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Chapter 1: Introduction

1.1 Industrial Training

Weather forecasting is the application of science and technology to predict the conditions of the atmosphere for a given location and time. People have attempted to predict the weather informally for millennia and formally since the 19th century. Weather forecasts are made by collecting quantitative data about the current state of the atmosphere, land, and ocean and using meteorology to project how the atmosphere will change at a given place.

1.2 Industrial Training Objectives

The main objective of weather forecasting is to get real-time weather data. This weather forecasting data is useful for making a decision related to rainy as well as disaster management.

Chapter 2: Company Background

2.1 Background

Udemy, Inc. is an American massive open online course (MOOC) provider aimed at professional adults and students. It was founded in May 2010 by Eren Bali, Gagan Biyani, and Oktay Caglar.

As of April of 2021, the platform has more than 40 million students, 155,000 courses and 70,000 instructors teaching courses in over 65 languages. There have been over 480 million course enrollments. Students and instructors come from 180+ countries and 2/3 of the students are located outside of the U.S.

Students take courses largely as a means of improving job-related skills. Some courses generate credit toward technical certification. Udemy has made a special effort to attract corporate trainers seeking to create coursework for employees of their company.

The headquarters of Udemy is located in San Francisco, US, with offices in Denver, US; Dublin, Ireland; Ankara, Turkey; Sao Paulo, Brazil; and Gurugram, India.

2.2 Services

Udemy is a platform that allows instructors to build online courses on their preferred topics. Using Udemy's course development tools, they can upload videos, PowerPoint presentations, PDFs, audio, ZIP files and live classes to create courses. Instructors can also engage and interact with users via online discussion boards.

Courses are offered across a breadth of categories, including business and entrepreneurship, academics, the arts, health and fitness, language, music, and technology. Most classes are in practical subjects such as Excel software or using an iPhone camera. Udemy also offers Udemy for Business, enabling businesses access to a targeted suite of over 7,000 training courses on topics from digital marketing tactics to office productivity, design, management, programming, and more. With Udemy for Business, organizations can also create custom learning portals for corporate training.

Courses on Udemy can be paid or free, depending on the instructor. In 2015, the top 10 instructors made more than $17 million in total revenue.

Chapter 3: Weekly Task Summary

Date	Content
15 – 08 - 2021 To 30 – 08 - 2021	**1. Introduction to Python.** 1.1 Introduction and installing Python setup. 1.2 Installing PyCharm IDE. 1.3 Start Python in PyCharm. 1.4 Basic customization PyCharm IDE. 1.5 Python coding basics. 1.6 Strings in Python. 1.7 Operators & Functions in Python. 1.8 Modules in Python. 1.9 Python statements: Flow control. 1.10 Files & Folders in Python. 1.11 Debugging & Error handling. 1.12 Collection in Python. 1.13 PIP & Packages.
1 – 08 – 2021 To 10 – 08 - 2021	**2. Database Creation** 2.1 Quick Review of SQL Server. 2.2 Using MySQL in Python. 2.3 Quick Review of MySQL 2.4 Using PostgreSQL. 2.5 Using JSON in Python. 2.6 Quick Review of MongoDB. 2.7 Using MongoDB in Python. 2.8 GUI in Python by Tkinter. 2.9 Tkiter Geometry manager.

10 – 08 – 2021 To 18 – 08 - 2021	**3. GUI Creation in Python.** 3.1 Basic GUI in Python by Tiknter. 3.2 Tikter geometry manager. 3.3 GUI Project in Tiknter. 3.4 Basics: Using PyQt6 to GUI apps in Python by PyQt 3.5 Certificate Generation.

Chapter 4: Online Weather Forecasts

4.1 Problem Statemen:

Weather forecasting is the leading market industry. Accurate weather data can be used for disaster management planning. Because of insufficient data, lots of problems are occurring. So I developed this project to all people get accurate weather data.

4.2 Definition of terms:

4.2.1 What is Weather

Weather is the mix of events that happen each day in our atmosphere. Weather is different in different parts of the world and changes over minutes, hours, days and weeks. Most weather happens in the troposphere, the part of Earth's atmosphere that is closest to the ground.

4.2.2 Weather Forecasting

Weather forecasting is the application of science and technology to predict the conditions of the atmosphere for a given location and time. People have attempted to predict the weather informally for millennia and formally since the 19th century. Weather forecasts are made by collecting quantitative data about the current state of the atmosphere, land, and ocean and using meteorology to project how the atmosphere will change at a given place.

