WorkShop9

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Instructions:

- The workshop can be completed **individually** or **in team of two (recommended)** (with the pair working together and receiving the same mark).
- This workshop is worth 2.5% of the total course grade and will be evaluated through your written submission.
- Please submit the submission file(s) through Blackboard. **Only one person must submit for the group and only the last submission will be marked**.

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Part One: Introduction

The business world is *enamored* by dashboards. Why? Few static reporting tools emulate the interactivity and drill down capabilities of a dashboard, making dashboards an incredibly powerful decision-making tool.

In normally, you will likely create numerous data visualizations. Each of these visualizations gives you a snapshot of a story within the data. Each insight into the data answers a question or two. At times, the discovery and analysis phase are enough for you to make a key decision and the cycle is complete. In other cases, you will need to bring the snapshots together to communicate a complete and compelling story to your intended audience. Tableau allows you to bring together related data visualizations into a single dashboard. This dashboard could be a static view of various aspects of the data or a fully interactive environment, allowing users to dynamically filter, drill down, and interact with the data visualizations.

Allowing the audience to interact with a dashboard and change the details being displayed provides a means to shift context–leading to new and potentially important discoveries. Assembling dashboards in Tableau is fun for the designer and good dashboard design can delight audience.

Dashboard definition

From a Tableau perspective, a **dashboard** is an arrangement of individual visualizations, along with other components such as legends, filters, parameters, text, containers, images, extensions, buttons, and web objects that are arranged on a single canvas. Ideally, the visualizations and components should work together to tell a complete and compelling data story. Dashboards are usually (but not always) interactive.

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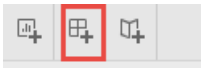
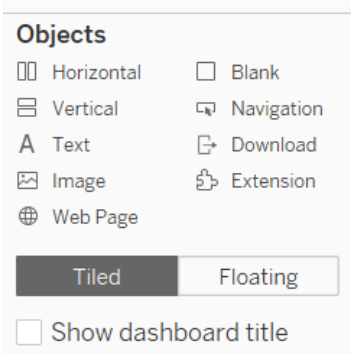
Create an empty dashboard tab

Create or Open a new dashboard tab like opening a new worksheet. You can click the **New Dashboard** icon at the bottom of the workbook, indicated by the box divided into four sections



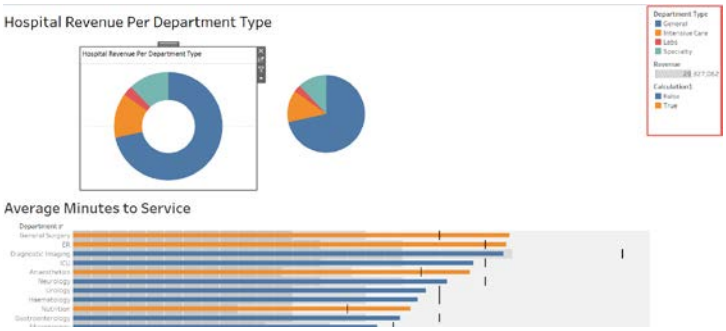
Objects

Dashboards are made up of objects that are arranged on a canvas. You'll see a list of objects that can be added to a dashboard in the left-hand pane of a dashboard:



In addition to the objects that you can add through the sidebar, there are other objects that may be applicable to a given dashboard:

- **Filters**: These will appear as controls for the end user so that they can select values to filter. The power of a dashboard is the ability to set up filters and interactive components to change the data in the visualization to ultimately enhance your users' analysis. In a dashboard, a good rule to follow is to organize the filters as a list on the right side of the dashboard.



