Developing Action-Oriented Dashboards with Tableau

The following tutorial will show you how to create interactive dashboards in Tableau 8.2. To get started, you will need the following:

✓ Tableau version 8.2
✓ Dataset: Sample – Superstore Subset (Excel)

Once the tutorial is over, you will be able to:

✓ Create a Profitability Map, Scatterplot, Bubble Chart, Horizontal Bar Chart
✓ Use Floating objects to format the dashboard
✓ Format the filters
✓ Use filters to make the dashboard more interactive
✓ Use Filter Actions in Tableau to dive deeper into the Dashboard data
✓ Create a URL Action to make the dashboard a bit more visual

The ultimate goal of this tutorial is to build two interactive dashboards:

✓ USA Sales Dashboard
✓ A Product Analysis Dashboard

Part 1: Creating Individual Worksheets

First, we need to create the individual visualizations that will comprise our dashboard. Specifically, we will create four separate worksheets:

I. Profitability Map
II. Scatterplot
III. Bubble Chart
IV. Horizontal Bar Graph

I. Profitability Map

The profitability map will be a map of the USA that shows the highest and lowest profits by state.

- First, drag the State Dimension into Columns and the Profit Measure into Rows.
- In the Show Me window pane, select the “Filled Maps” option.
- Let’s also show some labels:
  o Drag the State Dimension into the Label button
  o Drag the Profit Dimension into the Label button
- Now, let’s create some filters so that we can filter the map later in our Dashboard
  o Drag Order Date into Filters
    ▪ Select “# Years”, click Next, Select All, Click Apply, Press OK
  o Drag the Region dimension into Filters
    ▪ Select “All”, Click Apply, push OK
  o Drag the City Dimension into Filters.
• Select “All”, Click Apply, and push OK
• We now have our Profitability Map. Rename Sheet 1 to “Profitability Map.” Your map should look like this:

II. Scatterplot
The scatterplot will show the correlation between Sales and Profit by Region, Department, and Customer Name.

• Drag Sales into Columns, and Profit into Rows
• First, let’s slice the data by Region. Drag Region into Color
• Let’s also give the graph some depth by slicing the data by Department. Drag Department into the Shape button.
• Now let’s get a more detailed look at the data by including Customer Name. Drag the Customer Name dimension into the Detail button. (Alternatively, you could just double-click the Customer Name dimension. This does the same thing).
• Now resize the shapes by making them a little bit larger (click “Size”). Size preference is up to you.
• Let’s add Trend Lines
  o Right click on the graph. Go to Trend Lines > Show Trend Lines.
• Rename Sheet 2 to “Scatterplot”
• OK, there you have it. Your graph should now look like this:
III. Bubble Chart
The bubble chart will show Orders by Customer Name

- First drag Profit into the Color button
- Drag Sales into the Size button
- Drag Customer Name into the Detail Button
- If you do not have a bubble chart, please select “Packed Bubbles” in the Show Me window pane
- Now let’s give the Bubble Chart some labels
  - Drag Department into Labels
  - Drag Category into Labels
  - Drag Sales into Labels
  - Drag Profit into Labels
  - Edit the Labels to show the text “Sales” and “Profit”. Remember, click on the Label button, the
button next to Text: with the three dots, and type “Profit” and “Sales” into the Edit Label window.
  o Note: while you cannot see the labels now, you will be able to when we begin to filter our data in the Dashboard. This will make it easier for the user to quickly see the Department and Category, as well as the Profit and Sales numbers.

- We now have our Bubble Chart. Rename Sheet 3 to “Bubble Chart”.
- Your chart should look like this:

![Bubble Chart Image]

IV. Horizontal Bar Graph
The horizontal bar graph will show the Profit and Sales for specific items, categories, and departments.

- First drag Department, Category, and Item into Rows, so it looks like this:

<table>
<thead>
<tr>
<th>Rows</th>
<th>Department</th>
<th>Category</th>
<th>Item</th>
</tr>
</thead>
</table>

- Now drag Sales into Columns
- Remember, while we make be making tons of sales, we may not be making much of a profit. Let’s give the graph more color by dragging Profit into the Color button.
- Notice that we now have information about the Profit and Sales for each specific Item, as well as what Category and Department the Item resides in.
- Let's add a Filter to the graph so that we can use this filter later.
  - Drag Customer Name into Filters.
- Now rearrange the data to that it shows the Items from the Highest Sales to Lowest Sales. You can do this by hovering over the first line of the graph, and clicking the little bar icon that appears.
- We now have our bar graph. Rename Sheet 4 to “Product Bar Graph”
- Your graph should look like this:

![Image of bar graph]

Part 2: Creating Dashboard 1: Using Floating, Filters and Actions

Now that we have our individual worksheets, let's make them into an interactive dashboard. The first dashboard will use the Profitability Map, Scatterplot, and Bubble Chart. We will use the Product Bar Graph in another dashboard that interacts with the first one.

