You are required to solve the famous Cat versus Dog problem: given an image, use a CNN model to classify whether it is a dog image or a cat image. Please go through **this** ↪ **(https://pytorch.org/tutorials/beginner/blitz/cifar10_tutorial.html)** official tutorial page that teaches you how to train a classifier on the CIFAR10 dataset, it includes critical concepts for training image classification models.

1. Name your file **cnn.py**.
2. The data folder is already located in the ./petimages of GradeScope but you can also download it **here** ↪ **(https://drive.google.com/drive/folders/19XYXnOUJaQ40HJL8K1uXf8jLIJZqSpkL?usp=drive_link)** if you want to test it on your local machine. There are two subfolders ./petimages/Cat and ./petimages/Dog, and each subfolder contains the images in ./petimages/Cat/*.jpg format (do explore this on your own and don't change this folder structure). You are suggested to use the **datasets** ↪ **(https://pytorch.org/vision/stable/datasets.html)** and **transforms** ↪ **(https://pytorch.org/vision/stable/transforms.html)** modules from **torchvision** library (think of torchvision as a PyTorch library that specifically deals with images) to read and preprocess the images.
3. You can follow the templates in the starter code but are not required to, so if you feel more comfortable coding in your own fashion, feel free to do that as long as you meet the grading criteria in the next bullet point.
4. Since we are dealing with a classification task, we will grade your model's performance based on precision, accuracy, and recall. Make your three metrics code in this format: accuracy = compute_accuracy(labels, predicted_labels) and name them exactly as accuracy, precision, and recall, since GradeScope grades based on the values stored in these three variables. The only grading criterion is all three metrics need to be greater than **0.6**. Remember don't cheat by just assigning accuracy = 0.9, otherwise, you will get 0 immediately.
5. Also remember that metrics should be computed on the validation set, not the training set. Please see more details in the templates.