**GEORGETOWN UNIVERSITY**
**PUBLIC POLICY 646**
**DATA VISUALIZATION**
**ASSIGNMENT 1: FIRST ATTEMPTS**
**Prof. Wesley Joe**

This assignment requires you to create two data visualizations. The first project is to replicate a visualization from Nathan Yau's book *Visualize This*. The second is create an original visualization from a data set of your choosing.

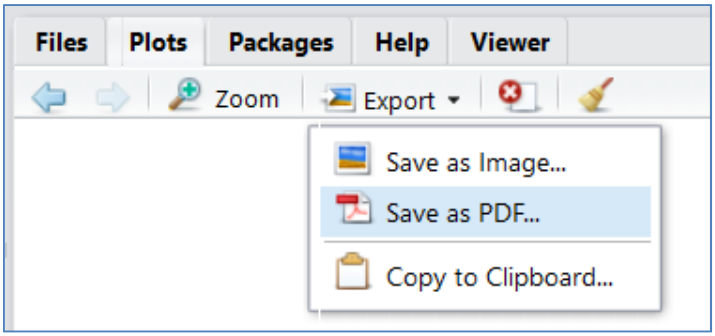
A. Please create a replication of graph 6-7 in Nathan Yau's book *Visualize This*. (The book is available online through the Lauinger Library web site.)

Your replication should attempt to approximate the contents of the plot area as closely as possible. Please include axis labels, tick mark labels, a title, subtitle, and the data source credit. Do not, however, spend time trying to make your graph look exactly like Yau's. You'll learn how to refine these elements in Adobe Illustrator. Also, do not worry if your LOESS curve line does not match Yau's. Yau used graphics functions from "base R" to create his graph. You're using different functions from the ggplot2 package instead. Hence your graph will not closely match his; that's fine.

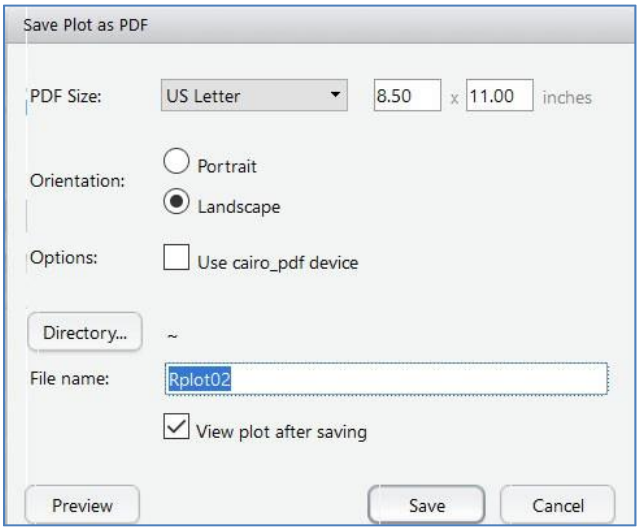
The data set is available online in the location specified in Yau's book:
http://datasets.flowingdata.com/crimeRatesByState2005.csv

After you finish the plot, export the plot from R into a PDF file. Later, we'll refine the graph in Adobe Illustrator.

In the plot window there is a button named "Export." Click on the "Export" button, and select "Save as PDF.



Note: You will probably want to select the "Landscape" orientation for the page, as shown next:




B. Using a data set that you have found, create an original scatterplot visualization. Begin by writing a brief paragraph that explains the purpose of your visualization. (This does not need to be more than a few sentences.) Do you want viewers to explore the data to answer their own questions? Or do you want the visualization to support a particular point that you want to make, perhaps to reinforce something that you explain in accompanying written narrative? Do you want to emphasize trends or particular values? Then, create your visualization.

   Your visualization should also include enough contextual information (such as titles, unit labels, axis labels, and so on) for your audience to do intend for them to do with the visualization. You should also report the source of your data. Your visualization should be aesthetically pleasing to a professional audience. At a minimum, avoid potentially offensive or distractingly odd choices (for example, a chart of huge points that are purple plaid).

   Finally, a word about sharing code with each other and appropriating code examples from the Internet. Learning to write code from scratch is an important objective of this course. You'll meet this objective only by writing your own code. Consequently, for assignments in this class, students cannot obtain code from any current or former McCourt student, or from friends or colleagues at work. You can, however, use online resources, such as StackOverflow or other StackExchange sites, RStudio Community, and other the like. If you use code from such sites, even as a model, please explicitly cite the source that you used. Please include the citation in the "statement of purpose" associated with the visualization for which you used the site. Any shared or recycled code that is used, even as a model, without attribution will be considered a violation of the academic honesty guidelines.

Please turn in a single PDF file that contains four pages (in the specified order):

- Page 1: your replication of Yau's Figure 6-7.
- Page 2: your brief statement of the purpose of your original visualization.

- Page 3: your original scatterplot visualization.
- Page 4: the R code for your original scatterplot visualization.

Please make sure that the pages are in the specified order. This organization promotes grading workflow efficiency. Submissions with the pages out of order will forfeit 1/3 of a point on a 4-point grading scale.

There are several ways to combine separate PDF documents into a single PDF file.

- Use Adobe Acrobat Pro (either your own copy or a copy in the Lauinger Library).
- Use one of the free online tools for which links are available here:
    - https://smallpdf.com/merge-pdf
    - https://combinepdf.com/

I have used these tools only a few times and found the results acceptable. That said, please review your own output from this process before you turn it in. Ultimately, as in the real world, you are responsible for the quality of your work products. ☺

Please submit your PDF file to your Gradescope account for this course.