4.3 Concepts Used

4.3.1 Algorithm for Weather Forecasting

Step 1: Start.

Step 2: Connect system to Internet.

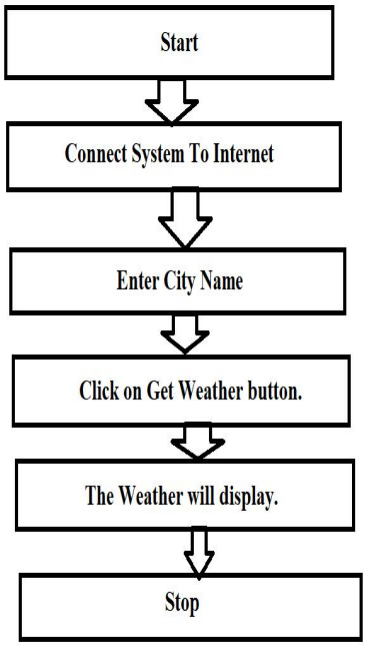
Step 3: Enter City Name.

Step 4: Click on Get Weather button.

Step 5: The Weather will display.

Step 6: Stop.

4.3.2 Flowchart for Weather Forecasting



4.3.3 Importing Libraries

For making this project we required additional packages which we are download from the internet. Below are the packages we are downloaded from the internet.

- **Import tkinter package in python**
  The tkinter package ("Tk interface") is the standard Python interface to the Tk GUI toolkit. Both Tk and tkinter are available on most Unix platforms, as well as on Windows systems. (Tk itself is not part of Python; it is maintained at ActiveState.)

I. Run **pip install tk** from command prompt.
II. After this **tkinter** package are install on your system.

Fig:- Installation of tkinter pakage

- **Import requests package in python**

  Requests allows you to send HTTP/1.1 requests extremely easily. There's no need to manually add query strings to your URLs, or to form-encode your PUT & POST data but nowadays, just use the json method!

I. Run **pip install requests** from command prompt.
II. After this **requests** package are install on your system.

Fig: - Installation of request package

- **Import PIL package in python**

  The Python Imaging Library adds image processing capabilities to your Python interpreter.

This library provides extensive file format support, an efficient internal representation, and fairly powerful image processing capabilities.

The core image library is designed for fast access to data stored in a few basic pixel formats. It should provide a solid foundation for a general image processing tool.

I. Run **pip install Pillow** from command prompt.
II. After this **Pillow** package are install on your system.

Fig: - Installation of Pillow pakage

- **Import OS package in python**

The functions OS module provides allows us to operate on underlying Operating System tasks, irrespective of it being a Windows Platform, Macintosh or Linux. In this lesson, we will review these functions and what we can do with these.

This package is already pre-installed so we don't need it to download from internet.

4.4 Design and Coding

4.4.1 Design

This is the design of Weather forecasting project.

