Question 2 API automation

1. Introduction

This solution contain 2 APIs automation and testing. Current weather API and Weather Forecast API.
Current weather API: https://api.weatherbit.io/v2.0/current
Weather Forecast API: https://api.weatherbit.io/v2.0/forecast/daily
GitHub: https://github.com/johncaimin/QA-test-Assignment

The reason I have test cases and automation for Current Weather API is I found there is an issue in the response data when I working on Weather Forecast. With same postal code and country code parameters, two different APIs give me different city name.

I suppose to use postal code(base on the question) as my parameter for solving Weather Forecast question regarding beach places searching. However, since there is an issue found in response with postal code, I decided to use city name as my parameter for solving this question.

2. Technology and software install

2.1 Technology and programming language used in this solution.
Programming language and technology: Java, Rest-assured
Testing framework: TestNG
Build automation tool: Maven
IDE: Eclipse

2.2 Software install
TestNG, Maven

3. Current weather API test cases

3.1 Test case 1
Title: checkCityNameInCurrentWeatherAPI
Request URL: https://api.weatherbit.io/v2.0/current
HTTP Method: GET
Auth Key: d0dcd53eacee408d9cd1d3de37c4bbd7
Parameter given: APIkey, country code and postal code
Response: Returns current weather observation - Given a Postal Code.
Validation: status code 200
Result: PASS

3.2 Test case 2
Title: checkCityNameInCurrentWeatherAPI
Request URL: https://api.weatherbit.io/v2.0/current
HTTP Method: GET
Auth Key: d0dcd53eacee408d9cd1d3de37c4bbd7
Parameter given: APIkey, country code and given 2026 post code which is the postal code for Bondi Beach
Response: Returns current weather observation in 2026 postal code
Validation: City name is North Bondi
Result: PASS

3.3 Test case 3
Title: checkCityNameInForecastWeatherAPI
Request URL: https://api.weatherbit.io/v2.0/forecast/daily
HTTP Method: GET

Auth Key: d0dcd53eacee408d9cd1d3de37c4bbd7
Parameter given: APIkey, country code and given 2026 post code which is the postal code for Bondi Beach
Response: Returns Forecast 16 days weather observation in 2026 postal code
Validation: City name is North Bondi
Result: FAIL

3.4 TestNG Sample output:
```
in API: https://api.weatherbit.io/v2.0/current
Postal code 2026 lead to correct city name[North Bondi] response

in API: https://api.weatherbit.io/v2.0/forecast/daily
Postal code did not lead to correct city name response

PASSED: checkCityNameInCurrentWeatherAPI
PASSED: checkCityNameInForecastWeatherAPI
PASSED: testCurrentWeatherAPIStatus
```

Java file path: WeatherForecastsAPITest\src\test\java\restassuredTests\PostalOrCityName.java

4. Forecast weather API automation

4.1 API usage check
Title: apiUsageCheck
Request URL: https://api.weatherbit.io/v2.0/subscription/usage
HTTP Method: GET
Auth Key: d0dcd53eacee408d9cd1d3de37c4bbd7
Parameter given: APIkey
Response: API subscription info under given APIkey
Note: check the usage remaining

4.2 Check Forecast weather API status
Title: testWeatherAPIStatus
Request URL: https://api.weatherbit.io/v2.0/forecast/daily
HTTP Method: GET
Auth Key: d0dcd53eacee408d9cd1d3de37c4bbd7
Parameter given: APIkey, country code and city name
Response: Returns Forecast weather observation - Given a city name.
Validation: status code 200
Result: PASS

4.2 check response log
Title: testLog
Request URL: https://api.weatherbit.io/v2.0/forecast/daily
HTTP Method: GET
Auth Key: d0dcd53eacee408d9cd1d3de37c4bbd7
Parameter given: APIkey, country code and city name
Response: Returns Forecast weather observation - Given a city name.
Validation: Forecast weather body information observation
Result: PASS

4.3 Search for the suitable beaches with given conditions
Title: verifyTemp
Request URL: https://api.weatherbit.io/v2.0/forecast/daily
HTTP Method: GET
Auth Key: d0dcd53eacee408d9cd1d3de37c4bbd7

Parameter given: APIkey, country code and 10 city name which belong to 10 top beaches in Sydney
Response: Returns Forecast weather observation - Given a city name.
Verify: base on the 16 days forecast weather response check the below conditions.
1. Date_time Is Monday or Friday
2. Low_temp > 12
3. Max_temp < 30
4. Win speed > 3 and win speed < 9
5. UV index <= 12

Save the date and beach name If current beach satisfied above conditions.

