Computational Physics HW 1

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Hi,

I'm Mitchell. I'm a senior in the physics major, and I'm really excited about this course.
I have been doing computational astrophysics research for nearly four years now, so I'd say I'm an experienced programmer. I did numerical simulations and signal processing with Hogg, and I'm currently doing data analysis on some large (Gaia) datasets with Glennys Farrar and Sjoert Van Velzen. While I feel like my scientific computing skills are pretty good, I'm hoping to really refine them in this course. My goals would be to get more comfortable with scientific computational methods, learn more complex techniques (MCMC, k-d trees, Machine Learning, etc.), and to use the projects in this class to really push my coding abilities to create things I'm proud of and can display on my github.
I hope to go to grad school to do some sort of computational astrophysics/cosmology. I've been working in time domain astronomy which I really enjoy, but find myself drawn to more cosmological questions. So I think a field like type 1a supernova cosmology would be fitting. However, if the TA or professor have any advice I would love to get any input that I can. I'm excited to be in this class.