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Batch: E3

Experiment 11

Aim: Design Weather app using Flask

Theory:

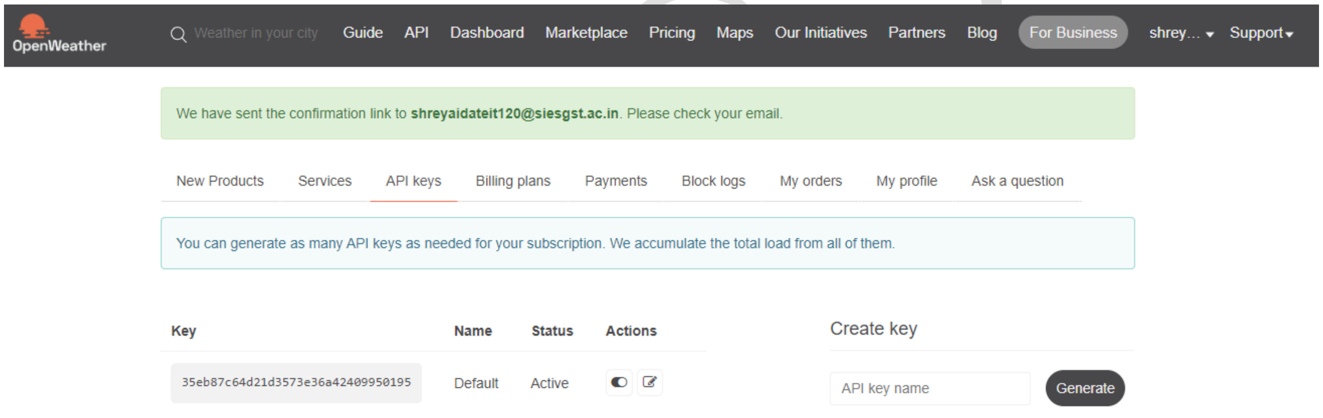
Flask is a lightweight framework written in Python. It is lightweight because it does not require particular tools or libraries and allow rapid web development. we will create a weather app using flask as a web framework. this weather web app will provide current weather updates of cities searched.

Basic setup :

- Create a file and name it as weather.py
- Create html file as weather.html

Get API Key

Goto https://home.openweathermap.org/users/sign_up and sign up for a free plan if you haven't already. Then visit the API key section https://home.openweathermap.org/api_keys to get your key. You can use the default key or generate a new one as you wish. You may have to wait for a while to get your key verified.



We have sent the confirmation link to **shreyaidateit120@siesgst.ac.in**. Please check your email.

You can generate as many API keys as needed for your subscription. We accumulate the total load from all of them.

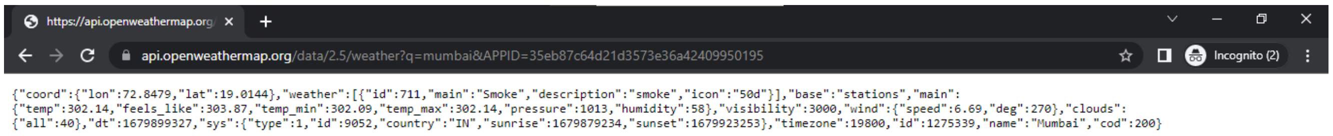
Key	Name	Status	Actions
35eb87c64d21d3573e36a42409950195	Default	Active	

Making API Calls

Going through the documentation, the simplest way to make requests is using the city name. The url to make request will look like this