Sorting
Base on the number of the days can surf, sort 10 beaches.

Result: Output two beaches' name which have more days can surf.

Java file path:
WeatherForecastsAPITest\src\test\java\restassuredTests\WeatherForecast.java
WeatherForecastsAPITest\src\test\java\restassuredTests\Beach.java

Sample Out - verifyTemp()
```
******************************************
Start checking for the - Bondi Beach
2021-10-11 is either Monday or Friday, good day for surfing
Min temperature: 12.3
Max temperature: 15.9
Temperature is between 12 and 30
win speed is between 3 and 9
uv index is <= 12
Found the suitable beach, beach name: Bondi Beach at 2021-10-11

2021-10-15 is either Monday or Friday, good day for surfing
Min temperature: 12.5
Max temperature: 23.0
Temperature is between 12 and 30
win speed is between 3 and 9
uv index is <= 12
Found the suitable beach, beach name: Bondi Beach at 2021-10-15

2021-10-18 is either Monday or Friday, good day for surfing
Min temperature: 15.1
Max temperature: 22.4
Temperature is between 12 and 30
win speed is between 3 and 9
uv index is <= 12
Found the suitable beach, beach name: Bondi Beach at 2021-10-18

2021-10-22 is either Monday or Friday, good day for surfing
Min temperature: 15.7
Max temperature: 23.5
Temperature is between 12 and 30
win speed is between 3 and 9
uv index is <= 12
Found the suitable beach, beach name: Bondi Beach at 2021-10-22

2021-10-25 is either Monday or Friday, good day for surfing
Min temperature: 20.2
Max temperature: 25.7
```

```
Temperature is between 12 and 30
win speed is between 3 and 9
uv index is <= 12
Found the suitable beach, beach name: Bondi Beach at 2021-10-25

******************************************

******************************************
Start checking for the - Manly Beach
2021-10-11 is either Monday or Friday, good day for surfing
Min temperature: 12.3
Max temperature: 15.9
Temperature is between 12 and 30
win speed is between 3 and 9
uv index is <= 12
Found the suitable beach, beach name: Manly Beach at 2021-10-11

2021-10-15 is either Monday or Friday, good day for surfing
Min temperature: 12.5
Max temperature: 23.0
Temperature is between 12 and 30
win speed is between 3 and 9
uv index is <= 12
Found the suitable beach, beach name: Manly Beach at 2021-10-15

2021-10-18 is either Monday or Friday, good day for surfing
Min temperature: 15.1
Max temperature: 22.4
Temperature is between 12 and 30
win speed is between 3 and 9
uv index is <= 12
Found the suitable beach, beach name: Manly Beach at 2021-10-18

2021-10-22 is either Monday or Friday, good day for surfing
Min temperature: 15.7
Max temperature: 23.5
Temperature is between 12 and 30
win speed is between 3 and 9
uv index is <= 12
Found the suitable beach, beach name: Manly Beach at 2021-10-22

2021-10-25 is either Monday or Friday, good day for surfing
Min temperature: 20.2
Max temperature: 25.7
Temperature is between 12 and 30
win speed is between 3 and 9
uv index is <= 12
Found the suitable beach, beach name: Manly Beach at 2021-10-25

******************************************

******************************************
Start checking for the - Shelly Beach
2021-10-11 is either Monday or Friday, good day for surfing
Min temperature: 11.4
Max temperature: 15.6
2021-10-15 is either Monday or Friday, good day for surfing
Min temperature: 12.3
Max temperature: 23.9
Temperature is between 12 and 30
win speed is between 3 and 9
```

```
uv index is <= 12
Found the suitable beach, beach name: Shelly Beach at 2021-10-15

2021-10-18 is either Monday or Friday, good day for surfing
Min temperature: 14.1
Max temperature: 25.7
Temperature is between 12 and 30
2021-10-22 is either Monday or Friday, good day for surfing
Min temperature: 13.9
Max temperature: 25.9
Temperature is between 12 and 30
2021-10-25 is either Monday or Friday, good day for surfing
Min temperature: 20.7
Max temperature: 27.9
Temperature is between 12 and 30
*****************************************

*****************************************
Start checking for the - Palm Beach
2021-10-11 is either Monday or Friday, good day for surfing
Min temperature: 4.0
Max temperature: 14.7
2021-10-15 is either Monday or Friday, good day for surfing
Min temperature: 7.9
Max temperature: 14.2
2021-10-18 is either Monday or Friday, good day for surfing
