Homework 2
APPM 4720/5720 Scientific Machine Learning, Fall 2024

Due date: Friday, Sep. 6 '24, before midnight, via Gradescope

Instructor: Prof. Becker

Revision date: 8/23/2024

Theme: Basic neural nets

Instructions Collaboration with your fellow students is OK and in fact recommended, although direct copying is not allowed. The internet **is allowed for basic tasks** (e.g., looking up definitions on wikipedia, looking at documentation, looking at basic tutorials) but it is not permissible to search for solutions to the exact problem or to *post* requests for help on forums such as `http://math.stackexchange.com/`.

Problem 1: Create and train a neural net on the 50k training data in CIFAR10, and achieve at least 50% average classification on the 10k standard testing points. Turn in a PDF of your source code, **nicely formatted** (no screenshots!). *The README.md file at https://github.com/cu-applied-math/SciML-Class/tree/main/Homeworks has suggestions on how to export code to PDF nicely. You can find the CIFAR10 dataset all over the internet, including nice repositories like HuggingFace (which is worthwhile learning how to use). You can use any programming language, and you are allowed to follow demos/tutorials you find on the internet (in fact, I recommend you look online to find a good architecture), but be aware that in later homeworks we will do more with this code, so make sure you understand it.*