Milestone 2:
Team Tyrannosaurus: Dylan Painter, Shirley Qi, Vicky Xie, AJ Reiter

Current State of Project (code can be found in Pokemon.ipynb):
- Image folders have been turned into training and testing datasets for the ResNet50 model
    - A public GitHub repository has been created for the images from milestone 1 for quick and easy cloning into the Colab notebook

- The ResNet50 model has been trained and tested using multiple data transformations. We tried no transformation, horizontal rotations, and horizontal rotations combined with random image cropping. We found higher accuracy using only horizontal rotations, but we can't expect random cropping test accuracy to be as high since random cropping could result in indistinguishable images. The accuracy of the model currently using horizontal flips is at 99% training accuracy and 96% test accuracy.

- We figured out how to use torch.save() to save the model's state_dict() and how to use load_state_dict to reload the model. This can be used to save the model to our local machines and transport it to our web server.

Feature Changes:
- Model is an image classifier instead of an object detector. As mentioned in the previous milestone, the student of the proposal mistakenly thought an object detector was necessary for getting the percent accuracies of each class (For example: 99% for class A, 84% for class B, 8% for class C, etc.). However, this can be done with an image classifier only, so our model uses this algorithm by itself.

Challenges and Bottlenecks:
- To make the website work, we need the model to be trained for 24 hours a day. For now, the model is temporarily stored in the Colab. However, because Colab can only remain in the trained state for 12 hours at most and need to restart manually, it is unable to satisfy our need for 24 hours a day. Except that, the training speed is quite slow for the huge size of the datasets and we are not sure that the GPU the Colab provided for free is enough. To solve this problem, we need to find a 24-hour server for our model. The GCP (Google Cloud Platform) may satisfy this requirement, so we can also move the model to GCP. This approach still needs to be proven.

Tasks for each member:
Dylan:
- Tried other ways to download images into google colaboratory, such as manually downloading and from google drive. Neither ended up being used as GitHub (made by shirley), was much faster
- Tested different types of models using weight decay, dropout, etc. to try and increase accuracy

Shirley:
- Created public GitHub repository for Pokemon images
- Feature changes in milestone 2 report/a few bullets in the current state of the project
- Completed part of code for loading datasets and initializing model

Vicky:
- Completed part of the code for training
- Write the Challenges part for the Milestone 2 report

AJ:
- Tested different image transformations on training/testing results.
- Figured out how to save and load the model to transport to the webserver
- Wrote part of the Current State of the Project section and his tasks in the report.

As a team, we are currently figuring out how to deploy our website and get all the backend development started.

Addition tests on the model still need to be done, such as testing more with more complex layers to see which is best. This will likely be done throughout the entire project.