# LEMONAID

Ellen Kim

# Background: What is a Lemon car?

**Lemon (auto):**

In order to qualify as a lemon under most state laws, the car must (1) have a substantial defect covered by the warranty that occurred within a certain period of time or number of miles after you bought the car, and (2) not be fixed after a reasonable number of repair attempts. Varies drastically from state to state.

Basically a lemon car is a dud.

# Objective

- Create a tool to determine if a used car is likely to be a Lemon or not.
- Recommend a different car.

# Why?

Business model: Increase Web Traffic
   Attract user traffic by making lemon predictor available.

1.   Become "go-to" assessment tool.
   a.   Similar to Web. M.D. → consulting point
2.   Increase business sales from our inventory.
3.   Potential arbitrage:
   a.   prices of cars can vary drastically from state to state.

# What does the data say?

- No obvious relationship to determine Lemon by looking at car's attributes.

# How was the model?

- The program was not good at picking out 'lemons'.
- Better at determining that a car is not a 'Lemon' but not to significant degree.

# Was the model fixed?

- Yes, but to a very minimal degree

# Recommendation System

From our inventory we took out potential 'Lemon' cars.

Created recommendations on non-negotiables

1. Make and model
2. Price
3. Mileage
4. Size

# Recommendation System:

Excluded features:

1.  Color
2.  State
    a.  Price varies drastically by state.
    b.  Could find financial savings by shipping car than purchasing locally.
3.  Year of manufacturing

Would you buy a gold car?

# Flask

```
{
"The vehicle you have entered is": "likely to be a lemon",
"rec_car1": [
    "Odometer:98581.0",
    "Retail Price: 9074.0",
    "MANHEIM",
    "10",
    2006,
    "GREY",
    "AMERICAN",
    "CHEVROLET MALIBU",
    "MEDIUM",
    "AZ"
],
"rec_car2": [
    "Odometer:96922.0",
    "Retail Price: 9752.0",
    "MANHEIM",
    "9",
    2007,
    "WHITE",
    "AMERICAN",
    "FORD FOCUS",
    "COMPACT",
    "TX"
],
"rec_car3": [
    "Odometer:98726.0",
    "Retail Price: 8926.0",
    "MANHEIM",
    "10",
    2006,
    "RED",
    "AMERICAN",
    "CHEVROLET MALIBU",
    "MEDIUM",
    "CA"
],
"rec_car4": [
    "Odometer:96454.0",
    "Retail Price: 9570.0",
    "MANHEIM",
    "12",
    2006,
    "SILVER",
    "AMERICAN",
    "CHEVROLET MALIBU",
    "MEDIUM",
    "AZ"
],
"rec_car5": [
    "Odometer:97765.0",
    "Retail Price: 8884.0",
    "OTHER",
```

# Conclusion

1. Can't predict if a car will be a lemon based on this data.

**What we need**
1. A decision making tool that takes more comprehensive approach:
   a. Monthly installments
   b. Cost of insurance
   c. Average cost of gas

2. Incorporate CarFax information
   a. Model must include condition of vehicles (regular maintenance, accident history)

# Questions?