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Astronomical data from modern observatories is now most readily obtained from online repositories. Even if you as an astronomer take the observations at the mountaintop, chances are you will go home empty handed with nothing but a user and password. These will give you access to your proprietary data after it has been minimally processed and normalized.

In this homework we will be working with data from the TESS observatory discussed in class. The module lightkurve will be used extensively, make sure you have it installed and available wherever you code.

First make sure you get the `HWK2-Howbigisyourworld.ipynb` from the github repository.

Let's analyze the data from a planet in TESS. Following the sample code provided you are expected to select a planet from `https://tess.mit.edu/publications/`. And use that in the two questions.

1 First we analyze individual images or Full Frame Images (FFI).

You are expected to:

1. Analyze the image data from your planet, and establish how bad was the scattering light. Describe how the selection of the aperture affects your result.

2. Correct the lightcurve to obtain and identify the transit of your planet. Make sure that you explain what are the main sources of error in your analysis.

3. Consider an alternative approach to your cleaning of the lightcurve. It does not matter what approach it is or how well it works, but that you explain clearly what are your assumptions. Examples include MCMC, gaussian processes, Principal component analysis, etc.

2 For this part you are expected to download already de-trended 2-min cadence data for your planet. Follow the sample code and produce the lightcurve.

1. Fit a model for the transit using whatever method you choose.

2. Compute uncertainties for your fit parameters.