PROJECT #3: ADVANCED DISPLAYS

Theme: compare several visualization techniques for high-D data
- use plotly for visualization and python for analysis when needed
- use the data you selected with your 10 favorite attributes

Make separate web pages for the following (10 points for each):
1. 10×10 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 10 axes (choose pairs by correlation strength, see next slide)
4. PCA plot (top 2 eigenvectors) with associated scree plot (10 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)
Correlation matrix
- the colors should look like this

Scatterplot matrix plot selection
- add $|\text{correlation}|$ 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 $|\text{correlation}| \rightarrow$ axes A1, A2
- axis A1 is the attribute with highest correlation sum
- axis A3 is the attribute that has the highest $|\text{correlation}|$ with A2
- axis A4 is the attribute that has the highest $|\text{correlation}|$ with A3
- and so on....
Scree plot
  - use the bar charts you already have

MDS plots
  - should look like this
  - we will add cluster information in lab 5
Submit by Thursday, October 22, 11:59 pm

- **report** discussing pros and cons for each of the seven displays (20 pts)
- relate these observation to your 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)