Lab 1: Hubbles Law

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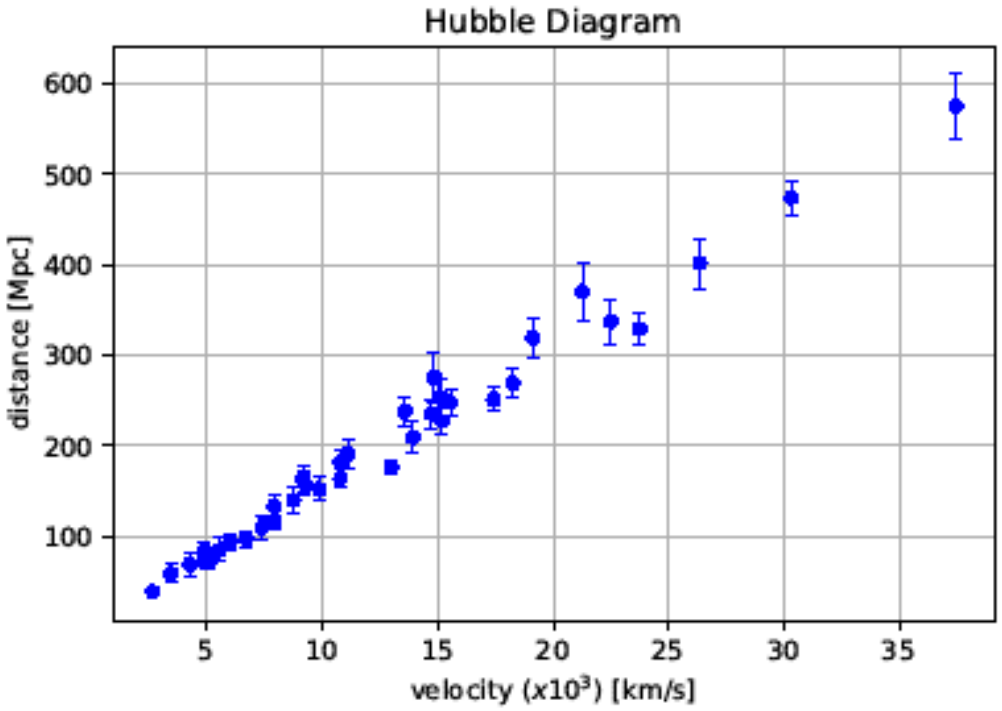
Type Ia supernovae provide a standardized way to measure distances by redshift.

Plotting the velocity vs distance of distant objects seems to reveal a relationship between the two

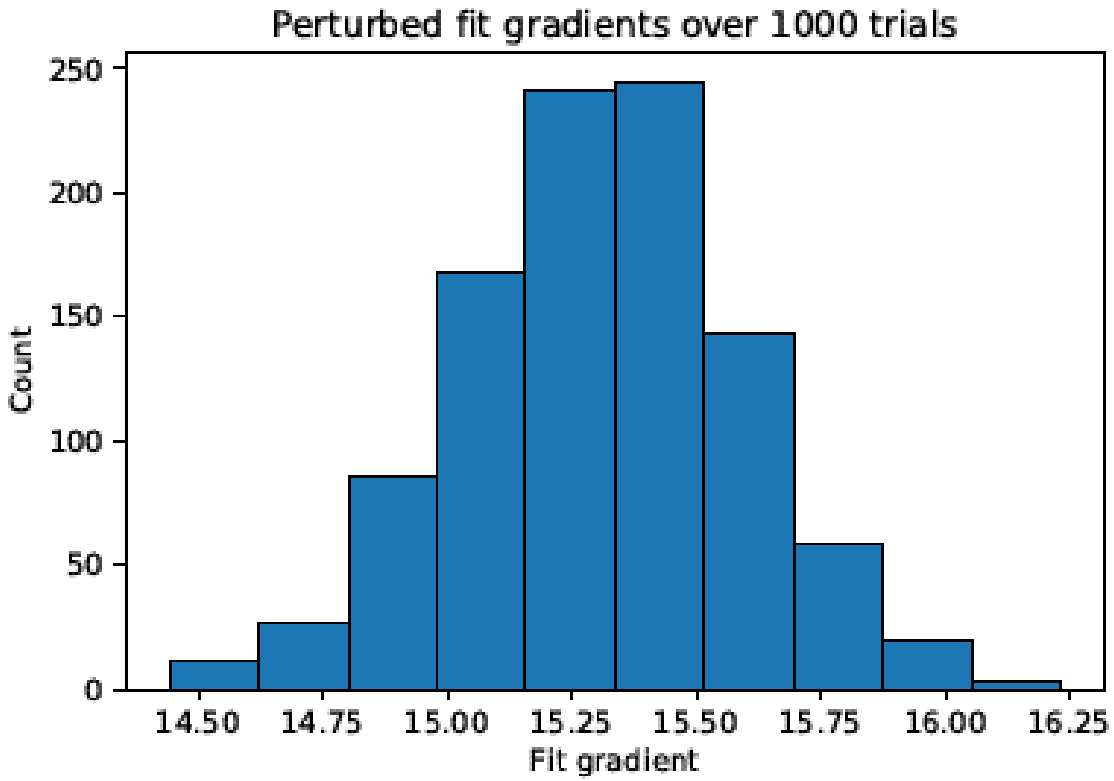
If we can find a best fit line, we can use the gradient to calculate the age of the universe



We then used numpy.polyfit with weighting and output the covariance matrix

The coefficients from the weighted polyfit model give us the weighted coefficients and errors in the diagonal of the covariance matrix

We then use the best-fitting gradient to calculate the age of the universe



The best-fit gradient was found to be 15.30 +/- 0.33 Mpc/km/s

We calculated the age of the universe to be 14.97 +/- 0.32 billion years.

A larger data set and testing polyfit models of other degrees could possibly improve results