Activity Overview

In this activity, you will create charts for the roleplay scenario you're working on. You'll visualize data from the Minnesota Department of Transportation to help them improve infrastructure on the Minneapolis interstate. This activity will help you to brainstorm how to connect stakeholders' business needs to charts and visual designs. You will apply everything that you have learned up to this point about chart design to sketch out a mockup first, and then design functional BI charts. You can begin by reading the hints in this activity, or begin on your own and refer to this activity if you need help.
Be sure to complete this activity before moving on. The next course item will provide you with a completed exemplar to compare to your own work. You will not be able to access the exemplar until you have completed this activity.

Scenario

Review the following scenario. Then complete the step-by-step instructions.

As a refresher, you've been tasked with creating a business intelligence visualization to help the Minnesota Department of Transportation improve highway infrastructure. You had a video call with your stakeholder and received an email with details of their needs. Refer to the Role-play with a stakeholder video and Email from your supervisor: Chart design reading for more context on the scenario.
The most important charts you need to make should represent the following needs:

Traffic volume throughout the year; ideally organized by year, month, week, day, and hour

Traffic volume in various weather conditions

Traffic volume on different holidays

You now have the freedom to answer however you think is best. You might create one chart for each of these needs, combine them into fewer charts, or create more charts to expand your insights. You might also experiment with different approaches to practice your design strategies. In an upcoming activity, you'll have the opportunity to organize the charts you make into a dashboard.

Step-By-Step Instructions

Follow the instructions to complete each step of the activity. Then, answer the questions at the end of the activity before going to the next course item to compare your work to a completed exemplar.

Part 1 - Plan your charts

Step 1: Access and examine the data

To use the data for this course item, download the following attachment.

Metro_Interstate_Traffic_Volume
CSV File

Step 2: Load your data into Tableau Public

Log into Tableau Public. On your profile page, click Create a Viz.

This will open the Connect to Data window. Load your data into Tableau Public by clicking Upload from Computer, then select the Metro Interstate Traffic Volume Data.csv file you downloaded.

Step 3: Create a mockup

Earlier in this course, you learned how to create a pen-and-paper mockup. Now, you should make one for this dashboard project. It can help you brainstorm the kinds of charts you'll need, as well as the arrangement of those charts in your dashboard.

Part 2 - Create your charts

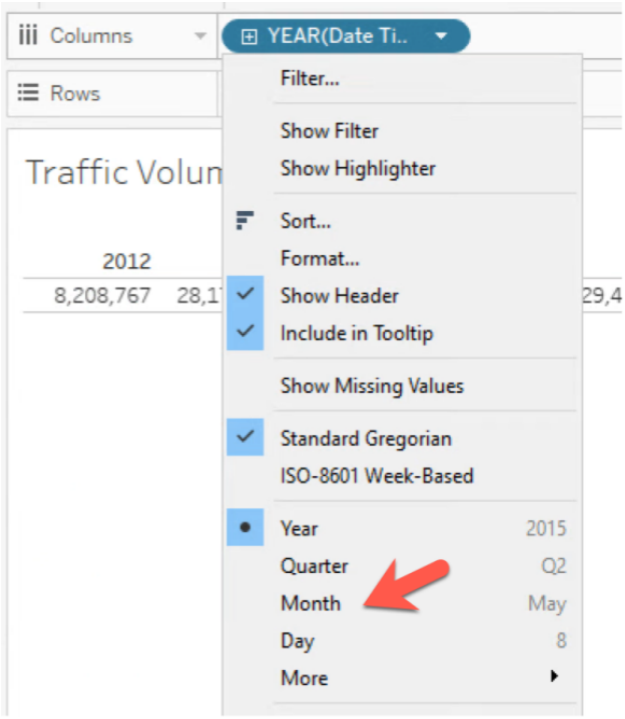
Step 1: Think about which timescales to include

Your stakeholder wants to be able to view the data at multiple timescales. They want to examine a monthly view to know which days are the busiest, then examine a daily timescale to find which times of day have the highest traffic volume.

