Creating Scatterplots

Scatterplots are a common visualisation form that help users visualise relationships between numeric variable, particularly when displaying data points in a way that calls attention to outliers. These visualisations use a combination of colour, shape and placement to help identify data that are divergent from the rest, and to show how the measures are related.

Create a Scatterplot

1. Drag the measures you want to compare onto opposite axes (x and y) or **Rows** and **Columns**.
2. Drag dimensions into the view to see how the measures compare when sliced by different data dimensions.
3. By default, Tableau will aggregate your data automatically so that you see the SUM of each of the measures selected – this leads to only a single point on the scatterplot. If you want to see all records in the data set then you need to disaggregate the measures. Go to the **Analysis** menu and notice that **Aggregate Measures** is already selected. Select **Aggregate Measures** to toggle this off and make aggregation inactive. Once aggregation is turned off, each data point will be displayed separately (Figure 1). These can then be colour/size/shape-coded as usual.

FIGURE 1: THE SAME SCATTERPLOT WITH AGGREGATION TURNED ON (L) AND TURNED OFF (R)

Default Charts

Tableau includes many different types of visualisation, so how do we know what sort of visualisation it will default to when we first start adding measures and dimensions? This depends upon what type of data we select first.

Rows	Columns	Chart
Dimension	Dimension	Crosstab
Dimension	Value	Barchart
Value	Dimension	Barchart
Value	Value	Scatterplot

Tasks

1. Open the packaged workbook **Workshop 10.1 – Scatter Plot Starter.twbx**
2. Create a view (Figure 2) that does the following:
    - Shows a scatterplot of Sales against Shipping Costs
    - Colour-codes the data by Category
    - Includes a filter to allow the viewer to select which Category values to view.

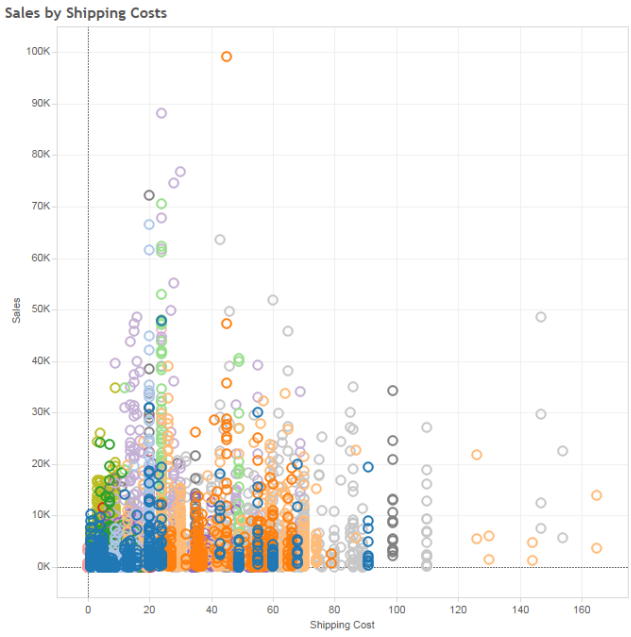

FIGURE 2: SALES BY SHIPPING COSTS

Pie Charts and Parts of the Whole

Pie charts are one of the most commonly-used visualisations in business today. Unfortunately the human perceptual system is bad at comparing angles or areas accurately. This means that while pie charts are familiar and easy to understand in principle, in practice they can actually make it difficult for the viewer to get a good idea of the relationships between different dimensions.

They are useful only when you want to show a high-level breakdown of a measure by dimension where the dimension has only a small number of members. Always add labels showing percentages (and dimension member, if there is space) to help the viewer make more accurate judgements.

Create a Pie Chart

1. On the **Marks** card select **Pie** from the drop-down list of mark types.
2. Drag the dimension field you want to slice to **Color** on the **Marks** card.
3. Drag the measure that determines the size of each slice to **Angle** on the **Marks** card.
4. Drag copies of the measure and the dimension to the **Label**
5. Use the **Size** control on the **Marks** card to alter the size of the pie chart.