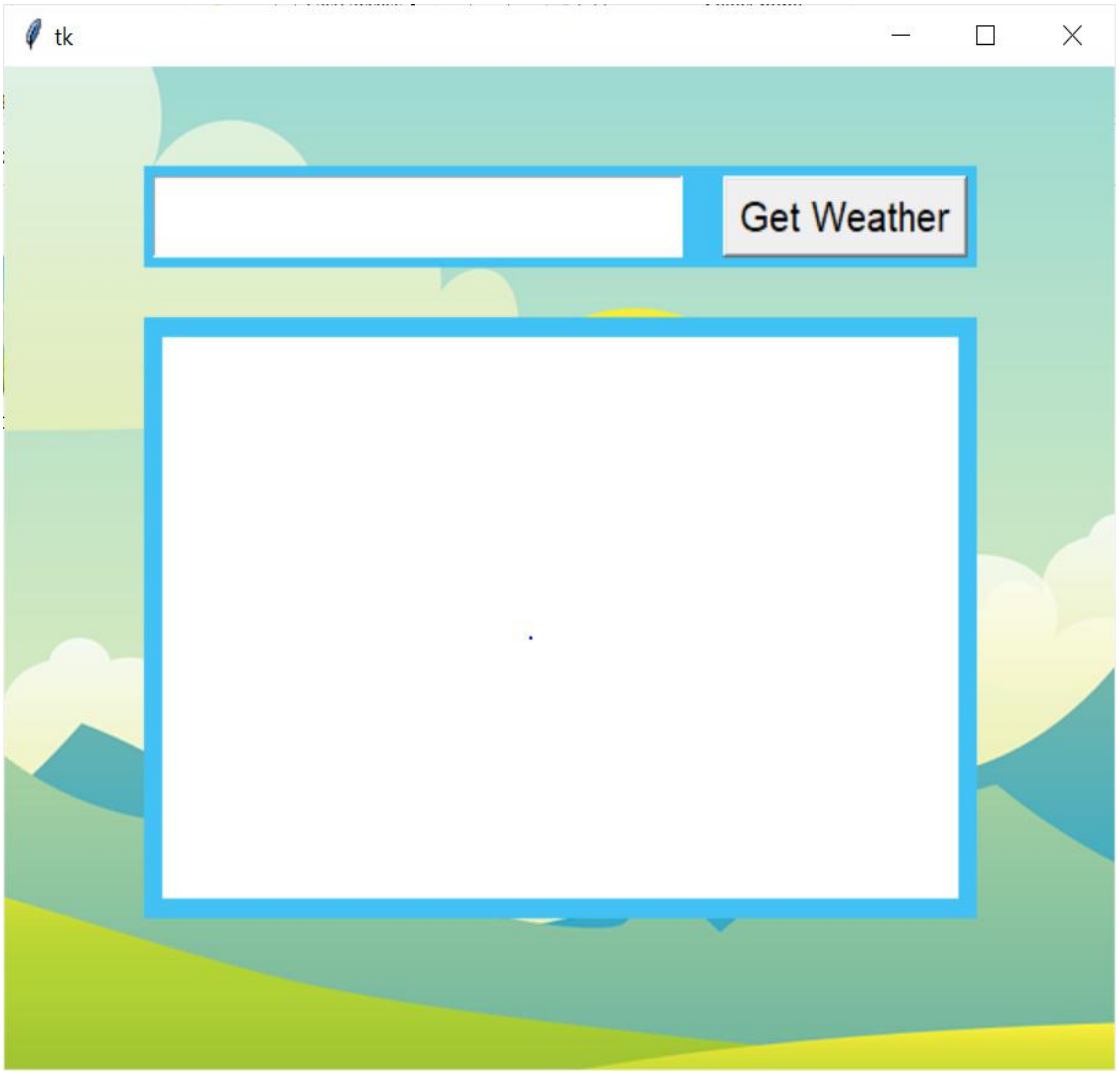


Fig: - Design of Module

4.4.2 Coding

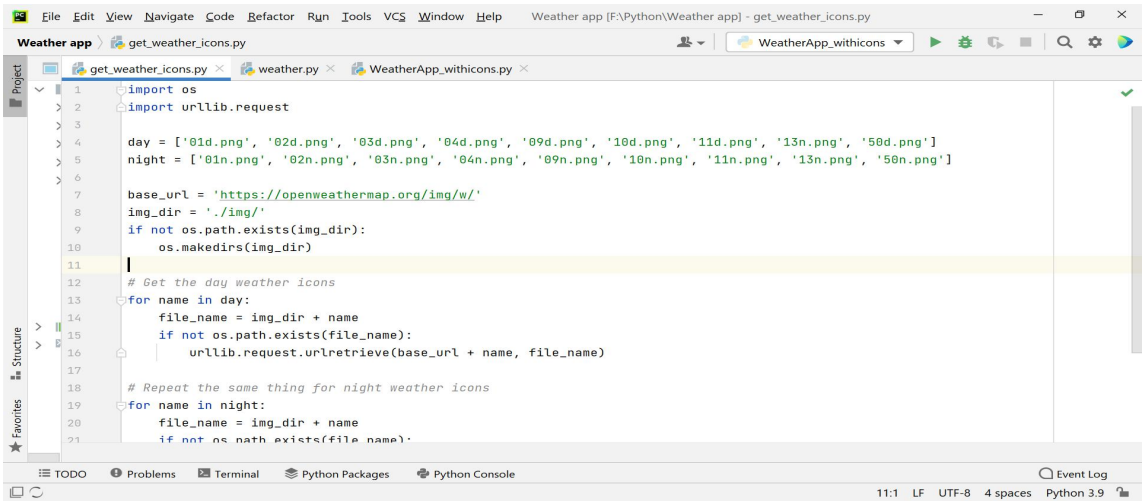


Fig : - get_weather_icon.py

