Project File

On

Weather Forecasting Web Application

https://github.com/anujsharma1101/weather-app

https://anujsharma1101.github.io/weather-app/

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Submitted to :-

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CERTIFICATE

This is to certify that the project on Web Development titled “Weather Forecasting Web Application” has been completed by **Anuj Sharma, 21001003015 and Kartik Chauhan, 21001003065** under the guidance of **Dr. Neelam Duhan** and all the work is entirely bonafide.

Mentor’s Signature

Weather Forecasting Web Application

1. ***Introduction***

In this project, our main focus is to understand the working of API(Application Programming Interface), learning to work with Javascript to make responsive websites and changing the format of HTML Document.

API(Application Programming Interface)

An **application programming interface** (**API**) is a way for two or more computer programs to communicate with each other. It is a type of software interface, offering a service to other pieces of software. A document or standard that describes how to build or use such a connection or interface is called an *API specification*. A computer system that meets this standard is said to *implement* or *expose* an API. The term API may refer either to the specification or to the implementation.

In contrast to a user interface, which connects a computer to a person, an application programming interface connects computers or pieces of software to each other. It is not intended to be used directly by a person (the end user) other than a computer programmer who is incorporating it into the software. An API is often made up of different parts which act as tools or services that are available to the programmer. A program or a programmer that uses one of these parts is said to *call* that portion of the API. The calls that make up the API are also known as subroutines, methods, requests, or endpoints. An API specification *defines* these calls, meaning that it explains how to use or implement them.

One purpose of APIs is to hide the internal details of how a system works, exposing only those parts a programmer will find useful and keeping them consistent even if the internal details later change. An API may be custom-built for a particular pair of systems, or it may be a shared standard allowing interpretability among many systems.

The term API is often used to refer to web APIs, which allow communication between computers that are joined by the internet. There are also APIs for programming language, software libraries, computer operating systems, and computer software. APIs originated in the 1940s, though the term did not emerge until the 1960s and 1970s. Recent developments in APIs have led to the rise in popularity of microservices, which are loosely coupled services accessed through public APIs.

In building applications, an API simplifies programming by abstracting the underlying implementation and only exposing objects or actions the developer needs. While a graphical interface for an email client might provide a user with a button that performs all the steps for fetching and highlighting new emails, an API for file input/output might give the developer a function that copies a file from one location to another without requiring that the developer understand the file system operations occurring behind the scenes.

2. ***OpenWeatherMap API***

One Call API

The One Call API provides the following weather data for any geographical coordinates:

- Current weather
- Minute forecast for 1 hour
- Hourly forecast for 48 hours
- Daily forecast for 8 days
- National weather alerts
- Historical weather data for 40+ years back(since January 1, 1979)

API Call

https://api.openweathermap.org/data/2.5/weather?q={city}&units=metric&appid={api key}

API Response


```
{

    "coord": {
    "lon": 77.3167,
    "lat": 28.4333
    },
    "weather": [
    {
    "id": 803,
    "main": "Clouds",
    "description": "broken clouds",
    "icon": "04n"
    }
    ],
    "base": "stations",
    "main": {
    "temp": 285.29,
    "feels_like": 284.18,
    "temp_min": 285.29,
    "temp_max": 285.29,
    "pressure": 1013,
    "humidity": 62,
    "sea_level": 1013,
    "grnd_level": 988
    },
    "visibility": 10000,
    "wind": {
    "speed": 2.21,
    "deg": 83,
    "gust": 4.52
    },
    "clouds": {
    "all": 59
    },
    "dt": 1673554139,
```

```
    "sys": {
    "type": 1,
    "id": 9165,
    "country": "IN",
    "sunrise": 1673574254,
    "sunset": 1673612021
    },
    "timezone": 19800,
    "id": 1271951,
    "name": "Faridabad",
    "cod": 200
}
```


3. *JavaScript fetch() and response()*

- The fetch API allows you to asynchronously request for a resource.
- Use the `fetch()` method to return promise that resolves into `Response` object. To get the actual data, you call one of the methods of the Response object e.g., `text()` or `json()`. These methods resolve data into the appropriate format.
- You can also use `catch()` method or `try…catch` statement to handle a failure request.

In this project we have used `Response` object to get data in `json()` method.

4. *Unsplash.com Background*

In this project, the background of the body changes according to our search query, we managed to pull this off by using **unsplash url** which gives us any random image related to the search query we searched for in the search bar.

https://source.unsplash.com/1920x1080/?{cityname}

5. *Github Pages*

We have committed all the related files of this project online over to the Github interface and intern deployed it using the Github Pages feature available to all the users.

How to use Github Pages?

- Create a new repository with the name same as your username.
- Github will unlock the feature for you to use it to deploy your website or project.
- Go to your repository settings while browsing the code.
- On the left panel, you will witness the `Github pages`, go to that section.

- Then, deploy from `root` folder or which ever folder you choose.
- It should take about 3-5 mins to make your project live.
- Github would then show you that your project is live.

Reference

API – Wikipedia : https://en.wikipedia.org/wiki/API

Beautiful Images & Pictures | Unsplash : https://unsplash.com/

Javascript fetch() API explained by examples : https://www.javascripttutorial.net/javascript-fetch-api/

One Call API – OpenWeatherMap : https://openweathermap.org/api/one-call-3