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Machine Learning with Python-From Linear Models to Deep Learning

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5. Temperature

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Project due Mar 15, 2023 08:59 -03 Completed

We will now explore the effects of the temperature parameter in our algorithm.

You will be working in the files `part1/main.py` and `part1/softmax.py` in this problem set.

Effects of Adjusting Temperature

1.0/1.0 point (graded)

Explain how the temperature parameter affects the probability of a sample $x^{(i)}$ being assigned to a class. What happens when you use a large θ . What about a small θ ?

☐ Larger temperature leads to less variance

☒ Smaller temperature leads to less variance

☐ Smaller temperature makes the distribution more uniform



Submit

You have used 1 of 3 attempts

Reporting Error Rates

2.0/2.0 points (graded)

Set the temperature parameter to be 0.5, 1, and 2; re-run `run_softmax_on_MNIST` for each temperature and report the error rate. Submit your code to the specified part in `main.py`.

Error $_{|T=0.5}$ = 0.083999999999999996



Error $_{|T=1}$ = 0.100500000000000003



Error $_{|T=2}$ = 0.1261



Submit

You have used 3 of 20 attempts

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