Vehicle Price Gouging

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# Objective

Economic inflation impacts on auto sales; purchasing a new vehicle posed the question “Is it really inflation or are the dealerships price gouging Americans?”. Our website serves to explore the variance in MSRP & listed/selling price for two different sample sizes of vehicles in the DFW, Houston, San Antonio, and Austin Texas areas. We also utilized data from Illinois to reference other historical data.

# Challenges

* The kaggle data file was too large initially, there were roughly 1 million rows. In order to effectively run the file in Jupyter, we cut the data in half by filtering vehicle types Pickup and Passenger Vehicle.
* The web-scraping had to be broken up by query ranges to prevent the website from blocking us and preventing further scraping.

# Data Sources and Cleanup

* kaggle: [Large Car Dataset](https://www.kaggle.com/datasets/cisautomotiveapi/large-car-dataset)
  + CSV file reduced from 478,940 KB to 20,262 KB via Jupyter
* Web-scraping algorithm on new car listings from [cargurus.com](https://www.cargurus.com/)
  + Resulted in 6 separate CSV files later merged via Jupyter
* Kaggle and web-scrape files were imported into PostgreSQL and converted to SQLite

# Analysis Methods

* Utilized bootstrap to initially create HTML/CSS/JS coded site
* Created API built into Flask for plotly and leaflet charts and graphs for visualization by end user
  + **kaggleMakeUrl** = api/v1.0/kaggle/
  + **gougeapi** = api/v1.0/scraped/
* JS library not covered and used = jQuery used for the About section (“about.html”, “where.html”, “why.html”)

# User Driven Interaction

https://gouge-data.herokuapp.com/#home

* Menu Options: Home, About, Map, Visualizations, Meet the Team!
  + Meet the team provides photos, GitHub profile link and LinkedIn link.
* Cars by Dealer (map) allows end user to view dealers on the map by their Vehicle Make. Selecting a dealer on the map shows MSRP vs Dealer Pricing (Gouge Score).
  + Gouge Score based on if Dealer Price is greater than, equal to, or less than MSRP.
* Two interactive grouped Bar Charts allow end user to filter by Vehicle Make and compare the various models and their pricing side by side.

# Project Requirements

1. Your visualization must include a Python Flask–powered API, HTML/CSS, JavaScript, and at least one database (PostgreSQL, MongoDB, SQLite, etc.).
2. Your project should fall into one of the below four tracks:

* A combination of web scraping and Leaflet or Plotly
* A dashboard page with multiple charts that update from the same data
* Should be deployed to Heroku

1. Your project should include at least one JS library that we [did not cover](#_Analysis_Methods).
2. Your project must be powered by a data set with at least 500 records.
3. Your project must include some level of user-driven interaction (e.g., dropdowns, textboxes).
4. Your final visualization should ideally include at least three views.