Before you begin creating a chart and deciding which timescales to include in your visualization, return to the email from your supervisor. Make sure to evaluate all the timescales that your stakeholder asked for, then determine which charts will be appropriate to use. When you create your charts, ensure that they meet your stakeholders' needs while also being the clearest and most effective solution to their problem. You might decide that one of the timescales won't be very helpful for answering their questions. Or you might determine that all of them are necessary, so you can include all of them in your chart.

Step 2: Change timescales

To change the timescale, right-click the date dimension you're using. In the dropdown menu, select *Year*, *Quarter*, *Month*, or *Day* to change the timescale of your chart. You can also instruct your stakeholders to do this when they want to switch between timescales.



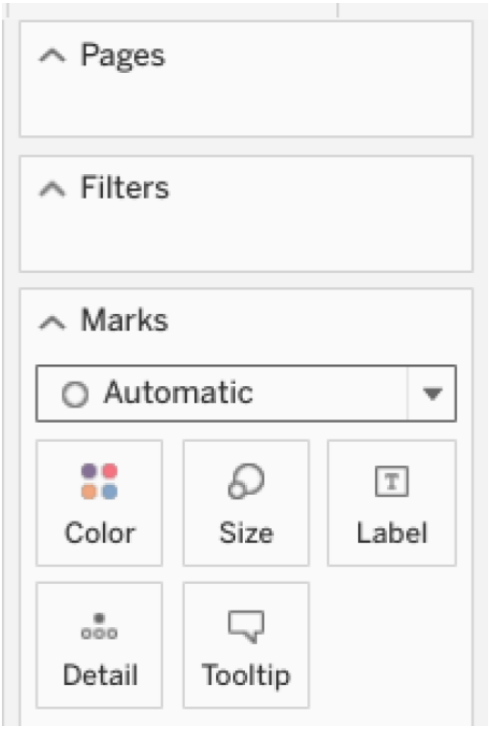
Step 3: Think about which filters to include

You might find that filters can help you answer your stakeholder's questions. For example, you can use a filter to compare holiday traffic with traffic from normal days.

Before you begin creating a chart and deciding which filters to include in your visualization, return to the email from your supervisor. Review your stakeholder's requests and decide what kinds of filters would be most helpful in your visualization.

