Fertilizers Recommendation System For Disease Prediction

Agriculture is the most important sector in today's life. Most plants are affected by a wide variety of bacterial and fungal diseases. Diseases on plants placed a major constraint on the production and a major threat to food security. Hence, early and accurate identification of plant diseases is essential to ensure high quantity and best quality. In recent years, the number of diseases on plants and the degree of harm caused has increased due to the variation in pathogen varieties, changes in cultivation methods, and inadequate plant protection techniques.

An automated system is introduced to identify different diseases on plants by checking the symptoms shown on the leaves of the plant. Deep learning techniques are used to identify the diseases and suggest the precautions that can be taken for those diseases.

Project Structure

To accomplish the above task you must complete the below activities and tasks

Download the dataset.

Classify the dataset into train and test sets.

Add the neural network layers.

Load the trained images and fit the model.

Test the model.

Save the model and its dependencies.

Build a Web application using a flask that integrates with the model built.

Download the dataset.

Download the dataset

The dataset has been downloaded from the link provided.

Classify the dataset into train and test sets

The dataset has been classified as test and train sets.

Image Preprocessing

Now that we have all the data collected, let us use this data to train the model . before training the model you have to preprocess the images and then feed them on to the model for training. we

make use of Keras ImageDataGenerator class for image preprocessing.

For more info about image preprocessing please click on the below link

data Augmentation

Image Pre-processing includes the following main tasks

Import ImageDataGenerator Library.

Configure ImageDataGenerator Class.

Applying ImageDataGenerator functionality to the trainset and test set.

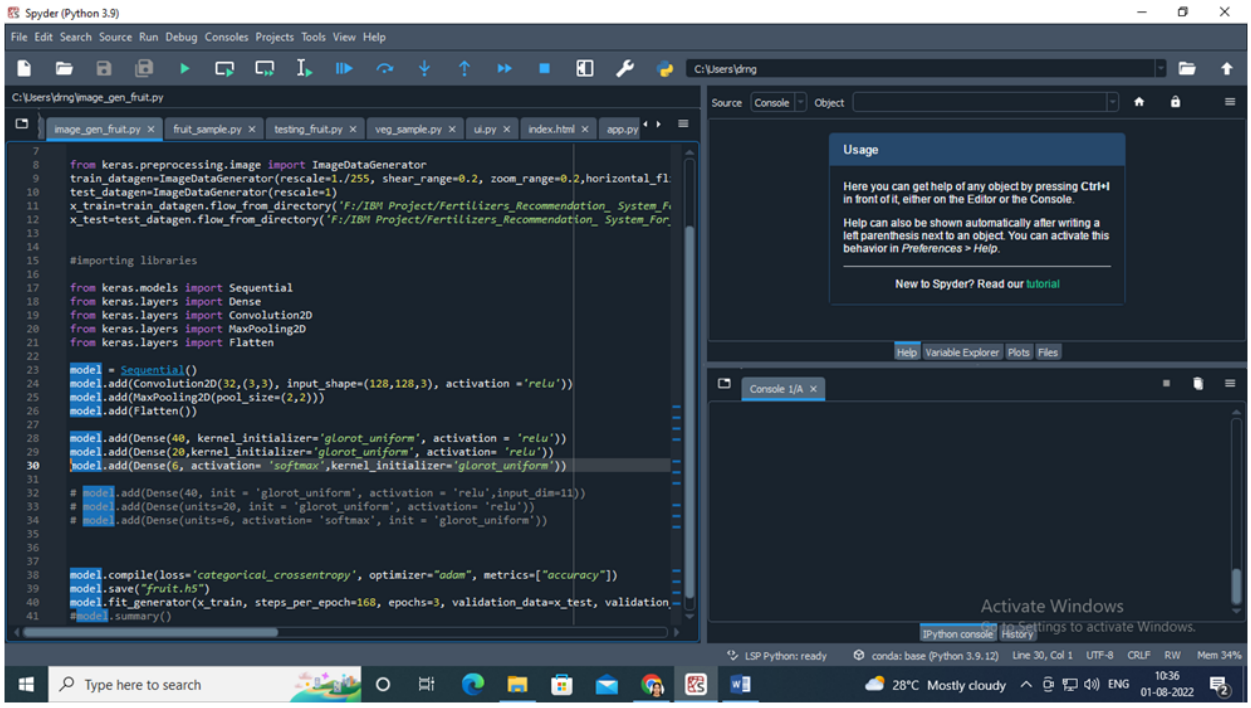
Note: The ImageDataGenerator accepts the original data, randomly transforms it, and returns only the new, transformed data.