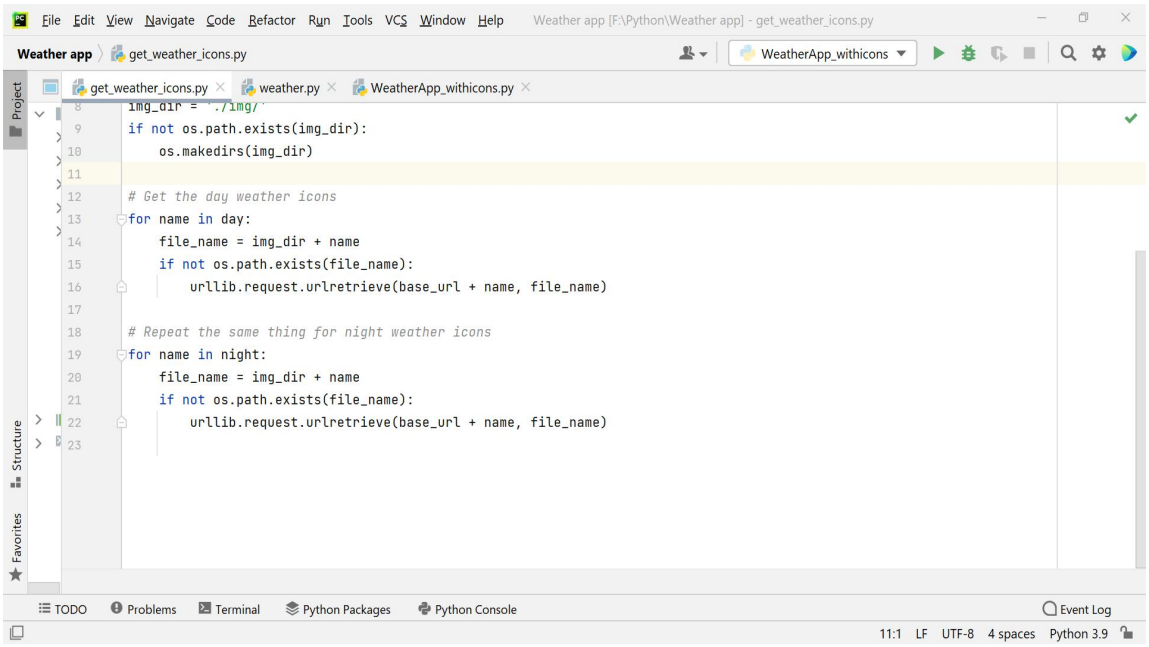


Fig: - get_weather_icon.py

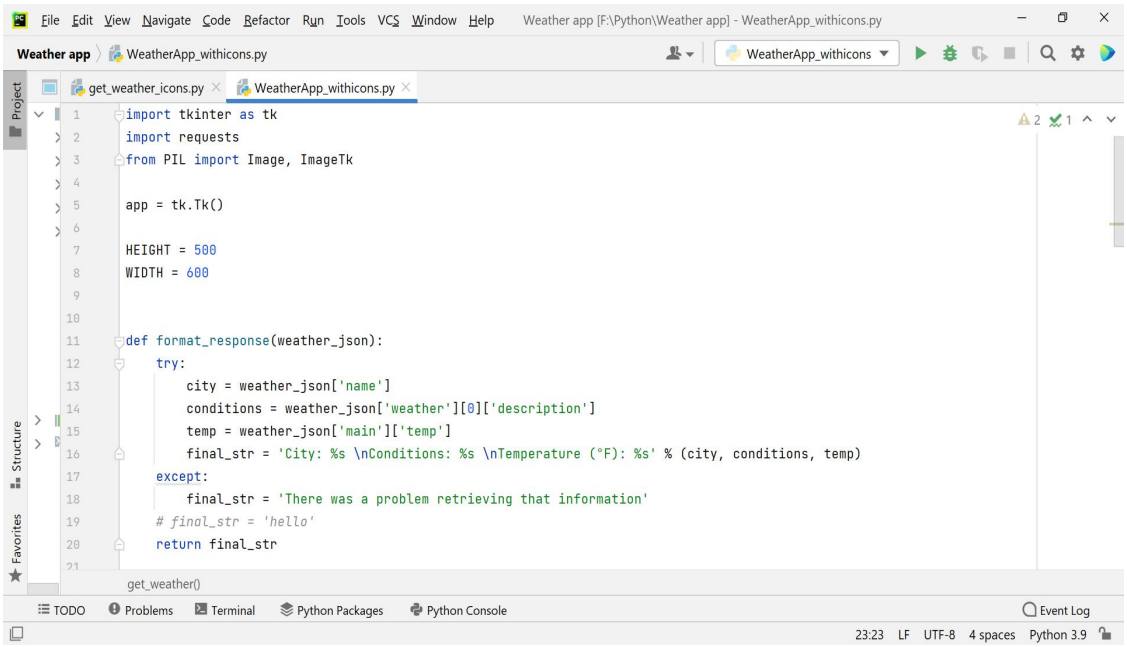


Fig: - WeatherApp_withicons.py

