WEATHER FORECAST

A

Mini Project Report

Submitted in partial fulfilment of the
Requirements for the award of the Degree of

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE & ENGINEERING

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DECLARATION BY THE CANDIDATE

We, **M.Mukesh, K.Rajavardhan** and **A.Sathwik,** bearing hall ticket number, **1602-20-733-020,1602-20-733-034** and **1602-20-733-039,** hereby declare that the project report entitled "**WEATHER FORECAST"** Department of Computer Science & Engineering, VCE, Hyderabad, is submitted in partial fulfilment of the requirement for the award of the degree of **Bachelor of Engineering** in **Computer Science & Engineering**.

This is a record of bonafide work carried out by me and the results embodied in this project report have not been submitted to any other university or institute for the award of any other degree or diploma.

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BONAFIDE CERTIFICATE

This is to certify that the project entitled **"WEATHER FORECAST"** being submitted by **M.Mukesh,K.Rajavardhan andA.Sathwik,** bearing 1602-20-733-020,1602-20-733-034, 1602-20-733-039**,** in partial fulfilment of the requirements for the award of the degree of Bachelor of Engineering in Computer Science & Engineering is a record of bonafide work carried out by him/her under my guidance.

Dr. T. Adilakshmi,

Professor & HOD,

Dept. of CSE,

ACKNOWLEDMENT

The enduring pages of the work are the cumulative sequence of extensive guidance and arduous work. We wish to acknowledge and express our personal gratitude to all those without whom this work could not have been reality.

We feel very delighted to get this rare opportunity to show our profound senses of reverences and indebtedness to our esteemed professor, **Mr. SATEESH KUMAR RAMATENKI** for his keen and sustained interest, valuable advice, throughout the course of which led our mini project, to a successful completion. For this kind act of consideration, We beholder to him in special manner and no one can fully convey our feelings of respect and regard for them.

ABSTRACT

This is a complete error-free project which calculates the WEATHER at any place in the world right now, designed by using API KEY and simple modules and is a dynamic program. It just only asks the user to enter the city name, after this API KEY comes into action and gathers the weather information at given place from open source weather and by the inbuilt functions the weather at given place gets printed in output

LANGUAGE USED:

Python

CONCEPTS USED:

- Modules like PYOWM , datetime
- Application Programming Interface Keys (API KEYS)
- If elif else ladders
- Built-in functions
- Dictionaries

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1. INTRODUCTION

1.1 OVERVIEW OF THE PROJECT:

The project's objective is to develop a user friendly application which helps in knowing weather and temperature at any place, at any time. It easily helps us to know the weather at any distant places from our current place.

1.2 MOTIVATION:

Our motivation towards this project is to reduce the difficulties we face when we are travelling to a place. We should prepare ourself to that place weather conditions by this project we can know the weather conditions in that place or any place we want to know and be prepared for that weather conditions.

1.2Problem Definition:

This program is a application to find the weather conditions like temperature,sunrise,sunset,humidity,pressure…etc.In any place in the world.

1.4 OBJECTIVES :

The main objective of this project is to provide an application to help in determning the weather conditions and temperature status at any given place. This inturn helps us to know the condition at that place and to calculate the difference in temperature at different places.

1.5 Scope :

Evolution of technology is taking place rapidly, new systems applications, designs are being developed day by day making the work of man easier in many ways.

This project is also one of the kind to make the humans an easier process to know the weather condition to known the weather condition in a particular place. It provides all necessary data of wather condition to know overall condition of the place

2. Overview of Proposed Design

The proposed design of the project is to create a user-friendly program where the user can know the weather conditions of any place without any complicate methods or mechanism.

Our design process is to first get the weather report from open source with the help of API keys and to acess that infoormation with the help of PYOWM module in which it consists of in-built- functions.So that when the user gives the particular place with the help of all this we get get the weather conditions of that place.

3. HARDWARE AND SOFTWARE SPECIFICATIONS

- Windows 7 or newer.
- Processor speed Minimum: x64 Processor: 1.4GHz.
- Runtime Environment : IDLE(python 3.9 64-bit).