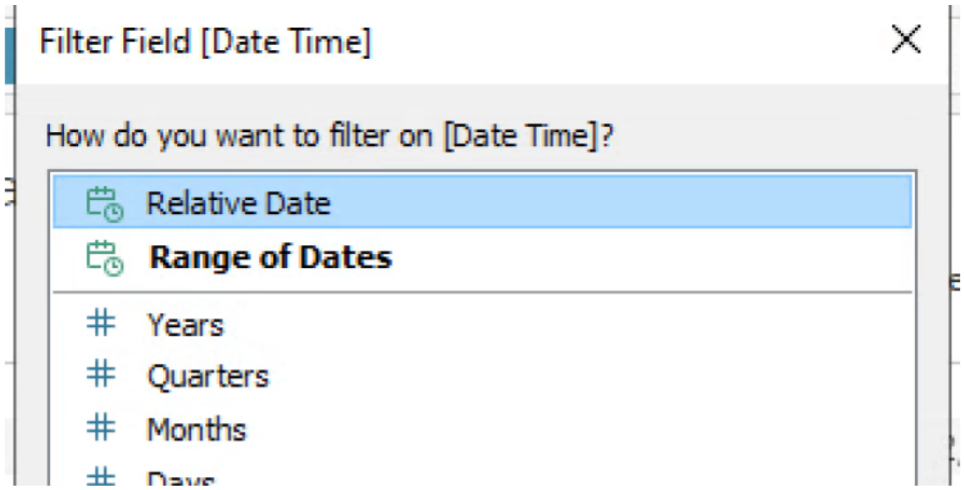
Step 4: Add filters

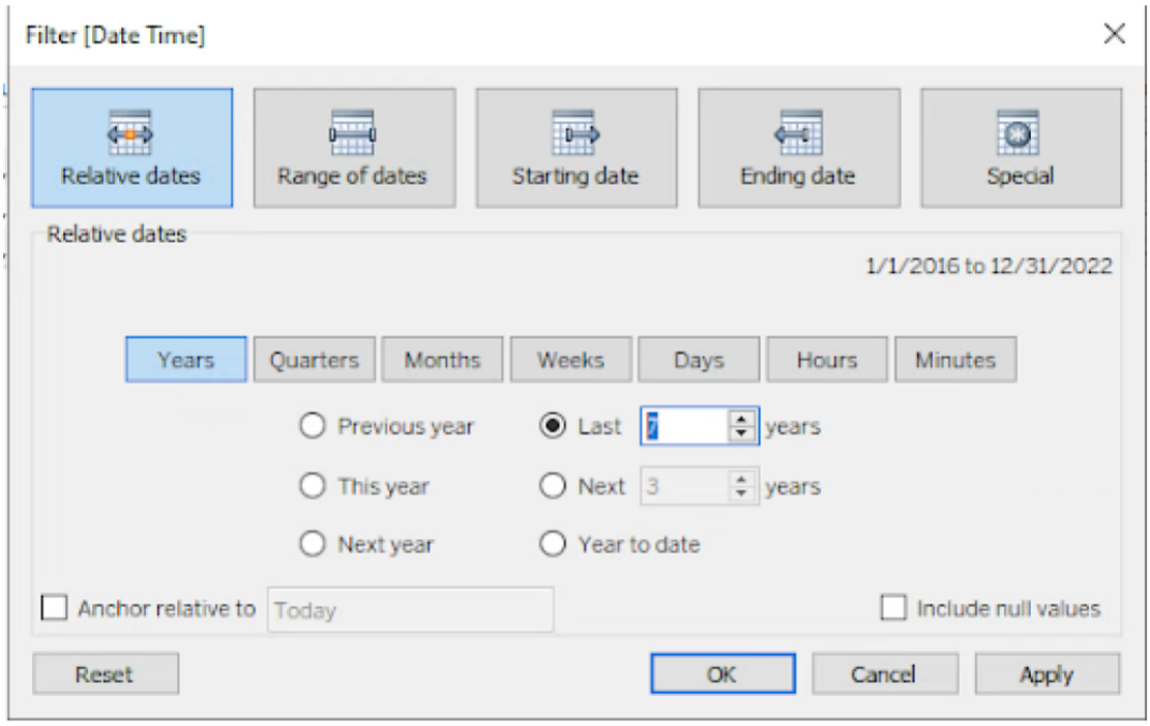
To add a filter to your chart, you can drag and drop a dimension into the *Filters* section of the interface.



When you do this, a pop-up menu will open.

An example of this is when you drag the *Date Time* dimension to *Filters*. Then, you can select *Relative Date* to show a range of dates relative to the current date.



