You are required to analyze a data set of the various Cosmic Rays hitting a detector in a some a single second of time. Your dataset is dierent from everyone else, and as such your results will be dierent from everyone else. You will submit and demonstrate and explain your Jupyter Notebook calculations. You can download the data set based on your assigned data id number at the following website.

Data Location: http://comine.com/data/ae01

Point your web browser to the URL of the web site to make sure that you are typing in the correct correct. We discussed in class how to download the data le onto your machine, and load it into a numpy array.

The dataset consists of the energies of various cosmic rays that hit the detector in a second. The units of the energies is in eV. If you look at the data, you will nd that there are two principle peaks in the energies. You are required to nd the following information.

1. Find the number of items in your dataset
2. Display a small sample of the dataset to get an idea of what the numbers look like.
3. Find the average energy of a cosmic ray event.
4. Plot the data using the plot function in matplotlib.pyplot.
5. Plot the data using the hist function in matplotlib.pyplot.
6. Using the histogram counts and ranges from the hist function, nd the average energies, variances, and standard deviations of the both peaks.
7. Find the fractions of all cosmic ray events that are associated with each peak.
8. How much energy is being associated with each of the two peaks.