To know more about the data generator class click on this link

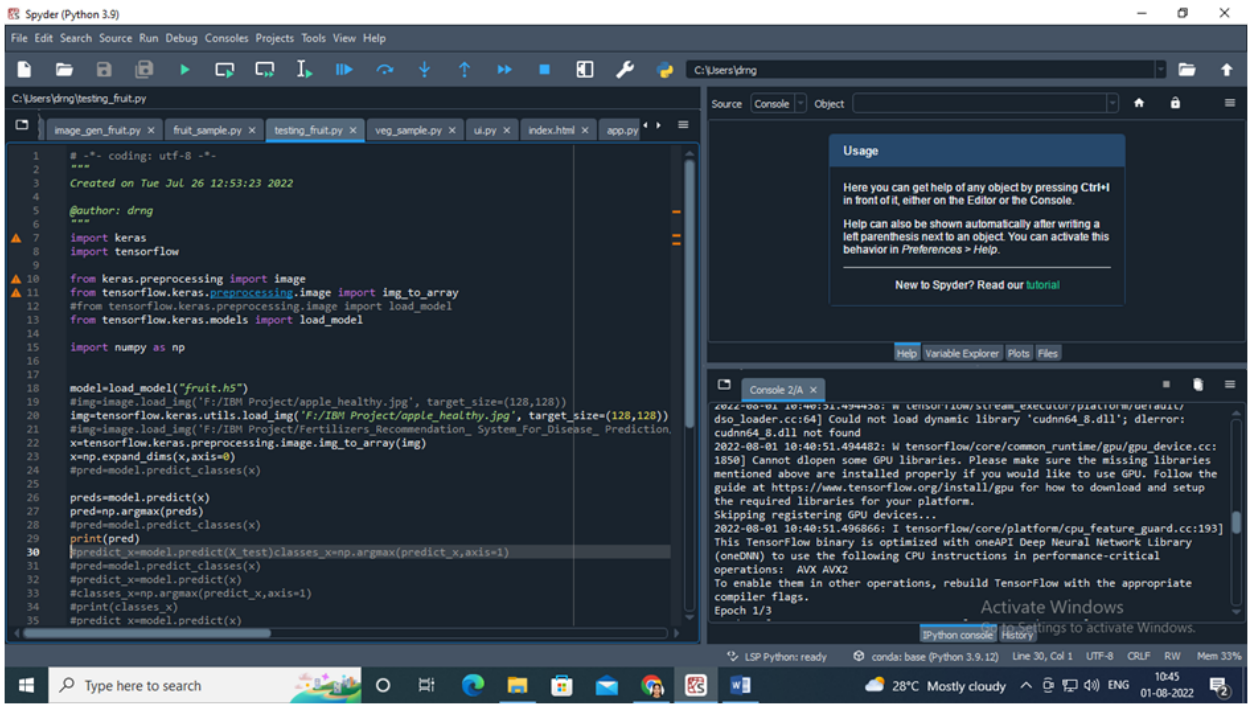
Lets build model for fruit leaf disease detection

Open Jupyter notebook and create a new python file, name ii Fruit-Training.ipynb and save it in the project folder. To know more about the usage of the Jupyter notebook watch the video given in the pre-requisites section