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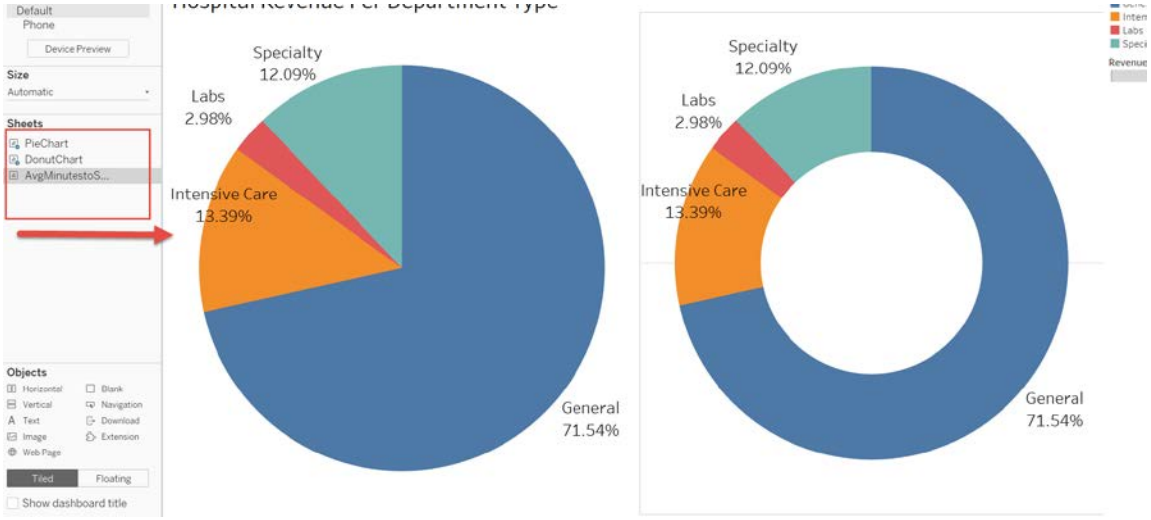
- **Parameters**: Like filters, these will show up as controls for the end user to select a parameter option
- **Page controls**: These are controls that give the end user options for paging through the data
- **Legends**: These include color, size, and shape legends to help the end user understand various visualizations
- **Highlighters**: These allow the user to highlight various dimension values within views
- **Dashboard title**: A special text object that displays the name of the dashboard sheet by default

Adding Worksheet Visualizations

Once a dashboard sheet is created, click the worksheet views you built (listed under **Sheets** to the left) and drag them to your dashboard sheet on the right. A gray, shaded area indicates where you can drop your visualization:



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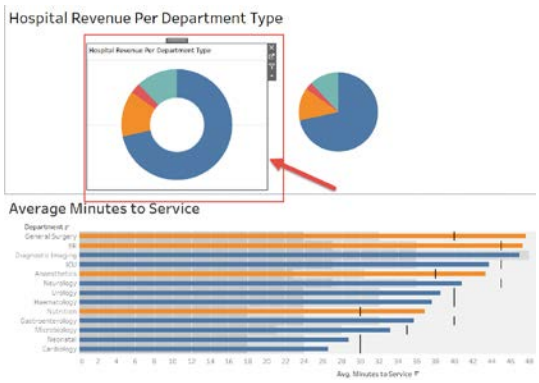
Tiled vs. Floating Objects:

- **Tiled:** Tiled visualizations become part of a single-layer grid that resizes based on the dashboard size. Pairs well with the automatic canvas selection. **Tiled visualizations do not overlap.**
  - **If it is a tiled object, it will snap into the dashboard or layout container where you drop it.**
- **Floating:** Free-floating visualizations that can be layered over other objects. Equivalent to Microsoft Word Wrap Text: In front of text.
  - If it is a floating object, it will float over the dashboard in layers.
- In the example below, a DonutChart floats over tiled visualizations:



Fonts to Guide Analysis:

Use font to guide the Tableau viewers through a visualization, specifically font selection, size, and formatting.

- **Font selection:** Limit the number of fonts to one or two, and a second font only if the font selected for the words on the view does not look good when applied to the numbers on the view. Occasionally, use a secondary or even tertiary font if there is a special section on the dashboard where you want to call attention.
- **Font size:** Use a hierarchy with larger or smaller sizes to help denote where new sections begin and/or communicate the relative importance of sections. For example, the title font may be 18 point; section-headers 14 point; and annotations or tooltips 10 point.
- **Font format:** Another way to explain how sections are broken up and can also be used to provide instructions. For example, I may bold titles and section headers, but use italic lettering to communicate that the user can use a filter or dashboard action. When you consistently use the same formats as a subtle way to explain the user experience of your dashboards, your users will become conditioned to know how to use them.

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Tableau Stories

A **story** is a sequence of visualizations that work together to convey information. You can create stories to tell a data narrative, provide context, demonstrate how decisions relate to outcomes, or simply make a compelling case with your data. A story is a sheet, so the methods to create, name, and manage worksheets and dashboards also apply to stories. Each individual sheet in a story is called a **story point**. The rationale for using Tableau stories is they are used to highlight the important parts of your data that you want to show to an audience. These emphasized points should answer your research question.

