Student name: Leo Ho, Minh Tran

Course: CIS 378

Instructor: Dr. Denton Bobeldyk

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CIS 378 Final Project

Training:

We trained using Kaggle's free GPU: https://www.kaggle.com/code/leohooo/cis378-project

Dataset:

We used the Kaggle Plant Village dataset

https://www.kaggle.com/datasets/abdallahalidev/plantvillage-dataset/code using only 12000 samples from 54000 images from the color folder.

Result:

	Model	Train Samples	Epochs	Input Size	Accuracy	Loss	Model Size (# Parameters)	Inference Time
0	Teacher (ResNet152)	12000	12	224x224	0.9724	0.1417	58638120	7.110332
1	Base Mobilenetv2	12000	80	224x224	0.8277	0.9454	2595688	3.500432
2	Student (Distilled_Mobilenetv2)	12000	80	224x224	0.8802	0.7370	2595688	2.400066

File Description:

- **cis-378.ipynb:** Contains the full training and inference setup to run on Kaggle.

- **data_preprocessing.py:** Prepares data by converting images into the input format required by the models.

- **distiller_train.py:** Trains the student model using a custom loss function.

- **base_train.py:** Trains the baseline model for performance comparison.

- **train_teacher.py:** Trains the teacher model.

- **inference.ipynb:** Visualizes the model outputs.

- **main.py:** Runs the training scripts from the other modules.