DS4200 - MWTh 1:35 - 2:40 - Group 5
Site Link: https://xushengshangguan.github.io/DS4200-Project/index.html

Distribution of Electric Vehicle Types (BEV vs PHEV):
To accurately depict the two types of electric vehicles, we used bars as the marks in the Distribution of Electric Vehicle Types visualization. As for the channels, a clear comparison of the relative sizes is made possible by the channels we used, which were the position along the x-axis, which encodes the "Electric Vehicle Type" category, as well as the position along the y-axis, which encodes the "Number of Vehicles." We used distinct colors, blue for BEVs and pink for PHEVs, as the color channel to further differentiate between the categories as well. We made this decision as it improves clarity and makes it easier for viewers to tell the difference between the two kinds. For this data, the bar chart was a perfect fit because it shows the stark disparity in the number of vehicles, and the color differentiation simply further supported the contrast.

Top EV Manufacturers by Vehicle Count
Bars are also used as the primary mark to symbolize the manufacturers in the Top EV Manufacturers by Vehicle Count visualization. The channels included the position along the x-axis, which encodes the "Manufacturer" category, making it easy to identify and compare the different brands and the position along the Y-axis which encodes the "Number of Vehicles," showcasing the relative market shares of the top EV manufacturers. Once more, to achieve visual coherence and keep the height of the bars as the major focus, a single shade of blue is utilized as the color channel. Because it effectively illustrates the variations in vehicle counts among manufacturers, the use of bars enables viewers to rapidly recognize the leading companies in the market. This visualization successfully conveys the data insights without overpowering the viewer by using position and size as the primary channels.

Make and Model Counts
Bars are used as marks per each model. The channels for each bar is the position, the x axis position for the model, alphabetically, and the y axis position for the number of cars for each model registered in Washington.

EVs per Model Year
Bars are used as marks per each make. The channel for each bar is the position. The x axis position represents the make categorical data, and the y axis represents the number of cars for each make, within each model year.

The Development of Electrical Range over years

In this scatter plot, I used dots as marks to represent individual data points, in this situation they are different electrical vehicles. and each of the dots corresponds to the electric range of the vehicle model for a specific year. The position on the x-axis represents the model year, while the position on the y-axis represents the electric range. I used color as a visual channel to differentiate between Plug-in Hybrid Electric Vehicles (PHEVs), shown in blue, and Battery Electric Vehicles (BEVs), shown in orange. A legend of the graph is included for further clarity of the color of these two different types of electronic vehicles. Overall, all these visual elements I used in this visualization allow viewers to have a more effective way to see the clear trend of the electric range of different models that have been developed over the years

Interactive Map Dashboard

Heat Map of EV Distribution by Postal Code:

The main map uses color gradients as the primary mark to represent the concentration of electric vehicles (EVs) across postal codes. The key channel here is color intensity, where lighter shades represent postal codes with higher EV counts, and darker shades signify fewer EVs. The geographic position of each postal code boundary is used to encode spatial data, enabling users to locate areas of high EV adoption visually. This combination of color and position channels effectively communicates the density and distribution of EVs, making patterns across the state easy to discern.

Pie Charts in Pop-Ups:

Pie charts, displayed in interactive map pop-ups, use slices as the marks to show the percentage breakdown of EV makes within each postal code. The angle of each slice encodes the proportion of each manufacturer's EVs relative to the total in that postal code, while distinct colors are used as the color channel to differentiate manufacturers. The combination of size (angle) and color ensures that users can quickly identify the dominant manufacturers and compare their relative presence within the selected area. This visualization highlights the diversity of EV adoption at the postal code level in an intuitive and engaging manner.

Filter for EV Count:

Sliders serve as interactive marks, allowing users to filter the dataset dynamically. Position along the slider encodes the threshold value for EV count, helping users refine the visualization to focus on postal codes that meet specific criteria. These tools enhance the dashboard's usability by giving users the ability to customize the data displayed according to their analysis needs.