# HOW MUCH IS YOUR CAR WORTH?

For over 90 years, Kelley Blue Book (KBB) has been the trusted resource for used car values, helping car owners understand what their used car is worth. The "blue book value" of the car is determined by actual sales transactions and auction prices, which are then analyzed and adjusted to account for seasonality and market trends. Kelley Blue Book Values also reflect local conditions in over 100 different geographic regions and are updated weekly to give consumers the most up-to-date used car pricing information.

For this analysis you are going to analyze a subset of data from (KBB) to help consumers (i) understand why their car has the KBB value it has and (ii) give a price range that consumers can expect on a resale from their car. For this data set, a representative sample of over eight hundred GM cars were selected, then retail price was calculated from the tables provided in the Central Edition of the Kelly Blue Book. The data set contains the following variables:

- Price: suggested retail price of the used 2005 GM car in excellent condition. The condition of a car can greatly affect price. All cars in this data set were less than one year old when priced and considered to be in excellent condition.

- Mileage: number of miles the car has been driven

- Make: manufacturer of the car such as Saturn, Pontiac, and Chevrolet

- Model: specific models for each car manufacturer such as Ion, Vibe, Cavalier

- Trim (of car): specific type of car model such as SE Sedan 4D, Quad Coupe 2D

- Type: body type such as sedan, coupe, etc.

- Cylinder: number of cylinders in the engine

- Liter: a more specific measure of engine size

- Doors: number of doors

- Cruise: indicator variable representing whether the car has cruise control (1 = cruise)

- Sound: indicator variable representing whether the car has upgraded speakers (1 = upgraded)

- Leather: indicator variable representing whether the car has leather seats (1 = leather)

The specific research questions that you are tasked with addressing are the following. If necessary, you may use more than 1 "model" to answer the questions.

1. What factors lead to higher/lower resale values?

2. Are there other factors not included in this dataset that likely explain how much a car is worth? If so, what other factors do you think explain resale value?

3. Generally, as mileage increases, the price should decrease. But, does the amount of decrease in value from additional mileage differ depending upon the make of the car? If so, which makes hold the value better with more miles?

4. Which car (and with what characteristics) has the highest resale value at 15000 miles?

5. What is a reasonable resale value for the following vehicle: Cadillac CTS 4D Sedan with 17,000 miles, 6 cylinder, 2.8 liter engine, cruise control, upgraded speakers and leather seats?