Min temperature: 14.2
Max temperature: 17.8
Temperature is between 12 and 30
win speed is between 3 and 9
uv index is <= 12
Found the suitable beach, beach name: Palm Beach at 2021-10-18

2021-10-22 is either Monday or Friday, good day for surfing
Min temperature: 15.6
Max temperature: 23.4
Temperature is between 12 and 30
win speed is between 3 and 9
uv index is <= 12
Found the suitable beach, beach name: Palm Beach at 2021-10-22

2021-10-25 is either Monday or Friday, good day for surfing
Min temperature: 15.2
Max temperature: 18.2
Temperature is between 12 and 30
win speed is between 3 and 9
uv index is <= 12
Found the suitable beach, beach name: Palm Beach at 2021-10-25

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*****************************************
Start checking for the - Balmoral Beach
2021-10-11 is either Monday or Friday, good day for surfing
Min temperature: 11.8
Max temperature: 16.0
2021-10-15 is either Monday or Friday, good day for surfing
Min temperature: 12.9
Max temperature: 24.2
Temperature is between 12 and 30
win speed is between 3 and 9
```

```
uv index is <= 12
Found the suitable beach, beach name: Balmoral Beach at 2021-10-15

2021-10-18 is either Monday or Friday, good day for surfing
Min temperature: 14.4
Max temperature: 27.4
Temperature is between 12 and 30
2021-10-22 is either Monday or Friday, good day for surfing
Min temperature: 13.2
Max temperature: 25.3
Temperature is between 12 and 30
2021-10-25 is either Monday or Friday, good day for surfing
Min temperature: 18.1
Max temperature: 28.6
Temperature is between 12 and 30
*****************************************

*****************************************
Start checking for the - Bronte Beach
2021-10-11 is either Monday or Friday, good day for surfing
Min temperature: 12.3
Max temperature: 15.9
Temperature is between 12 and 30
win speed is between 3 and 9
uv index is <= 12
Found the suitable beach, beach name: Bronte Beach at 2021-10-11

2021-10-15 is either Monday or Friday, good day for surfing
Min temperature: 12.5
Max temperature: 23.0
Temperature is between 12 and 30
win speed is between 3 and 9
uv index is <= 12
Found the suitable beach, beach name: Bronte Beach at 2021-10-15

2021-10-18 is either Monday or Friday, good day for surfing
Min temperature: 15.1
Max temperature: 22.4
Temperature is between 12 and 30
win speed is between 3 and 9
uv index is <= 12
Found the suitable beach, beach name: Bronte Beach at 2021-10-18

2021-10-22 is either Monday or Friday, good day for surfing
Min temperature: 15.7
Max temperature: 23.5
Temperature is between 12 and 30
win speed is between 3 and 9
uv index is <= 12
Found the suitable beach, beach name: Bronte Beach at 2021-10-22

2021-10-25 is either Monday or Friday, good day for surfing
Min temperature: 20.2
Max temperature: 25.7
Temperature is between 12 and 30
win speed is between 3 and 9
uv index is <= 12
Found the suitable beach, beach name: Bronte Beach at 2021-10-25

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*******************************************
Start checking for the - Bilgola Beach
2021-10-11 is either Monday or Friday, good day for surfing
Min temperature: 4.0
Max temperature: 14.7
2021-10-15 is either Monday or Friday, good day for surfing
Min temperature: 7.9
Max temperature: 14.2
2021-10-18 is either Monday or Friday, good day for surfing
Min temperature: 14.2
Max temperature: 17.8
Temperature is between 12 and 30
win speed is between 3 and 9
uv index is <= 12
Found the suitable beach, beach name: Bilgola Beach at 2021-10-18

2021-10-22 is either Monday or Friday, good day for surfing
Min temperature: 15.6
Max temperature: 23.4
Temperature is between 12 and 30
win speed is between 3 and 9
uv index is <= 12
Found the suitable beach, beach name: Bilgola Beach at 2021-10-22

2021-10-25 is either Monday or Friday, good day for surfing
Min temperature: 15.2
Max temperature: 18.2
Temperature is between 12 and 30
win speed is between 3 and 9
uv index is <= 12
Found the suitable beach, beach name: Bilgola Beach at 2021-10-25

*******************************************

*******************************************
Start checking for the - Shark Beach
2021-10-11 is either Monday or Friday, good day for surfing
Min temperature: 14.4
Max temperature: 26.9
Temperature is between 12 and 30