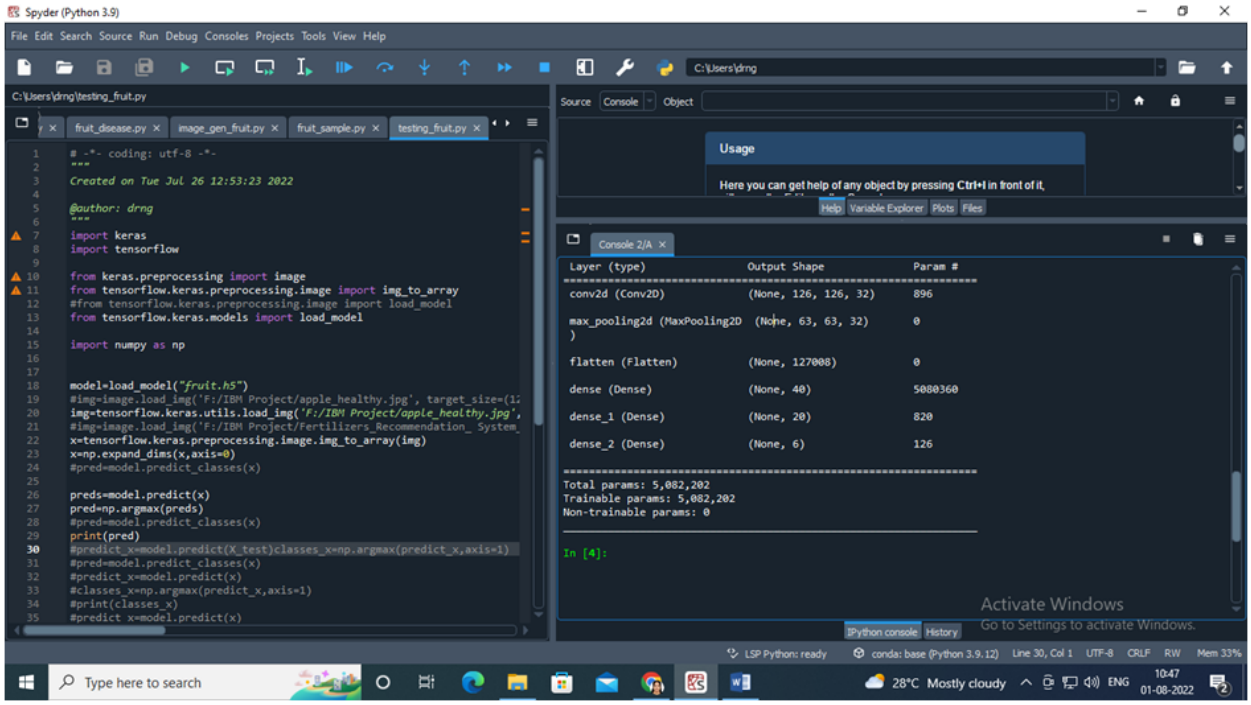
Model Generation



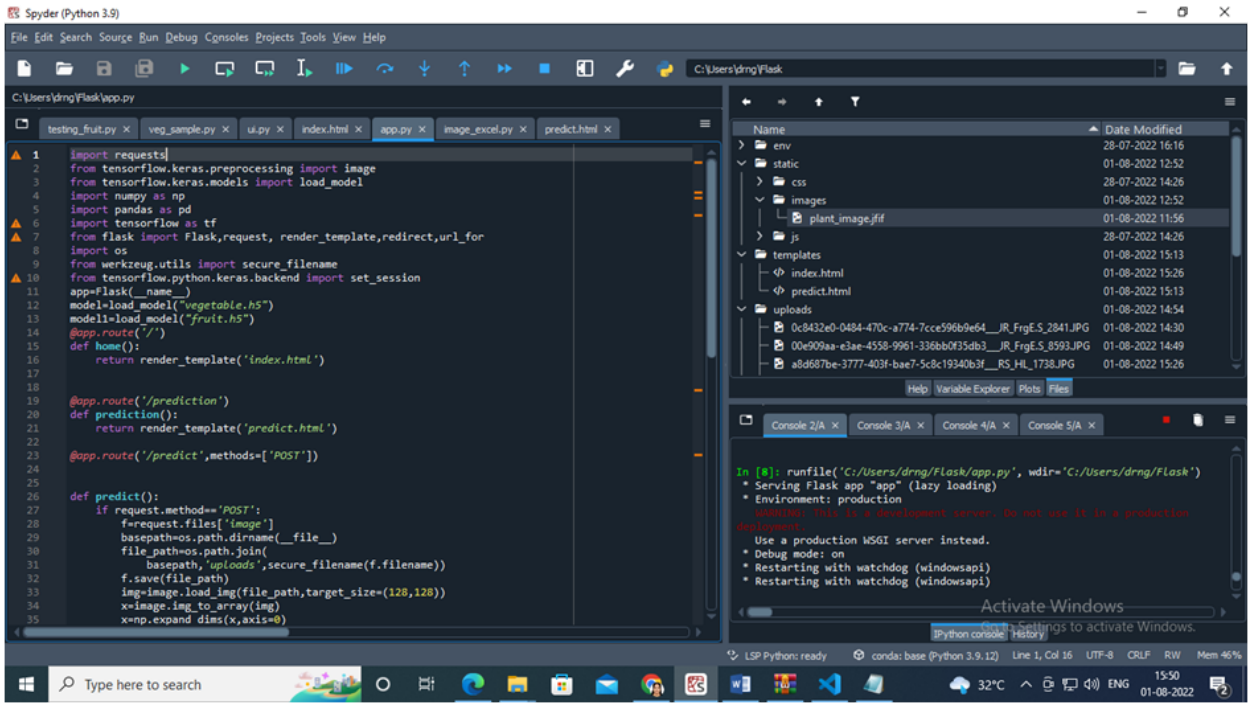
Testing_fruit.py