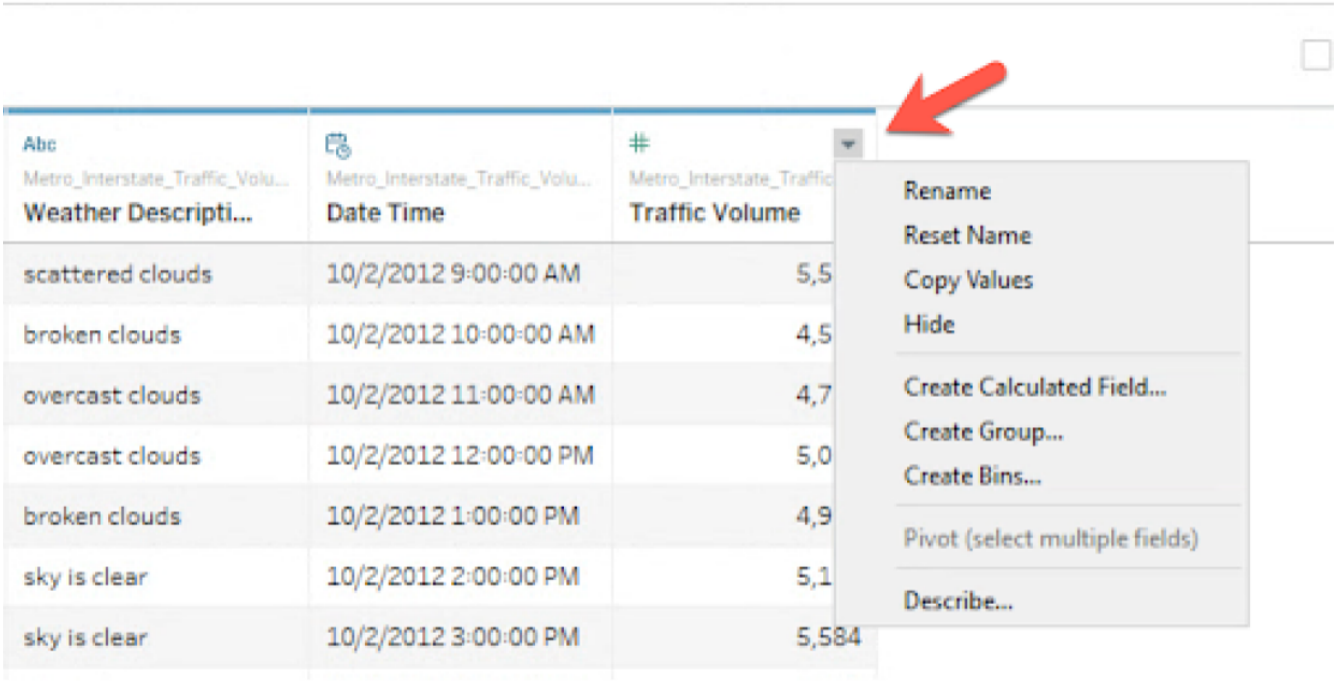


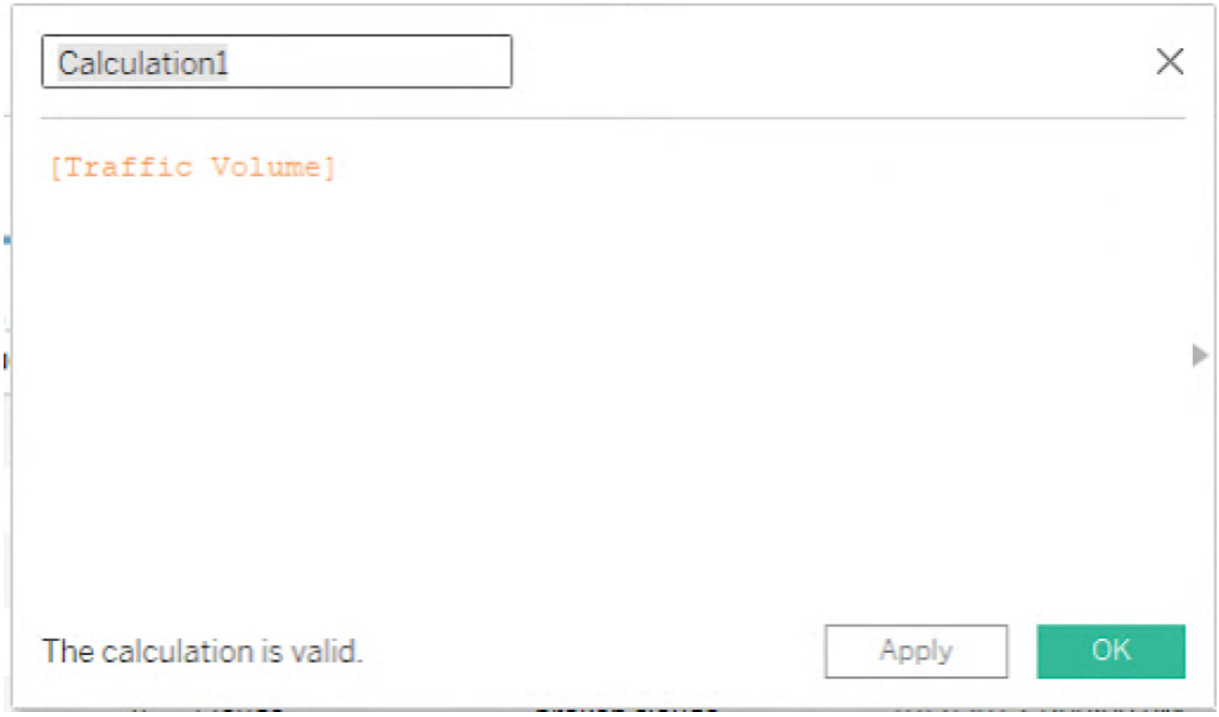
You could use this to show only data from the previous seven days, regardless of the date that you view the chart. You can also select any other specific window of time.