Also, remember the filters we used in the Profitability Map? We will use those filters, as well as create some actions that will make the dashboard interactive, fun, and of course, useful.

I. Creating the Initial Dashboard

- Click the Dashboard icon at the bottom of the worksheets.
- Notice that we have all four of our worksheets in the top left hand corner.
- First, drag the Profitability map into dashboard worksheet.
- Now drag the Scatterplot into the bottom half of the worksheet. You should now have the Profitability Map on the top half, and the Scatterplot on the bottom half.
Now we need to put the Bubble Chart somewhere. Let’s not give it its own tile in the dashboard. Meaning, we can place it on top of another Dashboard to save screen real estate.

So, select Bubble Chart. It should be highlighted. Now under “New Objects,” select Floating. This makes the graph able to float on top of another graph within the dashboard, instead of designating its own tile to the graph.

After you’ve selected “Floating”, drag the Bubble Chart on top of the Profitability Map, to the right of the South Eastern states. There is some extra white space there.

Now we really don’t need the Titles for any of the graphs. If you select the graphs in the dashboards, a gray box appears, with a live down arrow

Select each graph individually. Once the gray box appears, click the down arrow for each graph and unselect “Title.”

Your dashboard should now look something like this:
II. **Adding Filters**

- Now that we have an initial dashboard, let’s make it a bit more interactive by using Filters.
- Filters also you to manipulate and slice the data by common attributes. In our case, we added the Year, Region, and City.
- First, let’s add this to our Profitability Map on the Dashboard.
- Remember the gray down arrow? Select the Profitability Map in the Dashboard, click the down arrow, go to Quick Filters, and select Year of Order Date.
- Do this once again, and Select Region, and City. Notice that the Filters appear on the Right side of the Dashboard.
- Let’s start with the Year of Order Date Filter by making it a little bit more user-friendly. How about a slide option? Select the Year of Order Date Filter. The gray box will appear again. Click the down arrow, and select “Single Value Slider”. Now we can slide between the years.
- Now let’s drag the Year of Order date filter onto the Dashboard itself so that it is more easily seen. Click the down arrow, and Select “Floating”. This will allow us to drag the filter on top of the dashboard, just as we did with the Bubble Chart.
- Ok, time to drag the filter. Where should we put it? There is some white space to the left of the map. Let’s put it there. Drag the Year of Order Date Filter to the left of California. Resize it so it fits nicely onto the graph.
- Let’s reformat the filter some. We don’t really need the title of the filter, and don’t need the buttons either. Using the down arrow, unselect the Show Title option. Also, click the down arrow button, select Customize, and unselect “Show Buttons.”
- Now do the same with Region and City.
  - **Region:**
    - Format the Region filter as a Single Value (Dropdown)
    - Select Floating and Drag the filter under the Year filter on the Profitability Map
  - **City:**
    - Format the City filter as Single Value (Dropdown)
    - Also, click the down arrow and select Only Relevant Values. This makes sure that when you filter something by region or State, etc., it only shows the cities that are relevant to that region, state, etc.
    - Drag the City filter under Region
- Your Dashboard should now look like this:
III. Applying Filters to All Worksheets

- Now play around with the filter(s). Notice that they are only filtering the Profitability Map. Let’s make them filter all of the worksheets, and not just the map.
- Using the down button on each filter, select Apply to Worksheets, and select All Using This Data Source. Do this for the Year, Region, and City filters.
- Now notice when you filter the data, the Scatterplot and Bubble Chart change.

IV. Adding Actions to Filters

- Now, we also want to make the dashboard even more interactive by having the ability to select one of the individual states, and having that filter the data as well. Notice right now, if you select a state on the dashboard, the Scatterplot and the Bubble Chart do not change. To make this happen, we need to create an action.
- To do so, click on Dashboard at the top of the window, and select Actions.
- Actions allow you to create specific actions for different aspects of your dashboards to make them more interactive. We will create an action that allows us to select a state to filter our worksheets.
- In the Actions window, click Add Action and Select Filter.
• Rename the Filter1 Action to “State Selection.”
• Under “Source Sheets,” make sure to only check the Profitability Map. Remember, we want to use the map to filter the rest of the worksheets by our selection (i.e., choosing a state).
• Under Run action on, we need to click “Select.” This is the action itself. So choose “Select” because we want to select the state, and filter the rest of the data by our selected action.
• We also want to have the data filter when a single state is selected, so we have to select “Run on single select only.”
• Under Target Sheets, leave all of them checked. This allows us to filter all of the worksheets in the Dashboard by our single state selection.
• Under Target Filters, select All Fields.
• Click Ok, and OK again.
• Now, if you select a single state in your Profitability Map, you will notice that the Scatterplot and the Bubble Chart change.
• For example, if I select Oregon, the Dashboard would look like this:
V. Adding an Action to Scatterplot

