Practical Deep Learning (Perceptron)

Problem 1: Perceptron Learning

In the class, we discussed about perceptron with step activation function. Given the following dataset,do the following tasks:

x1	x2	x3	output
1	0	0	1
0	1	1	-1
1	1	0	1
1	1	1	-1
0	0	1	-1
1	0	1	1

- Is the above data linearly separable?
- Perform perceptron learning by hand for the above dataset. Show the weights after each epoch. Assume all the weights as 0 (including bias) and learning rate as 1.
- How many epochs are required?
- What would the prediction by the learned perceptron for x1=0,x2=1,x3=0?

Problem 2: Perceptron Learning

In the class, we discussed about perceptron with step activation function. Given the following dataset, do the following tasks:

x1	x2	output
0	0	-1
0	1	1
1	0	1
1	1	-1

- Is the above data linearly separable?
- Perform perceptron learning by hand for the above dataset. Show the weights after each epoch. Assume all the weights as 0 (including bias) and learning rate as 1.
- How many epochs are required?
- Do you see perceptron converging or not?