

User Guide for Weather Report APIs

1. Download Source Code

The source code can be downloaded from GitHub repository via this link:

<https://github.com/tnphung/weather-app>

For convenience, please download it into the directory C:\temp

2. Run The Application

Once the source code is downloaded it can be run straight away. But before running the application, please be sure that the JDK 17 is already installed.

Execute the following commands to start the application Weather App.

```
C:\temp\Weather App\target>java -jar weather-app-1.0.jar
```

The result should look like so:

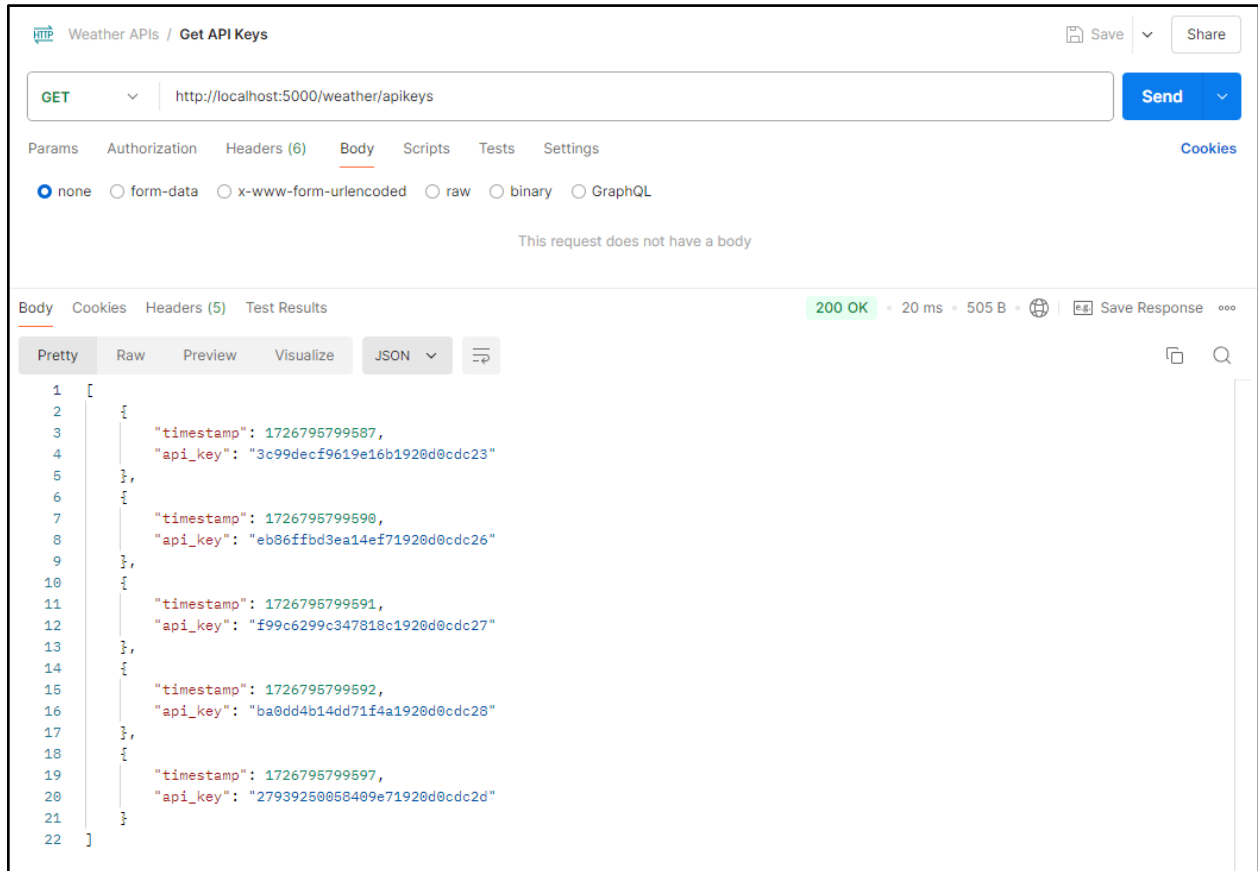
[illegible]

Please note that the embedded Tomcat run on port 5000.

3. Calling Weather Report APIs

It is recommended to use the tool Postman to call the APIs. Below are illustrations of how to send a GET request to a list of five API keys and weather report description.