4.Analysis and Understanding of Implementation:

We tested our code by giving various inputs and cross checking it with data we find outside and at early stage we got struck to access the information from API keys and we got some errors and later on we worked on different modules for solution and we found PYOWM module.Now we are getting exact outputs.

4.1 EXPLANATION

- This is the python file which gives the weather information of any place.
- In this python mini project, we are going to build an application through which we can find weather of particular place at any particular time.

- This weather report provides current state of atmosphere which alerts us.

5.IMPLEMENTATION

5.1 Code

```
import pyowm
from datetime import datetime

API_Key = pyowm.OWM('11a73aec8f5f023e8c992ba55c448444')

print("Please enter your city :") city =
input()
print("\n**********************************************
**********************\n")
print('                WEATHER FORECAST OF ' , city)
print("\n**********************************************
**********************\n")

mng = API_Key.weather_manager() location =
mng.weather_at_place(city) weather =
location.weather
temp = weather.temperature(unit = 'celsius') status =
weather.detailed_status avg_temp_data =
int(temp['temp'])
```

```
humidity = weather.humidity
pressure = weather.pressure
win = weather.wind()
dew_point = int(temp['temp_min'])
sunrise = weather.sunrise_time('iso')
sunset = weather.sunset_time('iso')

print('\nTEMPERATURE DETAILS\n')

print("The temperature today in ", city ,"is", avg_temp_data , 'degree celsius')
if (avg_temp_data <= 0):
    print('Freezing Weather!!')
elif (avg_temp_data <= 10):
    print('Very Cold Temperature!!')
elif (avg_temp_data <= 20):
    print('cold Temperature!!')
elif (avg_temp_data <= 30):
    print('Normal temperature!!')
elif (avg_temp_data <= 40):
    print('Hot in temperature!!')
```

```
elif (avg_temp_data <= 50):
    print('Extremely hot in temperature!!')
print("The maximum temperature today in ", city ,"is", temp['temp_max'] , 'degree celsius')
print("The minimum temperature today in ", city ,"is", temp['temp_min'] , 'degree celsius')
print("The feels like temperature today in ", city ,"is", temp['feels_like'] , 'degree celsius')

print('\nOTHER DETAILS\n')

print("Current date and time in",city)
now = datetime.now()
dt_string = now.strftime("%d/%m/%Y %H:%M:%S")
print("date and time =", dt_string)
print('Sun Rise time is',sunrise)
print('Sun Set time is',sunset)
print('Today we will be having ' , status , 'in ' , city)
if 'rain' in status or 'thunderstorm' in status or 'drizzle' in status or 'snow' in status:
    print("It's raining outside,so umbrella is required")
elif 'broken clouds' in status or 'clouds' in  status:
```

```
    print('Rain is expected')
elif 'clear' in status :
    print('Its clear outside')
print('Percentage of Humidity =' ,humidity)
print('Pressure =' , pressure['press'],'mbar')
print('Sea Level =' ,pressure['sea_level'],'m')
print('Wind speed =',win['speed'])
print('Wind direction is ')
if (win['deg'] == 0 or win['deg'] == 360):
    print('north wind (N)')
elif (win['deg'] == 22.5):
    print('north-northeast wind (NNE)')
elif (win['deg'] == 45):
    print('northeast wind (NE)')
elif (win['deg'] == 67.5):
    print('east-northeast wind (ENE)')
elif (win['deg'] == 90):
    print('east wind (E)')
elif (win['deg'] == 112.5):
   print('east-southeast wind (ESE)')
elif (win['deg'] == 135):
```

```
    print('southeast wind (SE)')
elif (win['deg'] == 157.5):
    print('south-southeast wind (SSE)')
elif (win['deg'] == 180):
    print('south wind (S)')
elif (win['deg'] == 202.5):
    print('south-southwest wind (SSW)')
elif (win['deg'] == 225):
    print('southwest wind (SW)')
elif (win['deg'] == 247.5):
    print('west-southwest wind (WSW)')
elif (win['deg'] == 270):
    print('west wind (W)')
elif (win['deg'] == 292.5):
    print('west-northwest wind (WNW)')
elif (win['deg'] == 315):
    print('northwest wind (NW)')
elif (win['deg'] == 337.5):
    print('north-northwest wind (NNW)')
print('Dew point = ',dew_point,'degree celsius')
```

