PRACTICE 5

EXERCISE 1: CENTRAL LIMIT THEOREM

The distribution of the random variable sum tends to a normal (Gaussian) distribution, the more so the larger the number of variables considered.

a) Generate N data (N = 10) from a uniform distribution between 0 and 1.

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N = 10;
X = rand(1,N);
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b) Calculate the average of the 10 values.

c) Repeat steps a) and b) a million times. How is the average value distributed (ie, how is the histogram divided by the number of elements)?

d) Repeat steps a), b) and c) with N = 100, N = 1000 and N = 10000.

e) Compare the histograms obtained in c) and d) How are their means? And their variances?

f) Repeat steps a) to e) for other than uniform (chi2rnd, frnd, rand. ^ 2, etc.) distributions. What happens to the distribution of the mean?