Semester Project, CS 625, Fall 2023

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Due: Wednesday, December 6 by 11:59pm

Topic: Electric Vehicle Market

The future of electric vehicles appeares promising, with developments pointing towards their continued growth and adoption. While we cannot predict the future, but through various resources can provide some insights based on the various data. The integration of electric vehicles with renewable energy sources, such as solar power and wind energy, could lead to a more sustainable and environmentally friendly transportation system. This integration has the potential to further reduce the carbon footprint of the transportation sector.

Why This Topic: This topic interested me,we were thinking to buy new car and electronic car, so when we were on the drive we saw every other car in front of us to be Tesla.This interested us in EV's and Tesla Model. This topic also interested me because Electronic Car have less harm to environment. Environment, the natural world, where we all live, as a whole or in a particular geographical area, especially as affected by human activity, today resources are taken from the environment faster than they are replenished. I am curious to investigate this further and analyze clean alternative fuel and it's impact throughout the U.S. , over time.

I have extracted raw dataset from Kaggle.

Potential Data Source:

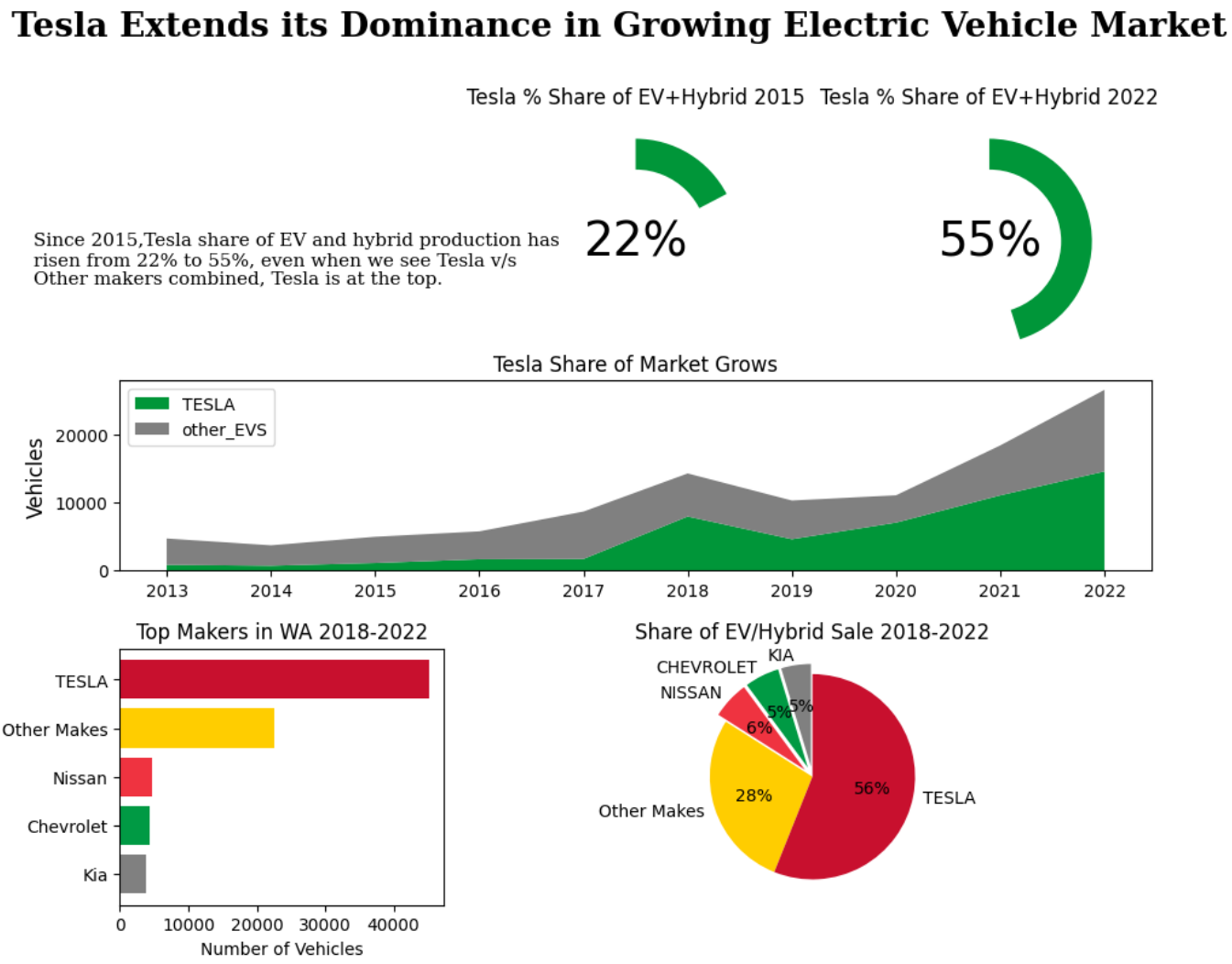
https://www.kaggle.com/datasets/ratikkakkar/electric-vehicle-population-data/download?datasetVersionNumber=1

