Python Decal: Project Check-In

Brandon Pestoni

April 1st, 2025

1 Questions

- What is the general topic of your project?
  - The general topic of my project is categorizing habitable exoplanets by comparing parameters from the resource I will be using.
- Describe a general timeline you will follow to complete your project.
  - Gather all the data from the resource stated in my proposal and organize data into arrays
  - Decide all the plots that I wish to do–basically determine the relationships you want to plot (ex. mass vs. radius), and then familiarize myself and review the syntax of matplotlib or **seaborn** if used
  - Do some data filtering and create new plots, essentially place constraints on the values of the parameters that eliminate extreme outliers and stragglers from the theoretical model of a "Earth-like" exoplanet (for mass and radius and plot only). This plot should be much more refined and doesn't include as many points (less chaotic)
  - **(Maybe)** Once again using the arrays, plot flux vs surface temperature to get a visual of the gold-lock zone and where the different type sof exoplanets lie
  - **(Possibly, most likely not)** Get data on the trappist system, including all of its orbital parameters for each planet and parameters of the host star and organize into numpy arrays (im assuming, unless you can animate dictionaries), learn the functionality of astropy to maybe do a simulation, talk to mentors especially for help on this one
- What modules/packages/libraries do you think you will be using?
  - NumPy
  - Pandas
  - Scipy
  - Seaborn
  - Astropy (for possible simulation)
- What questions do you have?
  - I generally have experience with python–I want to do more than just plots–I'm thinking about creating an animation of the TRAPPIST system or something alike?
- What feedback does your mentor have for you?
  - Definitely plot as many relationships as the data gives that you are interested in and show which worlds are habitable in comparison to Earth. If you have time, then start looking into taking data on TRAPPIST and creating a simulation using the approparaite libraries.