



## TASK

# Exploratory Data Analysis on the Automobile Data Set

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# Introduction

This data set contains information about 205 cars. It has the following information for each car:

symboling, normalized-losses, make, fuel-type, aspiration, num-of-doors, body-style, drive-wheels, engine-location, wheel-base, length, width, height, curb-weight, engine-type, num-of-cylinders, engine-size, fuel-system, bore, stroke, compression-ratio, horsepower, peak-rpm, city-mpg, highway-mpg, price

## DATA CLEANING

To make it easier to analyse the data set we are going to remove the following columns: symboling, normalized-losses, length, width, height, curb-weight, bore, stroke, compression-ratio

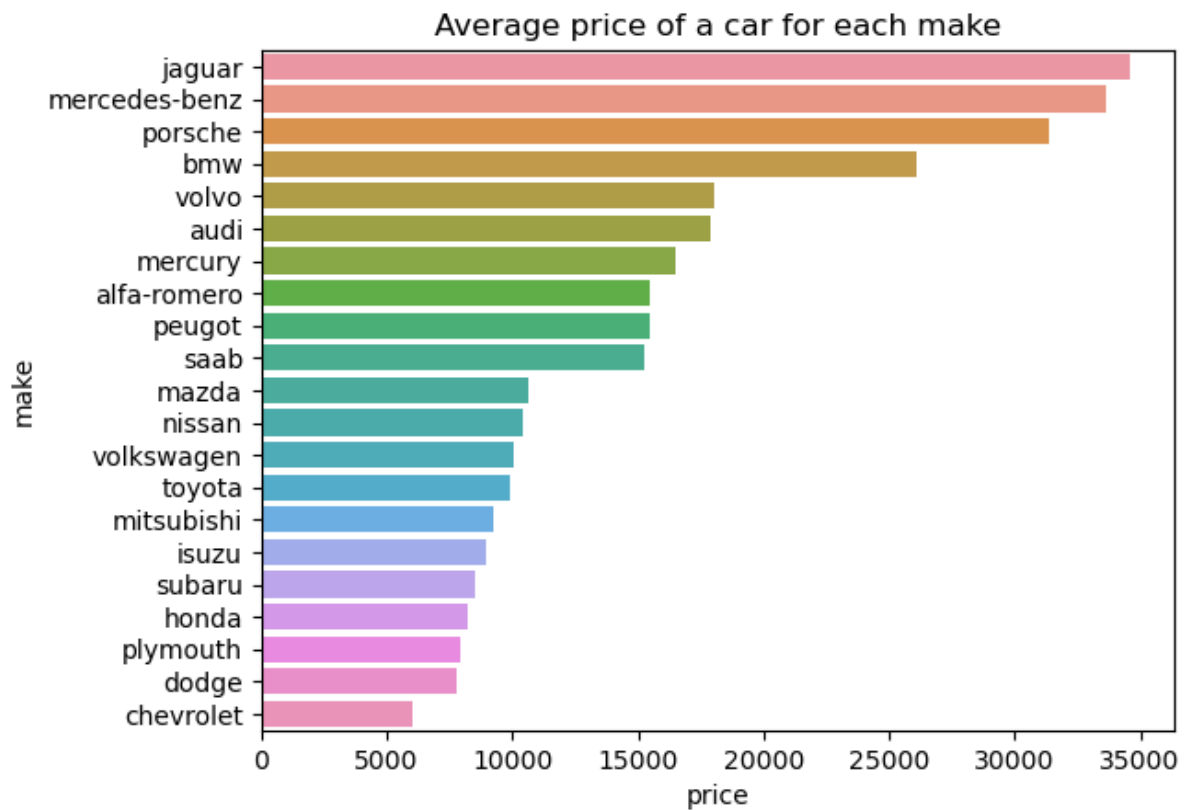
To be able to analyse the data we have also converted the data type of price, peak-rpm and horsepower to integers as they were objects. There were no duplicate rows that needed removing from the data set.