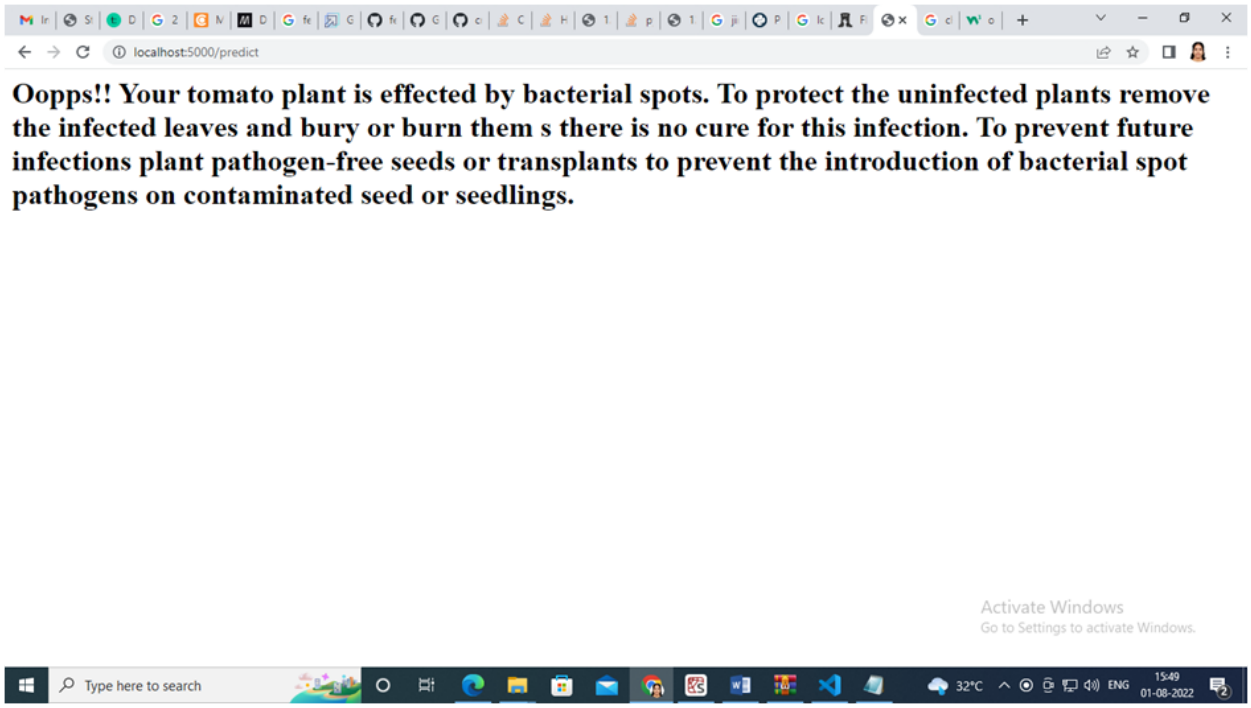
Output



app.py



Output After Prediction



The above model is created and tested with spyder and verify the ouput.