

## Weather Data API Assignment

**Environment - Windows XAMPP**

**Version - PHP Version 7.4.3**

**Framework- Codeigniter**

### SETUP-

To access -Weather details API from GITHUB repository-

- 1] Download code from GITHUB URL, extract zip & place it in xampp/htdocs. Rename the folder as ci\_weatherdata
- 2] Start XAMPP server
- 3] XAMPP server needs to be configured as given below in explanation
- 4] Access URL [http://localhost/ci\\_weatherdata/api/listWeatherData](http://localhost/ci_weatherdata/api/listWeatherData) on postman
- 5] Select Method - GET

### Explanation-

Installed redis 5.3.7 for Windows - for PHP 7.4 - Downloaded package ->7.4 Thread Safe (TS) x64

In XAMPP -

Downloaded php\_redis.dll and added to xampp/php/ext

In php.ini add new line extension=redis

In XAMPP with <?php phpinfo(); ?> Check if redis is enabled

redis

Redis Support	enabled
Redis Version	5.3.7
Redis Sentinel Version	0.1
Available serializers	php

Install redis- Redis-x64-3.0.504.msi ->from

<https://github.com/MicrosoftArchive/redis/releases>

Select port 6379

Start redis server.

### 1] WEATHER API-

In xampp/htdocs add folder folder - ci\_weatherapi from github link

In ci\_weatherapi I have added -

application/config/rest.php

application/libraries/Format.php

application/libraries/REST\_Controller.php

application/controllers/Api.php

For fetching weather api data registered on

[https://home.openweathermap.org/users/sign\\_up](https://home.openweathermap.org/users/sign_up)

Taken OpenWeatherMap API key

Default API key- 53026eb212faddb3a68f235d72994172

For city id to pass in code - 1259229 as city id for Pune city

<https://bulk.openweathermap.org/sample/city.list.json.gz> - Downloaded zip for city id from link

For Pune city data is-

```
{
  "id": 1259229,
  "name": "Pune",
  "state": "",
  "country": "IN",
  "coord": {
    "lon": 73.855347,
    "lat": 18.519569
  }
},
```

## **2] To store data in Redis cache for 10 mins & for better response time-**

**In application/controllers/Api.php -**

In controller construct added-

```
$this->load->driver('cache', array('adapter' => 'redis','backup' => 'file'));
```

In controller listWeatherData\_get method added-

Added 600 seconds for 10 Minutes storage

```
if($this->cache->redis->is_supported() || $this->cache->file->is_supported())
{
    $this->cache->save('cache_weatherdata', $data, 600);
    $weatherData = $this->cache->get('cache_weatherdata');
    $this->response($weatherData, 200);

} else {
    $this->response('Not supporting Redis cache', 404);
}
```

**In application/config/config.php-**

To enable Redis, set the session driver to "redis" and we can set the value of sess\_save\_path localhost for local testing.

Modify from

```
$config['sess_driver'] = 'files';
```

```
$config['sess_save_path'] = NULL;
```

to

```
$config['sess_driver'] = 'redis'; //enable redis session
```

```
$config['sess_save_path'] = 'tcp://localhost:6379'; // redis hostname:port
```

## **3] For HTTP request rate limit-**

Created object of redis and connected to redis port. Initialized maximum calls limit, time period, total calls.in listWeatherData\_get() function.

1] \$max\_calls\_limit-

Maximum number of calls a user can access the resource (5 calls)

2] \$time\_period-

Defines the timeframe seconds within which a user is allowed to access the resource per the \$max\_calls\_limit.(20 seconds)

3] \$total\_user\_calls-

Initialises a variable that retrieves the number of times a user has requested access to the resource in the given timeframe. (0 total user calls)

Added if .... else statement is used to check if there is a key defined with the IP address on the Redis server.

Retrieved user ip address of the user requesting the web resource using PHP built-in functions.

If the key doesn't exist, if (!\$redis->exists(\$user\_ip\_address)) {...}, we set it and define its value to 1 using the code \$redis->set(\$user\_ip\_address, 1);

The \$redis->expire(\$user\_ip\_address, \$time\_period); sets the key to expire within the time period, in this case, 20 seconds.

If the user's IP address does not exist as a Redis key, we set the variable \$total\_user\_calls to 1.

In the ...else {...}... statement block, we use the \$redis->INCR(\$user\_ip\_address); command to increment the value of the Redis key set for each IP address key by 1. This only happens when the key is already set in the Redis server and counts as a repeat request.

In if .... else conditions we use curl to fetch data from weather api.

The statement \$total\_user\_calls = \$redis->get(\$user\_ip\_address); retrieves the total requests the user makes by checking their IP address-based key on the Redis server.

Toward the end of the file, we use the ...if (\$total\_user\_calls > \$max\_calls\_limit) {... }.. statement to check if the limit is exceeded; if so, you alert the user with echo "User " . \$user\_ip\_address . " limit exceeded.";

**In 20 seconds it allows 5 consecutive api calls & temporarily restricts the user on 6th api call after that i.e. gives message limit exceeded.**

**Again resume it for next 20 seconds.**

### **Postman API Output-**

After accessing weather data api postman gives the output as below-

GET http POST http GET http GET http GET http GET http No Environment

http://localhost/ci\_weatherdata/api/listWeatherData Save

GET http://localhost/ci\_weatherdata/api/listWeatherData Send

Params Authorization Headers (6) Body Pre-request Script Tests Settings Cookies

Query Params

KEY	VALUE	DESCRIPTION	...	Bulk Edit
Key	Value	Description		

Body Cookies Headers (9) Test Results 200 OK 1054 ms 876 B Save Response

Pretty Raw Preview Visualize JSON

```
1 {
2   "coord": {
3     "lon": 73.8553,
4     "lat": 18.5196
5   },
6   "weather": [
7     {
8       "id": 804,
9       "main": "Clouds",
```

After 5 consecutive API calls in 20 seconds it gives the output as below-

GET http POST http GET http GET http GET http GET http No Environment

http://localhost/ci\_weatherdata/api/listWeatherData Save

GET http://localhost/ci\_weatherdata/api/listWeatherData Send

Params Authorization Headers (6) Body Pre-request Script Tests Settings Cookies

Query Params

KEY	VALUE	DESCRIPTION	...	Bulk Edit
Key	Value	Description		

Body Cookies Headers (8) Test Results 400 Bad Request 962 ms 410 B Save Response

Pretty Raw Preview Visualize JSON

```
1 {
2   "message": "User ::1 limit exceeded. You can access it in 20 seconds 5 times only"
3 }
```