Step 5: Make calculations

Since your stakeholder asked about the holidays with the highest traffic volume, it might help to make a calculation in Tableau. You used calculations in the analysis stage of the BI process, but you can also use them in visualizations. If you're unsure about what kind of calculations might be appropriate for your charts, refer to the email from your supervisor.

To create a calculated field, click the dropdown arrow for a column in Tableau's data viewer. Select *Create Calculated Field* to open a code window.





In the window, copy and paste the following code:

```
IF [Holiday] = "None" then null else "X" end
```

This will create a new column in your data called IS_HOLIDAY that will have an X value for each holiday and a Null value for each normal day. This column will only exist in Tableau, but you can use it in any charts that visualize holiday data.

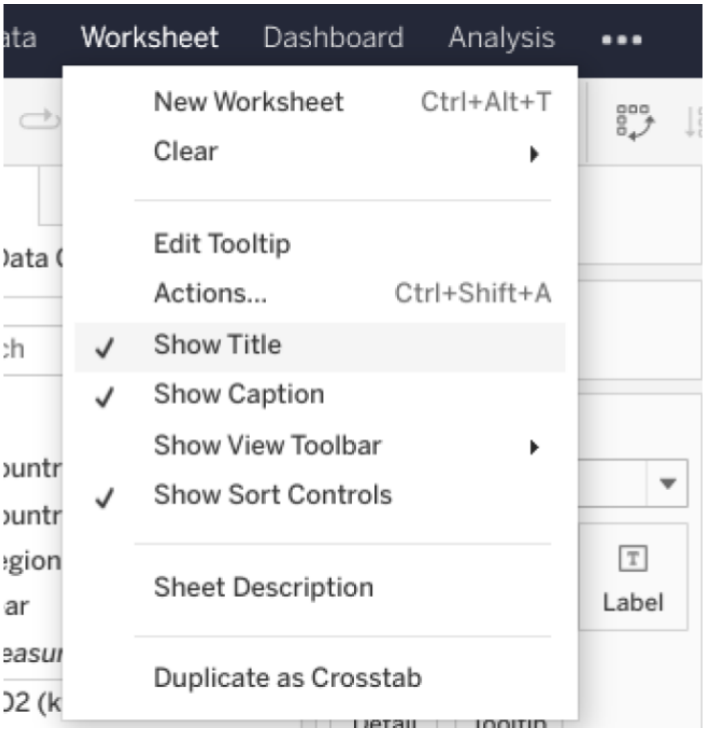
Sort fields Modified

Holiday	Temp	Rain 1H	Snow 1H	Clouds All	Weather Main	Weather Descripti...	Date Time	Traffic Volume	IS_HOLIDAY
New Years Day	249.36	0	0	1	Clear	sky is clear	1/1/2018 12:00:00 AM	1,478	X
New Years Day	265.94	0	0	90	Snow	light snow	1/1/2016 12:00:00 AM	1,513	X
New Years Day	270.62	0	0	90	Snow	light snow	1/2/2017 12:00:00 AM	798	X
None	293.17	0	0	1	Clear	sky is clear	10/2/2012 3:00:00 PM	5,584	null
None	293.86	0	0	1	Clear	sky is clear	10/2/2012 4:00:00 PM	6,015	null
None	294.14	0	0	20	Clouds	few clouds	10/2/2012 5:00:00 PM	5,791	null

Step 6: Add captions

Accessibility is an essential part of building tools that everyone can use. Tableau has a built-in caption generator that automatically describes the details of your chart.

To enable captions, click *Worksheet* from the main toolbar. Then select *Show Caption* from the dropdown.



This will generate a caption, which you can edit or reformat to suit your needs.

Pro Tip: Save your charts

Finally, be sure to save your charts. You will use them to create a dashboard in an upcoming activity, and you can use them in your professional projects.

What to Include in Your Response

Be sure to address the following criteria in your completed charts:

Charts answer business questions from the scenario.

Charts use more than one style.

Charts use proper titles, labels, and color schemes.

Charts are built using a pen-and-paper mockup as a reference.

Optional: Charts use at least one of the tips in this activity.

1. Did you complete this activity? 1 / 1 point

- (●) Yes

- ◯ No

Correct
