**Assignment 2**

1. Problem 1: XOR
   1. We can use temporal encoding to represent the inputs 0 and 1 by having the input neuron that represents the value 1 fire at some delayed time *t* relative to the neuron that represents the value 0 from the onset. For example, we could set the value of *t* to 5ms. Using time as a measure of encoding these differences can lead to specific spiking behavior we can observe in the hidden layer when these two values are the same or different that can correlate to some output (0/1).
   2. We can use firing rate encoding to represent the inputs 0 and 1 by having the input neuron that represents the value 1 fire at a rate *r1* and the input neuron that represents the number 0 fire at another rate *r0*. For example, the value of *r1* could be 5 spikes per 100ms while *r0* could be 10 spikes per 100ms. Using these distinct firing rates we can encode the threshold in the hidden layer of these two firing rates that can correlate to the appropriate output (0/1).