SPRINT-3

Flask and Frame Work Design

Date	: 19 NOVEMBER 2022
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Project Name	: FERTILIZERS RECOMMENDATION SYSTEM FOR DISEASE PREDICTION

from _future_ import division,

print_functionimport os

import numpy

as npimport

cv2

Keras

from tensorflow.keras.models import load_model

from tensorflow.keras.preprocessing.image import img_to_array

Flask utils

from flask import Flask, request,

render_templatefrom werkzeug.utils

import secure_filename

Initialization: flask applications must create an application instance. The web server passes all the requests it receives from clients to objects for handling using a protocol for WSG fromflask import Flask app = Flask (_name_) (An application instance is an object of class Flask.)
app = Flask(name)

MODEL_PATH = 'fruit.h5'

MODEL LOADING

```python
model = load_model(MODEL_PATH)

model.make_predict_function()


default_image_size = (128, 128)

labels = ["Apple___Black_rot", "Apple___healthy", "Corn_(maize)___healthy",
"Corn_(maize)___Northern_Leaf_Blight", "Peach___Bacterial_spot","Peach
___healthy"]


def
    convert_image_to_array(image_dir):
    try:
        image = cv2.imread(image_dir)
        if image is not None:
            image = cv2.resize(image, default_image_size)
            return img_to_array(image)
        else:
            return
    np.array([])except
    Exception as e:
    print(f"Error : {e}")
        return None

def model_predict(file_path, model):
    x =convert_image_to_array(file_path)
    x = np.expand_dims(x, axis=0)
    preds = model.predict(x)
    return preds
```

Routes and View Functions in Flask Framework Instance

Clients send requests to the webserver, in turn, sends them to the Flask application instance. The instance needs to know what code needs to run for each URL requested and map URLs to Python functions. The association between a URL and the function that handles it is calleda route. The most convenient way to define a route in a Flask application is through the (app.route). Decorator exposed by the application instance, which registers the 'decorated function,' decorators are python feature that modifies the behavior of a function.

```python
@app.route("/", methods=['GET'])

def index():

    return render_template("index.html", query="")
```

Request
To process incoming data in Flask, you need to use the request object, includingmime-type, IP address, and data. HEAD: Un-encrypted data sent to server w/o response.

GET
Sends data to the server requesting a response body.

POST
Read form inputs and register a user, send HTML data to the server are methodshandled by the route. Flask attaches methods to each route so that different viewfunctions can handle different request methods to the same URL.

```python
@app.route("/", methods=['GET', 'POST'])

def upload():

    if (request.method == 'POST'):

        f = request.files['file']

        basepath = os.path.dirname(_file _)

        file_path = os.path.join(basepath, 'uploads', secure_filename(f.filename))

        f.save(file_path)

        preds = model_predict(file_path,

        model)preds = np.argmax(preds)

        result = labels[preds]

        return  render_template('index.html',

    prediction_text=result)return None
```

Server Startup - The application instance has a 'run' method that launches flask's integrated development webserver -

```python
if___name__== " main_":

    app.run(debug=True)
```

<u>Output:</u>

﹡ Serving Flask app 'app'

 ﹡ Debug mode: on

* Running on http://127.0.0.1:5000