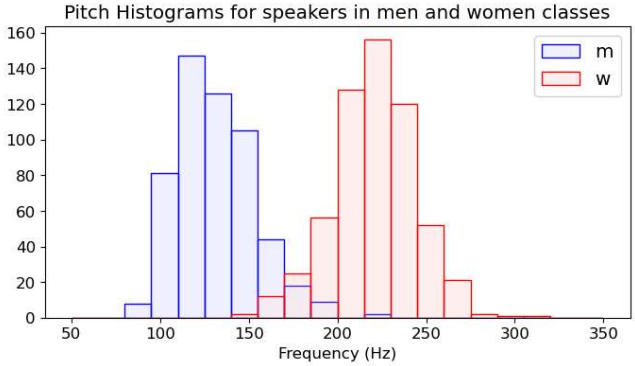
Pitch Distribution

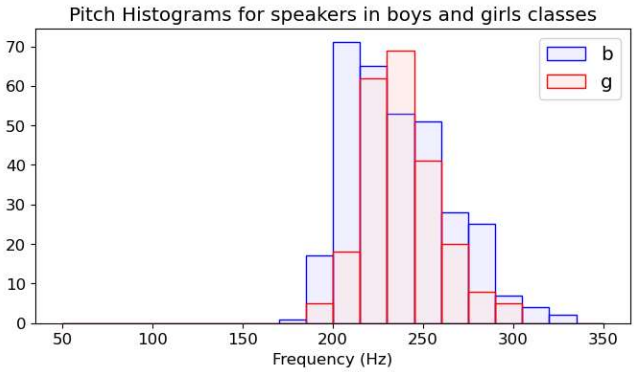
Pitch and Gender in the Hillenbrand database

This notebook presents a basic histogram analysis of pitch wrt. gender. Average pitch (over a single syllable word) was measured by humans in the Hillenbrand database. A clear bimodal distribution is obvious, with only minimal overlap. This suggests that pitch is an excellent feature to do gender recognition ... for adult speakers ! For boys and girls we see full overlap.

2. Histograms of Pitch data

With the code cell below, you can analyze the distribution of pitch according to gender and the distinctions between young and adult speakers. Adjust your selection: e.g. ['m','w'] for men and women or ['b','g'] to visualize boys and girls.





3. Modeling the Pitch Distributions

From observing the histograms, we see that for all subclasses the pitch values seem to be distributed quite 'normal', i.e. in the statistical sense of belonging to a normal (Gaussian) distribution. Such distributions are characterized by 2 parameters - mean and variance - which are easily estimated from the data.