

CS/INFO 3300

Homework 2

Due before class Monday 2/10

Use the same format as Homework 1: wrap each answer in a `<p>` element, with any SVG tags in an `<svg>` element and any Javascript code in a `<script>` element. Put this file in a zip archive with a filename of the pattern [firstname]-[lastname]-[netid]-hw2.zip.

1. Create a 200x200 pixel SVG element with the word "Cornell" in red centered in the exact middle, using the Palatino typeface. Consult the SVG specification to find out how to change color and font attributes and set text alignment. If you do not have Palatino, you may use another font to test your code. (20pts)
2. Create a 200x200 pixel SVG element. Reproduce the plot in Figure 2 of the Wickham "Layered Grammar of Graphics" reading using SVG elements. Recalculate the pixel positions for the (x, y) coordinates in Table 2 as necessary. Remember to account for the "padding" pixels below and to the left of the axes. You do NOT need to include the short tick marks. (20pts)
3. In class on Friday we created a plot that looked not unlike the Japanese flag. Use SVG `<path>` elements to create the Chinese flag (five yellow stars on red). You may substitute another flag as long as it has elements that require a path, not just rectangles (eg Canada, but not France). (20pts)
4. Consider the following dataset:


```
var samples = [7, 4, 5, 3, 15, 5, 7, 3, 4, 2, 15, 4, 5, 5, 5];
```

 - A. Make a histogram of the data values using SVG rectangles (labels optional). (20pts)
 - B. Calculate the mean, median, mode, and standard deviation. Use whatever tool you like. (5 pts)
 - C. Add vertical lines to the plot corresponding to the mean (in red), median (in blue) and mode (in purple). (5 pts)
 - D. Use an SVG rectangle with a semi-transparent fill to show the region one standard deviation on either side of the mean. (5pts)
 - E. Calculate the probability that a randomly selected datapoint is equal to 5. (5pts)