Homework #2 CogSci 131
Summer 2021
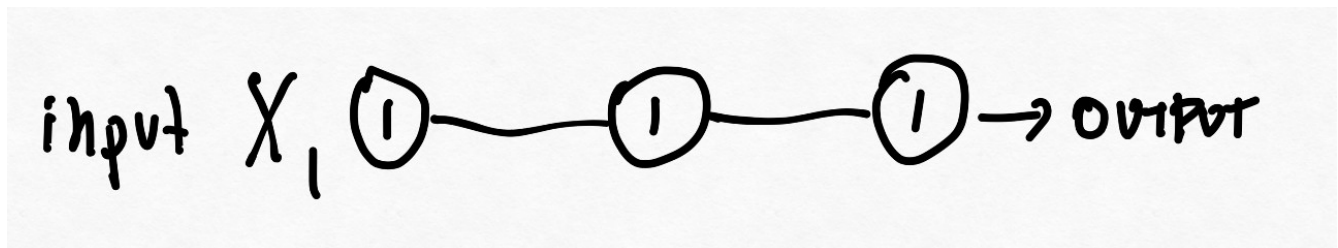Due Tue July 27th at 12 midnight

Instructions

Submit a pdf file with the answer to the following two questions

Question 1. Derivation (50 points)

Derive the equation for the cost <u>explicitly</u> in terms of the weights and the inputs for the following neural network. Derive also a formula for the derivative of the cost in terms of the weight in the first and second layers.

Question 2 (50 points). Indicate if the following statement is true, and support your answer on the properties of activation and inactivation of Na channels : "When a neuron potential crosses the threshold, the activation of sodium channels lead to a shift in potential towards depolarization, which in turn causes more Na channels to open, which leads to more depolarization thus establishing a positive feedback loop on the potential of the neuron". Comment if the same is true or not for K activation.