

**Part 1 – Analysis**

- The population data shows a general upward increase, that's seemingly exponential – gradual at first and then accelerating to where we are at the present (~7b). A lot happens in the last few hundred years. No one population data is not complete in across the time series, which is important because to compare any one, we'll likely have to extrapolate at least a little bit across all of the population estimates because no one will have all of the data points we want from the original dataset.
- Earlier population estimates have more variation because there isn't a good way to measure what the population estimate was (other than backtracking from genetic data today, which is still a far removed way of estimating the breeding population.)
- The population differences become smaller over time, relatively speaking (although the absolute numbers increase, because there many more people now). So the uncertainty is largest relatively early on (i.e. pre 0 AD) but largest absolutely in the future projects (i.e. 2000 AD +, projecting to 2050 AD).
- You could faithfully represent the uncertainty with a shaded region, if you include the maximum extent of the uncertainty ranges in the plot. So you'd have a shaded region above or below the mean or some weighted average of the population estimates, which would be the minimum population estimate including uncertainty, and the maximum, which could be upper and lower bounds.
- Linear interpolation would not affect the uncertainty per se, as you're still using the same data to interpolate. But, you can interpolate in different ways, i.e. just using individual points or aggregating them together to construct points where you don't have data.
- Linear interpolation is probably not a valid method for visualization (unless you do point by point, but even then you'd have a jagged trend line at the end when the population is increasing non-linearly between data points) given that the population growth is an exponential phenomenon.

**Part 2 – Sketching**

- See hand sheet