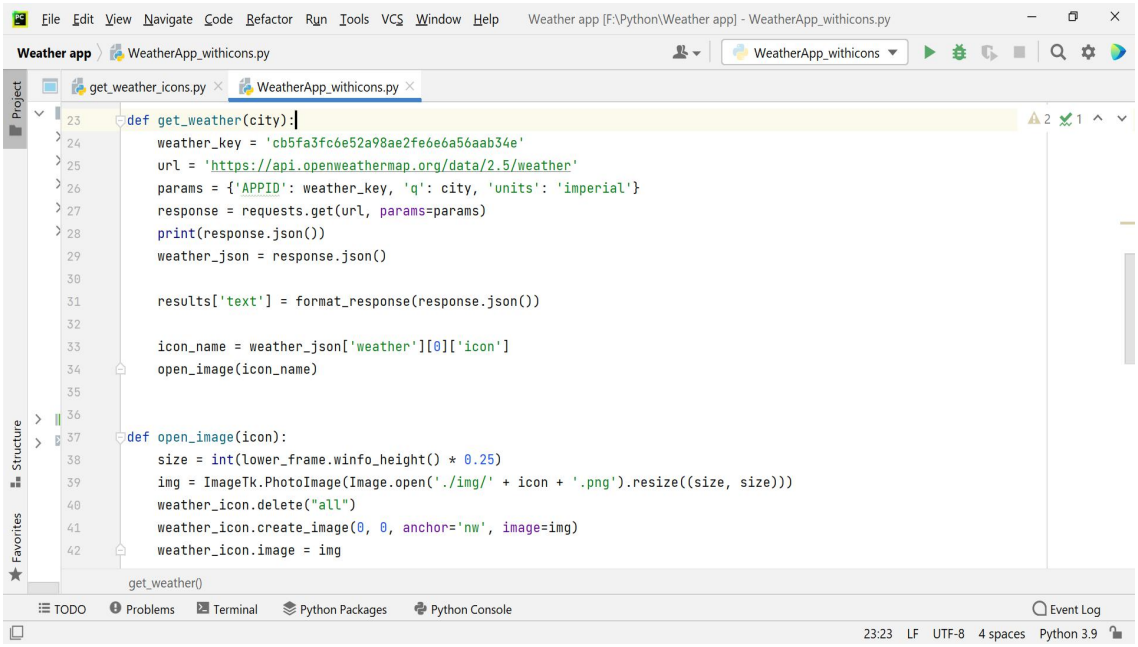


Fig: - WeatherApp_withicons.py

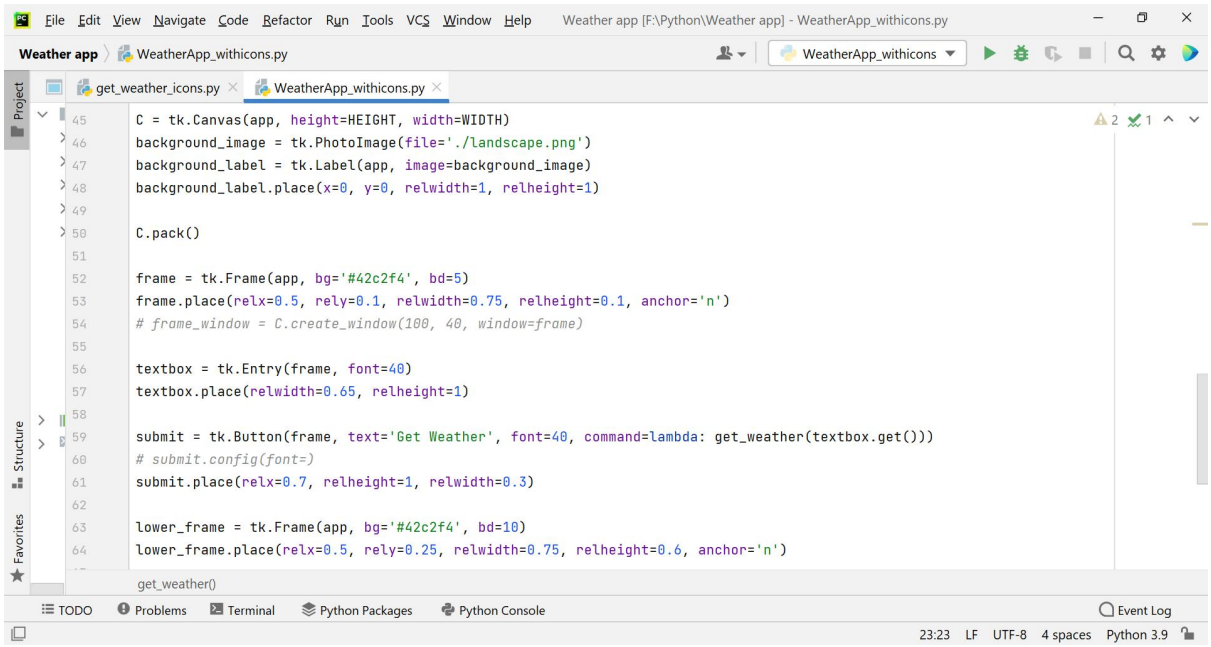


Fig: - WeatherApp_withicons.py

