# Vehicle Project Report

## About project

Vehicle is a set of data that contains 18434 rows and 141 columns . It is a mixed dataset with null and NA values. This project will provide the information regarding the vehicles and their drivers and there capacity to work and help to perform it better and more effectively.

## Objective

The main objective of this project is to get the detailed information and analyze vehicle parameters and help it to perform better.

## Methodology

The project methodology includes the following steps:

1) Data Preprocessing: There were many mull and NA values in data. Cleaned the data by removing the null/NA value columns and removed the unnecessary data for analysis, including handling missing values and handled outliers.
2) Feature Engineering: After analysing the data we have create a new column for the data by using the existing data and columns . Created new features from raw data to get important patterns and relationships.
3) Exploratory Data Analysis (EDA): understand the data to know the latest trends and correlations between the columns and how they are interlinked with each other.

## Conclusion

In conclusion, this project provides valuable insights into the factors affecting vehicle performance and fuel efficiency. By analysing the complete dataset I got to know the following information regarding the trucks and there performance that are :

- First we have imported the all the libraries that were required, and then uploaded the csv files.
- We have filtered the data by removing all the duplicate, null, missing and NA values then dropped the columns that are not required.
- We have checked for the outliers in the table and removed them.
- To find the correlation we have created a Heat Map that is providing all the significant correlation between variables and indicating there strong relationship. These variables are crucial for further data analysis.
- We have presented 7 to 8 different relationships by using scatter plot, bar plot, line plot.

# Findings

- Feature engineering is done as we have used the provided dataset and created new feature and columns from given info.
- These new columns will help the company to get the maximum detail and insights to make the work easier and effectively done.
- We have divided the distance but the speed to get the estimated reach time , and divided the vehicle speed by the fuel  to get the milage for vehicle .
- Standardization is crucial for equal contribution in data**.**

# Recommendation

Based on insights gathered, recommend strategies to improve vehicle performance, fuel efficiency, and operational reliability. These recommendations may include maintenance schedules based on engine performance metrics, driver behavior modifications to optimize fuel consumption, and potential upgrades or adjustments to vehicle systems based on identified correlations.