CS 224N: Assignment 2

RYAN MCMAHON MONDAY 6TH FEBRUARY, 2017

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Problem 1: Tensorflow Softmax (25 pts)

In this question, we will implement a linear classifier with loss function

$$J(\boldsymbol{W}) = CE(\boldsymbol{y}, softmax(\boldsymbol{x}\boldsymbol{W})) \tag{1.1}$$

Where $\boldsymbol{x}$ is a row vector of features and $\boldsymbol{W}$ is the weight matrix for the model. We will use TensorFlow's automatic differentiation capability to fit this model to provided data.

1.1 (a) Softmax in Tensorflow (5 pts)

Implement the softmax function using TensorFlow in `q1_softmax.py`*. Remember that*

$$softmax(\boldsymbol{x})_i = \frac{e^{\boldsymbol{x}_i}}{\sum_j e^{\boldsymbol{x}_j}} \tag{1.2}$$

Note that you may not use `tf.nn.softmax` *or related built-in functions. You can run basic (nonexhaustive tests) by running* `python q1_softmax.py`.

Answer:

See code: `~/code/q1_softmax.py`.