

Numerical simulations

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The aim is to assess how well the proportion in a sample estimates the proportion in a population.

1. Create a population of $N=1$ million voters out of which 52% support a candidate A, and the rest support candidate B. Use a numpy array.
2. Extract a random sample of $s=100$ voters and compute the proportion of A supporters.
3. Rerun the preceding process 1000 times and plot an histogram of the estimated proportions (using `matplotlib.pyplot.hist`).

Exercise: Modify s , the size of the sample, and compute the standard deviation of the sampled means as a function of s .