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Part One: Create a Dashboard - is least profitable always unprofitable?

Let's say you've been tasked with helping management find which items are the least profitable. Management feels that most of the least profitable items should be eliminated from their inventory. However, since you've done your analysis, you've discovered that certain items, while not profitable overall, have made profit at times in various locations. Your primary objective is to give management the ability to quickly see an analysis of the least profitable items to identify whether an item has always been unprofitable. This workshop will combine aspects of a guided analytics dashboard and an exploratory tool.

Step1. Download **Superstore.xlsx** from blackboard.
Step2. Open Tableau Desktop, and then connect to Microsoft Excel file

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Bar Chart: Overall Profit by Category

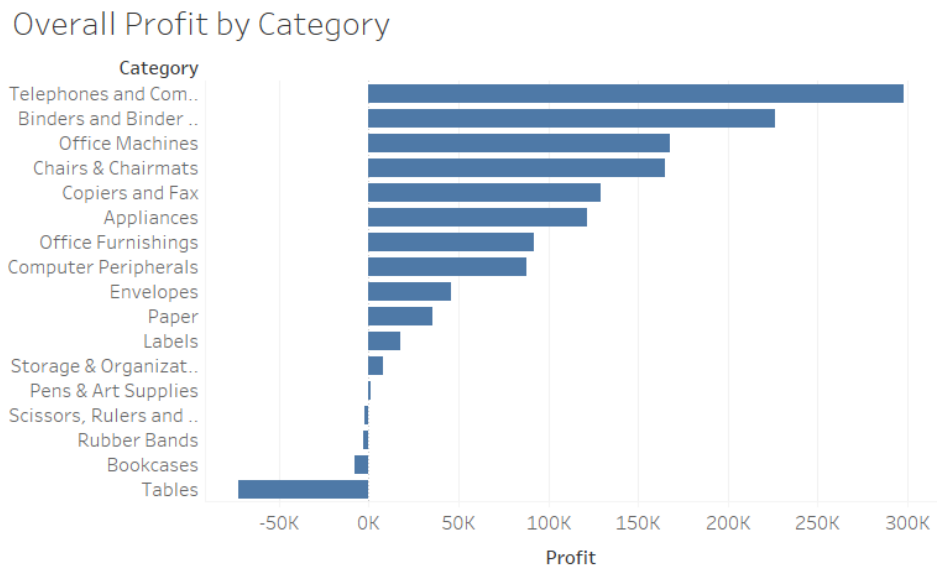
Step3. Create New Sheet, name it as "**Overall Profit by Category**"

Step4. Create a bar chart showing **profit** by **category**. Sort the categories in descending order by the sum of profit.

Step5. Add the **Department** field to Filters and show a filter. To accomplish this, use the drop-down menu of the **Department** field in the data pane and select Show Filter.

Question 1. Copy and Paste the created dashboard **Overall Profit by Category** here. Replace the figure below.

<<<<<This is a draft line Chart>>>>>



Step6. Save your tableau file as **WS09.twbx**.

Hint:

- **Pay attention to data-to-ink ratio**
- **Apply Pre-Attentive Attributes to your Chart**
- **Apply design concepts to your Chart**
- **Add any annotation or labeling that can help you.**

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Bar Chart: Top 10 Least Profitable Items

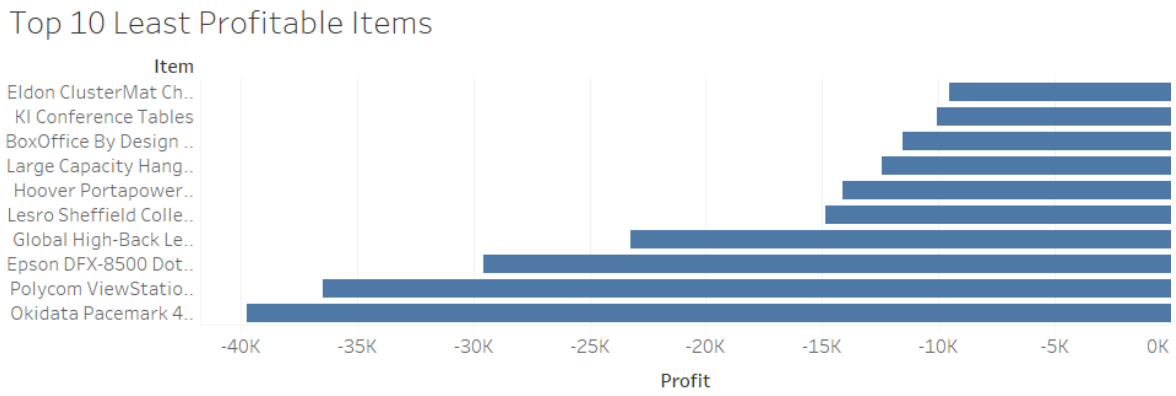
Step7. Create New Sheet, name it as "**Top 10 Least Profitable Items**"

