CSC 805 - Data Visualization

Visualization Project - Phase 2

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Contents

1 Wireframe

1.1 Organization

The visualization will be organized with a home page and five visualization pages as can be shown in Figure 1. The first page will be our landing page, with the second page being the overview of the data we will be presenting. The following page will display detailed EV adoption information for each region, followed by EV adoption trends and charging infrastructure details. The final page will provide an in-depth comparison of EV adoption with traditional fuel options.

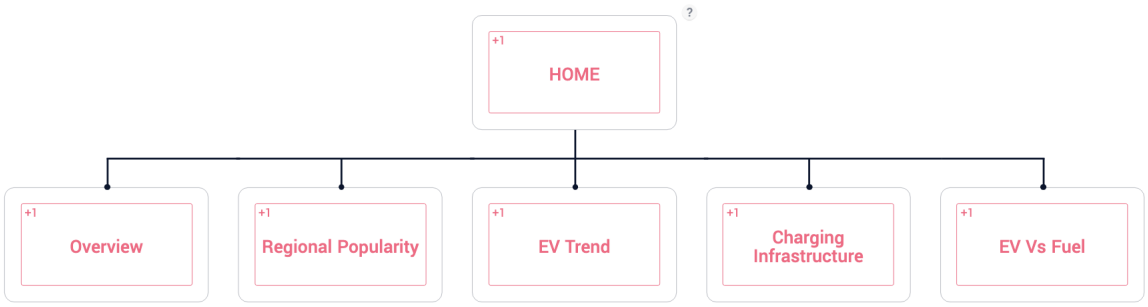

Figure 1: Page Organization Tree

1.2 Home Page

Our home page shown in Figure 2 will contain a short description of our data, our visualizations, and direct the user to the information they are seeking. Finally, the home page will let the user know the purpose of our visualization.

Figure 2: Home Page

1.3 Overview

The first visualization page will be our overview. This page (Figure 3) will give a broad understanding of the current number of EV's registered, and charging stations, the overall growth trends for both. Also it show the top EV brands and a map showing EV adoption rates by city.

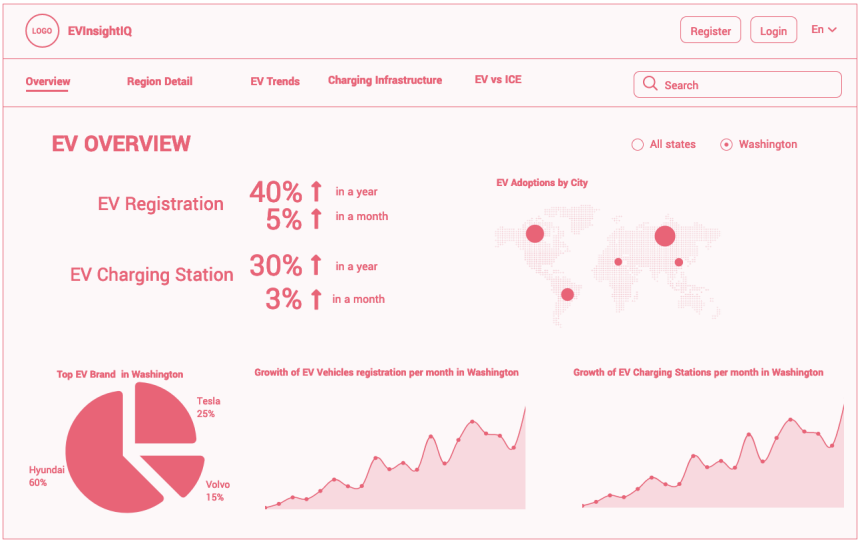

Figure 3: Overview

1.4 Region Detail

Next, will have a region details and analysis page (Figure 4). This page will contain comparison information between the State of Washington and other states. Furthermore, one will be able to see a ranking of different cities in Washington as well as other cities located in other states. The user will also be able to compare infrastructure growth and EV adoption timelines with other cities and the mean adoption rates.

Figure 4: Region Detail

1.5 EV Trends

EV adoption trends will be shown on this page (Figure 5). This page will show a comparison of car brands and models for certain time frames. Correlations between other state adoptions will be able to be visualized with a timeline with laws and incentives highlighted or tool-tipped.

