

Rest API Testing (automation) from scratch – Rest Assured Java

API:

Application Programming Interface –

Lets consider a website that has frontend made with java , we have backend code made in java , think we have a method createReservation() method that checks with the database for availability and booking

If some other application needs the booking data , we provide an API instead of showing all the code

API is independent of any language , data from frontend in form of JSON , goes to API over http request

API is an interface between client and server , thus simplify communication between them though they were made using different languages in front end and backend

Understanding GET,POST,PUT,DELETE Http CRUD operations of API:

End Point/Base URL : Address where API is hosted on server – to test api 1st we need end point

Http methods which are commonly used to communicate with rest apis are - crud

GET : retrieve data from existing data in server

POST: used to send data to server

PUT : This will update existing data in server

Delete: Removes all current representations of the target resource given by a URI.

What are Resources?

Resources represent API/Collection which can be accessed from server

Google.com/maps

Google.com/search

Google.com/images

Path Parameters:

Are variable parts of a URI path they are typically used to point to a specific resource within a collection , such as a user identified by ID

www.google.com/images/1123343

www.google.com/docs/1123343

amazon.com/orders/112

Query Parameters

used to sort/filter the resources

Identified with ?""

https://amazon.com/orders?sort_by=5/9/2022

Endpoint base url can be constructed as below:

BaseURL/resources/(Query/Path)Parameters

Headers/Cookies:

These are meta data associated with api request and response . we were sending additional details to API to process our request thus helps in authenticate or authorize the data being accessed

Ex: Authorization Details

End point: Address where API is hosted on the Server.

HTTP methods which are commonly used to communicate with Rest API's are

GET, POST, PUT, and DELETE

GET- The GET method is used to extract information from the given server using a given URI. While using GET request, it should only extract data and should have no other effect on the data. No Payload/Body required

How to send input data in GET?

Ans: Using Query Parameters

POST- A POST request is used to send data to the server, for example, customer information, file upload, etc. using HTML forms.

How to send input data in POST?

Ans: Using Form Parameters /Body Payload

PUT- Replaces all current representations of the target resource with the uploaded content.

DELETE- Removes all current representations of the target resource given by a URI.

Resources:

Resources represent API/Collection which can be accessed from the Server

Google.com/maps
google.com/search
google.com/images

Path Parameters:

Path parameters are variable parts of a URL path. They are typically used to point to a specific resource within a collection, such as a user identified by ID

<https://www.google.com/Images/1123343>

<https://www.google.com/docs/1123343>

<https://amazon.com/orders/112>

<https://www.google.com/search?q=newyork&oq=newyork&ags=chrome..69i57j0l7.2501j0j7&sourceid=chrome&ie=UTF-8>

Query Parameters:

Query Parameter is used to sort/filter the resources.

Query Parameters are identified with?"'"

https://amazon.com/orders?sort_by=2/20/2020

Headers/Cookies:

Headers represent the meta-data associated with the API request and response. In layman terms, we were sending Additional details to API to process our request.

Example : Authorization details

End Point Request URL can be constructed as below

Base URL/resource/(Query/Path)Parameters

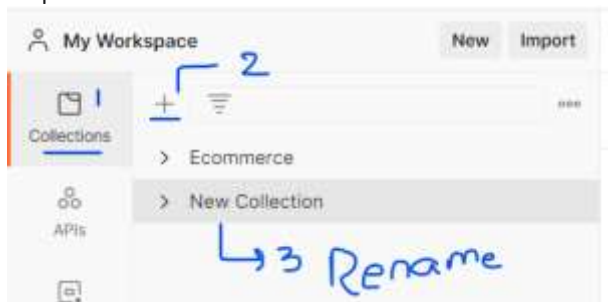
When we have to test an api we need to know api contract:

API contract is base url , resource , query parameters , http methods , and sample json request and json response