Step8. Create a bar chart showing **profit** by **item**. Sort the items in descending order by the sum of profit.

Step9. You'll notice that there are too many items to see at one time. For your objectives on this dashboard, you can limit the items to only the top 10 least profitable. ***Add the Item field to the filters shelf***, select the Top tab, and adjust the settings to filter By field. Specify the **Bottom** 10 by **Sum(Profit)**.

Question 2. Copy and Paste the created dashboard **Top 10 Least Profitable Items** here. Replace the figure below.

<<<<<This is a draft line Chart>>>>>



Step10. Save your tableau file as **WS09.twbx**.

Hint:

- **Pay attention to data-to-ink ratio**
- **Apply Pre-Attentive Attributes to your Chart**
- **Apply design concepts to your Chart**
- **Add any annotation or labeling that can help you.**

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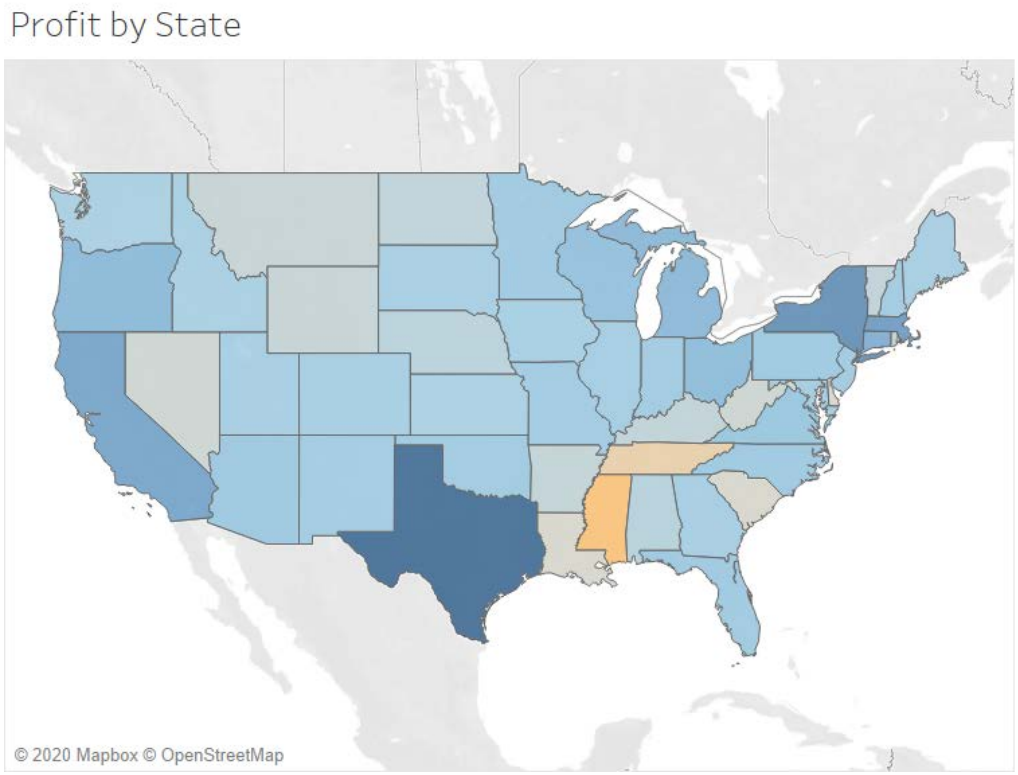
Map Chart: Profit by State

Step11. Create New Sheet, name it as "**Profit by State**"

Step12. Create a filled map of **profit** by **state**. You can accomplish this rather quickly by double-clicking the **State** field in the data window and then dropping **Profit** on the Color shelf.