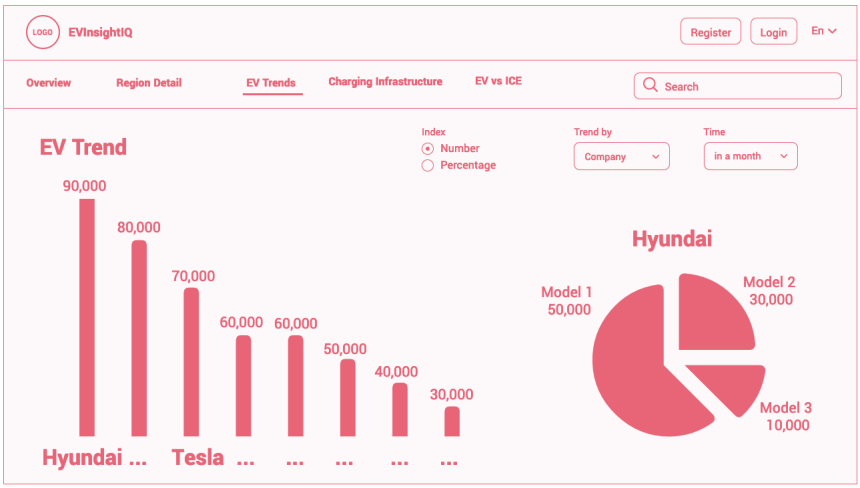

Figure 5: EV Trends

1.6 Charging Infrastructure

The third visualization page will provide a much deeper look into charging infrastructure. On this page (Figure 6), the user will be able to compare the evolution of the charging infrastructure in Washington State and other states in the US. Similar to the EV Trends page, correlations between different states will be able to be seen. Finally, on a timeline graph, the user will be able to see where legislation was put into effect so that the results can be seen with respect to those laws and incentives.

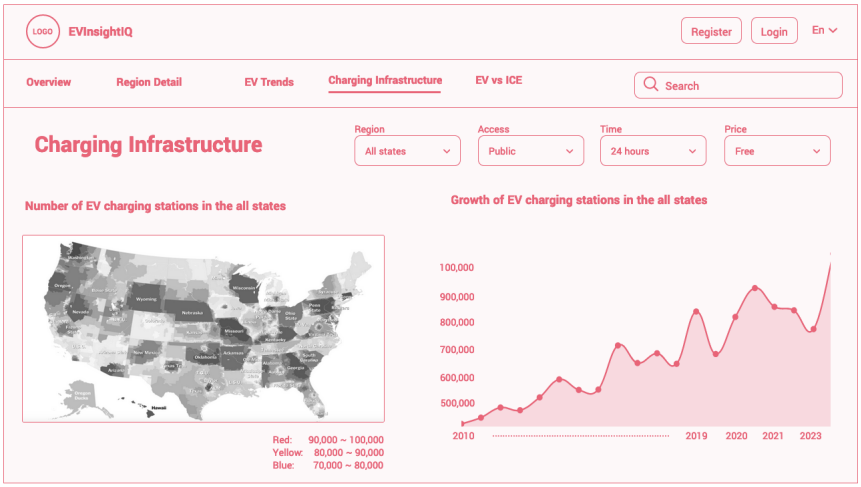

Figure 6: Charging Infrastructure

1.7 EV vs Internal Combustion Engine (ICE) Vehicles

Our final page will be a comparison of EV adoption against the landscape of purchase trends of traditional internal combustion engine (ICE) vehicles (Figure 7). This data will be shown with respect to cities within Washington State. If we can hunt down and find out of state registration data, we will attempt to include a comparison between different states as well.

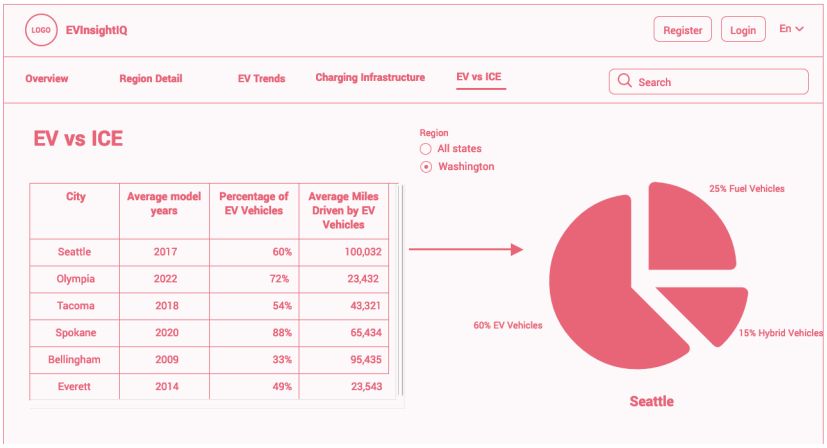

Figure 7: EV vs ICE

1.8 Access to wireframe

EV data visualization project

2 Data

2.1 Preprocessed and Cleaned

GitHub Repository of Data

2.2 Source

Washington State Electric Vehicle Population Data

Alternative Fuel Stations By State (Updated 10-12-2023)

Washington State EV Laws and Incentives

EV Registration Data By State (This is a massive data set consisting of many data sources. Hence they will require further cleaning and integration – this will is an *optional* set of data to be incorporated in our visualizations):

1. California
2. Colorado
3. Connecticut
4. Florida
5. Maine
6. Minnesota
7. Montana
8. New Jersey
9. New York
10. North Carolina
11. Oregon
12. Tennessee
13. Texas
14. Vermont
15. Virginia
16. Wisconsin

3 Technologies

We plan to build the website using React, which offers a dynamic and interactive web-based environment. For data visualization, we will leverage Tableau, a powerful tool known for its effective data representation capabilities. To access the data, we will utilize tabular CSV files directly, which will ensure simple and seamless data retrieval. Our project will be hosted statically on GitHub. Using these technologies will allow us to leverage each of our team members' strengths, while maintaining a realistic project scope.

3.1 List of technologies to be used

- User Interface (UI): React
- Data Visualization: Tableau
- Data Source Handling: Incorporating CSV files within the project
- Hosting: GitHub for static website hosting