Lodha Genius Programme

Project Exhibition

PLANT DISEASE DETECTION

Using a MobileNetV2 Neural Network

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WHAT IS THE ISSUE?

Farmers find it difficult to identify different crop diseases.

- There a large number of plant diseases that can be there
- Farmers don’t know what plant diseases are there and how to identify them
- Even if farmers are aware it is difficult to identify the specifc disease

THE SOLUTION

A Plant Disease Neural Network

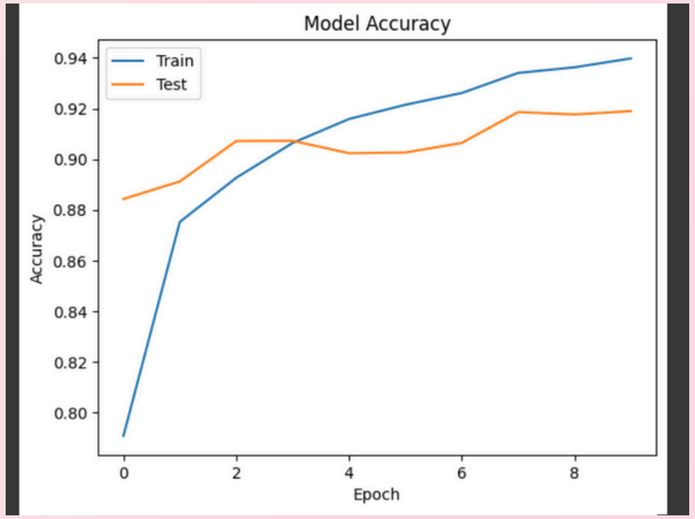
- Use high-resolution leaf images to identify symptoms like spots, discoloration, or wilting.
- Employ CNN architectures like MobileNetV2 trained on labeled plant disease datasets to automatically learn visual patterns.
- Classify images into healthy or specific disease categories using softmax output layers.
- Implement a web app to upload images for prediction

