

# MA615\_Class Assignment: MPG tables and charts

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*9/19/2019*

## Class assignment:

Using the MPG dataset, which is available with the ggplot2 library, produce a document that includes the following elements: headers, text, tables, and plots.

Tables should include a comparison of city and highway mileage by the class of car and the best three car models for city and highway mileage for all the years in which data is available.

Plot the data displaying as much of the data as you can. Put continuous variables on the axes and include a locally smoothed regression line to show the relationship with mileage. Also make a box plot comparing city and highway MPG by class of car.

## Tables

- This example is flawed even though the code works. Explain.
- Answer: casue the R is extremly slow with loop.

## Tables

- Improve the code by using an *apply* functional

Table 1: Mean City and Highway MPG by Car Class

Class	City	Highway
<b>2seater</b>	15.4	24.8
<b>compact</b>	20.13	28.3
<b>midsize</b>	18.76	27.29
<b>minivan</b>	15.82	22.36
<b>pickup</b>	13	16.88
<b>subcompact</b>	20.37	28.14
<b>suv</b>	13.5	18.13

## Tables

- Improve the code by using an *aggregate* functional

Table 2: Mean City and Highway MPG by Car Class

Class	City	Highway
<b>2seater</b>	15.40	24.80
<b>compact</b>	20.13	28.30
<b>midsize</b>	18.76	27.29
<b>minivan</b>	15.82	22.36
<b>pickup</b>	13.00	16.88
<b>subcompact</b>	20.37	28.14
<b>suv</b>	13.50	18.13

## Tables

- Improve the code by using *dyplr*

Table 3: Mean City and Highway MPG by Car Class

Class	City	Highway
<b>2seater</b>	15.40	24.80
<b>compact</b>	20.13	28.30
<b>midsize</b>	18.76	27.29
<b>minivan</b>	15.82	22.36
<b>pickup</b>	13.00	16.88
<b>subcompact</b>	20.37	28.14
<b>suv</b>	13.50	18.13

- The next table is a bit tricky.

## Tables

- Top 3 MPG Performing Cars: 1999, 2008

Table 4: Top 3 MPG Performing Cars: 1999, 2008

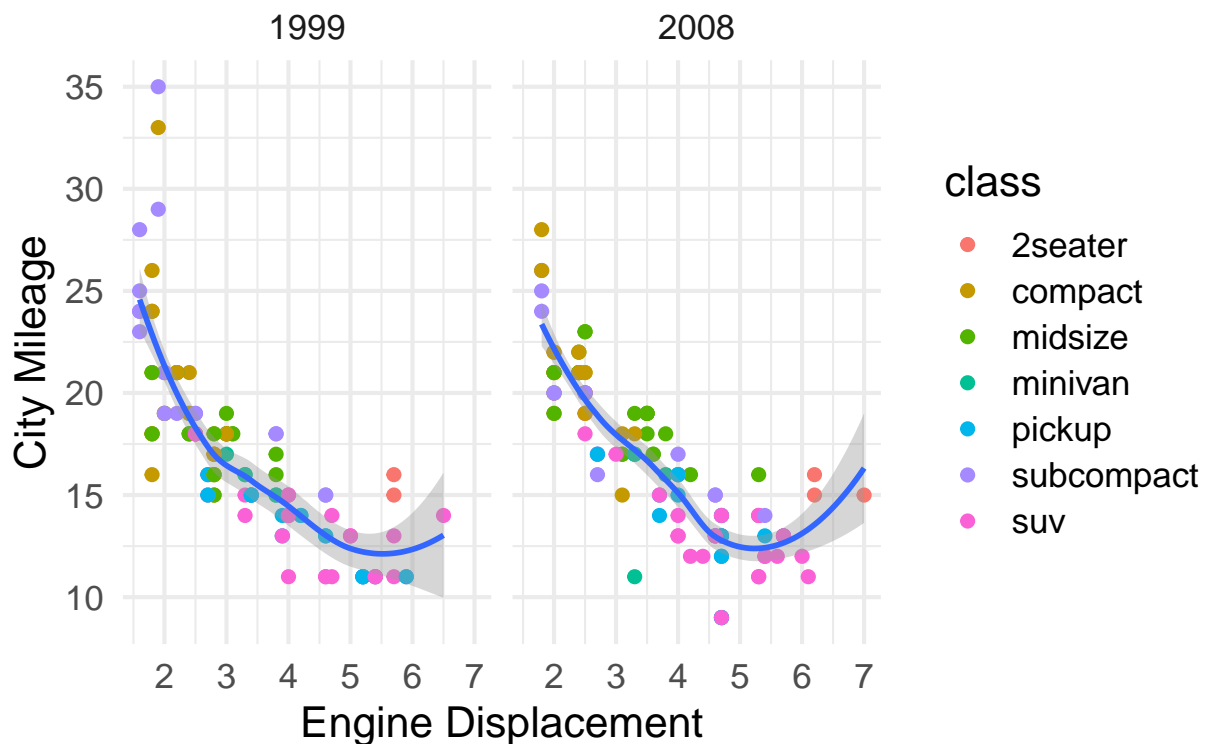
City 1999		Highway 1999		City 2008		Highway 2008	
Model	Milage	Model	Milage	Model	Milage	Model	Milage
new	26.0	new	35.0	corolla	27.0	corolla	36.0
beetle		beetle					
civic	24.8	corolla	32.7	civic	24.0	civic	33.8
corolla	24.7	civic	31.6	gti	21.5	camry	30.0