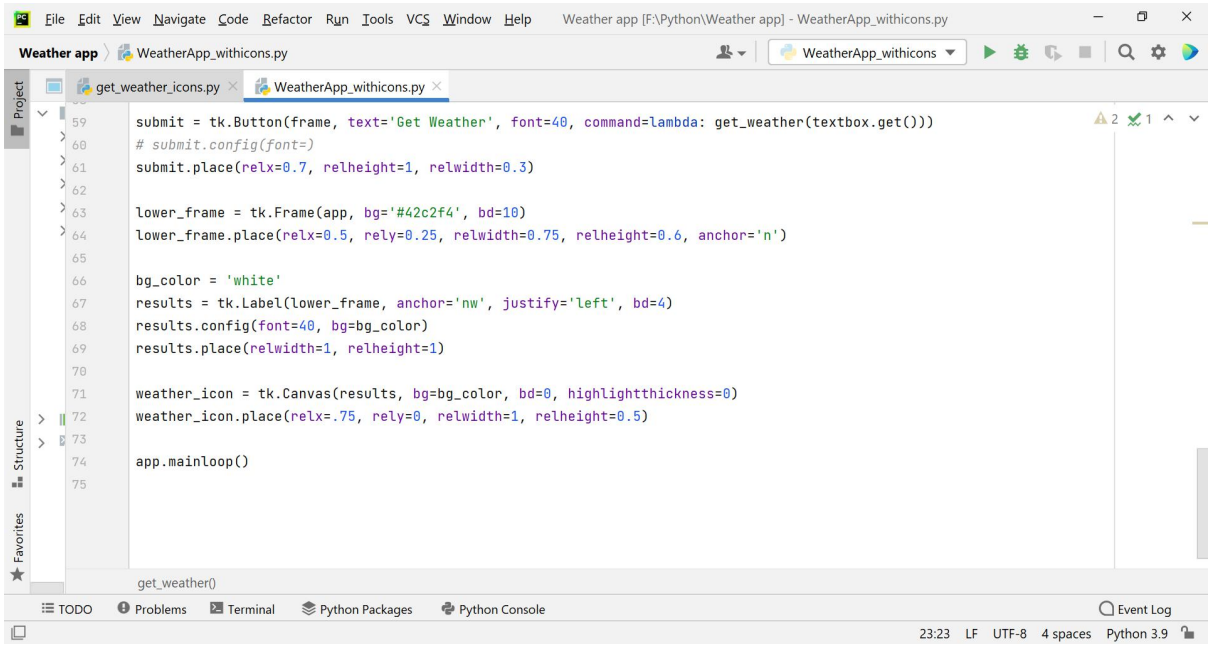


Fig: - WeatherApp_withicons.py

4.5 Output of the module

After executing the module, it will get below output.

