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HW 7 Part 0
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Circumgalactic Gas Flows that Drive Galaxy Formation and Evolution
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Summary:

1. How far does the circumgalactic medium (CGM) extend from its host galaxy? By analyzing the gas between the milky way and reference light source like a quasar, we can see heavy elements at a certain distance that are a part of a galaxy's CGM. By locating this galaxy, we can use the coordinates to find the distance from the galaxy to the gas location giving a lower limit to the extent of a galaxies CGM.

Dataset:

I will use two data sets to calculate the lower limits of the CGM. One is the data that I have analyzed through research that is stored in a .json file, and the other is a data on website. The data set that I have analyzed contains the info of the identified elements like the element name, distance, column density, comments, rating, and others. Currently, there is some amount of code provided to my research group to make the data more readable, by turning the data into a data set organized by distance. I would like to pivot this data to be organized and filter the data by column density, giving good locations to look for galaxies. The filtered data will then be turned into a dictionary within a dictionary, with the key being the system and the value being a dictionary containing all of the info at that location.

This leads me to my second data set, which is the SDSS DR7 website. This website contains information about galaxies in the general area of our data set. Here we can locate galaxies and look at their distances measured in redshift, the uncertainties in the distance, the galaxy ID, and the coordinates. I would like to write code that will take this information from the website, and link this galaxy to its system of gas. At this point I can make calculations to find the angular distance and actual distance, and make plots of the data. With the SDSS website, I will need to learn a new package that will access data on a website to be analyzed.

Link for SDSS DR7: http://cas.sdss.org/dr7/en/tools/explore/obj.asp?id=587732134303629591