Homework-7

Question 1

Consider a deep neural net applied to decide between the following three categories:

tv set, water bottle, human face

The neural net uses a softmax unit at the output layer. Consider the case where the values fed into the output layer are:

tv set	0.1
water bottle	-3
human face	0.6

The softmax converts these values into a probability vector.

1. Compute the probabiity vector.

Answer:

2. Which outcome is the most likely?

3. Which outcome is the least likely?

Question 2

In the table below cases 3,4 are distributions, and cases 1, 2 can be converted into distributions.

case	A	B	C	D
1	1	-2	3	-4
2	1	2	-3	0
3	1	0	0	0
4	1/4	1/4	1/4	1/4

1. Use cross entropy to determine which distribution among 1,2,3 is most similar to 4. **Show your computations.**

Answer: 1 / 2 / 3

2. Use cross entropy to determine which distribution among 1,2,4 is most similar to 3. **Show your computations.**

Answer: 1 / 2 / 4