5.2 Explanation of the code:

- Firstly, we ask the user to enter the name of the city for which he wants to know the weather at present.
- Next, with the help of API KEY it gathers information about the weather from open source weather.
- After that PYOWM module has inbuilt functions like weather_manager() in which there are sub functions like weather_at_any_place(), temperature(), humidity(), pressure() and many more.
- After gathering the information from API KEY Source, by using the dot member operation we can access the information from inbuilt functions.
- It gives the wind direction, feels like temperature, maximum and minimum temperature, humidity, and many more in the form of dictionary.
- Then by using the individual keys we can print terms in the output.
- It gives a brief idea about the status of whether like is it raining outside or not, and an umbrella is required or not.
- Finally, we get the details at given place in a sequential manner.

6.RESULTS

SAMPLE OUTPUT :

Please enter your city :

hyderabad

****
****

WEATHER FORECAST OF hyderabad

****
****

TEMPERATURE DETAILS

The temperature today in hyderabad is 25 degree celsius

Normal temperature!!

The maximum temperature today in hyderabad is 26.21 degree celsius

The minimum temperature today in hyderabad is 25.23 degree celsius

The feels like temperature today in hyderabad is 25.92 degree celsius

OTHER DETAILS

Current date and time in hyderabad

date and time = 11/08/2021 20:28:08

Sun Rise time is 2021-08-11 00:28:10+00:00

Sun Set time is 2021-08-11 13:14:38+00:00

Today we will be having thunderstorm in hyderabad

It's raining outside,so umbrella is required

Percentage of Humidity = 80

Pressure = 1010 mbar

Sea Level = None m

Wind speed = 1.03

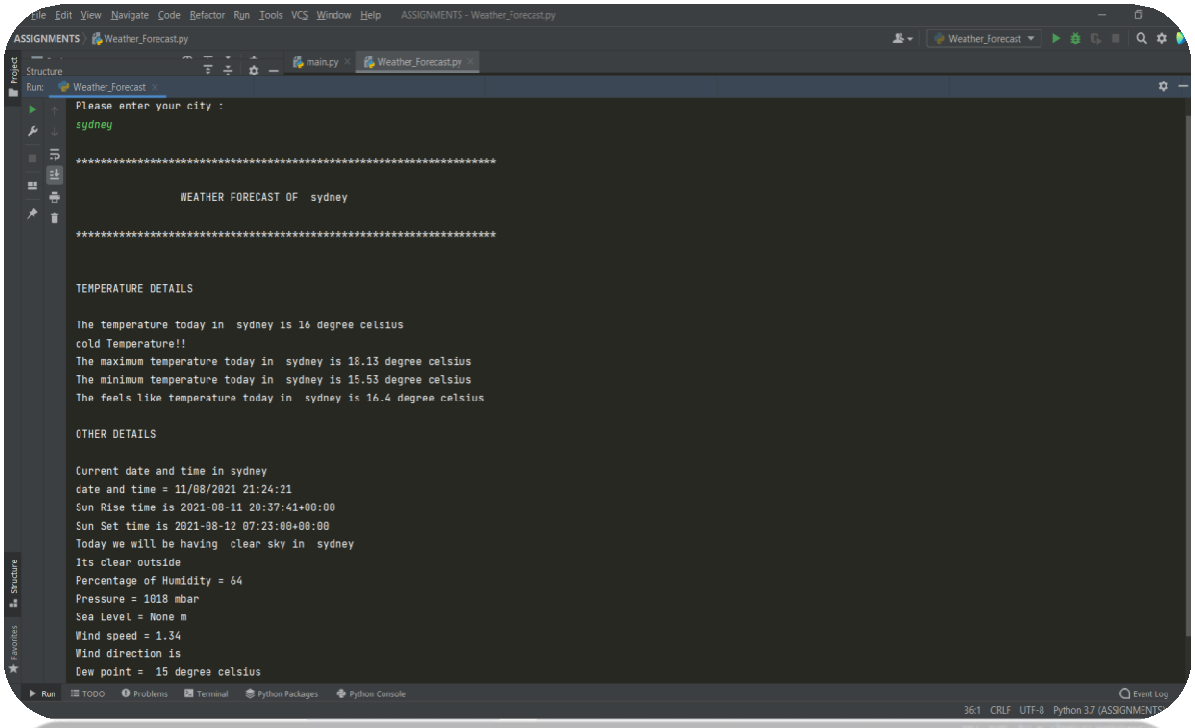
Wind direction is

north wind (N)