## MISSING DATA

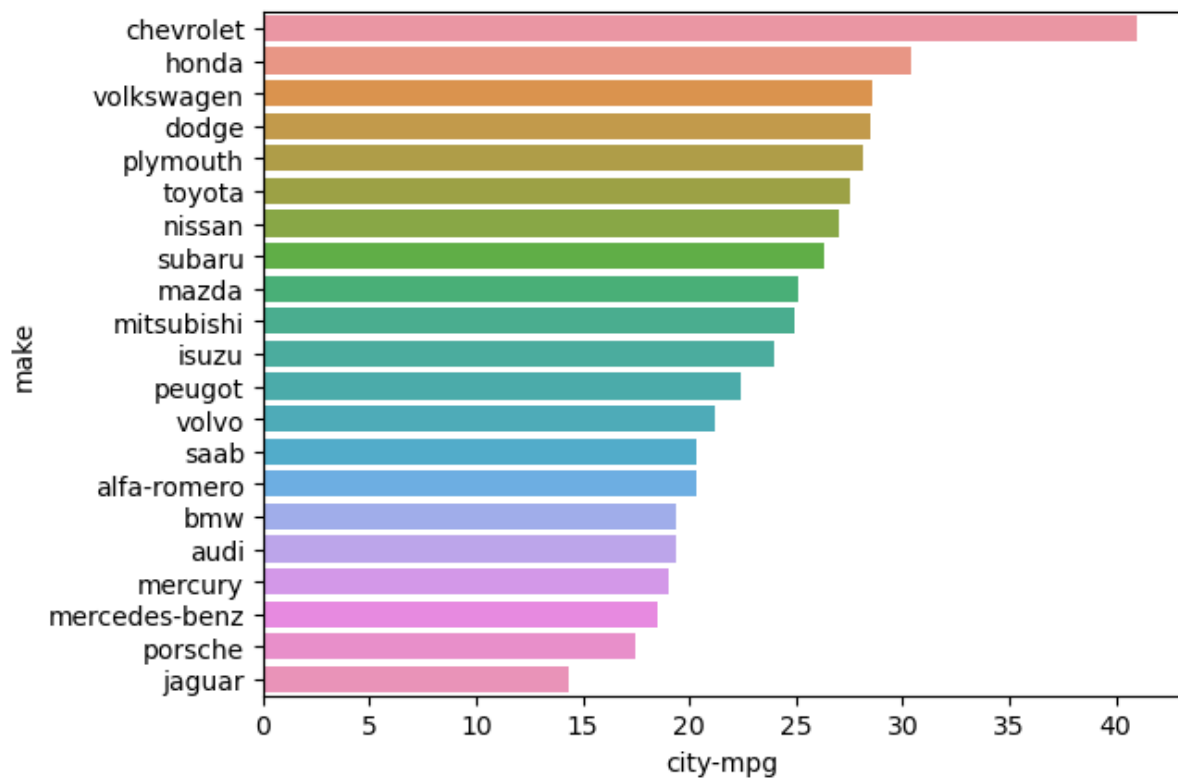
There were no empty values in the data set but there were entries that had the value of '?' which means we have missing data. As there is no way to try and fill in this data we decided to just remove these rows from the data set.

## DATA STORIES AND VISUALISATIONS

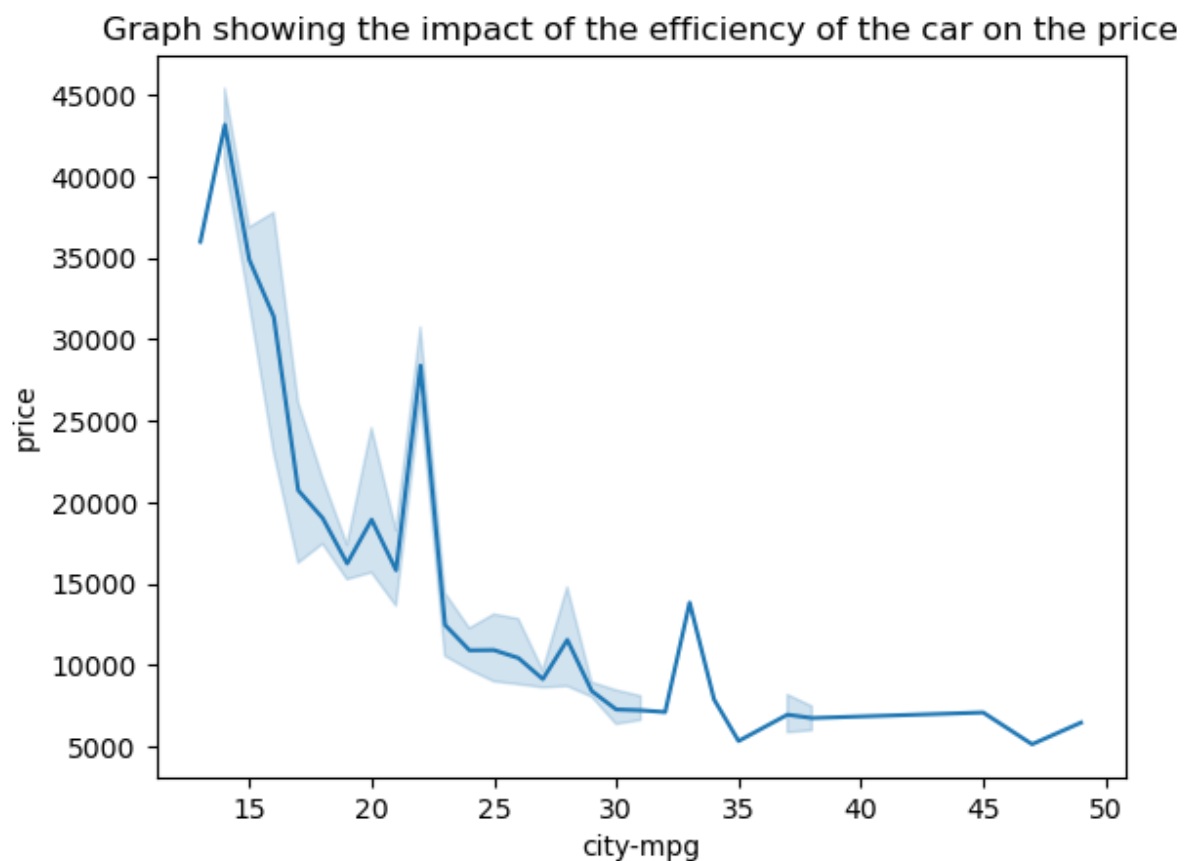
The first thing we decided to look into is the average price of a car for each manufacturer.



