**Web Workers Assignment**



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**Description:**

The **Weather Information** project involves creating a web application that allows users to input a city name. Upon pressing a button, the application fetches real-time weather data for that city using the OpenWeatherMap API. The data is processed and displayed in a visually appealing card format. The application also uses a Web Worker to handle data processing in the background. The main thread handles user inputs and DOM manipulations, while a dedicated Web Worker performs background tasks such as data processing. the application ensures smooth user interactions while fetching and processing data.

**Instructions:**

The Instructions on how to run the project locally is given below:

1. First of all, Clone the repository to any folder.
2. Open command prompt and navigate to the directory containing all files.
3. Then run the following command:

**“python -m http.server”**

1. Open your browser and navigate to **<http://localhost:8000.>**
2. This will opens the running website.

**Summary of Improvements and Benefits:**

1. Web Workers enable **parallel execution** of scripts, preventing UI blocking and enhancing application responsiveness.
2. More API calls to Web Workers keeps the main thread unburdened, ensuring a smooth user interface.
3. Web Workers deal with large datasets or complex computations.
4. Multiple operations are performed at the same time.
5. Tasks executed in Web Workers occur in the background, preserving a smooth and responsive user interface.

**Challenges:**

1. **Cross-Origin Resource Sharing (CORS):**

When I run the web page and sending request to API, the data was not getting through API because CORS block the request and no data was showing.

Solution: I use the Server-Side solution as I run the command  **“python -m http.server”** on command prompt. This server is running on the command prompt and then I use localhost to run this website. This ensures the API supports to CORS.

1. **Getting API:**

Getting API was also very challenging due to security restrictions of some websites.

Solution: Be aware of security restriction from where you get APIs.

**Reference and Resource:**

* Stack Overflow (for error of CORS).
* ChatGPT (for designing errors).