Question 3. Copy and Paste the created dashboard **Profit by State** here. Replace the figure below.

<<<<<This is a draft line Chart>>>>>



Step13. Save your tableau file as **WS09.twbx**.

Hint:

- **Pay attention to data-to-ink ratio**
- **Apply Pre-Attentive Attributes to your Chart**
- **Apply design concepts to your Chart**
- **Add any annotation or labeling that can help you.**

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Line Chart: Profit Trend

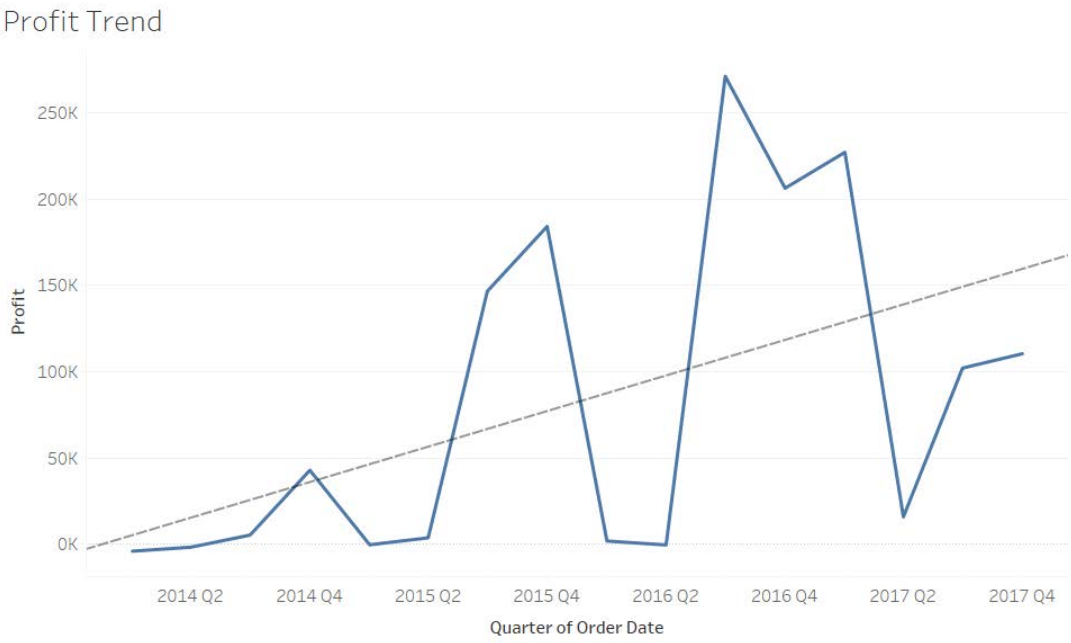
Step14. Create New Sheet, name it as "**Profit Trend**"

Step15. Create chart shows profits were made or lost. Ensure that the **Order Date** field has been added as the **Quarter** date value and that it is continuous (**green**).

Step16. Add a linear trend line. To do this, switch to the Analytics tab of the left sidebar and drag Trend Line from Model to the view. Alternatively, right-click a blank area of the canvas of the view and select Trend Lines | Show Trend Lines.

Question 4. Copy and Paste the created dashboard **Profit Trend** here. Replace the figure below.

<<<<<This is a draft line Chart>>>>>



Step17. Save your tableau file as **WS09.twbx**.

Hint:

