**Week 2 Homework:** (5 points)

This homework assignment has three parts. In the first part, you will create charts from exercises in *Visualize This*. In second and third parts, you will create plots to examine simple distributions and multidimension plots, most of which will require some form of grouping. The second and third parts are very similar to the labwork but with a different dataset.

#### Part 1

Use the *Visualize This* book and make the plots below. Only do the R part. (*Do not complete Illustrator exercises yet.*) A key part of this assignment is to make the plots as close to the same aspect (height-to- width ratio) as the plots in the book. So, if the plot is almost square in the book, yours should also be almost square. Size the plot window in R before exporting your plot. The plot width and height should be proportionally the same as in the book. This will be part of the grade. Match the examples in the book as completely as possible. (The dates won't quite match in one of the plots, in which case, include all the dates.)

* Bar chart: Figure 4-11
* Stacked bar chart: Figure 4-22
* Scatterplot: Figure 4-28
* Time series: Figure 4-34
* Step chart: Figure 4-43

Tips: Resize the chart output window BEFORE you save it as a PDF file to achieve proper proportions. Note that the plot width and height should be proportionally the same as in the book. This will be part of the grade. Create a script in a document window, and then use the console window to open/run it. This will enable you to reuse code and troubleshoot if there are problems. You will lose points if the plot is not a PDF file. Make sure you can open the file in Adobe Acrobat before turning it in.

#### Part 2: Simple Distributions

Download art.csv (from the Data and Images section) to your (or a lab) machine. Using R, make four plots to answer the following questions. Here, we are interested in looking at different ways to look at the same data. Use the par() function to put all four plots in the same plot space (like we did in the lab). Also, give the plots titles and *x*- and *y*-axis labels, use colors that you like, and, if you are using a plot with points, use a symbol you like (pch). In other words, customize these plots to show me that you know how to modify different elements of the plots.

* What is the distribution of total.sale for the whole dataset? Provide two different plots that show two different ways of showing distribution. Title your plot(s): Distribution of total.sale
* Next we want to compare the distributions of subsets of total.sales. Use a third type of distribution plot (different from what you used for the question above) for both of these plots.
* What is the distribution of the totals sales for drawing paper? Title your plot “distribution of the totals sales for drawing paper”
* What is the distribution of the totals sales for watercolor paper? Title your plot: “distribution of the totals sales for watercolor paper”

#### Part 3: Grouping and Multidimension Plots

Using the art.csv dataset again, answer the questions below. This work will require that you make plots that show relationships or allow comparisons. You will need to use some of the grouping functions and data sub-setting we used in the lab. Don't forget to set stringsAsFactors = FALSE, or it will affect the results of your plots. Also, put all three plots in the same plot space again, and customize colors and other parameters in some interesting way.

* Is there a relationship between the unit price of art goods and their units sold? If so, what kind of relationship is it? Indicate which plot answers this question.
* Does the art company sell more units of drawing paper or watercolor paper? Indicate which plot answers this question.
* Does the art company bring in more money (income) selling drawing paper or watercolor paper? Indicate which plot answers this question.

#### Submit

A single PDF file with all the plots. For Part 1, each plot should be its own page. Then there should be two more pages, one for Part 2 and one for Part 3. <LastName\_wk2hw.pdf>. Also, turn in your script that you created to make these plots with the file name: <LastName\_wk2hw.R>.