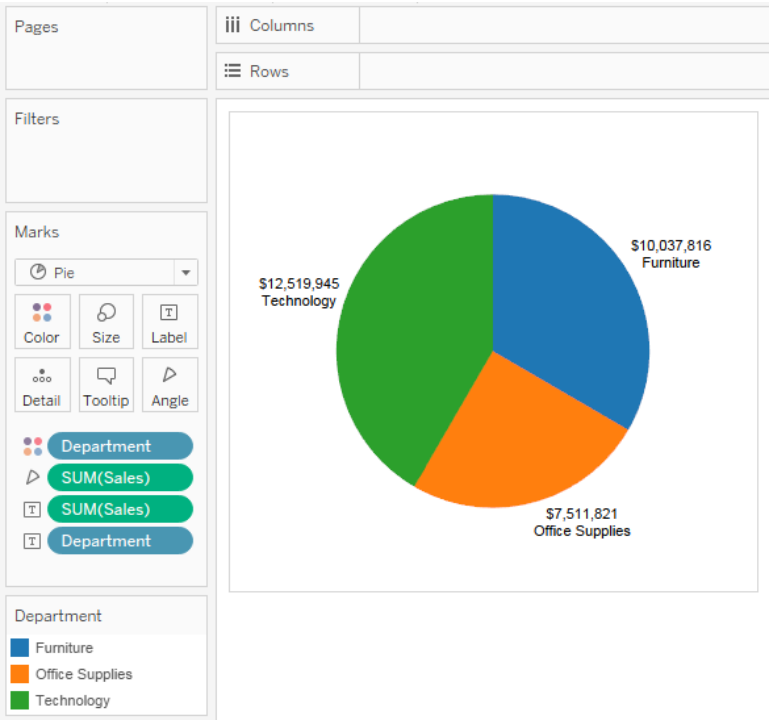

FIGURE 3: PIE CHART SHOWING EMPTY COLUMNS/ROWS SHELVES

Notice that unlike all of the other charts created to this point, the pie chart does not show anything on the **Columns** or **Rows** shelves (Figure 3).

Tasks

3. Open the packaged workbook **Workshop 10.2 –Percent of Total Starter.twbx**
4. Create a view (Figure 4) that does the following:
    - Shows how Sales breaks down by Customer Segment
    - Shows Sales as a percent of total in a label.
    - Shows the Customer Segment in a label.

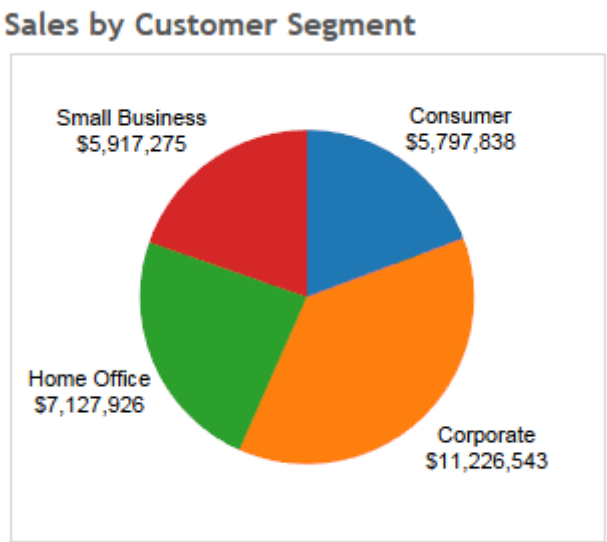

FIGURE 4: SALES BY CUSTOMER SEGMENT

Tree Maps – The Alternative to Pie Charts

Tree maps are a good alternative to pie charts where the number of members in a dimension is high. These show all of the data at once within a rectangular format and can be encoded with colour to differentiate categories, and use labels to show number values. Tree maps are especially good for hierarchical data with several levels of dimensions.

Create a Tree Map

1. Drag a measure to **Size** on the **Marks** card.
2. Drag a dimension to **Color** on the **Marks** card.
3. Drag copies of the measure and the dimension to the **Label**

This produces a very simple tree map, with the individual rectangles representing their proportions of the entire area (Figure 5).

