Tableau Bootcamp Examples & Solutions

Questions based on Tableau 2021.2.7 Sample - Superstore data, hosted [here](https://github.com/cjgardne/tableau-bootcamp).

Question List:

Example 1: Gaining familiarity with the Tableau interface

Using the provided data set, determine the profit for the Technology category in 2021. Was it higher or lower than 2020?

Example 2: Cleaning up previously built visualization

Using the previously created visualization, apply some basic cleanup to make the chart more accessible and easier to read.

Example 3: Use filters to display previous 3 years

Using the previously created visualization, apply a filter to limit the visualization to only include the previous 3 years.

Example 4: Use reference lines to compare granular data to overall

Create a visualization showing 2019 profit by category and region. Then use a reference line to determine which region has all Product Categories fall below the overall Product Category average Profits.

Example 5: Use calculations to find resulting values if they increase in future years

Assume your manager asks what the results would look like if sales increased by 10% in 2022. Make a calculation that displays sales values of 2021 plus 10%. Use measure names and measure values to show the actual Sales and the new value side by side.

Example 6: Calculations with Aggregation Issues

Your leadership is interested in how much profit the company is making per total sales. They want to know if the company is making more or less profit per sale from 2018 to 2021.

Example 7: Use sets and table calcs to find % of profit for top N sales customers

Your management wants to reward the top customers by Sales, but before they do, they want to know how much money those top customers bring in. Create a set of the top 25 customers by Sales, then determine what percentage of total Profit these customers represent.

Example 8: Dynamic Top N

Give your management control of the number of top customers they wish to see from the previous example. Create a parameter with integers from 1-100. Integrate this parameter into the top customers set you created in Example 7. What percent of total profit do the top 10 customers represent? What about the top 50?

Solutions:

Example 1: Gaining familiarity with the Tableau interface

Using the provided data set, determine the profit for the Technology category in 2021. Was it higher or lower than 2020?

**Method 1**

1. Drag Category and Year to the Columns card. While order is not important it is encouraged to have Category to the left of Year, as this will be organized by Category and then by Year
2. Drag Profit to the Rows card
3. Drag another Profit to Label

**Method 2**

1. Drag Category to Rows card
2. Drag Year to Columns card
3. Drag Profit to Text card

**Solution: 2021 Technology has $50,684 Profit, which was higher than 2020.**

Example 2: Cleaning up previously built visualization

Using the previously created visualization, apply some basic cleanup to make the chart more accessible and easier to read.

**Updating Method 1 from Above**

1. Right click anywhere on the visualization and choose format
2. On the text tab, Adjust the header to black text from gray
3. Choose the axis tab and set rulers to black from gray
4. While on the axis tab, set the axis ticks to black as well
5. On the Marks card, click on color - change opacity to 75% and add black border

Example 3: Use filters to display previous 3 years

Using the previously created visualization, apply a filter to limit the visualization to only include the previous 3 years.

**Updating Either Method Above**

1. On an existing visualization, drag Order Date to filters
2. When prompted, choose Relative Date
3. Set the date type to Years
4. Change setting to Last N Years and put 3 in the box
5. Click Ok and verify results

**Solution (example):**

**Chart, bar chart

Description automatically generated**

Example 4: Use reference lines to compare granular data to overall

Create a visualization showing 2019 profit by category and region. Then use a reference line to determine which region has all Product Categories fall below the overall Product Category average Profits.

1. Create a new visualization.
2. Add Region and Category to the Columns card. They should appear in that order left-to-right so within each region, we see all 3 categories.
3. Drag Profits to the Rows card
4. Drag Order Date to Filters, select discrete Years, and select 2019
5. Right click on the Y axis and choose Add Reference Line
   1. Set the scope to Entire Table
   2. Set the Value to Profit Average
   3. Adjust labels, line, and fills as desired

**Solution: The South Region had all Categories of goods fall below the overall average for all goods in all regions in 2019.**

Example 5: Use calculations to find resulting values if they increase in future years

Assume your manager asks what the results would look like if sales increased by 10% in 2022. Make a calculation that displays sales values of 2021 plus 10%. Use measure names and measure values to show the actual Sales and the new value side by side.

1. Create a calculated field named *Sales + 10%* that adds 10% to Sales and click OK
   1. [Sales]\*1.1
2. Drag Measure Names to the Filter area
3. Select Sales and Sales + 10%
4. Drag Measure Names from the data pane to Rows
5. Drag Measure Values to Text
6. Drag Order Date to Columns (Could also filter order date to 2021)

**Solution:**

**The 2021 Sales value was $733,215. The value increased by 10% is $806,537**

Example 6: Calculations with Aggregation Issues

Your leadership is interested in how much profit the company is making per total sales. They want to know if the company is making more or less profit per sale from 2018 to 2021.

1. Create a calculated field named *Profit to Sales Ratio*. Be sure to aggregate appropriately.
   1. SUM([Profit]) / SUM([Sales])
2. Add the new calculated field to Rows card
3. Add Order Date to the Columns card
4. Right click on the newly created field and set the format or set the default format to %

**Solution:**

**The Profit to Sales Ratio in 2018 was 10.2% and in 2021 was 12.74%. This shows an increase between the two years, although the chart illustrates an increase followed by a small decline.**

Example 7: Use sets and table calcs to find % of profit for top N sales customers

Your management wants to reward the top customers by Sales, but before they do, they want to know how much money those top customers bring in. Create a set of the top 25 customers by Sales, then determine what percentage of total Profit these customers represent.

1. Create a set based on the Customer Name field by right clicking on the field and choosing Create-Set.
   1. Name the set as desired (*Top Customers*)
   2. Choose the last tab (Top) to create the set based on a top N criteria
   3. Change the setting to By field
   4. Switch the next fields to Top 25 by Sales Max
   5. Click Ok
2. Drag this newly created field to the Rows card - this should show in and out (those who are in the top 25 customers by Sales and those who are not).
3. Now we need to know how much profit they brought in - add profit to the Text card
4. We now know the actual amount of profit, but what we want is the percentage of the total profit these customers represent. Right click on the added Profit pill and choose Quick Table Calculation - Percent of Total

**Solution:**

**The top 25 Customers by Sales represent 22.16% of all the Profit.**

Example 8: Dynamic Top N

Give your management control of the number of top customers they wish to see from the previous example. Create a parameter with integers from 1-100. Integrate this parameter into the top customers set you created in Example 7. What percent of total profit do the top 10 customers represent? What about the top 50?

1. Click on the pull down at the top of the data field list and choose Create - Parameter
   1. Name your parameter as you desire
   2. Set data type to integer
   3. Switch the default value to the current value of 25
   4. Change allowable values to a Range from 1 to 100 with a step size of 1
   5. Click OK
2. On your existing visual with percent of total profit from the previous example, right click on the newly created parameter and choose Show Parameter to display the parameter on the right.
3. Right click on your existing Set from Example 7. Choose Edit Set
4. On the Top tab, click the pull-down where we initially typed 25.
5. Choose the parameter you just clicked.
6. Click Ok
7. Adjust the parameter value up and down to get the solutions.

**Solution:**

**The top 10 Customers by Sales account for 15% of the total Profit. The top 50 for 28.38%**