2021-10-15 is either Monday or Friday, good day for surfing
Min temperature: 11.1
Max temperature: 29.7
2021-10-18 is either Monday or Friday, good day for surfing
Min temperature: 14.6
Max temperature: 29.3
Temperature is between 12 and 30
2021-10-22 is either Monday or Friday, good day for surfing
Min temperature: 13.7
Max temperature: 28.3
Temperature is between 12 and 30
2021-10-25 is either Monday or Friday, good day for surfing
Min temperature: 25.5
Max temperature: 32.6
*******************************************

*******************************************
Start checking for the - Coogee Beach
2021-10-11 is either Monday or Friday, good day for surfing
Min temperature: 13.2
Max temperature: 18.8
```

```
Temperature is between 12 and 30
win speed is between 3 and 9
uv index is <= 12
Found the suitable beach, beach name: Coogee Beach at 2021-10-11

2021-10-15 is either Monday or Friday, good day for surfing
Min temperature: 17.0
Max temperature: 26.8
Temperature is between 12 and 30
win speed is between 3 and 9
uv index is <= 12
Found the suitable beach, beach name: Coogee Beach at 2021-10-15

2021-10-18 is either Monday or Friday, good day for surfing
Min temperature: 13.1
Max temperature: 17.2
Temperature is between 12 and 30
2021-10-22 is either Monday or Friday, good day for surfing
Min temperature: 14.8
Max temperature: 17.0
Temperature is between 12 and 30
2021-10-25 is either Monday or Friday, good day for surfing
Min temperature: 17.1
Max temperature: 19.2
Temperature is between 12 and 30
win speed is between 3 and 9
uv index is <= 12
Found the suitable beach, beach name: Coogee Beach at 2021-10-25

*******************************************

*******************************************
Start checking for the - Freshwater Beach
2021-10-11 is either Monday or Friday, good day for surfing
Min temperature: 12.4
Max temperature: 15.6
Temperature is between 12 and 30
win speed is between 3 and 9
uv index is <= 12
Found the suitable beach, beach name: Freshwater Beach at 2021-10-11

2021-10-15 is either Monday or Friday, good day for surfing
Min temperature: 12.6
Max temperature: 21.7
Temperature is between 12 and 30
win speed is between 3 and 9
uv index is <= 12
Found the suitable beach, beach name: Freshwater Beach at 2021-10-15

2021-10-18 is either Monday or Friday, good day for surfing
Min temperature: 14.0
Max temperature: 22.0
Temperature is between 12 and 30
win speed is between 3 and 9
uv index is <= 12
Found the suitable beach, beach name: Freshwater Beach at 2021-10-18

2021-10-22 is either Monday or Friday, good day for surfing
Min temperature: 15.8
Max temperature: 22.4
Temperature is between 12 and 30
```

```
2021-10-25 is either Monday or Friday, good day for surfing
Min temperature: 15.6
Max temperature: 24.3
Temperature is between 12 and 30
win speed is between 3 and 9
uv index is <= 12
Found the suitable beach, beach name: Freshwater Beach at 2021-10-25

*******************************************

Summary *******************************
AFTER sort ****************************
On Bondi Beach I can surf for 5 days
2021-10-11
2021-10-15
2021-10-18
2021-10-22
2021-10-25
On Manly Beach I can surf for 5 days
2021-10-11
2021-10-15
2021-10-18
2021-10-22
2021-10-25
On Bronte Beach I can surf for 5 days
2021-10-11
2021-10-15
2021-10-18
2021-10-22
2021-10-25
On Freshwater Beach I can surf for 4 days
2021-10-11
2021-10-15
2021-10-18
2021-10-25
On Palm Beach I can surf for 3 days
2021-10-18
2021-10-22
2021-10-25
On Bilgola Beach I can surf for 3 days
2021-10-18
2021-10-22
2021-10-25
On Coogee Beach I can surf for 3 days
2021-10-11
2021-10-15
2021-10-25
On Shelly Beach I can surf for 1 days
2021-10-15
On Balmoral Beach I can surf for 1 days
2021-10-15
On Shark Beach I can surf for 0 days

Final result **************************
Best 2 Spots:
On Bondi Beach I can surf for 5 days
On Manly Beach I can surf for 5 days
PASSED: apiUsageCheck
PASSED: testLog
PASSED: testWeatherAPIStatus
PASSED: verifyTemp
```

```
===============================================
    Default test
    Tests run: 4, Failures: 0, Skips: 0
===============================================


===============================================
Default suite
Total tests run: 4, Failures: 0, Skips: 0
===============================================
```