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**QMB 6912  
Capstone Project in Business Analytics**

**Solutions: Problem Set #2**

Important features of pre-owned vehicle market.

The most important features that people look for when buying a used car can be summarized in four sections: overall conditions, accident history, service history, make and milage.

Overall condition can be looked at the overall condition of the vehicle like wear and tear, the exterior and interior look and the milage. The overall can be very useful to determine the price of used car, and people with small budget will look for a car that is older and with a medium overall condition if we can say.

Accident history, which can be a deal breaker for a lot of customers before making the decision on buying a used car or not. Because damaged car will be a lost for the buyer and can cause other expenses.

Service history, also like accident history is very important to buyers. A missing the regular service suggested by the manufacturer will cause damage to the vehicle and therefore more expenses for the buyers. A good service will provide the buyers with secure decision.

Make and mileage, can be a good indicator of the price of used car because Japanese vehicle like Toyota or Nissan are known to last longer than European cars for example.

Table of features of used cars that can be used to determine their price

Price	Overall condition	Accident History	Service History	Make and Mileage
Price 1	good	1	poor	Honda 120k
Price 2	good	1	good	Toyota 50k
Price 3	good	1	poor	Honda 120k
Price 4	medium	1	good	Mazda 120k

Table 1: Prices of used cars by features

Lancaster and hedonic price theory can be used in theoretical structure like used cars.

In Lancaster model consumer look at purchased good as a bundle of characteristics, like in our example used car have multiple features that can be decisive for buyers. Like for example one buyer with high budget is looking for German car with low milage and very good condition of the interior and exterior. Another buyer with lower budget can be looking for different characteristics, like Japanese maker and reliable car for example.

Concerning Hedonic Pricing Method, it will be useful to determine values of used cars and drive conclusions. Because it will allow to determine the value of a vehicle by accounting the various factors that influence the price.

#### Sample selection

Sample selection can be influential in the final model because of bias and that can be explained by choosing a non-random data. Which can reflect a different estimator of the population, and miss-representation of the population.