WHEATHER FORECAST APP

21CSS101J – PROGRAMMING FOR PROBLEM SOLVING

Mini Project Report

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Concept

Weather forcast made by collecting as much data as possible about the current state of the atmosphere(particularly the temperature, humidity and wind) and using understanding of atmospheric processes(through meterology) to determine how the atmosphere evolves in the future.

However, the chaotic nature of the atmosphere and incompelete understan ding of the processes mean that forecasts become less accurate as the range of the forecast increases.

Traditional observation made at the surface of atmospheric pressure, temperature, wind speed, wind direction, humidity, precipitation are collected routinely from trained observers, automatic weather stations or buoys.

During the data assimilation process, information gained from the observation is used in conjunction with a numerical model 's most recent forecast for the time that observation were made to produce the meteorological analysis.

Numerical weather prediction models are computer stimulations of the atmosphere

Thus, we have developed a weather forecast app which will tell the weather report of the respected place and time.

Objective

In this project, I shall attempt to create a weather forecast using machine learning in python.

Libraries used

1. Request

   The request module helps to intergrade your python programme with Web services. The

Methodology/Procedure

We conduct brain-test-split, with the patterns being the X variable and the intents being the Y variable for training purposes.

The deep learning model used is called Sequential. This particular network has 3 layers, with the first one having 128 neurons, the second one having 6**Coding**

#

Conclusion

CODING

```python
import requests

#input the city name
city = input('input the city name')
print(city)

# or you can also hard-code the value
# city = 'bhopal'

#Display the message!
print('Displaying Weater report for: ' + city)

#fetch the weater details
url = 'https://wttr.in/{}'.format(city)
res = requests.get(url)

#display the result!
print(res.text)
```

OUTPUT

```
input the city namechennai
chennai
Displaying Weater report for: chennai
Weather report: chennai

                Mist
    _ - _ - _ -  +28(32) °C
     _ - _ - _   ↓ 19 km/h
    _ - _ - _ -  3 km
                 0.0 mm

                                                       Wed 07 Dec
┌─────────────────────────────┬─────────────────────────────┬─────────────────────────────┬─────────────────────────────┐
│            Morning          │             Noon            │           Evening           │            Night            │
├─────────────────────────────┼─────────────────────────────┼─────────────────────────────┼─────────────────────────────┤
│            Morning          │             Noon            │           Evening           │            Night            │
├─────────────────────────────┼─────────────────────────────┼─────────────────────────────┼─────────────────────────────┤
│     .-.      Light drizzle  │ _`/"".-.     Patchy rain po… │     .-.      Light rain     │     .-.      Light rain     │
│    (   ).    20 °C          │  ,\_(   ).   21 °C          │    (   ).    20 °C          │    (   ).    20 °C          │
│   (___(__)   ↘ 40-52 km/h   │   /(___(__)  ↘ 40-48 km/h   │   (___(__)   ↘ 38-48 km/h   │   (___(__)   ↘ 37-50 km/h   │
│    ‘ ‘ ‘ ‘   2 km           │     ‘ ‘ ‘ ‘  10 km          │    ‘ ‘ ‘ ‘   9 km           │    ‘ ‘ ‘ ‘   9 km           │
│   ‘ ‘ ‘ ‘    0.3 mm | 82%  │    ‘ ‘ ‘ ‘   0.1 mm | 81%  │   ‘ ‘ ‘ ‘    1.1 mm | 79%  │   ‘ ‘ ‘ ‘    1.2 mm | 78%  │
└─────────────────────────────┴─────────────────────────────┴─────────────────────────────┴─────────────────────────────┘
Location: Corporation of Chennai, Chennai district, Tamil Nadu, India [13.0801721,80.2838331]

Follow @igor_chubin for wttr.in updates
```

CODING

```python
import requests

api_key = "87a47aa18033af742c1fe421a5e91d7f"

# base_url variable to store url
base_url = "http://api.openweathermap.org/data/2.5/weather?"


city_name = input("Enter city name : ")

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"]
    current_temperature = y["temp"]
    current_pressure = y["pressure"]
    current_humidiy = y["humidity"]
    z = x["weather"]
    weather_description = z[0]["description"]
    print(" Temperature (in kelvin unit) = " +
                    str(current_temperature) +
          "\n atmospheric pressure (in hPa unit) = " +
                    str(current_pressure) +
          "\n humidity (in percentage) = " +
                    str(current_humidiy) +
          "\n description = " +
                    str(weather_description))

else:
    print(" City Not Found ")
```

OUTPUT

```
Enter city name : chennai
 Temperature (in kelvin unit) = 300.14
 atmospheric pressure (in hPa unit) = 1009
 humidity (in percentage) = 78
 description = mist
PS C:\Users\shrey\OneDrive\Desktop\PYTHON>
```

CONCLUSION

I learnt how to use many libraries in python. I learnt a lot not only about machine learning but also deep learning. I came to know about many new things in python and most surprisingly

That we can develop many new things in python like weather forecasting app, snake and ladder game and many more.