

Training Operations

Mapping data attributes to axes

Starting point: A scatterplot with the **Displacement** attribute on the x axis and **Acceleration** on the y axis

Task: Map data attribute **Horsepower** to the x axis of the scatterplot. In other words, have the horizontal axis of the scatterplot represent attribute **Horsepower**.

Starting point: A bar chart with the **Origin** attribute on the x axis and **Horsepower** on the y axis

Task: Map data attribute **Miles Per Gallon** to the y axis of the bar chart. In other words, have the vertical axis of the scatterplot represent attribute **Miles Per Gallon**.

Mapping data attributes to mark properties

Starting point: A scatterplot with the **Acceleration** attribute on the x axis and **Origin** on the y axis

Task: Map attribute **Origin** to the color of data points

Starting point: A scatterplot with the **Cylinders** on the x axis and **Weight_in_lbs** on the y axis

Task: Map attribute **Cylinders** to the size of data points. In other words, have the size of data points be different according to their value for Attribute **Cylinders**.

Switching between visualizations

Starting point: A scatterplot with the **Displacement** attribute on the x axis and **Acceleration** on the y axis

Task: Switch to a bar chart with Attribute **Cylinders** on the x axis and Attribute **Displacement** on the y axis. In other words, have the horizontal axis show the different **Cylinders** and the y axis show the value according to **Displacement**.

Starting point: a bar chart with **Origin** on the x Axis and **Horsepower** on the y axis

Task: Switch to a scatterplot with Attribute **Acceleration** on the x axis and **Displacement** on the y axis. In other words, have the horizontal axis show values according to Attribute **Acceleration** and the vertical axis show values according to the **Displacement** attribute .

Filter

Starting point: A scatterplot with **Horsepower** on the x axis and **Miles Per Gallon** on the y axis

Task: Filter out all the cars that their **Horsepower** is below 80 and their **Miles Per Gallon** is above 35.

Starting point: A bar chart with **Origin** on the x axis and **Horsepower** on the y axis

Task: Filter out the Japanese cars

Sort

Starting point: A bar chart with **Cylinder** on the x axis and **Displacement** on the y axis

Task: Sort the bar chart according to the values of bars in an descending order. In other words, have the smallest value at the very right and the largest value at the very left of the chart, with bars of decreasing values in between.

Starting point: A bar chart with **Origin** on the x axis and **Weight_in_lbs** on the y axis

Task: Sort the bar chart according to the values of bars in an ascending order. In other words, have the smallest value at the very left and the largest value at the very right of the chart, with bars of increasing values in between.

Interview Questions

- Please freely interact with the tool for an additional 5 minutes to familiarize yourself more with the tool. Feel free to ask as many questions as you want during this phase.
- What do you think are the major obstacles/roadblocks while using the tool to solve your problems? How did you go around (resolve) the issue?
- Tell me about your general experience with this tool.
- How did you use each of the interaction techniques while exploring your data with this tool? As a reminder, the two interaction techniques are the one where you use widgets and drag and drop operations, while the second one is where you demonstrate your goal by directly interacting with the visualization.
- What were the situations that you found one interaction technique more effective/useful than another one?
- What do you think are the major obstacles/roadblocks of each of the interaction techniques? How did you go around (resolve) the issue?
- Do you find it sometimes useful to use both interaction techniques together to achieve something? Do you have specific examples when you did it? Or other ideas when it could be useful?

Questionnaire

Please answer the questions below.

1. Gender: ☐ Female ☐ Male ☐ Other ☐ Prefer not to answer

2. Age: _____, or ☐ prefer not to answer

3. Do you know what a scatterplot is? ☐ No ☐ Vaguely ☐ Yes

4. Do you know what a barchart is? ☐ No ☐ Vaguely ☐ Yes

5. How would you describe your expertise with data visualization in general?

☐ None ☐ Novice ☐ Intermediate ☐ Knowledgeable ☐ Expert

6. Have you ever used any tool or library to explore and analyze your data? If so, Which one?

7. Have you ever created a visualization before? ☐ No ☐ Yes

If yes, which tools/software/libraries did you use?