

## Lab3 Assignment: Vehicle Data Analysis and Visualization

### Overview

You have been tasked by a company to analyze and process data related to vehicles from previous years. Your role involves extracting key statistical insights from the dataset and visualizing the data to uncover patterns and trends. This project will test your ability to work with real-world data, apply statistical methods, and create informative visualizations.

### Objectives

- Extract and calculate important statistical measures from the vehicle dataset.
- Identify and handle missing and void values in the data.
- Create visual representations of the data to highlight key findings.

### Tasks

1. **Data Analysis:**
  - Determine the 6-th **newest year of vehicle** (maximum year & price).
  - Find the 4-th **oldest year of vehicle** (minimum year & price).
  - Identify and count the **number of missing values**.
  - Convert all of your findings into a data frame table and print it in your .ipynb file.
  - Save your data frame table to csv file.
2. **Data Visualization:**
  - Create at least **five** unique graphs for statistic results (like the maximum year or price with Vehicle Make or Model).
  - Unique graphs require different graph types and different data sections.
  - Please use the *fontsize* parameter to adjust the title, x-axis, and y-axis labels. Also, add a *grid* to your graphs for better readability.
  - You should use **Markdown** to introduce your visualization results including: the purpose of your exploration, the content of your graph, and your conclusions.
  - **Ensure that each graph is clear, accurate, and provides meaningful insights.**
  - Save each visualization and upload them to GitHub.
3. **Documentation:**
  - Provide necessary comments for your code.
  - Use markdown to add necessary guide words to readers.

### Evaluation Criteria

- **Accuracy of Analysis:** Correctness of the statistical calculations and identification of data points.
- **Handling of Data:** Effectiveness in managing missing and void values.
- **Quality of Visualizations:** Clarity, relevance, and visual appeal of the graphs.

### Submission

- Upload your .ipynb file and all saved results (e.g., graphs or .csv) to GitHub.
- Submit your GitHub repository link to Canvas.