

Tableau Public Workshop

Parts of this workshop are adapted from *Introduction to Tableau* [Workshop] by Kelly Schultz, University of Toronto Libraries.


Downloading the Workshop Files (instructions for Windows)

1. Right click your desktop. Click **New** and then click **Folder**. Type **Viz Workshop** and press enter.
2. Type the URL <https://bit.ly/34bWLLL> into the search box of your preferred browser (i.e. Chrome or Firefox) and press enter.
3. Right click the link **MBAVizWorkshop.zip**. Click **Save link as..**
4. Navigate to the **Viz Workshop** file you created on your desktop and press **save**.
5. Open the **Viz Workshop** folder on your desktop. Right click the file **MBAVizWorkshop.zip** and click **Extract All..** Then click extract.

Tableau Public Demo


1. Start by opening Tableau Public by clicking on its icon on the Desktop (looks like a white square with plus symbols in it).
2. Once Tableau is open we are going to connect to a Tableau demo Superstore dataset, click **Microsoft Excel** located in the **Connect menu**. Navigate to the **Superstore** dataset in the browse and open the file.
3. When the file opens you will see a preview of the dataset. The symbol in each header will tell you what type of variable the column contains.
4. Click the **Sheet 1** tab at the bottom of the App this will open a worksheet where we can create our first visualization.

Bar Graph – Comparing Profit by Product Subcategory for selected US regions


5. We will start by renaming the worksheet BarGraph. Right click **Sheet 1** located at the bottom click **Rename** type BarGraph and hit enter.
6. Click and drag the **Sub-Category (Dimensions)** and drop it right next to **Rows**. This adds Sub-categories to our y-axis.
7. Click and drag **Profit (Measures)** and drop it next to **Columns**. This will create a horizontal bar graph showing profit by Product-Subcategory. Notice that Tableau automatically aggregates Profit by sum.
8. Sorting the product sub-categories in the visualization by Profit will help the user to establish which are the best performing categories. To do this click the sort by descending button  located in the toolbar in the top of the app.
9. Let's filter our data by Region. Click and drag **Region (Dimensions)** to the **Filters** card. The Filter dialog box will popup. Click the **All** button and then click the **Apply** button. Click **Ok** to close the box.
10. We will set up our filter to display on the online user interface. Click the drop-down arrow on the **Region** Pill in the **Filters** box. Click Show **Filter**. A Region filter will appear right of the bar graph.
11. We will now edit the filter so users can only select one region at a time. Click the drop-down arrow located on the **Region** filter on the right of the graph. Select **Single Value (list)**.


12. If you move your cursor over the bars in the graph a popup will appear showing the product subcategory and the profit. We want our user to see the sales numbers in the popup for each bar. To do this we will Click and drag **Sales (Measures)** list and drop it on **Tooltip** in the Marks card. When we mouse over the bars it will now display sales.
13. We want to edit the x (horizontal) axis labels so they display the full number instead of K. Right click the x axis. Select **Format** which will open the format box located on the left side of the screen. Click the **Numbers:** drop down and select **Currency (Standard)**. Exit the format pane by clicking the x in the top right corner.
14. We will now change the title of the graph. Right click the current title **BarGraph**. Select **Edit Title**. Enter the title: Profit for Product Subcategory for <Region> Regions. Click Apply and then OK. Inputting <Region> makes the title dynamic by displaying the Region currently displayed in the graph.

Stacked Bar Graph – Compare sales for product categories as a percentage of the total by year and State


15. Open a new worksheet by clicking **New Worksheet** icon  located at the bottom of the screen. Change the name of the sheet by right clicking the tab and then click **Rename**. Type **StackedBar** and press enter.
16. Click and drag **Order Date (Dimensions)** and drop it next to **Columns**.
17. Click and drag the **Sales (Measures)** and drop it next to **Rows**. A line graph showing the change in sales by year will display.
18. We want to use colour to distinguish between product categories in our chart. Click and drag **Category (Dimensions)** to the **Colour Marks** card. We will now see a line for each product category distinguished by colour.
19. We will now change the chart type to a bar chart. Click the drop-down arrow located in the **Marks** card next to **Automatic** and select **Bar**. A simple stacked bar chart will now be displayed.
20. We will alter this chart to show category sales as a percent of total for each year. To do this click the drop down arrow in the **SUM(sales)** pill located next to **Rows**. Select **Quick Table Calculation** and then **Percent of Total**.
21. We want each year to be out of 100% to examine the difference between categories. Click the drop down arrow in the **SUM(sales)** pill located next to **Rows** again. Select **Compute Using** and then **Table (Down)**.
22. We will now add percentage labels to the bar graph. Click and drag **Sales (Measures)** to **Label** on the **Marks** card. Then click the drop-down arrow on the **SUM(Sales)** pill located in the **Marks** card. Select **Quick Table Calculation** and then **Percent of Total**. Click the **SUM(Sales)** drop down arrow again. Select **Compute Using** and then **Table Down**.
23. We will now change the title. Double click the current chart title **StackedBar**. Enter the title **Percent of Total Yearly Sales by Category**. Click **Apply** and then **OK**.

