Project #4: Visual Analytics

Theme: add some visual analytics to your visualizations

- use D3 for visualization and python for analysis
- reuse elements from lab 2 and lab 3 and add visual analytics
- couple python and js either directly with flask or indirectly by storing python-computed results in a file and reading it with js

TASKS

Enable users to do the following (points):

1. allow users to select a variable from the drop-down menu and create a bar chart or histogram
2. allow users to select a bar (a level of the selected variable), auto-assign a color and color the bar in that color (10)
3. in a biplot highlight the points that have that level in that color (10)
4. do the same for the data MDS display (10)
5. do the same for the parallel coordinate display (10)
6. allows users to select further bars, auto-assign a color for each and color the selected bars in those colors (10)
7. highlight the corresponding points in the biplot, data MDS display, and the parallel coordinate display (10)

8. k-means cluster the points with k found via the elbow method (10)
9. auto-assign a color for each cluster and use it to highlight the points in the biplot, data MDS display, and parallel coordinate display (10)

WHAT IT WILL LOOK LIKE

Remarks:

- plots for the variable-tagged colorizations (Q1-7) may not show distinct clusters like this

- they will only look like this when the variable used for tagging gives rise to "natural clusters"

- on the other hand, plots generated by cluster-based color tagging (Q8-9) will likely produce defined colored regions like the ones shown here

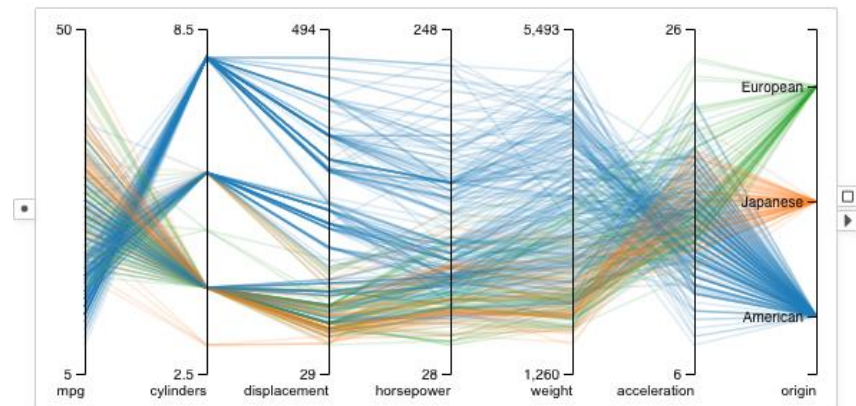- note: the figures do not show the same clusters
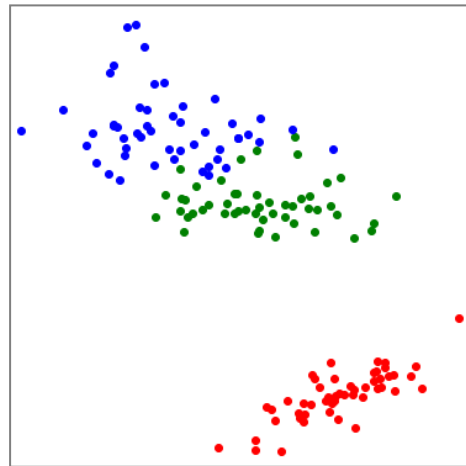
MDS plot
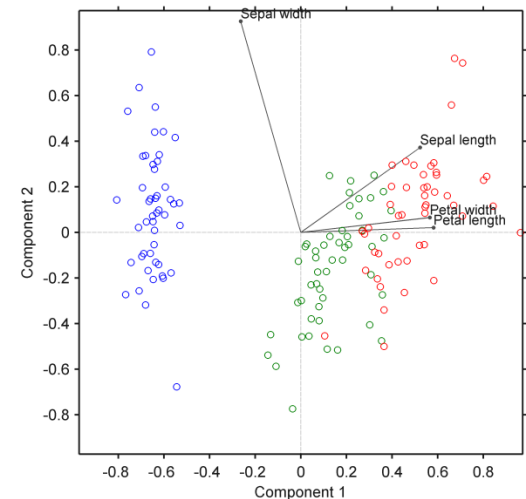
biplot

parallel coordinate display

Deliverables

Submit by <u>Tuesday, November 14, 11:59 pm</u>

- **report** relating observations with <u>your</u> data (10)
- are there any interesting findings you can make?

- **video** that shows all capabilities of your interface

- **archive file** (zip, rar, tar) of your code and data

Point decomposition

- 8 points – works (does the job)
- 2 points – wow (does the job nicely)