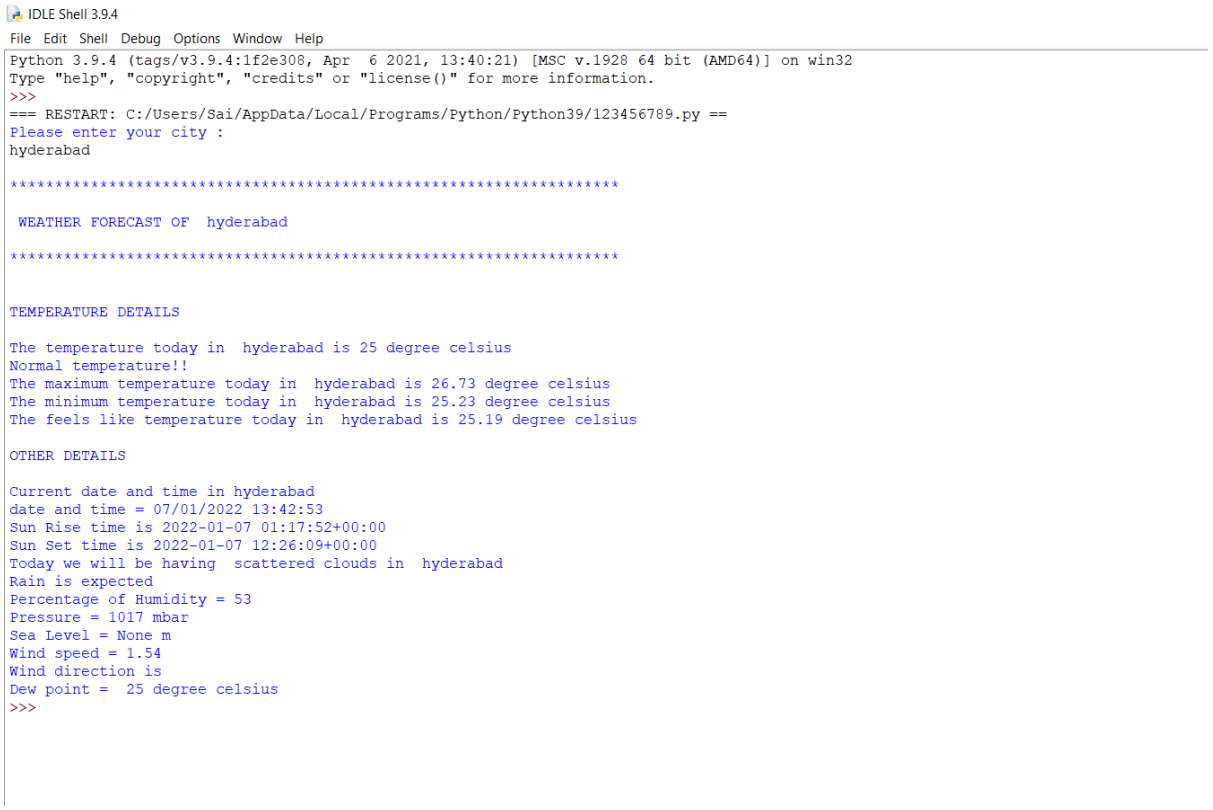
Dew point = 25 degree celsius

Process finished with exit code 0

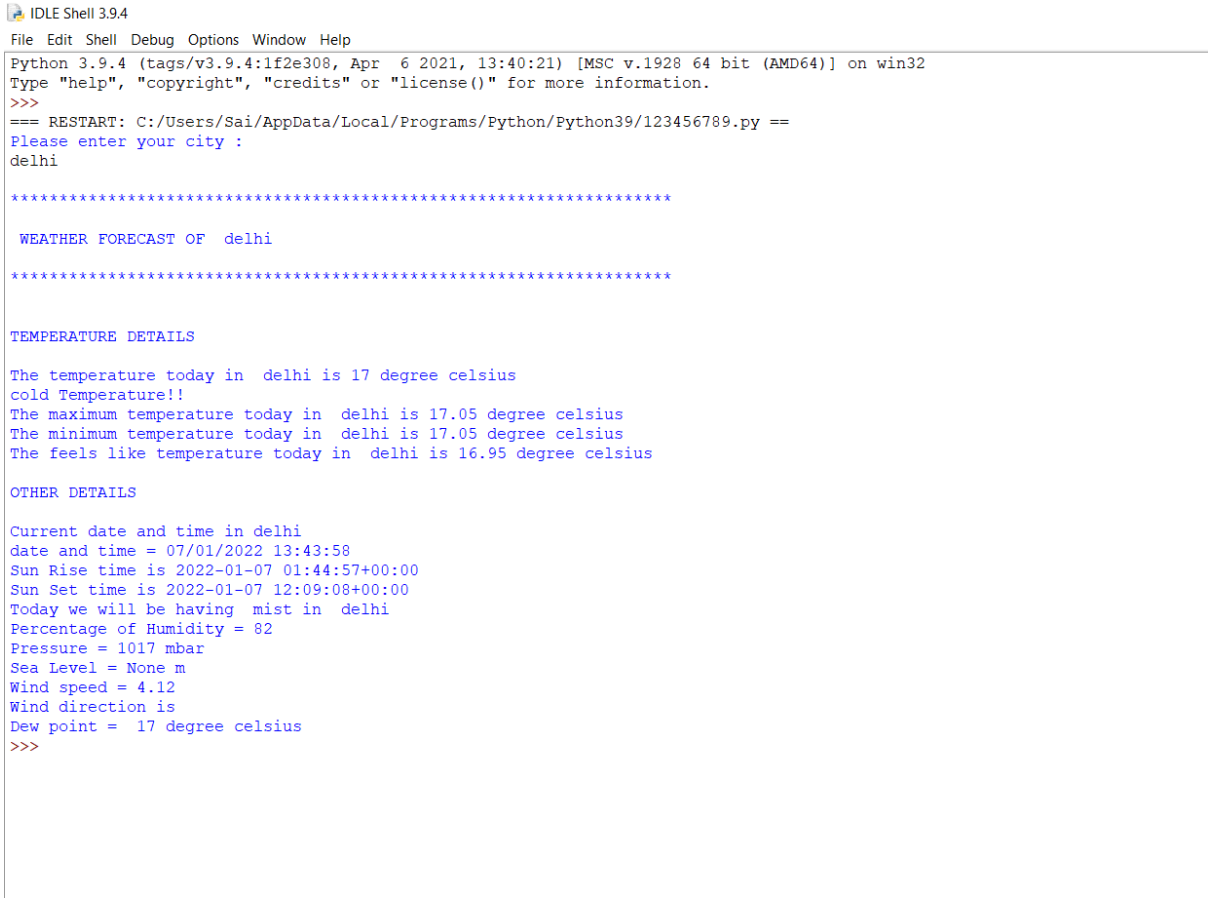
OUTPUT SCREENSHOT 1



OUTPUT SCREENSHOT 2



OUTPUT SCREENSHOT 3



7.CONCLUSION

- In this application we have successfully developed an application which helps to get to know weather conditions at any place easily through our project.

- The user can simply enter the place name where the user wants to know the weather and can get it.

- This also gives the user the maximum, minimum temperatures and humidity.

8.REFERENCES

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