- **Pay attention to data-to-ink ratio**
- **Apply Pre-Attentive Attributes to your Chart**
- **Apply design concepts to your Chart**
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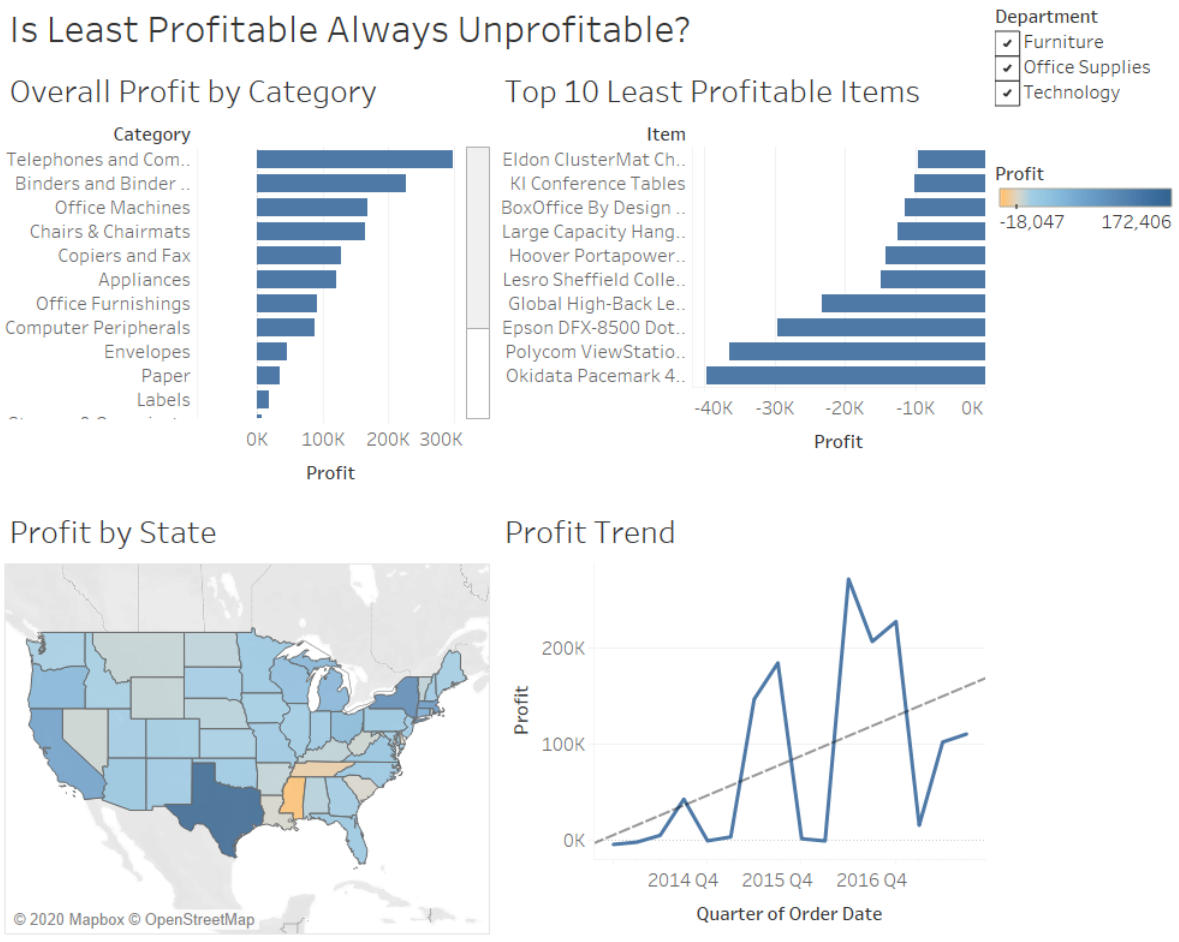
Creating the dashboard

At this point, you have all the necessary views to achieve the objectives for your dashboard. Now, all that remains is to arrange them and enable the interactivity that's required to effectively tell the story:

Step18. Create a new dashboard by clicking the New Dashboard tab to the right of all existing worksheet tabs or by selecting Dashboard | New Dashboard from the menu.
Step19. Rename the new dashboard as **Is Least Profitable Always Unprofitable?**.
Step20. At the bottom of the left sidebar, check Show dashboard title.
Step21. Add the views to the dashboard by dragging them from the Dashboard pane of the left sidebar and dropping them into the dashboard canvas. Arrange them as follows:



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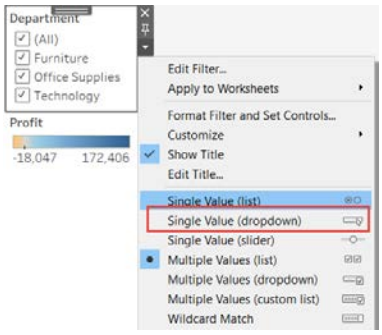
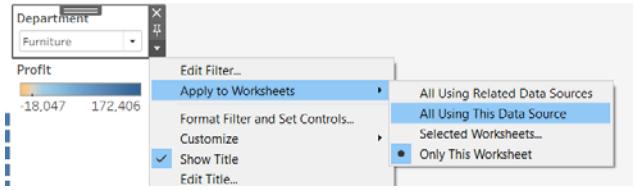
Step22. Do all the necessary reposition and resize of these elements and views.

