What drives the price of a car?

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The dataset of the attributes of about 426,000 used cars and their respective prices was analyzed to determine the importance of these features in its sale price.

The regression analysis reveals that the most important feature in determining the price of a used car is the year of the car (closer the year is to the present year, higher the price of the used car). The second is the miles driven as given by the odometer reading (higher implies a lower price) and the third is the number of cylinders of the engine (higher implies a higher price). The year is more than twice as important than the odometer reading in affecting the price.

It was found that cars from manufacturers such as Ferrari, Tesla, Aston-Martin and Porsche have much higher priced cars (which is not a surprise since they are luxury car brands). The car brands of Fiat, Dodge, Nissan, Kia and Chrysler are at the other end of the spectrum with the lowest prices. The condition of the car also affects the price, that is cars which are in excellent, new, like-new or good condition command a higher price than those of fair or salvage condition. A clean title status also helps in increasing the price commanded by the used car, whereas a missing title adversely impacted the price. In terms of region, Southwest VA, Texarkana TX, Susanville CA, Panama City, FL and Heartland Florida commanded a higher price for a used car (compared to other regions in the country). The states of NC, UT, NE, NV and WA had higher used car prices compared to other states.

And in terms of fuel, diesel fuel cars were priced higher than gas fuel, electric or hybrid cars. The paint color is the least important feature followed by transmission type, and they have a negligible impact on the price of the car.

**Next Steps and Recommendations:**

The dataset contained many records with missing data and zero values. If possible, it would be good to collect a dataset with clean data in order to rerun the analysis. It is recommended that the dealership procure cars with a clean title and in good or excellent condition so that the sale fetches a higher price. Since year is the most important feature, it is recommended that the dealership invest in cars that are one, two or three years old (such as those coming off a prior lease) to sell at a higher margin.