

# Technical Documentation of OpenWeather Map API Integration

## 1. Code Guidelines

### 1.1. Naming

- Variables: Use camelCase (e.g., `fetchOpenWeatherForecast`, `OPEN_WEATHER_URL`).
- Files: Lowercase with hyphens (e.g., `open-weather-fetcher.js`).
- Interfaces: Use PascalCase (e.g., `OpenWeatherQuery`, `FetchForecastResponse`).

### 1.2. Code Style

- Always use `const` unless the value needs to be reassigned.
- Incorporate modern JavaScript features, such as Promises and arrow functions.
- Manage exceptions with promise-based try-catch (i.e., `.then()` and `.catch()`).

## 2. Project Overview & Function Descriptions

This module integrates with the OpenWeather Map API to retrieve weather forecasts:

- Constants:
  - `OPEN_WEATHER_URL`: The base endpoint URL for fetching forecasts.
  - `OPEN_WEATHER_API_KEY`: API key required for authenticating the OpenWeather Map requests.
- Interfaces:
  - `OpenWeatherQuery`: Represents the input structure, which expects a city for fetching its weather forecast.
  - `OpenWeatherResponse`: Denotes the expected structure of the API's successful response.
  - `FetchForecastResponse`: A union type representing either a successful or failed API response.
- `fetchOpenWeatherForecast({city}: OpenWeatherQuery)`:
  - Constructs the full API request URL based on the provided city.
  - Makes an asynchronous fetch request to the OpenWeather Map API.
  - If the request is successful, it returns the forecast data for the specified city. In case of a failure, a custom error is thrown.

## 3. Technologies

- Fetch API: Used to send requests and fetch data from the OpenWeather Map API.
- Custom Middleware: `ErrorStatus` for enhanced error management and messaging.

## 4. Description of Weather Retrieval

The OpenWeather Map integration facilitates weather forecasting for specific cities:

- City-specific Forecast:
  - Input a city name (e.g., "Paris") to retrieve its current weather forecast. The returned forecast is metric-based and in the French language.
- Error Handling:
  - Should there be any issues with the API request, the integration employs the custom `ErrorStatus` middleware to provide comprehensive error information.