Now let’s make a deeper filter, so that we can see the specific items that each customer purchased. To do this, we need to make an action that allows us to select the individual customer from the Scatterplot, and have that selection filter the products the individual purchased in the Bubble Chart. In other words, if we click one of the shapes in the Scatterplot, we want only the Bubble Chart to show the products the customer purchased.

- First, go to Dashboard > Actions > Add Action > Filter
- Name this Action “Scatterplot Selection”
- Under the Source Sheets, we only want the Scatterplot as the source of the action, right? So, make sure only Scatterplot is selected.
- Under the Target Sheets, we only want the Bubble Chart to change. So, only select the Bubble Chart.
- Under Run action on, select “Select”. Leave Run on single select unchecked, because then we can filter by multiple customers (e.g., the ones with the highest profit).
- Click OK and click OK again.
- Now, notice when you select one of the shapes (or multiple shapes) in the Scatterplot, the Bubble Chart (and only the Bubble Chart) changes to show you the Department, Category, Profit and Sales for that individual customer. Pretty sweet, eh?
- For example, if I select Texas in my Map, and select the highest Profit, I see that it is Furniture, and specifically Chairs & Chairmats.
- Note: In this screen shot below, I also moved the Profit scale under the Profitability Map Filters, and moved the Region and Department labels to the Scatterplot. (You can do this by making them “floating” and dragging them onto your sheet). When doing so, you may need to rearrange your Bubble chart so that it doesn’t cover up any states.
VI. Adding a Second Dashboard that links from clicking the Bubble Chart
Now let’s use the Product Bar Graph to give the dashboard user a more specific insight into the items that the individual customer purchased. To do this, we want to be able to click on the bubbles in the Bubble Chart, and that will link us to a separate Dashboard that shows us the individual product names, sales, and profit information.

Create Dashboard #2

- First we need to create a second dashboard. To so this, open another Dashboard worksheet.
- We want to use the Product Bar Graph
- Drag the Product Bar Graph worksheet onto the Dashboard.
- Resize it so that it fits horizontally into the worksheet.

Adding Action Button that Links Bubble Chart to Product Bar Graph

- Go back to the Dashboard 1, select Dashboard > Actions > Filter
- Name the action “Bubble Selection”
- Source Sheets:
  - Make sure only Bubble Chart is checked
- Target Sheets:
  - Make Sure you click the Drop Down Menu and Select “Dashboard 2”
  - Make sure Product Bar Graph is selection
- Run action on:
  - Select “Select”
- Target Fields:
  - Select “All Fields”
- Click Ok, and OK again.
- Now, when you select the Bubble Chart, this will take you to the Product Bar Graph on Dashboard 2.
- Now we can see the individual products that the
- Also, let’s give the title a little something more meaningful than “Product Bar Graph.”
- Double click the title
- Delete <Sheet Name>
- In the Edit Title window, click Insert
- Now insert the fields you think are most appropriate.

VII. Adding a URL Action
Now, let’s have some fun and add some pictures of the items to Dashboard 2.

- Go to Dashboard 2
Go to Dashboards > Actions > Add Action > URL
Name the Action: “Item Image URL”
In the URL box, type the following URL:
  o http://www.bing.com/images/search?q=
Then, clicking the arrow to the Right , select <Item>
  o This places the Item (the product Name) into the search query, and Bing will return an image of the product you select.

Now go to Dashboard 2.
On the left, you will notice the different types of objects you can drag onto the Dashboard (e.g., Horizontal, Vertical, Image, Web Page, Text, Blank).
Drag the Web Page object to the bottom of Dashboard 2.
An Edit URL window pops up. Simply click OK.
Now, in Dashboard 2, double click the bar of the Items in your bar graph, and you should have images of the Products display.
Your Dashboard 2 should look something like this:
VIII. Rename Your Dashboards

- Dashboard 1:
  - USA Sales Analysis
- Dashboard 2:
  - Product Analysis
- SAVE YOUR WORK!!!!