

# Lab 2

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## 1 Histogram and Scaterplot

To be able to re-use the code in salaries.py we splited the database between the new fleet and the current fleet. Then we just indexed the positions and plotted. We can see all plots (figure 1,2,3 and 4) in the end of the document.

## 2 Standard deviation comparison via the bootstrap

### 2.1 Standard deviation values

The values of the standard deviation are the following:

standard deviation New: (6.068930545150857, 5.138538176092826, 6.911543676175999)  
standard deviation Current: (6.401805462179708, 5.810682439908721, 6.94629182676233)

The first values are the mean of the bootstrapping and the other two values are the lower and upper values belonging to the 2.5 and 97.5 percentiles having 95 percent of values in the boundary.

We can compare both deviations and see that the new fleet has a smaller standard deviation with tighter boundaries, which makes it better.

### 2.2 bootstrap plots

In the last two plots we can see the evolution of the bootstrap and how the mean, lower and upper values has evolved between iterations. We can also compare the values and realize how one mean fits in 20 while the other does it on the 30's.

## 3 Plots

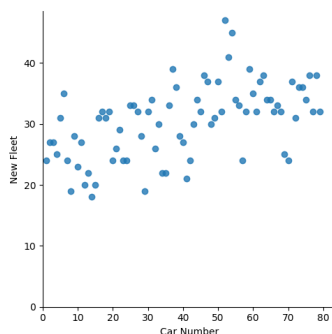


Figure 1: Scaterplot of new fleet

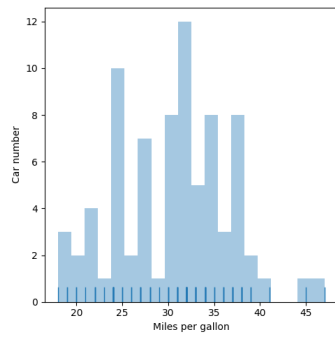


Figure 2: Histogram of new fleet

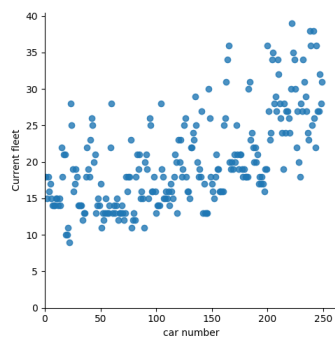


Figure 3: Scatterplot of current fleet

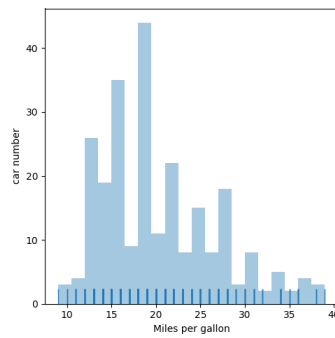


Figure 4: Histogram of current fleet

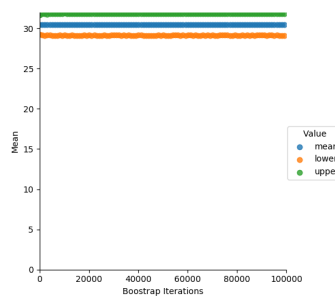


Figure 5: bootstrap confidence of new fleet

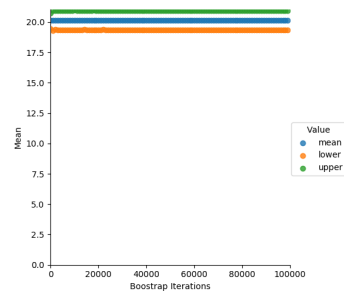


Figure 6: bootstrap confidence of current fleet