**Weather API**

**Step 1: Choose a Weather API**

The most commonly used free API is **OpenWeatherMap**:  
🌐 https://openweathermap.org/api

1. Sign up for a free account.
2. Go to **API keys** and **copy your key** (you will need this).

We’ll use the **Current Weather API**:

bash

https://api.openweathermap.org/data/2.5/weather?q={CITY}&appid={API\_KEY}&units=metric

**Step 2: Create a WinForms Project**

1. Open **Visual Studio** → Create **Windows Forms App (.NET Framework)**
2. Add the following controls to your form (Form1):

* TextBox → for **city name**
* Button → labeled **Get Weather**
* Labels → to display temperature, weather description, etc.
* (Optional) PictureBox → to show weather icon

Example layout:

less

[TextBox: txtCity] [Button: btnGetWeather]

Temperature: [lblTemp]

Condition: [lblCondition]

**Step 3: Install Newtonsoft.Json**

We will use **Newtonsoft.Json** to parse JSON responses.

1. **Tools → NuGet Package Manager → Manage NuGet Packages for Solution**
2. Search **Newtonsoft.Json** and **Install**

**Step 4: Add Code to Fetch Weather**

csharp

using System;

using System.Net.Http;

using System.Threading.Tasks;

using System.Windows.Forms;

using Newtonsoft.Json.Linq; // for JSON parsing

namespace WeatherApp

{

public partial class Form1 : Form

{

private const string API\_KEY = "YOUR\_API\_KEY"; // Replace with your OpenWeather key

public Form1()

{

InitializeComponent();

}

private async void btnGetWeather\_Click(object sender, EventArgs e)

{

string city = txtCity.Text.Trim();

if (string.IsNullOrEmpty(city))

{

MessageBox.Show("Please enter a city name.");

return;

}

await GetWeatherAsync(city);

}

private async Task GetWeatherAsync(string city)

{

string url = $"https://api.openweathermap.org/data/2.5/weather?q={city}&appid={API\_KEY}&units=metric";

using (HttpClient client = new HttpClient())

{

try

{

string json = await client.GetStringAsync(url);

JObject data = JObject.Parse(json);

double temp = (double)data["main"]["temp"];

string condition = data["weather"][0]["description"].ToString();

lblTemp.Text = $"Temperature: {temp} °C";

lblCondition.Text = $"Condition: {condition}";

}

catch (Exception ex)

{

MessageBox.Show("Error fetching weather: " + ex.Message);

}

}

}

}

}

**Step 5: Run the App**

1. Enter a **city name** like Frankfurt
2. Click **Get Weather**
3. You will see the **temperature** and **condition** displayed in labels.

**✅ Extra Improvements**

* Add a **PictureBox** and fetch the weather **icon**:

csharp

string iconCode = data["weather"][0]["icon"].ToString();

pictureBox1.Load($"https://openweathermap.org/img/wn/{iconCode}@2x.png");

* Validate city names and handle **404 errors**.
* Add **keyboard support** (Enter to fetch weather).