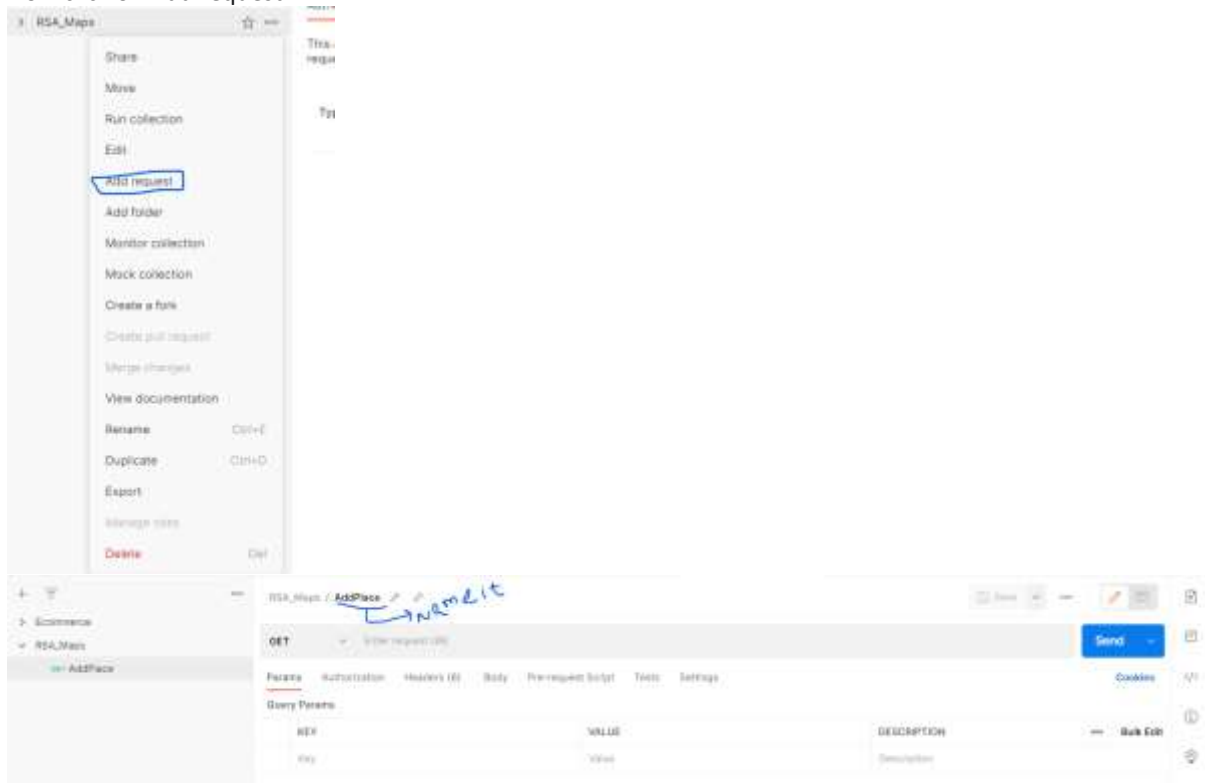
Lets use **Postman** to test API

Open postman and click on + after collections and rename it

Step1: create a collection



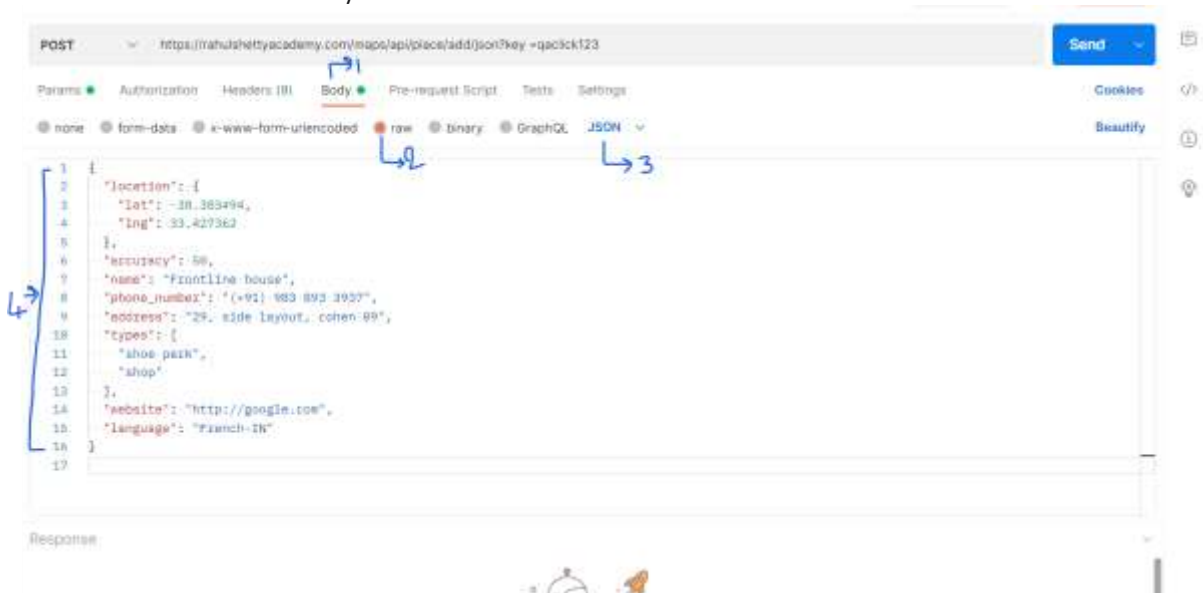
Now click on Add request



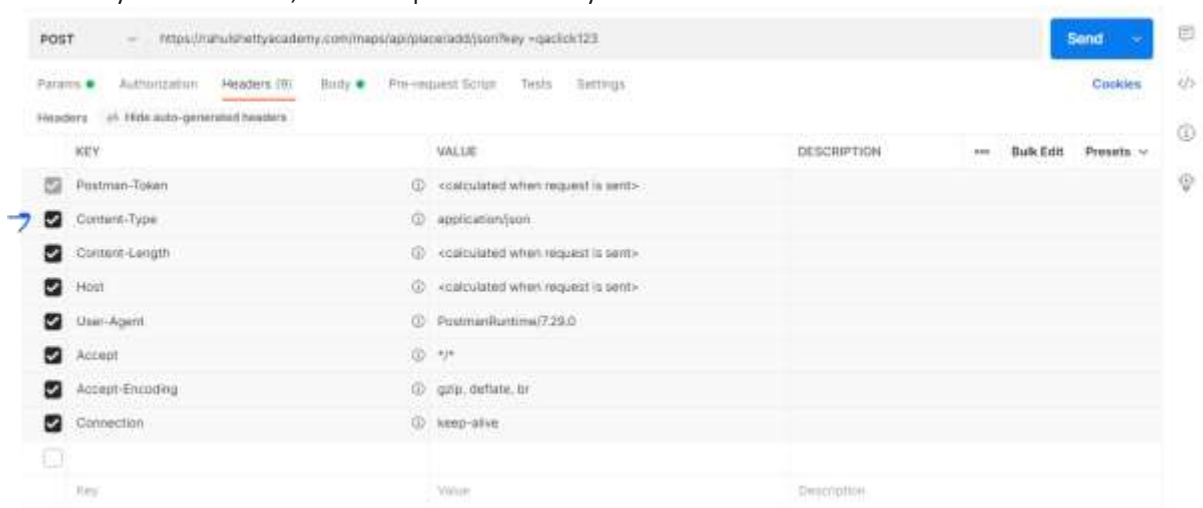
Now Provide all details and click on send



We can pass query params in the params tab or provide directly in the base url after ?
 Select appropriate http method ,
 We selected POST it needs body to be sent



Go to body tab select raw , JSON and provide the body



Headers will be auto generated if anything is needed pass them in Headers tab as key value pair