Reference of the website:

https://www.kaggle.com/datasets/willianoliveiragibin/electric-vehicle-population/data

1.Does Purchasing increase in Washington?

The data manipulation was harder than building data, I have done data prep to achieve this group of charts presented in a single panel, that revels something interesting. I have used Python for preparing chart. Here's link to my Google Collab



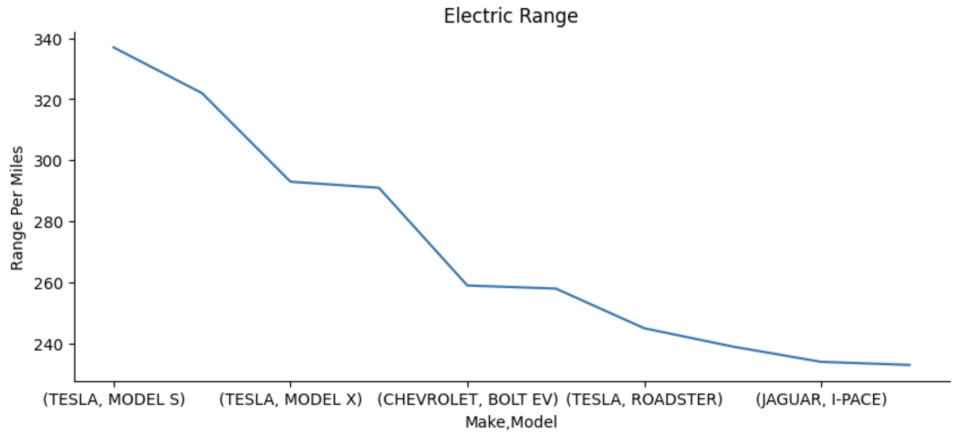
2.Which model and electric range vehicles is dominant in sale compare to others and why?

```
max_range = max_range[max_range['Electric Range'] > 1] #filter out bad
data.
```

I took the max range here, then find out top ten range to understand the reason behind the dominance of one company, i.e Tesla

```
top_ten_range = max_range[max_range['Electric Range'] > 100].nlargest(10,
'Electric Range', keep='first')
```

Make	Model	Electric Range
TESLA	MODEL S	337
	MODEL 3	322
	MODEL X	293
	MODEL Y	291
	ROADSTER	245
CHEVROLET	BOLT EV	259
HYUNDAI	KONA	258
KIA	NIRO	239
JAGUAR	I-PACE	234
POLESTAR	PS2	233



I am happy that I'm able to find this difference betweeen Tesla and other models that why tesla market is growing because it is producing more models with high range as compare to other companies with less model and ranges.

Conclusion: So, we can see that Tesla is making more models than other companies with high Electric Range which is the reason why Tesla is dominating the market. So, if more companies start producing models with high Electric Range,there market may also increase. The growth of the Electric Vehicles (EV) market has been significant despite the COVID-19 pandemic and the resulting supply chain bottlenecks. Despite these recent challenges and rising production costs as a result of increasing raw material prices, EV sales are still going up at a fast rate.

References

- Stack Overflow, https://stackoverflow.com/
- Matplotlib, https://matplotlib.org/stable/users/index.html
- Stacked Bar Chart, https://chartio.com/learn/charts/stacked-bar-chart-complete-guide/