**Documentation of source code**

#This is a Weather App  
import tkinter as tk  
import requests  
  
# My OpenWeatherMap API key  
api\_key = "9a970f5612d05e73f54741adb1a7e92f"  
#Function to retrieve weather data from the OpenWeatherMap API  
def get\_weather(city):  
 # The base URL for the OpenWeatherMap API  
 base\_url = "https://api.openweathermap.org/data/2.5/weather?q="  
  
 # Had to make a GET request to the API  
 response = requests.get(f"{base\_url}{city}&units=imperial&appid={api\_key}")  
  
  
 if response.status\_code == 200:  
 # If the request is successful, extract the weather data  
 data = response.json()  
 weather\_data = f"Temperature: {data['main']['temp']}°F\n"  
 weather\_data += f"Description: {data['weather'][0]['description']}\n"  
 weather\_data += f"Wind Speed: {data['wind']['speed']} mph"  
 # Update the label with the weather data  
 label.config(text=weather\_data)  
 else:  
 # If the request is not successful, display an error message  
 label.config(text=f"An error occurred: {response.status\_code}")  
# Function to initiate the search for weather data  
def search():  
 # Get the city from the entry field  
 city = entry.get()  
 # Retrieve the weather data for the given city  
 get\_weather(city)  
  
# Window dimensions  
HEIGHT = 500  
WIDTH = 600  
# Create the main window  
root = tk.Tk()  
# Create a canvas to hold the background image  
canvas = tk.Canvas(root, height=HEIGHT, width=WIDTH)  
canvas.pack()  
  
# Load the background image and display it  
background\_image = tk.PhotoImage(file= "WEATHERREAL.png")  
background\_label = tk.Label(root, image=background\_image)  
background\_label.place(relwidth=1, relheight=1)  
  
# Create a frame for the city entry and search button  
frame = tk.Frame(root, bg="#6E8B3D", bd=5)  
frame.place(relx=0.5, rely=0.1, relwidth=0.75, relheight=0.1, anchor="n")  
  
# Create a button to initiate the search  
button = tk.Button(frame, text="Search", font=40, command=search)  
button.place(relx=0.7, relwidth=0.3, relheight=1)  
  
entry = tk.Entry(frame, font=40, text="37.7858,-122.401")  
entry.place(relwidth=0.65, relheight=1)  
  
# Create a text entry for the city  
lower\_frame = tk.Frame(root, bg="#6E8B3D", bd=10)  
lower\_frame.place(relx=0.5, rely=0.25, relwidth=0.75, relheight=0.6, anchor="n")  
  
# Create a frame to hold the weather data  
label = tk.Label(lower\_frame)  
label.place(relwidth=1, relheight=1)  
  
root.mainloop()

**api\_key:** This variable stores the API key for the OpenWeatherMap API.

**get\_weather:** This is a function that takes in a city as a parameter and makes a GET request to the OpenWeatherMap API to get the current weather data for that city.

**base\_url:** This variable stores the base URL for the OpenWeatherMap API.

**response:** This variable stores the response to the API request made using the requests library.

**data**: This variable stores the JSON data returned by the API in the response variable.

**weather\_data**: This variable stores a string containing the temperature, weather description, and wind speed for the specified city.

**search**: This is a function that retrieves the user-entered city from the entry widget and passes it to the get\_weather function.

**HEIGHT and WIDTH**: These variables store the height and width of the tkinter window, respectively.

**root**: This variable stores the root tkinter window.

**canvas:** This variable stores the tkinter canvas used to hold the background image and other widgets.

**background\_image**: This variable stores the tkinter PhotoImage object for the background image.

**background\_label**: This variable stores the tkinter label used to display the background image.

**frame**: This variable stores the tkinter frame used to hold the search button and entry widget.

**button**: This variable stores the tkinter button used to initiate the search.

**entry**: This variable stores the tkinter entry widget used to input the city to search for.

**lower\_frame**: This variable stores the tkinter frame used to hold the label displaying the weather data.

**label**: This variable stores the tkinter label used to display the weather data returned by the OpenWeatherMap API.