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Bonus Project Proposal

Luxury vs. Non Luxury Cars Based on Location

For the bonus project this semester I want to collect data on and analyze if there is a different proportion of luxury brand cars in Atlanta compared to the suburbs around Atlanta. I want to do this experiment because I like cars and I am interested to see how much of a correlation there is between the inner city car choices and the car choices of owners outside of Atlanta that commute every day.

To collect data for this experiment I first plan on classifying luxury cars as Audi, BMW, Mercedes, Lexus, Tesla, and any sort of exotic car. From here I plan on spacing out my data collection by visiting 3-4 main intersections in Atlanta and 3-4 main intersections in Atlanta's suburbs to classify the cars as they come by. I think by spacing out where I collect the data and if I do it over three to four different days I will get a fairly random sample. I want to collect data on 1,000 – 1,500 cars in each location so that I have a large enough sample size to feel comfortable analyzing the data. I will collect the data by tallying cars that drive by at each intersection I choose to survey. By labeling every single car that passes by I will be able to accurately depict the proportion of cars that can be classified as luxury vs. non luxury.

The method I plan on using to analyze this data is the Bernoulli distribution to determine the probability that a car chosen at random is considered a luxury car, as well as the expected probability and the variance. I personally expect the results to be close, but I think that a higher proportion of the cars inside of city limits will be labeled as luxury.