MODEL TRAINING

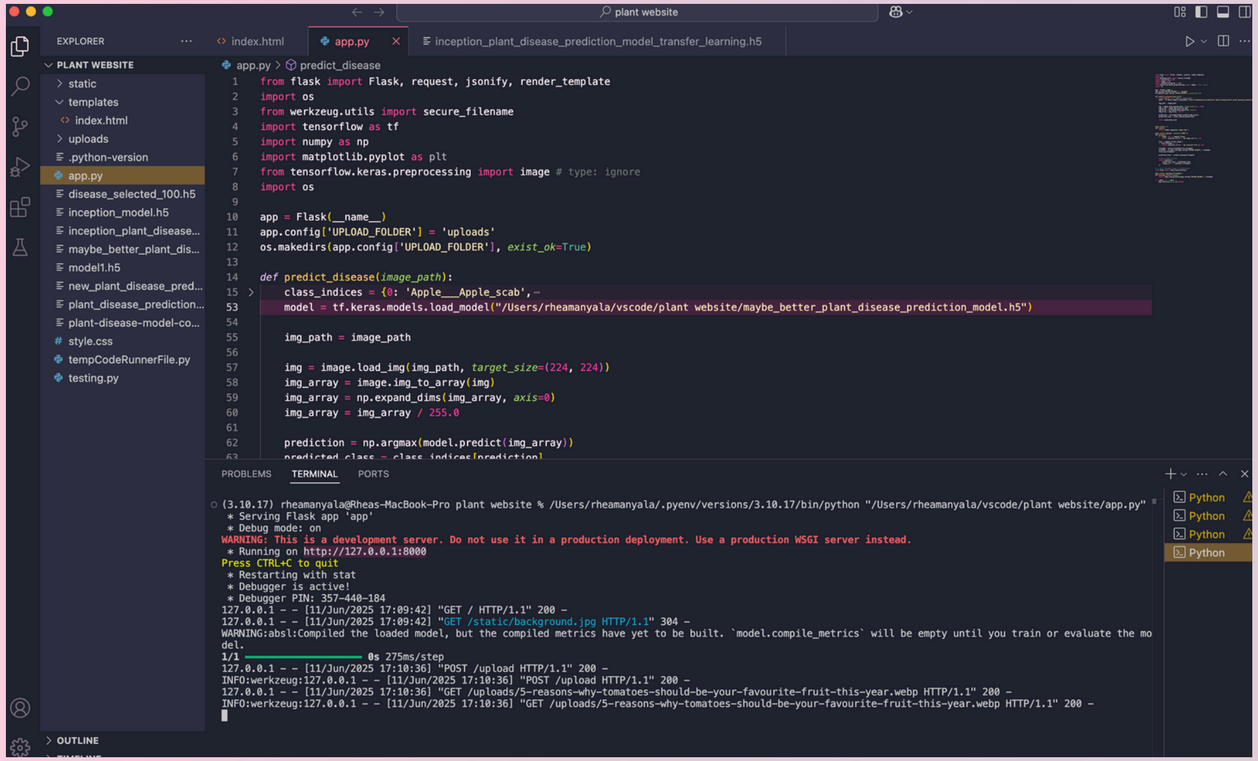
Google Colab

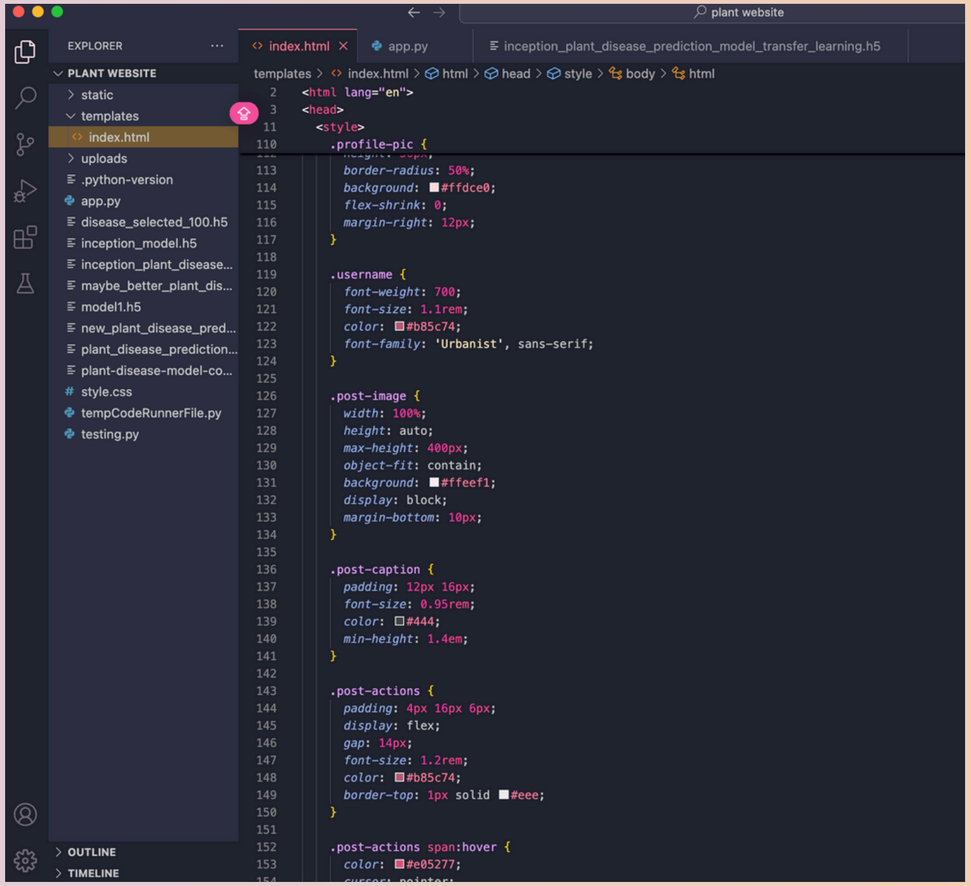
```
history = model.fit(
    train_generator,
    steps_per_epoch = train_generator.samples // batch_size,
    epochs = 10,
    validation_data = validation_generator,
    validation_steps = validation_generator.samples // batch_size
)
```

```
Epoch 1/10
/usr/local/lib/python3.11/dist-packages/keras/src/trainers/data_adapters/py_dataset_adapter.py:121: UserWarning: Your `PyDataset
  self._warn_if_super_not_called()
1358/1358 ━━━━━━━━━━━━━━━━━━━━ 142s 90ms/step - accuracy: 0.7020 - loss: 1.0598 - val_accuracy: 0.8843 - val_loss: 0.3565
Epoch 2/10
1358/1358 ━━━━━━━━━━━━━━━━━━━━ 124s 85ms/step - accuracy: 0.8717 - loss: 0.3919 - val_accuracy: 0.8912 - val_loss: 0.3182
Epoch 3/10
1358/1358 ━━━━━━━━━━━━━━━━━━━━ 113s 84ms/step - accuracy: 0.8933 - loss: 0.3161 - val_accuracy: 0.9072 - val_loss: 0.2783
Epoch 4/10
1358/1358 ━━━━━━━━━━━━━━━━━━━━ 142s 84ms/step - accuracy: 0.9083 - loss: 0.2691 - val_accuracy: 0.9073 - val_loss: 0.2735
Epoch 5/10
1358/1358 ━━━━━━━━━━━━━━━━━━━━ 113s 83ms/step - accuracy: 0.9194 - loss: 0.2393 - val_accuracy: 0.9024 - val_loss: 0.3036
Epoch 6/10
1358/1358 ━━━━━━━━━━━━━━━━━━━━ 144s 84ms/step - accuracy: 0.9248 - loss: 0.2183 - val_accuracy: 0.9027 - val_loss: 0.3011
Epoch 7/10
1358/1358 ━━━━━━━━━━━━━━━━━━━━ 140s 83ms/step - accuracy: 0.9288 - loss: 0.2048 - val_accuracy: 0.9064 - val_loss: 0.2992
Epoch 8/10
1358/1358 ━━━━━━━━━━━━━━━━━━━━ 142s 83ms/step - accuracy: 0.9337 - loss: 0.1832 - val_accuracy: 0.9186 - val_loss: 0.2602
Epoch 9/10
1358/1358 ━━━━━━━━━━━━━━━━━━━━ 141s 83ms/step - accuracy: 0.9381 - loss: 0.1743 - val_accuracy: 0.9177 - val_loss: 0.2684
Epoch 10/10
1358/1358 ━━━━━━━━━━━━━━━━━━━━ 113s 83ms/step - accuracy: 0.9410 - loss: 0.1676 - val_accuracy: 0.9190 - val_loss: 0.2726
```