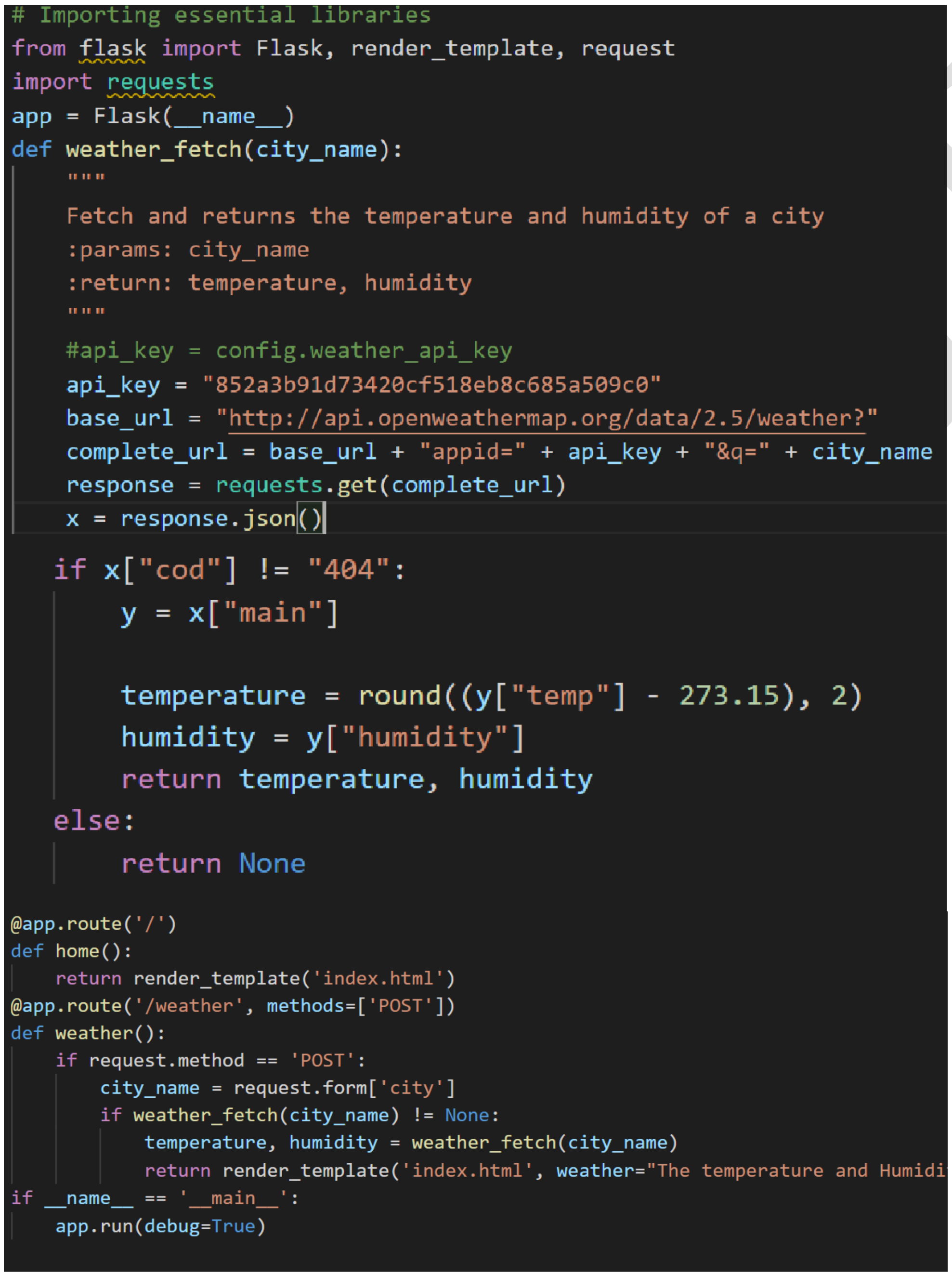
http://api.openweathermap.org/data/2.5/weather?q=city_name&APPID=your_api_key

You can copy paste the url and replace the city_name and your_api_key with appropriate value to see the result.


https://api.openweathermap.org/
api.openweathermap.org/data/2.5/weather?q=mumbai&APPID=35eb87c64d21d3573e36a42409950195
Incognito (2)

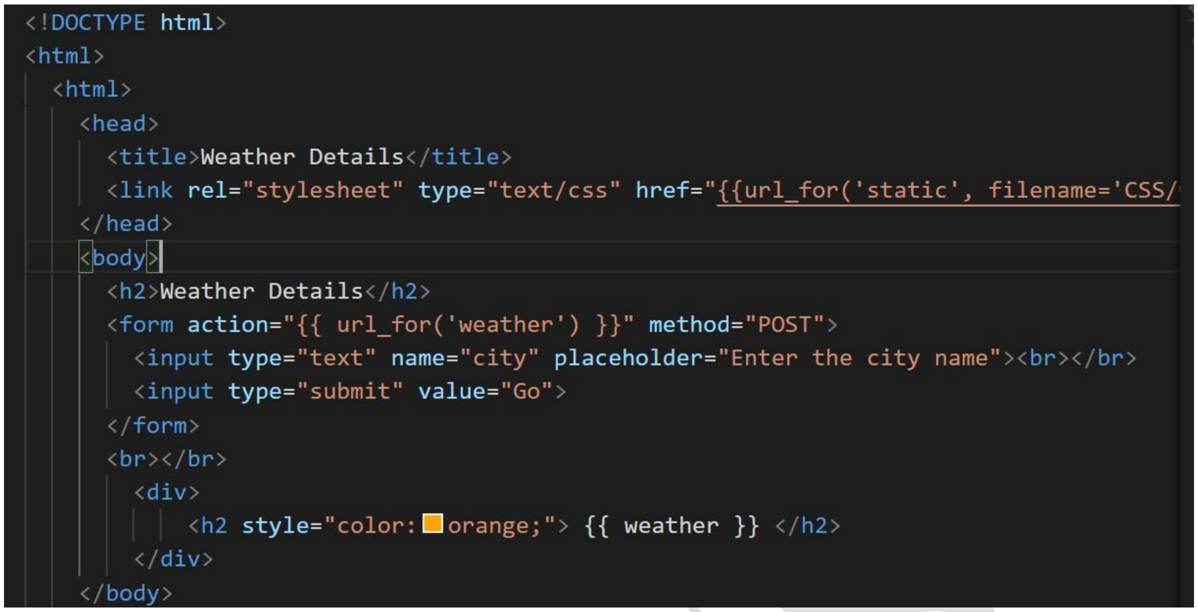
```
{"coord":{"lon":72.8479,"lat":19.0144},"weather":[{"id":711,"main":"Smoke","description":"smoke","icon":"50d"}],"base":"stations","main":
{"temp":302.14,"feels_like":303.87,"temp_min":302.09,"temp_max":302.14,"pressure":1013,"humidity":58},"visibility":3000,"wind":{"speed":6.69,"deg":270},"clouds":
{"all":40},"dt":1679899327,"sys":{"type":1,"id":9052,"country":"IN","sunrise":1679879234,"sunset":1679923253},"timezone":19800,"id":1275339,"name":"Mumbai","cod":200}
```