The GET request end point to get API keys:**<http://localhost:5000/weather/apikeys>**



The GET request end point to get weather report:

<http://localhost:5000/weather/report?q=paris,france&apiKey=3c99decf9619e16b1920d0cdc23>

Weather APIs / Get Weather Report

SaveShare

GEThttp://localhost:5000/weather/report?q=paris,france&apiKey=3c99decf9619e16b1920d0cdc23Send

ParamsAuthorizationHeaders (6)BodyScriptsTestsSettingsCookies

Query Params

<input checked="" type="checkbox"/>	Key	Value	Description	Bulk Edit
<input checked="" type="checkbox"/>	q	paris,france		
<input checked="" type="checkbox"/>	apiKey	3c99decf9619e16b1920d0cdc23		
	Key	Value	Description	

BodyCookiesHeaders (5)Test Results200 OK • 15 ms • 191 BSave Response

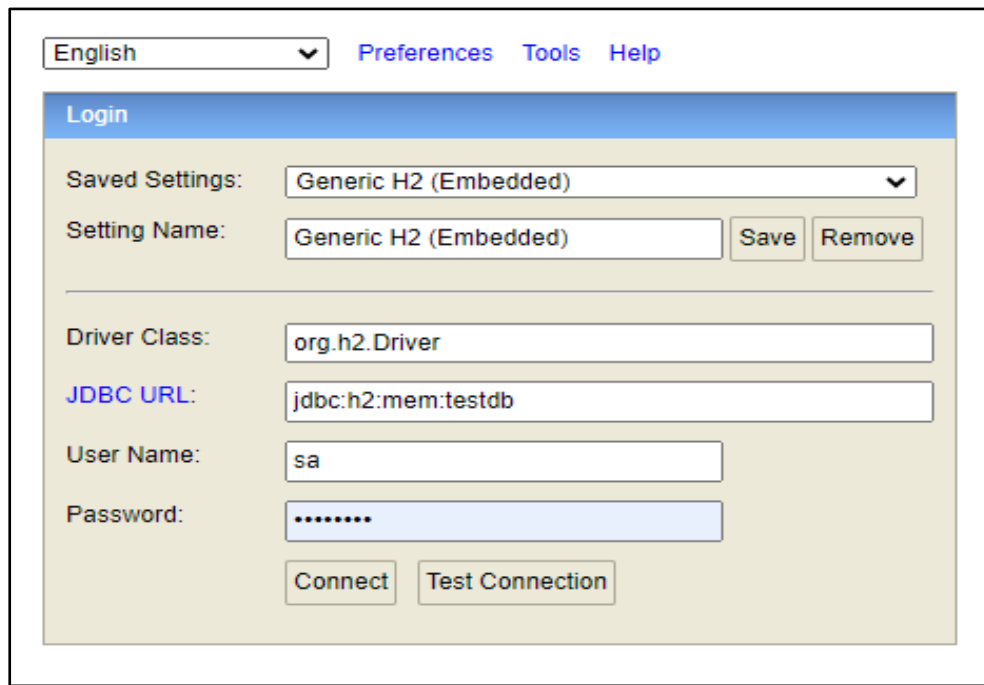
PrettyRawPreviewVisualizeJSON

```
1 {  
2   "description": "clear sky"  
3 }
```

4. H2 Database

When a user gets a weather report for the first time, the report data is stored the H2 database. To inspect the weather reports, please login to the local H2 database by following these steps:

- Enter this URL on a browser: <http://localhost:5000/h2-console>
- Enter the details in the login pop-up window as shown below:
The password is “password”.



The screenshot shows the H2 Database console interface. At the top, there is a language dropdown menu set to 'English' and three links: 'Preferences', 'Tools', and 'Help'. Below this is a 'Login' section with a blue header. The 'Saved Settings' dropdown is set to 'Generic H2 (Embedded)'. Below it, the 'Setting Name' is also 'Generic H2 (Embedded)', with 'Save' and 'Remove' buttons. The 'Driver Class' is 'org.h2.Driver'. The 'JDBC URL' is 'jdbc:h2:mem:testdb'. The 'User Name' is 'sa'. The 'Password' field is masked with dots. At the bottom, there are 'Connect' and 'Test Connection' buttons.

English	Preferences	Tools	Help
Login			
Saved Settings:	Generic H2 (Embedded)		
Setting Name:	Generic H2 (Embedded)	Save	Remove
Driver Class:	org.h2.Driver		
JDBC URL:	jdbc:h2:mem:testdb		
User Name:	sa		
Password:		
Connect		Test Connection	

Once logged in, execute some “SELECT” statements as shown below:

The screenshot shows a database client interface with a sidebar on the left displaying the database structure: jdbc:h2:mem:testdb, API_KEY, COUNTRY, WEATHER_REPORT_DETAILS, INFORMATION_SCHEMA, Users, and H2 2.1.214 (2022-06-13). The main area contains a SQL statement editor with two queries and their results.