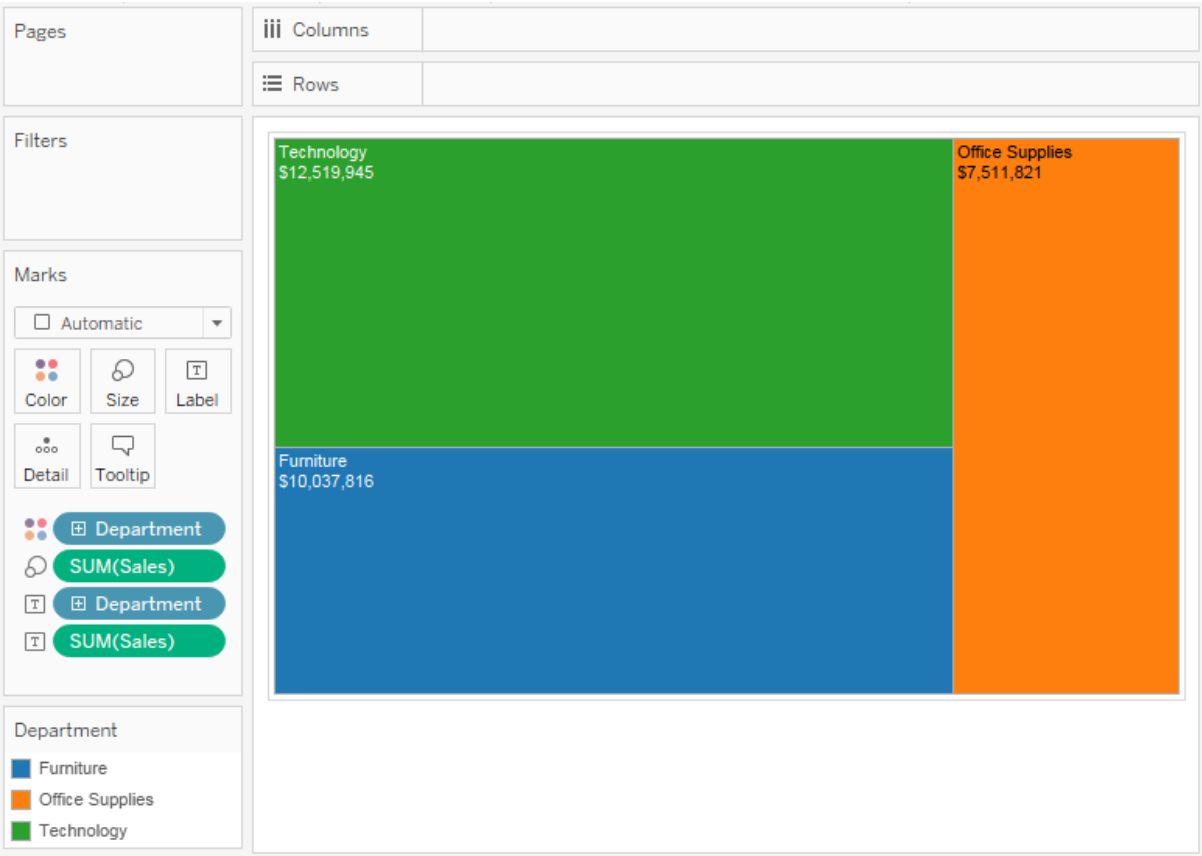

FIGURE 5: BASIC TREEMAP

Also note that again, the **Columns** and **Rows** shelves are empty. In order to access the dimensional hierarchy – in this case Category is a child dimension to Department – click on the + sign on the dimensions shown in the **Marks** pane. The hierarchy dimension appears twice in the pane, once as a colour coding, once as a label coding. Clicking on the colour-coding version will split the coloured areas into their categories but will keep the department as the label (Figure 6 Left). Clicking on the label-coding version will split the coloured areas into their categories AND will show the categories in the labels (Figure 6 Right).

