CS 416 Data Visualization – Narrative Visualization Project

Erik Larsen
erikl2@illinois.edu
7/31/22

A. Website URL

My narrative visualization is located at:
https://erikl2.github.io/CS416_Narrative_Visualization/index.html

B. Messaging

The main messaging of my narrative visualization is that Electric Vehicles (EVs) are becoming better values for the money on the basis of their performance metrics, and the user can compare these metrics with each vehicle's respective price point and discover the EV that is the best value for their needs.

C. Narrative Structure

My narrative visualization was designed to follow an interactive slide show structure, by presenting the user with a series of consistently formatted charts, calling out key points, and allowing the user to interact with the data on display.

D. Visual Structure

Each scene follows a consistently formatted visual structure, with an explanatory block of text at the top of the page, followed by an annotated scatterplot showcasing a different comparison of performance metric with vehicle price.

The text helps the user understand the data on display as well as give a broader context for the current state of the EV market.

The metric being compared is highlighted in bold and described in the title. Annotations highlight interesting datapoints. The user is prompted to explore the datapoints by hovering their mouse to trigger tooltips.

Below the chart, the user is presented with a conspicuous set of buttons allowing them to transition to the other scenes.

E. Scenes and Visual Ordering

There are three scenes of the narrative visualization:

- "Range": An interactive scatterplot comparing an EV's range in kilometers with its price.
- "Acceleration": An interactive scatterplot comparing an EV's acceleration (measured in seconds to go from 0 to 100 km per hour) with its price.

- "Fast Charging": An interactive scatterplot comparing how quickly an EV can recharge (measured in km per hour of charging) with its price.

The scenes are ordered based on perceived consumer interested, with most consumers being primarily concerned with a vehicle's range, then with its acceleration, followed by how quickly it can be charged. The user is free to select a given scene at any time using the buttons below.

F. **Annotations**

Each scene contains annotations calling out datapoints that are likely to be of interest, for example superlatives or vehicles that may be a good or poor value relative to the others.

All annotations follow the same template and format, to maintain visual consistency and reduce any feeling of disorientation in the scene transitions.

G. **Parameters and States**

The parameters of the narrative visualization are the key metrics represented by each scene, which are "Range," "Acceleration," and "Fast Charging" as mentioned above.

The states of the narrative visualization consist of the current data appearing on the chart, its axes, the colors, the annotations, highlighting, and explanatory text that all change with each scene change.

The parameters are used to define the state and each scene by focusing on a key metric that the user can explore in comparison with vehicle price. As the user navigates to different scenes, the parameters change the chart, text, and highlighting that appear while maintaining a consistent visual structure as though the user were merely flipping to another metric while the page remains otherwise the same.

H. **Triggers**

The main triggers that connect user actions to changes of state in the visualization are:

- Tooltips which show data values when the user hovers over individual datapoints, and
- Buttons which allow the user to change to a different scene.

My narrative visualization provides affordances to the user in the form of clear statements directing them to hover over individual datapoints, as well as directing them to navigate to the other scenes using the prominent buttons below the chart.

References:

The following pages provided inspiration and small segments of code:
https://d3-graph-gallery.com/graph/scatter_tooltip.html
https://bl.ocks.org/d3noob/a22c42db65eb00d4e369