Homework 10. Due by 5pm on Thursday 11/21.

Linux and the open source software movement.

Linux is the dominant environment for scientific computing. For example, all the 500 fastest supercomputers run some variant of Linux (`https://en.wikipedia.org/wiki/Linux`). As another example, most cloud servers are built on Linux, and Linux is therefore dominant for data science applications that involve cloud computing. It should be apparent that Linux skills are useful for a research statistician. Write brief answers to the following questions, by editing the tex file available at `https://github.com/ionides/810f19`, and submit the resulting pdf file via Canvas.

1. Linux, R and python are all open source and free.

   (a) How do you think these projects led to high quality products given that the usual financial incentives for building, coordinating and running a development team are missing?

   YOUR ANSWER HERE.

   (b) If developers are interested in making money, can they do this by writing free software? If so, how? If not, why do they do it?

   YOUR ANSWER HERE.

2. An introductory Linux tutorial is at `https://tutorials.ubuntu.com/tutorial/command-line-for-beginners`. Review this and summarize how much is new to you. Your responses will be used to plan the next class.

   YOUR ANSWER HERE.

3. Do you agree or disagree with the opinions at `https://hub.packtpub.com/data-science-windows-big-no/`?

   YOUR ANSWER HERE.

4. Suppose you and your collaborator plan to run some computationally intensive tasks which will eventually be scaled up to run on the Great Lakes cluster. It is helpful for this if the debugging and preliminary analysis can be carried out in a similar environment on a laptop. MacOS is based on UNIX and is therefore equivalent to Linux for most purposes to a practicing statistician, however your collaborator has a Windows laptop. Suppose this situation finally persuades your collaborator that it is time for him/her to run Linux on his/her laptop. Recommend a Linux distribution (with a justification) and give some other helpful advice.

   YOUR ANSWER HERE.