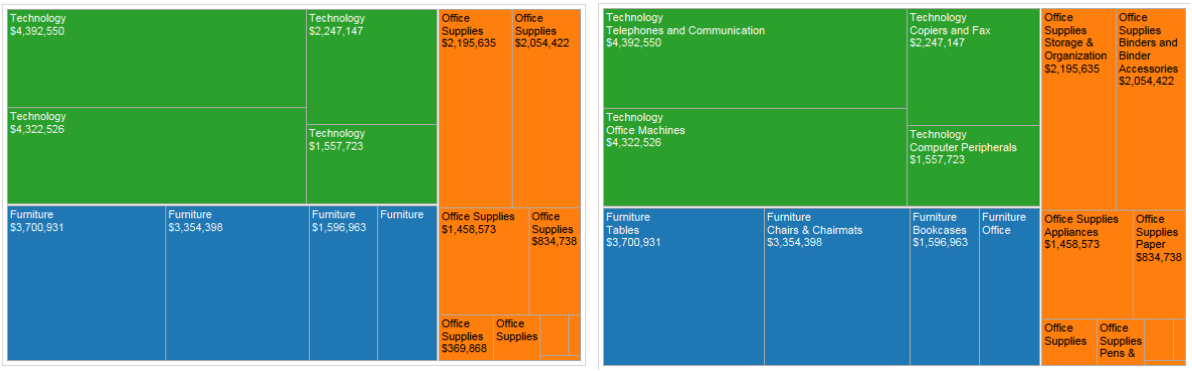

FIGURE 6: CATEGORISED ON COLOUR (L) AND ON LABEL (R)

As the tree map can show a large number of categories and subcategories, sometimes the individual areas may be too small to label effectively, such as in the bottom right of the orange area in figure 6. In these cases more detail about the element can be accessed by hovering over the area to bring up the tooltip (Figure 7).

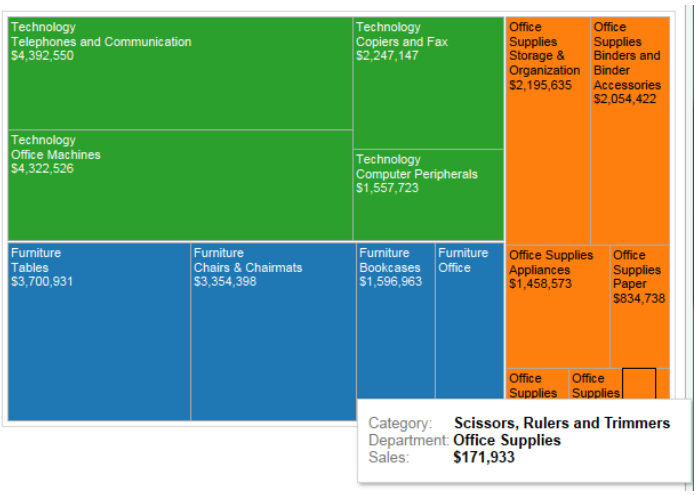

FIGURE 7: USING THE TOOLTIP FOR INFORMATION ABOUT SMALL AREAS

Tasks

1. Open the packaged workbook **Workshop 10.3 – Tree Map Starter.twbx**
2. Create a view (Figure 8) that does the following:
    - Shows region by colour
    - Shows Sum(Sales) by size
    - Shows the Category and Sales as labels.

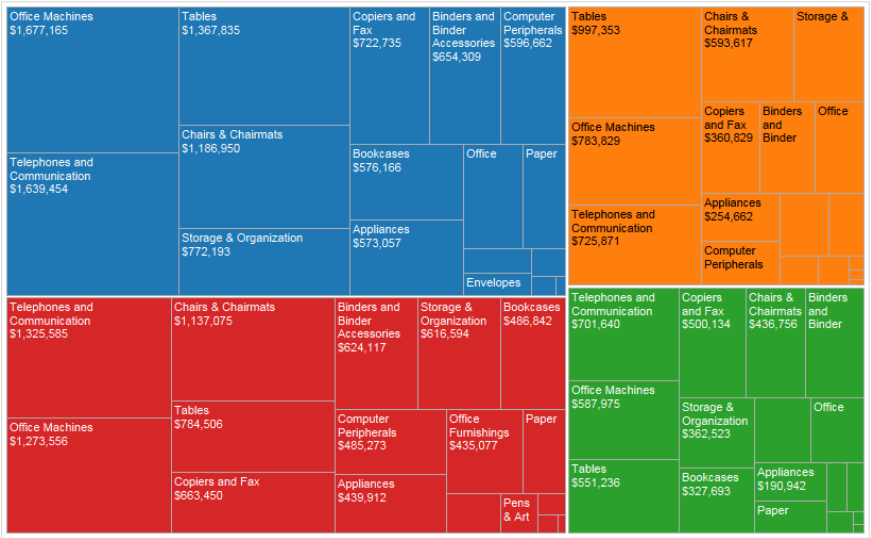

FIGURE 8: TREEMAP SHOWING SALES AND CATEGORY BY REGION