Step23. Use the drop-down menu on the **Department** filter and change the control to a Single Value (dropdown).



Step24. You'll notice that changing the value of the filter only changes the Overall Profit by Category view. You can adjust which views the filter applies to by using the drop-down menu. Using the dropdown menu, **select Apply to Worksheets | All Using This Data Source**.



Step25. From the left sidebar, drag and drop a Text object above Overall Profit by Category and enter the following instructions: Font size **Size 10**, Font color is Blue

```
1. Select a Department from the dropdown
2. Select a category below
3. Select an Item below
```

Step26. Using the grip, move the Department filter immediately above the Top 10 Least Profitable Items view.

Step27. Size the text object to align the Top 10 view with the Overall view

Step28. Move the Profit color legend below the Profit by State view.

Step29. Use the drop-down menu of Overall Profit by Category to Fit | Entire View. This will ensure that all the categories are visible without the need for a scrollbar.

Step30. Additionally, fit the Top 10 Least Profitable Items to Entire View.

Step31. Save your tableau file as **WS09.twbx**.

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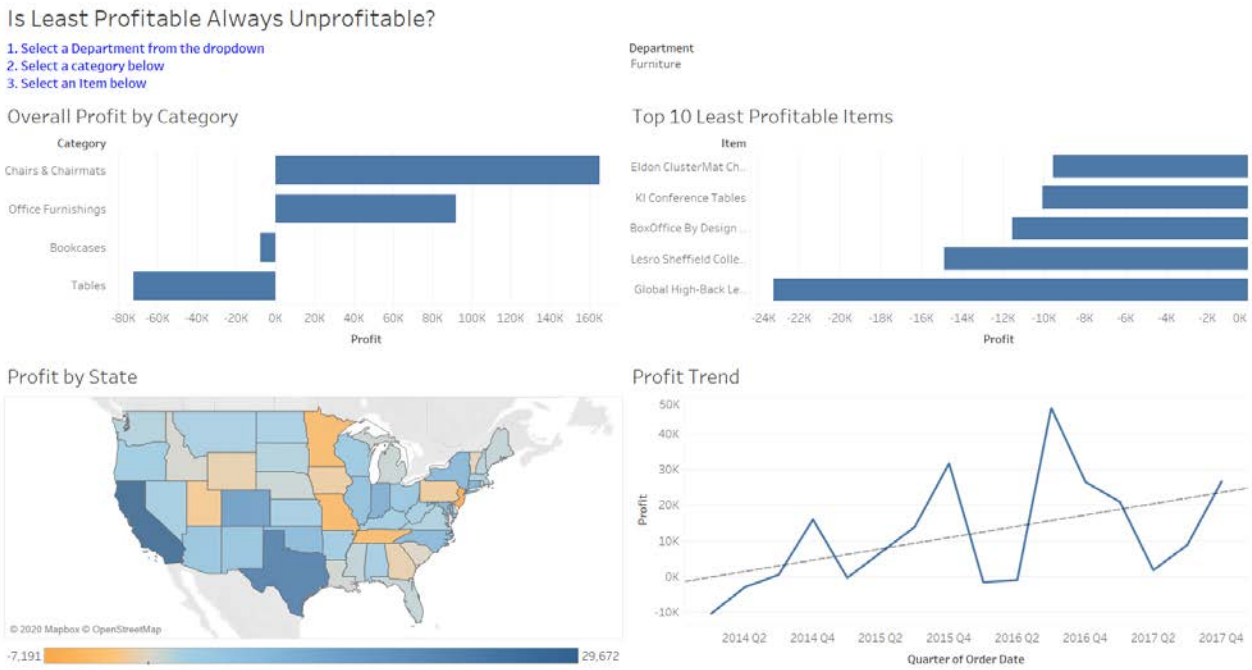
Question 5. Copy and Paste the created dashboard **Is Least Profitable Always Unprofitable?** here. Replace the figure below.