Thank you for completing this activity! You will use the charts you just made to build and iterate on a dashboard in an upcoming activity. Please complete the following quiz questions and review the feedback. Then go to the next course item to compare your work to a completed exemplar.

2. Which of the following chart types would most effectively illustrate holidays with the highest traffic? 1 / 1 point

- ◉ Circle (bubble) chart
- ◯ Gauge chart
- ◯ Density map
- ◯ Area chart

Correct
A circle chart could use color and size to compare the holidays with the highest traffic. The color would represent the holiday, while the size of each circle would represent the traffic volume on that holiday. The use of size and color in this way demonstrates relationships between numeric data and presents it in a compact format.

3. Which of the following elements improves the accessibility of your charts? 1 / 1 point

- ◯ Timescales
- ◯ Calculations
- ◯ Filters
- ◉ Captions

Correct
Captions can make your charts more accessible to everyone. Tableau has a built-in caption generator that automatically describes the details of your chart.

4. Which of the following charts would best address your stakeholder’s business needs? Select all that apply. 1 / 1 point

- ☐ Traffic volumes in construction zones
- ☑ Traffic volumes by hour

Correct
This chart answers the stakeholder’s question about which hour of the day typically has the highest traffic volume. The following charts would also help answer your stakeholder’s questions: traffic volumes by month per year, traffic volumes by weather pattern, and holidays with highest traffic.

- [x] Traffic volumes by month per year

Correct
This chart answers the stakeholder’s question about which month of the year typically has the highest traffic volume. The following charts would also help answer your stakeholder’s questions: traffic volumes by hour, traffic volumes by weather pattern, and holidays with highest traffic.

- [x] Traffic volumes by weather pattern

Correct
This chart answers the stakeholder’s question about the effect that weather has on traffic. The following charts would also help answer your stakeholder’s questions: traffic volumes by month per year, traffic volumes by hour, and holidays with highest traffic.

- [x] Holidays with highest traffic

Correct
This chart answers the stakeholder’s question about traffic volume on different holidays. The following charts would also help answer your stakeholder’s questions: traffic volumes by month per year, traffic volumes by hour, and traffic volumes by weather pattern.