Creating Flask Application as weather.py



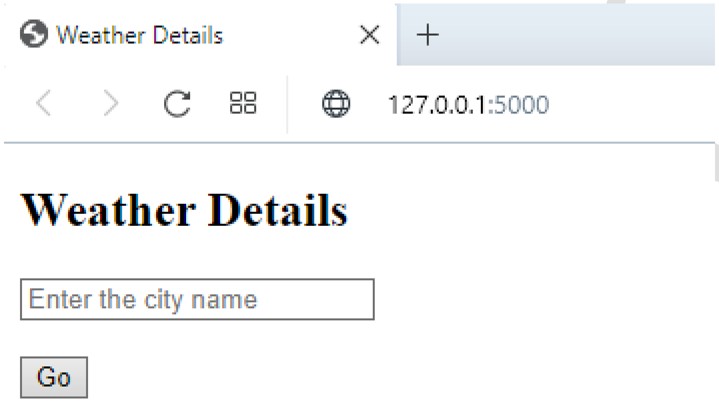
```
# Importing essential libraries
from flask import Flask, render_template, request
import requests
app = Flask(__name__)
def weather_fetch(city_name):
    """
    Fetch and returns the temperature and humidity of a city
    :params: city_name
    :return: temperature, humidity
    """
    #api_key = config.weather_api_key
    api_key = "852a3b91d73420cf518eb8c685a509c0"
    base_url = "http://api.openweathermap.org/data/2.5/weather?"
    complete_url = base_url + "appid=" + api_key + "&q=" + city_name
    response = requests.get(complete_url)
    x = response.json()

    if x["cod"] != "404":
        y = x["main"]

        temperature = round((y["temp"] - 273.15), 2)
        humidity = y["humidity"]
        return temperature, humidity
    else:
        return None

@app.route('/')
def home():
    return render_template('index.html')
@app.route('/weather', methods=['POST'])
def weather():
    if request.method == 'POST':
        city_name = request.form['city']
        if weather_fetch(city_name) != None:
            temperature, humidity = weather_fetch(city_name)
            return render_template('index.html', weather="The temperature and Humidi
if __name__ == '__main__':
    app.run(debug=True)
```

Create weather.html


```
<!DOCTYPE html>
<html>
  <html>
    <head>
      <title>Weather Details</title>
      <link rel="stylesheet" type="text/css" href="{{url_for('static', filename='CSS/
    </head>
    <body>
      <h2>Weather Details</h2>
      <form action="{{ url_for('weather') }}" method="POST">
        <input type="text" name="city" placeholder="Enter the city name"><br></br>
        <input type="submit" value="Go">
      </form>
      <br></br>
        <div>
            <h2 style="color:🟧orange;"> {{ weather }} </h2>
        </div>
    </body>
```

Run Flask Application using command python weather.py

Output:

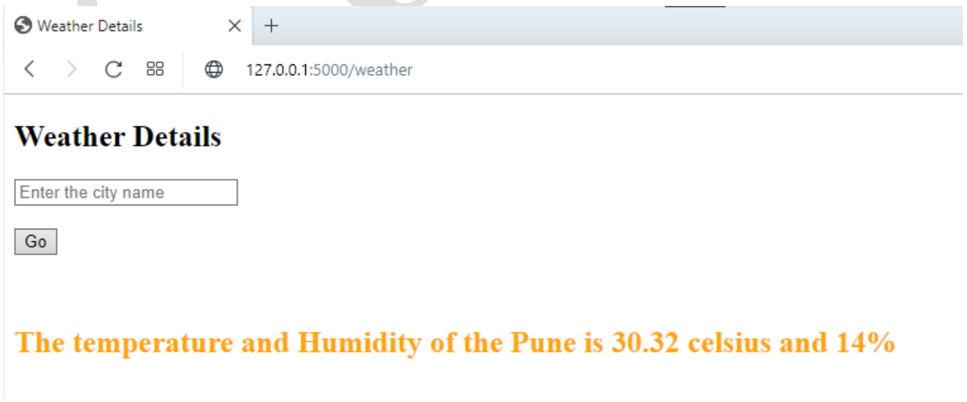

Weather Details

127.0.0.1:5000

Weather Details

Enter the city name

Go


Weather Details

127.0.0.1:5000/weather

Weather Details

Enter the city name

Go

The temperature and Humidity of the Pune is 30.32 celsius and 14%

Conclusion: Successfully designed a weather app using Flask.