SQL statement: `SELECT * FROM API_KEY ;`

API_KEY	TIMESTAMP	NUMBER_OF_TIME_USED
f7a12491104ccca21920d151bac	1726796340140	1
937be0c768b882571920d151bae	1726796340142	0
fe3bcd3b6492a47d1920d151bb0	1726796340144	0
e9c46dda3045224f1920d151bb4	1726796340148	0
445bed030e4f577a1920d151bb5	1726796340149	0

(5 rows, 1 ms)

SQL statement: `SELECT * FROM WEATHER_REPORT_DETAILS ;`

ID	CITY	COUNTRY	DESCRIPTION	TIMESTAMP
1	Paris	France	clear sky	1726795695515

(1 row, 1 ms)

The above image shows a table of five API keys and a weather report for city Paris in France.

5. Testing

This section shows some “unhappy path” testings on the Weather Report API.

5.1 Testing Parameter “q”

The API will return the following error when the parameter “q” does not exist in the URL

The screenshot shows a REST client interface for a "Weather APIs / Get Weather Report" endpoint. The request method is GET, and the URL is `http://localhost:5000/weather/report?apiKey=f7a12491104ccca21920d151bac`. The "Query Params" section shows a table with the following data:

Key	Value	Description
q	paris,france	
apiKey	f7a12491104ccca21920d151bac	

The response status is "400 Bad Request" (9 ms, 288 B). The response body is shown in JSON format:

```
1 {
2   "type": "about:blank",
3   "title": "Bad Request",
4   "status": 400,
5   "detail": "Required parameter 'q' is not present.",
6   "instance": "/weather/report"
7 }
```

5.2 Testing Parameter “apiKey”

The API will return the following error when the parameter “apiKey” does not exist in the URL

The screenshot shows a REST client interface for a "Weather APIs / Get Weather Report" endpoint. The method is GET and the URL is `http://localhost:5000/weather/report?q=paris,france`. The "Params" tab is active, showing a table of query parameters:

Key	Value	Description
<input checked="" type="checkbox"/> q	paris,france	
<input type="checkbox"/> apiKey	f7a12491104ccca21920d151bac	
Key	Value	Description

The response status is "400 Bad Request" (6 ms, 293 B). The response body is shown in JSON format:

```
1 {
2   "type": "about:blank",
3   "title": "Bad Request",
4   "status": 400,
5   "detail": "Required parameter 'apiKey' is not present.",
6   "instance": "/weather/report"
7 }
```

5.3 Testing Query

The following error will be returned when the country name is missing from the URL.

The screenshot shows the same REST client interface, but the URL is `http://localhost:5000/weather/report?q=paris&apiKey=f7a12491104ccca21920d151bac`. The "Params" tab is active, showing a table of query parameters:

Key	Value	Description
<input checked="" type="checkbox"/> q	paris	
<input checked="" type="checkbox"/> apiKey	f7a12491104ccca21920d151bac	
Key	Value	Description

The response status is "400 Bad Request" (7 ms, 282 B). The response body is shown in JSON format:

```
1 {
2   "type": "about:blank",
3   "title": "Bad Request",
4   "status": 400,
5   "detail": "Missing city and/or country name",
6   "instance": "/weather/report"
7 }
```

The same error will be returned when the city name is missing from the URL:

The screenshot shows a REST client interface for a "Weather APIs / Get Weather Report" endpoint. The method is GET and the URL is `http://localhost:5000/weather/report?q=united states&apiKey=f7a12491104ccca21920d151bac`. The "Query Params" section shows a table with the following data:

Key	Value	Description
q	united states	
apiKey	f7a12491104ccca21920d151bac	

The "Body" tab is selected, showing a JSON response with the following content:

```
{
  "type": "about:blank",
  "title": "Bad Request",
  "status": 400,
  "detail": "Missing city and/or country name",
  "instance": "/weather/report"
}
```

The status bar indicates a "400 Bad Request" error with a response time of 8 ms and a size of 282 B.

And the same error will be displayed when the query is empty.

The screenshot shows the same REST client interface, but the URL is `http://localhost:5000/weather/report?q=&apiKey=f7a12491104ccca21920d151bac`. The "Query Params" section shows a table with the following data:

Key	Value	Description
q		
apiKey	f7a12491104ccca21920d151bac	

The "Body" tab is selected, showing the same JSON response as in the previous screenshot:

```
{
  "type": "about:blank",
  "title": "Bad Request",
  "status": 400,
  "detail": "Missing city and/or country name",
  "instance": "/weather/report"
}
```

The status bar indicates a "400 Bad Request" error with a response time of 8 ms and a size of 282 B.

Extra tests are welcome for this API.