## Plot

- City MPG by Class of Car: 1999, 2008

```
## `geom_smooth()` using method = 'loess' and formula 'y ~ x'
```

## City MPG by Class of Car: 1999, 2008

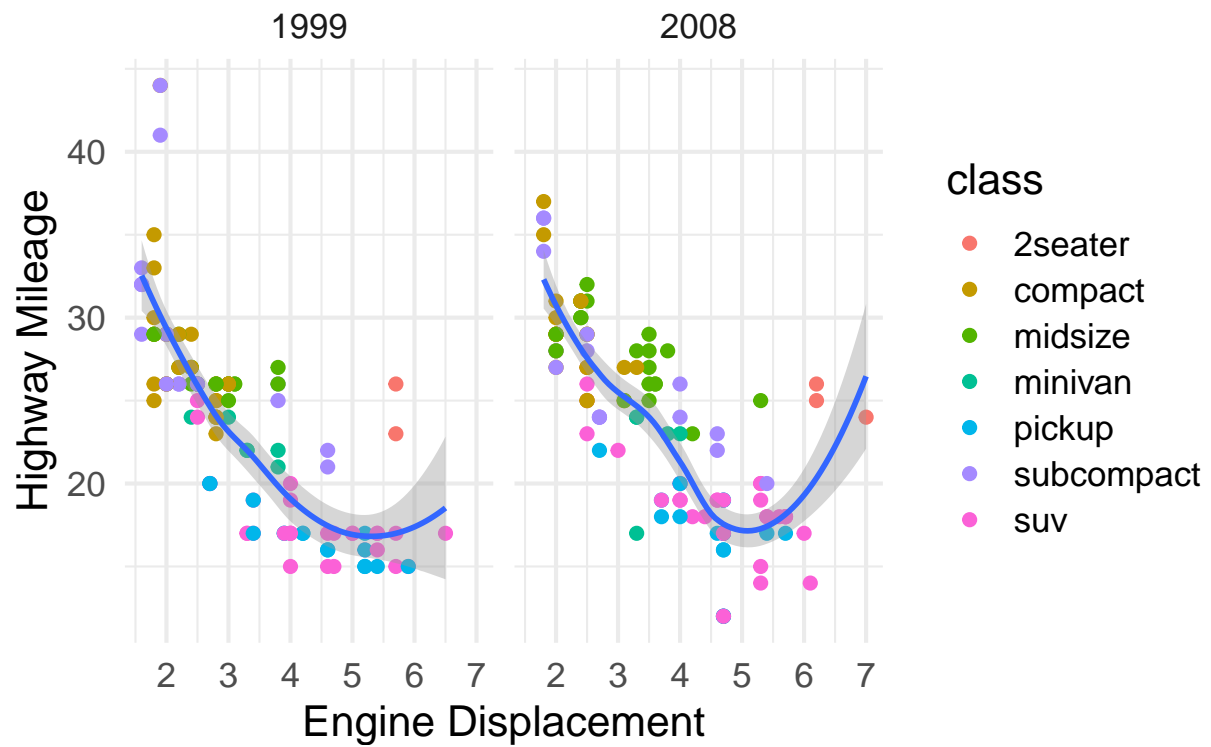


## Plot

- Highway MPG by Class of Car: 1999, 2008

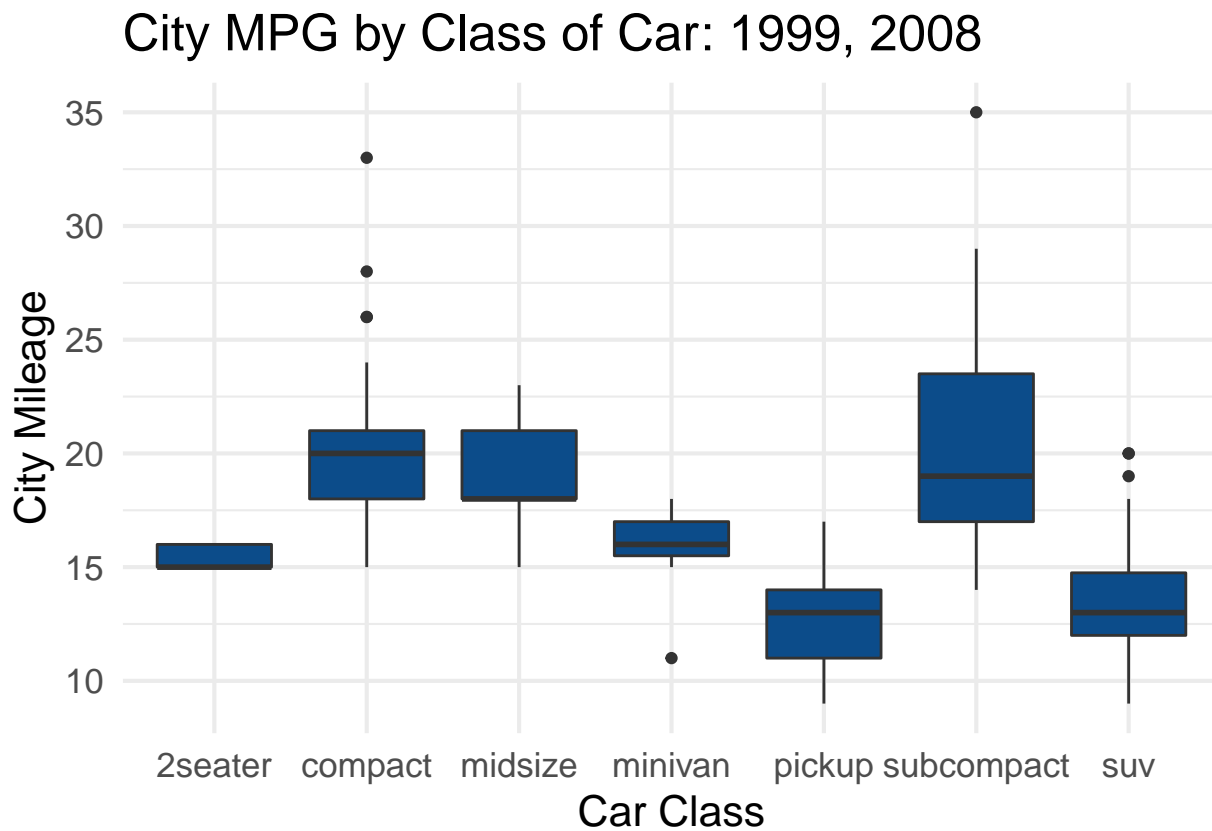
```
## `geom_smooth()` using method = 'loess' and formula 'y ~ x'
```

## Highway MPG by Class of Car: 1999, 2008



## Boxplots

- City MPG by Class of Car: 1999, 2008



## Boxplots

- Highway MPG by Class of Car: 1999, 2008

Highway MPG by Class of Car: 1999, 2008

