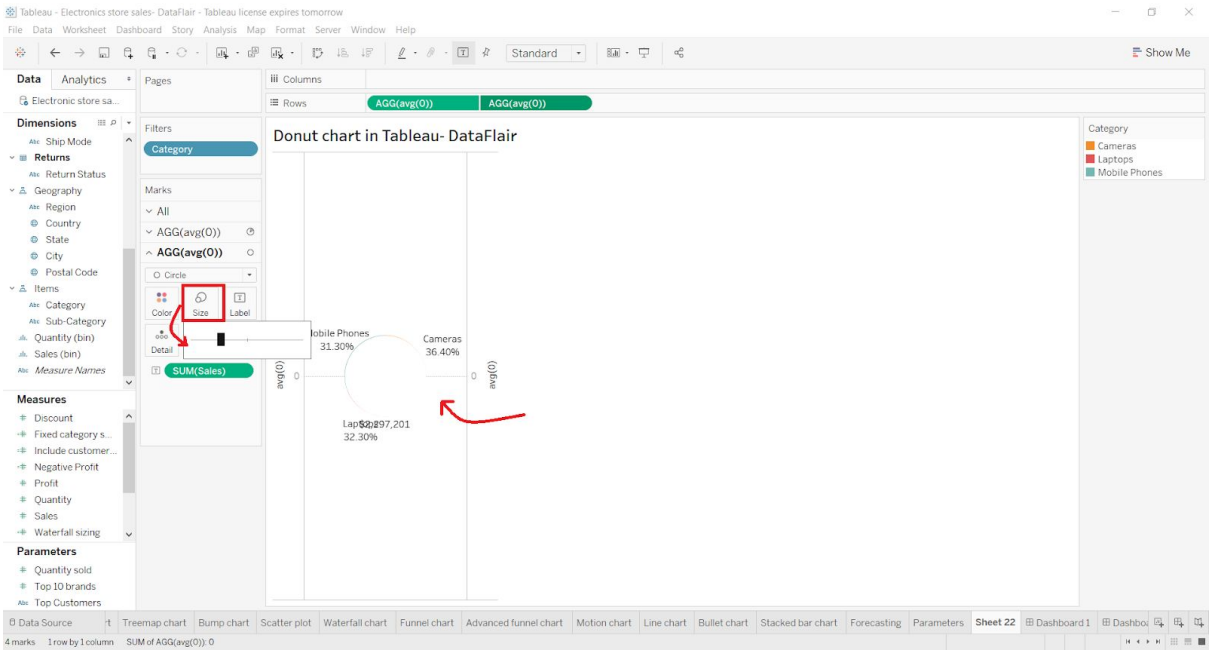
Step 7: Select Dual Axis to Combine Charts

Now, it's time to combine these two charts and get a step closer to our final tableau donut chart. To do this, right-click on a measure field name present in the Rows section and select Dual Axis from the drop-down menu.



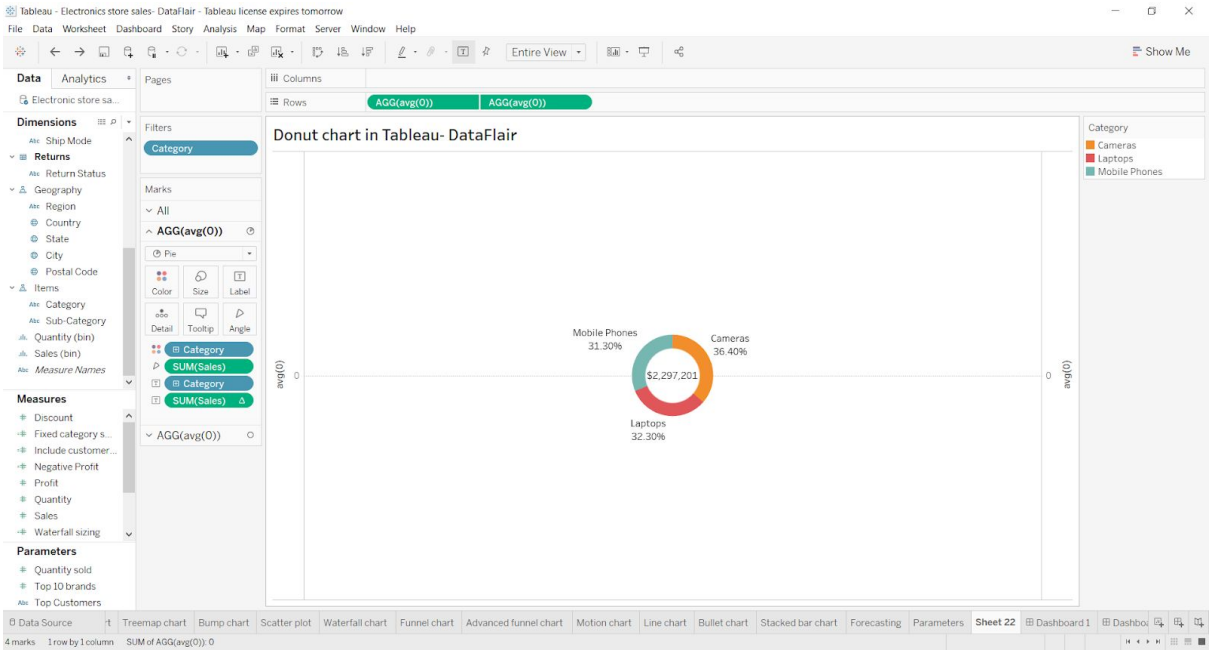
Step 8: Click on Size Card to Reduce Size

Right now, all we see is a white circle, with data labels around it. It is because the two charts completely overlap each other. To bring the second chart in the front, click on the Size card and reduce the size of the white circle.



Step 9: Finalise Tableau Donut Chart

Once we adjust the size of the inner white circle, we could see a donut-shaped chart having three sections and data labels. In the center of the donut chart, we have the total sales value for all the three categories.



Step 10: Change the Color Scheme of the Chart

We can also change the color scheme of the chart by clicking on the Color card in the first measure field section.