Physics 129
p4_hw6 Latex file

Kaiyan Zhou

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Through this homework, I have created a program that contains a function that simulates coin toss for 100 times, which each time 1 represents head and 0 represents tail. Using the random library in numpy, I was able to simulate the 100 coin tosses. It returns the sum of all the 100 simulated number(0 or 1), and have that as the output, which represents the number of heads for the simulation.
Then I used the function for 1000 times to get 1000 times of the simulated result of heads, which I saved it in an array called results, and then I used matplotlib.pyplot library to plot the histogram graph of such result. By setting density = True, this histogram graph is properly normalized.
I then made two functions to obtain the meanμ and the standard deviationσ, which then I used them to obtain the gaussian plot(normalized).
As shown below the gaussian graph highly agrees with the histogram.

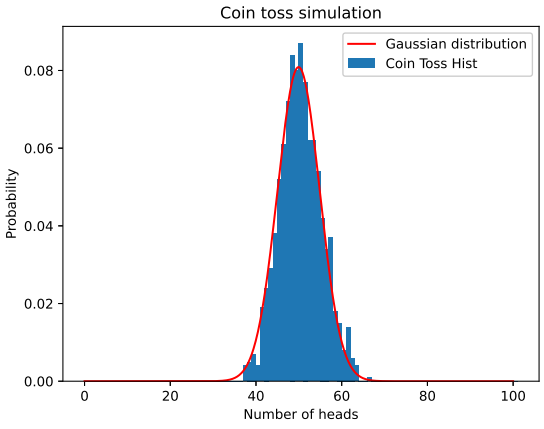

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Figure 1: This is the graph where I did 1000 times of the 100-coin-toss simulation. As we can see the histogram and the red gaussian line agrees with each other highly, and the inaccordance is most likely because we are dealing with finite and discrete values.