Lam Comp Class HW6

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1 Homework 6 problems 1-3

In this homework we are using the least square method to fit a line on data that is on Cepheid stars. We use this method by performing some matrix mathematics like we discussed in class involving matrix multiplication, inverses, and transposes as well. We are showing here using the distance modulus and this technique we can solve for the coefficients given in the equation $M = \alpha + \beta \cdot log(P) + \gamma \cdot log(Z)$. These will help complete the equation and we will be able to solve for our magnitudes. We then are able to find the errors by using the $\sqrt{\sigma}$ we learned in class. The errors that came back from the code are $[[0.014305259812299916, 0.016764732468985268, 0.025234995714561892]]$.

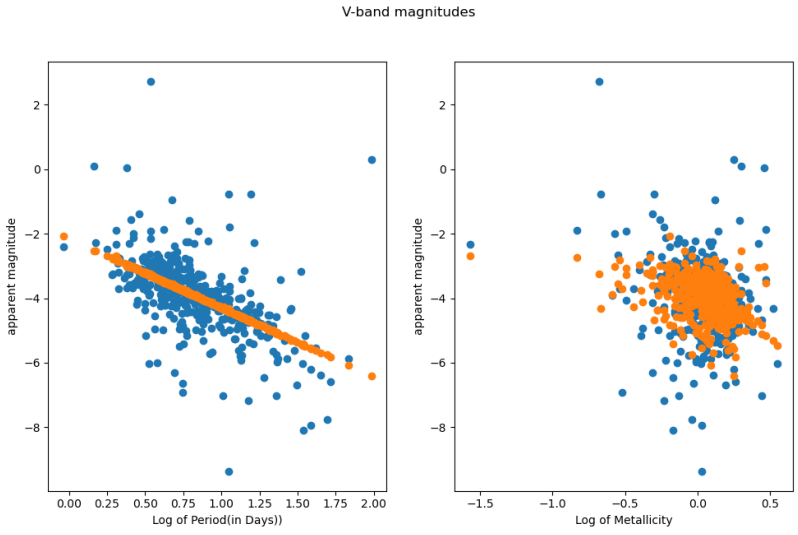

Figure 1: Left: Our solved coefficients with our best fit over our data. Log(P) vs Magnitude in the V-band. Although the code is built to check the other bands mentioned in the HW. Right: The right graph is there for a sanity check to make sure our least square method is working. One thing that I noticed was the magnitudes might be off. I remember you told me about my conversion was a little off from the reddening so it could be there. Overall I can say there is no python sadness since the method worked and the graphs look very pretty!!