

A student is given the assignment below, and her solution to the assignment is in debugging.m. Use the debugging tools/print statements etc. to find and fix the errors.

Our goal is to crudely simulate a population of 50 neurons following certain properties outlined below. We will then plot the spike count distribution of the population.

1. First, create the population's connectivity by having each neuron postsynaptic to an average of 15 other neurons. The connectivity should be gaussian-distributed with a standard deviation of 3. Represent the network with an adjacency matrix.
2. Create a vector with 1s for neurons that fired an action potential. Randomly choose 15 neurons of the 50 to have "spiked".
3. *Simulate the population:* Simulate 1 second following these steps. At every time-step (one tenth of a millisecond), the list of neurons that spiked should be updated as follows. If 7 or more presynaptic neurons fired on the previous step, the neuron will fire on this step. For the rest of the population, their probability of firing will be 10 percent. Make sure to record the number of spikes for each neuron, as step 4 requires this.
4. Plot a spike count distribution for the population. Make a histogram of the spike counts of all the neurons.