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**Sunshine Coding Exercise**

We are excited about your interest in joining the engineering team at Sunshine! At Sunshine, we believe that the best way to evaluate your coding skills is to let your code speak for itself. With this in mind, we would like to see some of your work.

**Task:** Create a machine learning model that can output the [L2-norm](http://mathworld.wolfram.com/L2-Norm.html) of a vector. Provide a one paragraph write up describing the accuracy and performance of your solution.

**Assumptions:**

* Your network should take any vector where . You are expected to generate your own training, test, and validation data.
* You should use a popular deep learning framework such as Tensorflow, Keras, Pytorch, or Caffe2. Whatever you think best demonstrates your skills best. We ask that you refrain from using statistical computing software such as R and Matlab.
* While of course you could write a prescriptive algorithm to calculate the L2 norm, we are curious about a deep learning model that can infer it.
* Try and optimize for accuracy, efficiency, and readability. An ideal solution is more than just a working solution.

**Final thoughts**:

* We’d like to understand your thought process. Please provide us with context about:
  + How you chose to approach the problem
  + What assumptions your algorithm makes
  + What other approaches you experimented with and their tradeoffs
  + On what kind of timeline did you implement this solution
* As we read through these samples, we appreciate clean and well-documented code. It will work to your advantage to provide detailed documentation. At the very least, please provide clear instructions on how to run the code. Also, if it's not entirely obvious what your code does, please include an explanation or video.
* A recommended format of submission is a Jupyter or Colab Python notebook with markdown cells. If necessary, your code should come with a setup file to install dependencies. If it makes sense to do so, you can share a Github repo with @SunshineSample.
* The code that you submit should reflect *your* work and *your work alone*. Please try to avoid submitting code that you yourself did not write. Please explicitly denote any code that was not written by you so we do not include it in our evaluation. Similarly, please be mindful of work which could potentially be proprietary to another organization. You should be the sole owner of any code included in your submission unless the code has already been open sourced.