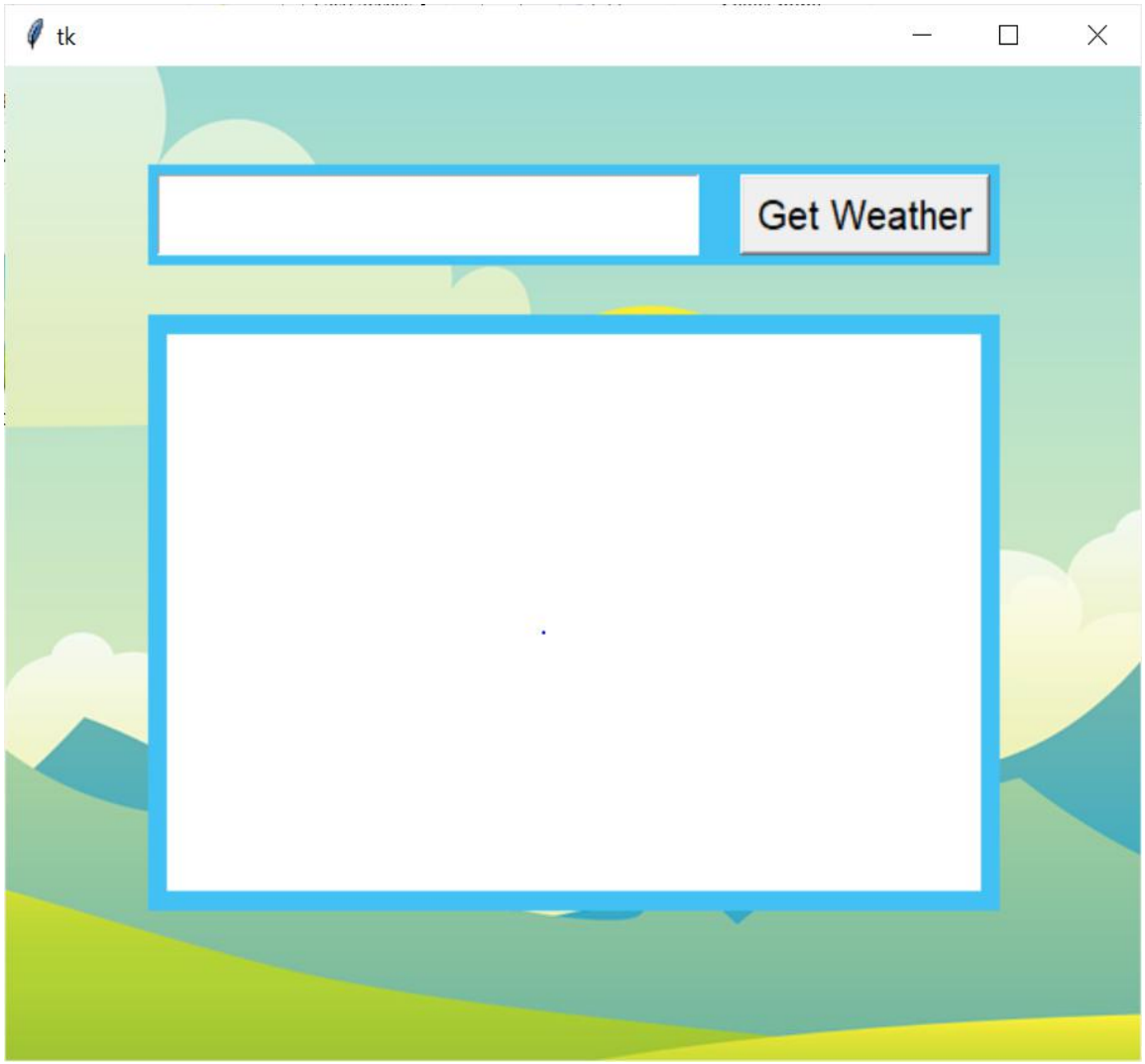


Fig: - After Running Module

After above, please enter the city name of that you want weather information.