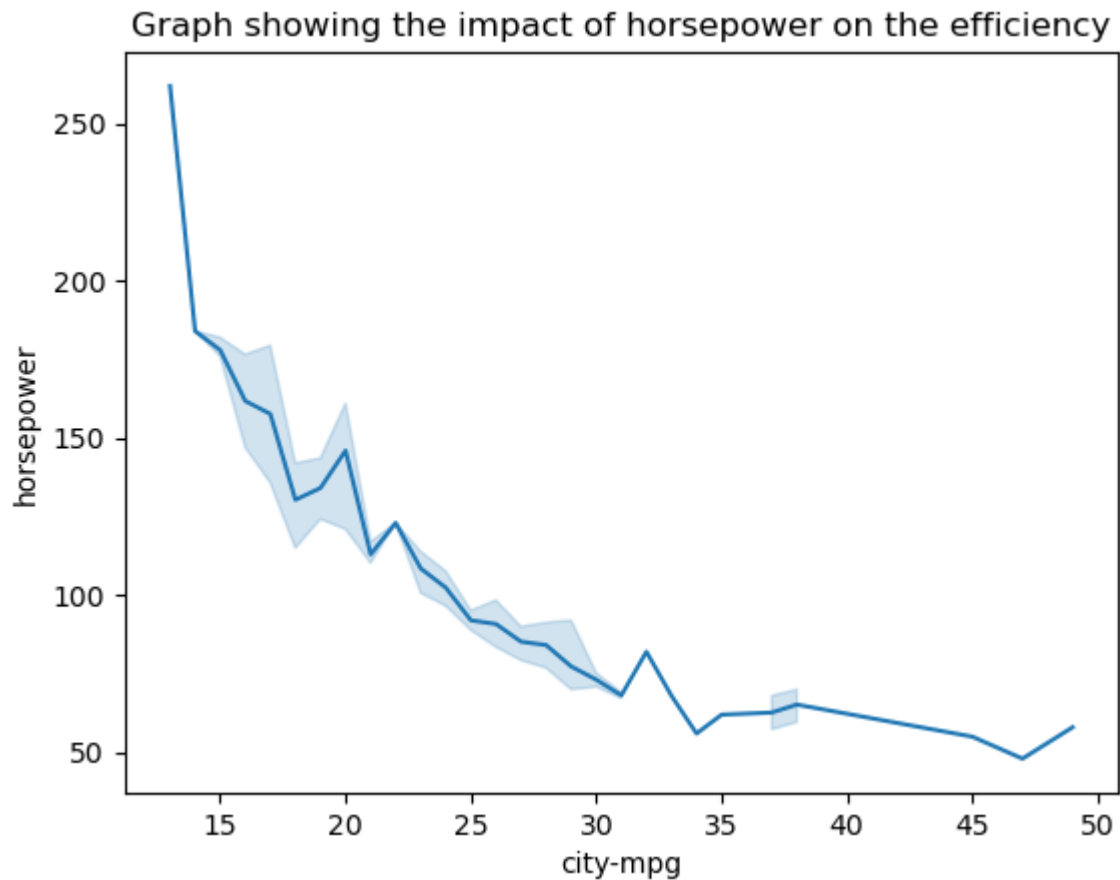
Here we can see that Chevrolet has the cheapest cars on average and Jaguar has the most expensive cars on average. Now we want to see how the efficiency of the cars varies by the make.