<<<<<This is a draft line Dashboard>>>>>



Hint:

- **Pay attention to data-to-ink ratio**
- **Apply Pre-Attentive Attributes to your Chart**
- **Apply design concepts to your Chart**
- **Add any annotation or labeling that can help you.**

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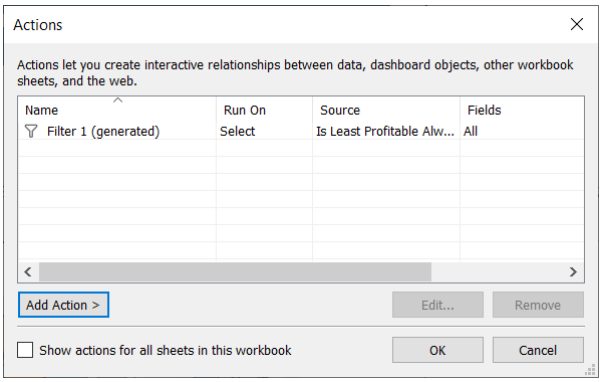
Implementing actions to guide the story

You now have a framework that will support the telling of the data story. Your audience will be able to locate least profitable items within the context of a selected category. Then, the selection of an item will answer the question as to whether it has always been **unprofitable** in every location. To enable this flow and meet your objectives, you'll often need to enable interactivity. In this case, we'll use actions. We'll conclude this example with some specific steps and then unpack the intricacies of actions:

Step32. Click the Use as Filter button on the Overall Profit by Category view. This will cause the view to be used as an interactive filter for the entire dashboard. That is, when the user selects a bar, all other views will be filtered based on the selection:

Step33. From the main menu, select Dashboard | Actions. You'll see a list containing one action named **Filter 1 (generated)**. This is the action that was created when you selected Use as Filter previously:



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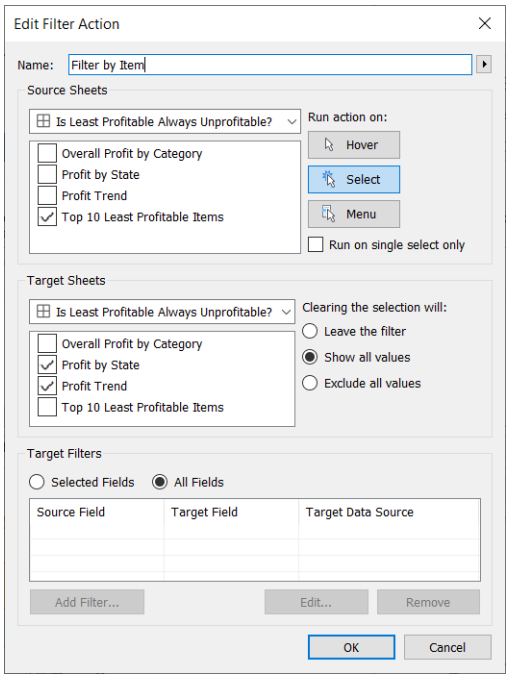
Step34. Click the **Add Action > button** and **select Filter**. The resulting dialog gives you options for selecting the source and target, as well as additional options for the action.

Step35. Here, we want an action that filters everything except the **Overall Profit by Category** view when the user selects an item. In the Add Filter Action dialog, set Source Sheets to **Top 10 Least Profitable Items**, and Target Sheets to **Profit by State** and **Profit Trend**. Make sure that the action is set to run on **Select**. Name the filter **Filter by Item**, and then click OK on this dialog. Do the same on the Actions dialog:



Step36. Test your filters by

a. Selecting a Department from the drop-down will filter the entire dashboard
b. Selecting a Category (clicking a bar or header) will filter the entire dashboard to that selection
c. Selecting an Item (clicking a bar or header) will filter the **Profit by State** and **Profit Trend** dashboards

Step37. Save your tableau file as **WS09.twbx**.

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Deliverables:

SENECA'S ACADEMIC HONESTY POLICY
As a Seneca student, you must conduct yourself in an honest and trustworthy manner in all aspects of your academic career. A dishonest attempt to obtain an academic advantage is considered an offense and will not be tolerated by the College.

Add this declaration to your submission file:

I/WE, ---------- (mention your name/names), declare that the attached assignment is our own work in accordance with the **Seneca Academic Honesty Policy**. I/We do not copy any part of this assignment, manually or electronically, from any other source including web sites, unless specified as references. I do not distribute my work to other students.

	Name	Task(s)
1		
2		

Using Blackboard, submit the following files

1. **Report as Pdf file**
2. **WS09.twbx**

If you work on team of two then save as

<**StudentID1**>_<**StudentID2**>_<**Lastname1**>_<**Lastname2**>_ws9.???

If you work on team of two then save as

<**StudentID**>_<**Lastname**>_ws9.???