Heat Map – Showing the Change in subcategory profit by Year



24. Open a new worksheet by clicking **New Worksheet** icon  located at the bottom of the screen. Change the name of the sheet by right clicking the tab and then click rename. Type **HeatMap** and press enter.
25. Drag **Order Date (Dimensions)** to **Columns**. Then drag **Sub-Category (Dimensions)** to **Rows**.

26. Click and drag **Profit (Measures)** to the **Text Marks** card.
27. Click the sort from descending icon  in the top toolbar.
28. Click and Drag **Profit (Measures)** to the **Colour Marks** card.
29. To shade the squares click the **Marks** drop down (where it says **Automatic**) and select **Square**.
30. Double click the current title **HeatMap**. Change the title to Profit by product subcategory by year.
31. Right click the **Order Date** header title. Click **Hide Field Labels for Columns**.


Choropleth map - Showing Profit by State

32. Open a new worksheet  by clicking the icon at the bottom of the screen. Change the name by right clicking the tab for the sheet. Click **Rename**. Type ColouredMap and press Enter.
33. Double click **Country (Dimensions)** and then double click **State (Dimensions)**. This will create a map that shows points for individual States.
34. Click and drag **Profit (Measures)** to the **Colour Marks** card and then click and drag **Profit (Measures)** to the **Label Marks** card.
35. Double click the graph title ColouredMap and rename it Superstore Profit by State.


Dash board – Combine multiple visualizations into one interactive dashboard.

36. Open a Dashboard by clicking the **New Dashboard**  icon. Right click the tab **Dashboard 1** and click **Rename**. Type SuperstorebyState and press enter.
37. Click **ColouredMap** (located in the **Sheets** menu) and drag it to the center of the screen where it says Drop sheets here.
38. Click **HeatMap (Sheets)** and drag it so it is positioned below the Map of the United States.
39. Click the drop-down arrow  to the right of the Map of the US and select use as filter.

Mapping Rental rates by Ontario Region with census data

40. To create our map we need to load in a file with the boundaries of Ontario Regions. Click **Data** in the top-level menu and then **New Data Source**. Click **Spatial File** on the resulting Menu. Browse to navigate to the file **CD_Ontario.shp**. Open this file.
41. You will be taken to the Data Source window and should see a table for the spatial file we added.
42. We need to merge the spatial file data with the table that contains our rent information. On the top left corner of this screen you should see **Connections**. Click **Add** to add a connection. Click **Text file**. Navigate to the file **Housing Tenure** and open it.
43. We will now merge our two datasets based on the fields **Cduid** and Geography. In the **Join** box click the drop down under **Data Source** and select **Cduid**. Click the drop down under **HousingTenure.csv** and select **Geography**.
44. There is a mismatch between the data formats for the Cduid and Geography fields meaning Tableau cannot merge the datasets. Change the Geography field format to text. Click the number sign  in the Geography column header and select **String**. The datasets should successful merge and you will see the data in the table.

Choropleth Map - Showing the percentage of people who are renters by Ontario Region

45. Click the New Worksheet icon  located at the bottom of the app. Right click the new tab and click rename. Type RentMap and press enter.
46. To add the map boundaries of Ontario regions to the visualization double click **Geometry (Measures)**.
47. We need our visualization to be able to distinguish between individual regions. Click and drag **Cdname (Dimensions)** to the **Detail Marks** card. If we now mouse over the map we see that
48. We will colour our map based on number of renters. Click and drag **Renter (Measures)** to the **Colour Marks** card.
49. The resulting map shows the number renters per region. We instead want to show the proportion of individuals who rent. Double click **SUM(Renter)** in the Marks card and type `/SUM([Total – Tenure])` then press enter. The map now shows the proportion of those who rent by Region.
50. We want the numbers to display as percentages. Click the dropdown for **AGG(SUM([Re..** and select **Format**. Click the tab for **Pane** click the **Numbers:** drop down in the **Default** list. Then click Percentage.
51. To change the colours represented in the map click the **Colour Marks** card and then select **Edit Colours**. Choose the your preferred colour range from the **Palette:** list and click **OK**.
52. We want to change the title of our legend. Click the drop-down arrow on the map Legend. Select **Edit Title**. Replace the text with Percent Renters and click **OK**.
53. To edit the text in the popup you get when you mouse over a region. Click the **Tooltip Marks** card enter the desired text and press **OK**.