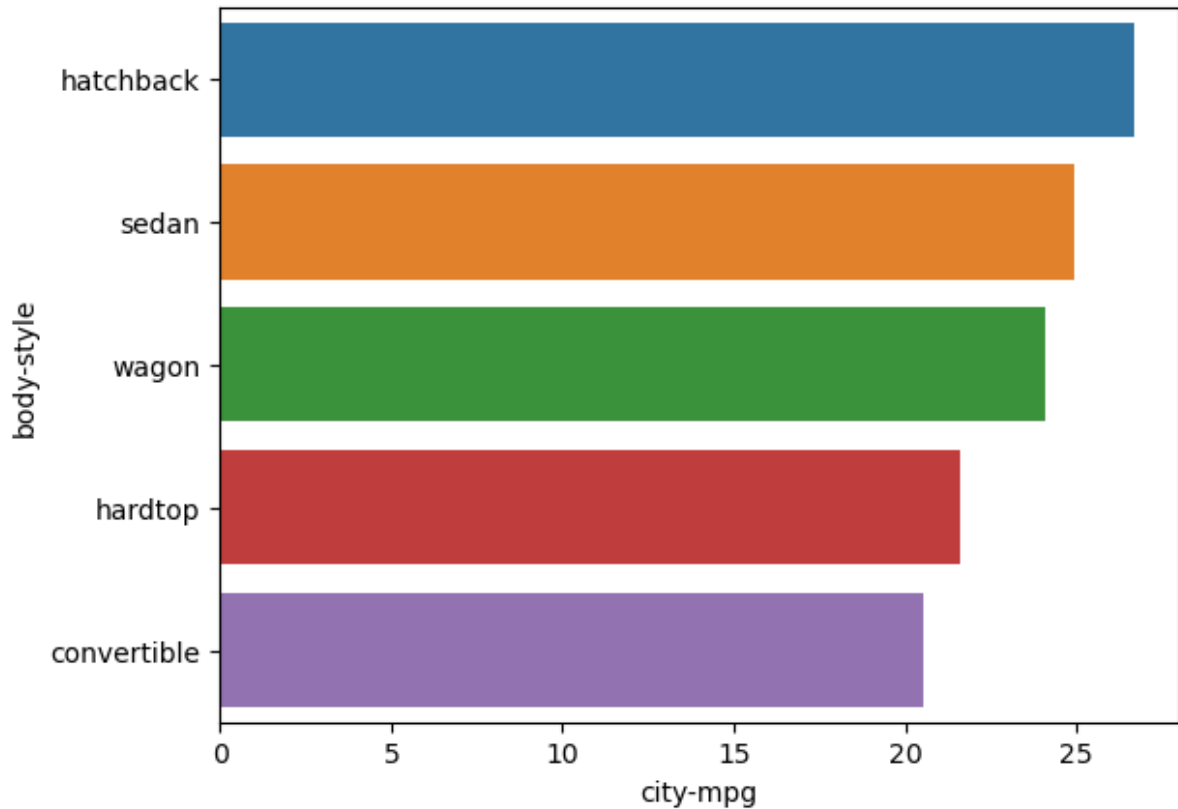
Here we can see that Chevrolet has the best efficiency and Jaguar has the worst, this would imply that there is a relationship between the price of a car and its efficiency. To explore this we have plotted a line graph of efficiency against the price of the car.



This graph backs up our claim that the cheaper the car is the more efficient it is. This makes sense as the most expensive cars are usually luxury items where power and speed are more important than efficiency.



Here we can see that as horsepower decreases the efficiency of the car improves. So far we have shown that if you wanted a more efficient car, you would want to buy a cheaper car that has low horsepower and is a Chevrolet. Next, we want to see if there is an ideal body style which will mean we have an efficient car.



There isn't much variation in the efficiency of the car based on the body style but the style with the best efficiency is a hatchback. So the ideal car that is very fuel efficient would be a Chevrolet hatchback that has low horsepower and it cheap

**THIS REPORT WAS WRITTEN BY : Tom Anderson**