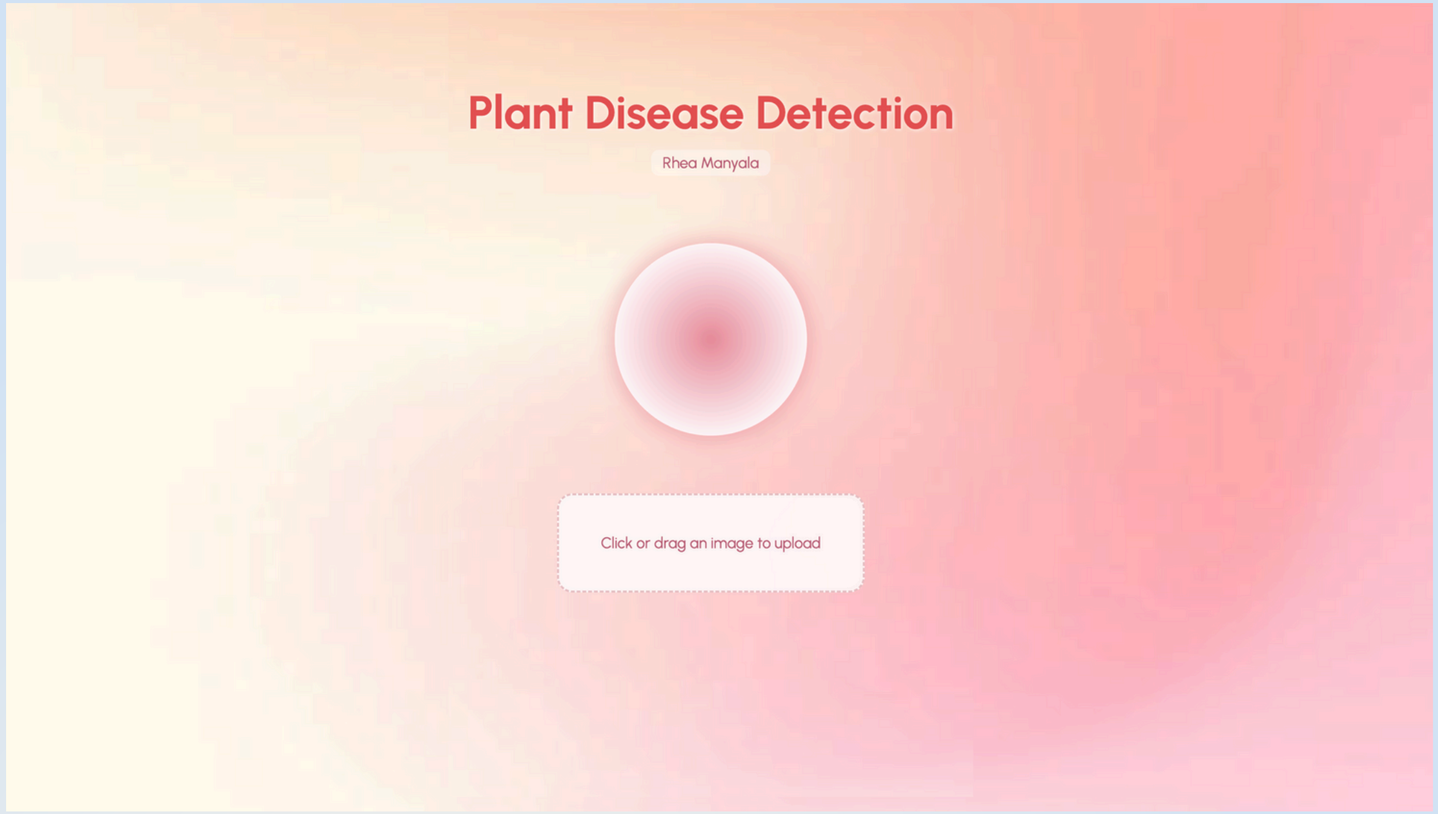


WEB APP DEVELOPMENT





CLASSIFIER UI



THANK YOU

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