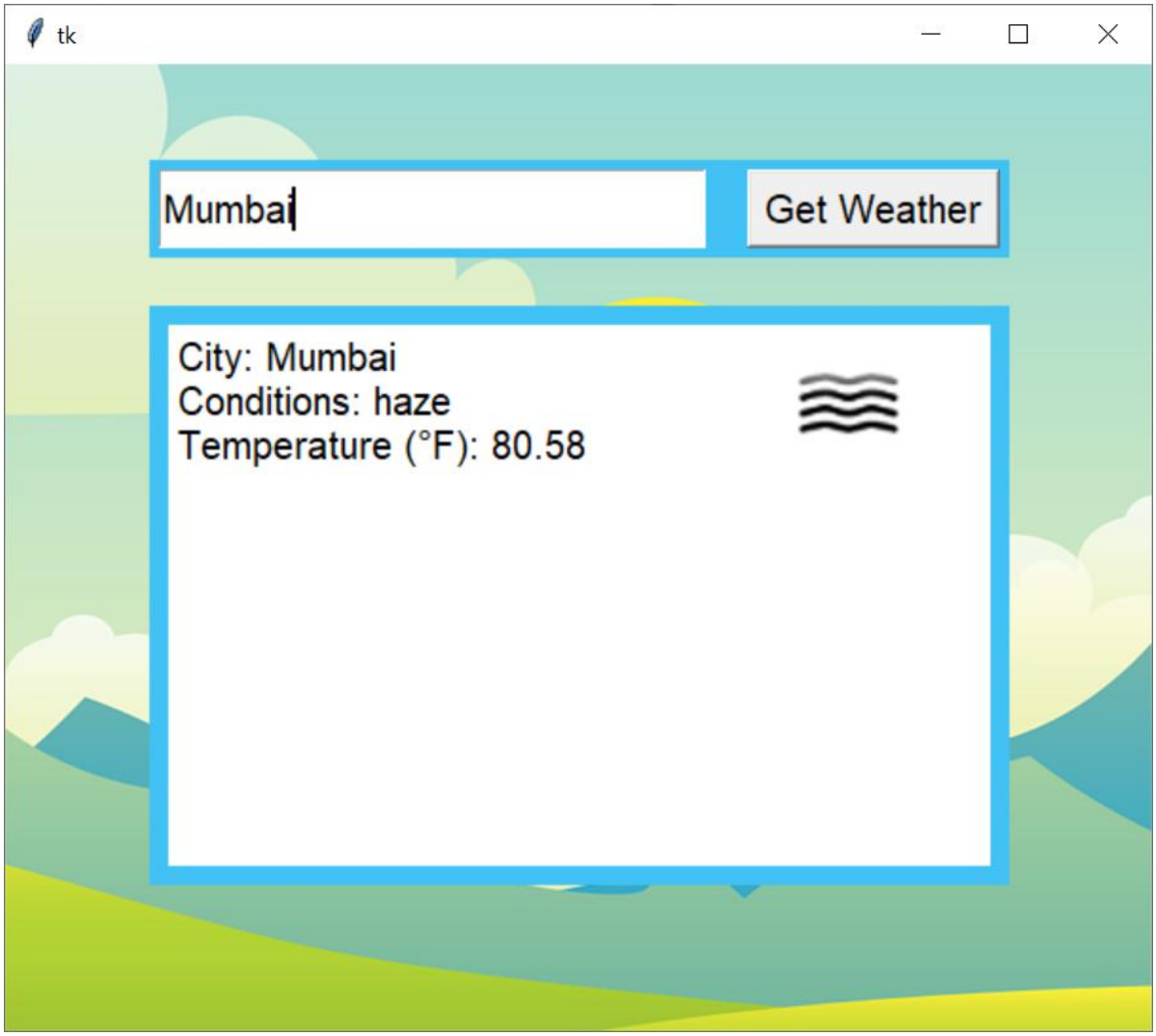


Fig: - Output of Module

4.6 Benefits of weather forecasting

- **Can be Used Anywhere**
  Individuals or organizations can use our weather forecasting software or module.

- **It is Easy to Use**
  Online weather forecasting is a simple, handy, fast, and accurate tool. This means that the user can use this accurate tool in any situation when getting real-time weather data.

- **Offers Speedy Operations**
  Accuracy and speed are very crucial when it comes to weather forecasting. This is one of the essential qualities that you can get from free online forecasting, whether it is paid or unpaid.

- **It is Reliable**
  The reliability of online weather forecasting cannot be questioned. Many businessmen and indusial have been using this essential tool when managing weather-related operations.

- **It is Efficient**
  By using this tool, you will get accurate data related to weather forecasting. It provides real-time data. this data is useful for disaster management purposes. Government & institutes, as well as individuals, can use it for their purpose.

Chapter 5: Finding and Recommendations

5.1 Application

This study will be useful to every organization that deals with its weather, it will help in easy forecasting of weather. This is useful for making decisions about disaster management. This work is also significant to scholars who needs to make research about weather and weather forecasting.

5.2 Limitations

The major limitation of this thesis is during the actual software development. The source code is not available. It required heavy investment for the building is the project for large skill. It required always active internet connection for getting weather information.

5.3 Future Scope

Weather forecasting has the largest scope because of climate change. Many governments, public sector companies, corporates as well as Individual uses weather forecasting technology. It is used in agricultural, disaster management as well as monitoring environmental changes.

Chapter 6: Conclusion

In this module development, we learned Python programming. Also, we learned API key generation as well as API key handling. This project is helpful for many government organizations, public sector companies, corporate companies as well as Individual people.

This weather data is useful for disaster management for governments. Also, it is useful for the agricultural sector.

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4. https://www.pypi.org/
5. https://www.python.org/community-landing/
6. https://www.openweathermap.org/api