CS/INFO 3300; INFO 5100
Homework 6
Due 11:59pm Monday 3/26

R to Javascript; Javascript to R

Goals: (or "Why are we doing this?") Recognize patterns in data manipulation and visualization, and that those same patterns can be expressed in different syntax. Get experience quickly orienting to a new language. Practice manipulating strings with simple regular expressions. Practice a tool that can help you try lots of project ideas quickly.

In this homework I am giving you two completed mini-projects, one in R and one in D3/JS. Your job is to translate the one in R to D3/JS, and the one in D3/JS to R. Read both of these carefully before starting to create your own versions: each provides some hints about the desired format for the translation of the other. I am including two "cheat sheets" produced by RStudio that I find very useful.

Your work should be recognizably the same as the sample output. Try to match as much as possible, but don't worry if styles aren't exactly the same. For example, ggplot automatically creates axes and guidelines on the background. Include the axes in D3/JS, but don't include the background unless you want an extra challenge.

1. The file `noaa-central-park.csv` contains more than 120 years of monthly average temperature measurements recorded in Central Park, NYC (source: NOAA). The variables are the date in a numeric format, the average temperature, and the temperature anomaly, which is the difference between the monthly temperature and the average temperature for that month during the 20th century. The file `temperature.html` implements a visualization of three year-level summaries of the monthly temperature anomalies: min, max, and mean. Comments in the code identify groups of lines that correspond to R statements. Write an R file called `temperature.R` that reads a data file from the current working directory (do *not* hard code your working directory path in your R script) and writes a PDF copy of the graphic. Your R script is likely to look a lot like the R script in the next problem, be sure to familiarize yourself with that file before starting this problem. (45 pts)

2. The file `bls.txt` contains monthly job change numbers from the US Bureau of Labor Statistics, which we have looked at in class. The file `jobs.R` creates a

visualization of monthly data since 2007, with a line plot overlaid with points that indicate whether a number is preliminary or final. Create a file jobs.html that implements a similar graphic in D3/JS. Your HTML file is likely to look a lot like the HTML file in the previous problem. (45 pts)

3. You are interviewing for a data science job. The hiring manager asks you whether you can handle a fast-paced deadline-driven environment where technology is constantly changing. In a file `interview.txt` describe the time your cruel professor made you do homework in a language you had never seen prior to the previous week, and what you learned from that experience. Be as specific as possible. (10 pts)