PROJECT #3: ADVANCED DISPLAYS

Theme: compare several visualization techniques for high-D data
- use D3 for visualization and python for analysis when needed
- use the data you selected with your 8 favorite attributes

Make separate web pages for the following (10 points for each):
1. 8×8 correlation matrix (map positive/negative correlations to red/blue with intensity indicating correlation strength)
2. 5×5 scatter plot matrix (choose attributes with greatest aggregated correlation strength, see next slide)
3. parallel coordinates display with 8 axes (choose pairs by correlation strength, see next slide)
4. PCA plot (top 2 eigenvectors) with associated scree plot (8 bars)
5. biplot with 10 projected axes (project all into top 2 PCA vectors)
6. MDS display of the data (use Euclidian distance)
7. MDS display of the attributes (use 1-|correlation| distance)

Some Notes

## Correlation matrix
- the colors should look like this
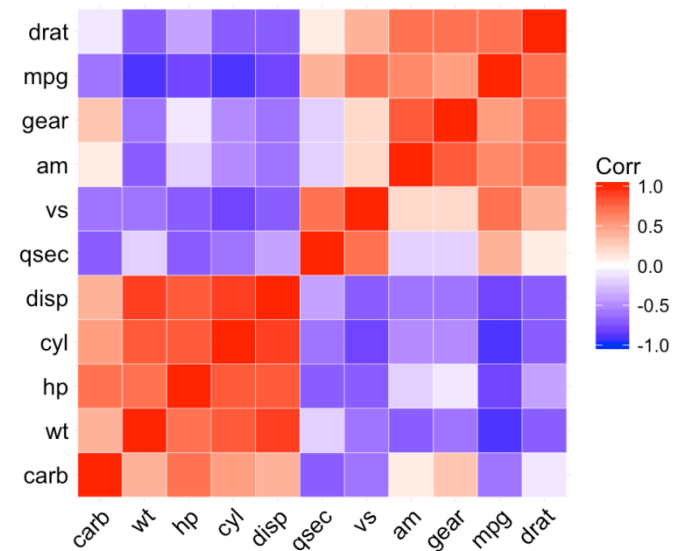
Scatterplot matrix plot selection
- add |correlation| along each correlation matrix column
- pick the 5 attributes with the highest sums and display

Parallel coordinates display axes ordering scheme
- pick pair with greatest |correlation| → axes A1, A2
- axis A1 is the attribute with highest correlation sum
- axis A3 is the attribute that has the highest |correlation| with A2
- axis A4 is the attribute that has the highest |correlation| with A3
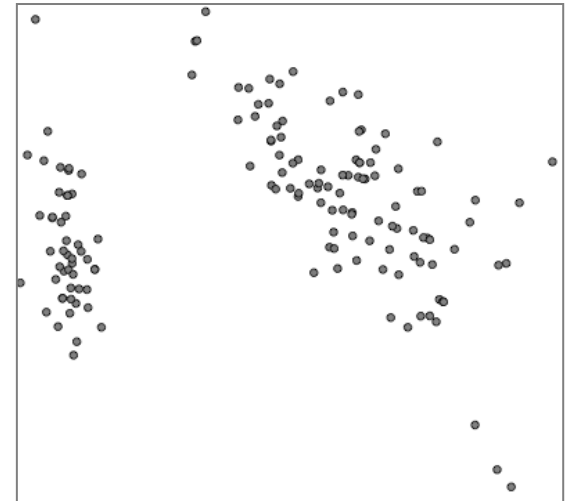- and so on....
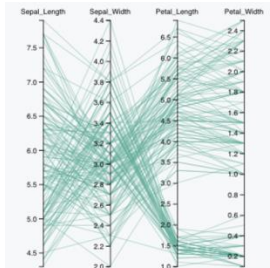
More Notes

Scree plot

- use the bar charts you already have

MDS plots

- should look like this
- we will add cluster information in lab 5

DELIVERABLES

Submit by <u>Thursday, October 21, 11:59 pm</u>

- **report** discussing pros and cons for each of the seven displays (20 pts)
- relate these observation to <u>your</u> data
- are there any interesting findings you can make?
- what information of your data do these displays show well
- what information can't they show

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

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

Point decomposition (the two w's of lab 3 execution)

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