POST <https://ahubshettyacademy.com/maps/api/place/add?key=qackck123> Send

Params Authorization Headers (0) **Body** Pre-request Script Tests Settings Cookies Beautify

none form-data x-www-form-urlencoded raw binary GraphQL JSON

```

1 {
2   "location": {
3     "lat": 38.583494,
4     "lng": 33.427362
5   },
6   "accuracy": 50,
7   "name": "Frontline house",
8   "phone_number": "(+91) 983 893 3937",
9   "address": "29, side layout, cohen en",
10  "types": [
11    "house_park",
12    "shop"
13  ],
14  "website": "http://google.com",
15 }

```

Body Cookies Headers (0) Test Results Status: 200 OK Time: 250 ms Size: 610 B Save Response

Pretty Raw Preview Visualize JSON

```

1 {
2   "status": "OK",
3   "place_id": "r82a2ad351b099f705ca13d4547f6a8a",
4   "scope": "APP",
5   "reference": "6e6ca7285595625ce8d8efbf42634af06e6ca7285595625ce8d8efbf42634af0",
6   "id": "8ee6a7285595625ce8d8efbf42634af0"
7 }

```

Click on send and then we can see the response generated with status code 200 ok
GET API Demo:

GET https://ahubshettyacademy.com/maps/api/place/get?key=qackck123&place_id=r82a2ad351b099f705ca13d4547f6a8a Send

Params Authorization Headers (0) **Body** Pre-request Script Tests Settings Cookies Bulk Edit

Query Params

KEY	VALUE	DESCRIPTION
<input checked="" type="checkbox"/> key	qackck123	
<input checked="" type="checkbox"/> place_id	r82a2ad351b099f705ca13d4547f6a8a	
key	Value	Description

Body Cookies Headers (0) Test Results Status: 200 OK Time: 204 ms Size: 611 B Save Response

Pretty Raw Preview Visualize JSON

```

1 {
2   "location": {
3     "latitude": 38.583494,
4     "longitude": 33.427362
5   },
6   "accuracy": 50,
7   "name": "Frontline house",
8   "phone_number": "(+91) 983 893 3937",
9   "address": "29, side layout, cohen en",
10  "types": [
11    "house_park",
12    "shop"
13  ],
14  "website": "http://google.com",
15 }

```

Delete Demo:

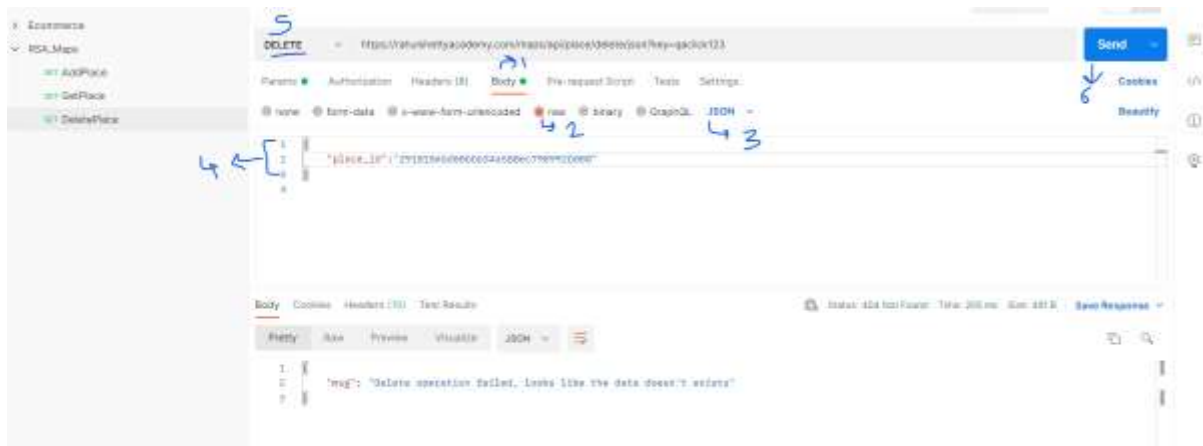
Create a request by add request , name it , provide base url ,resource and query params and click on Send

GET <https://ahubshettyacademy.com/maps/api/place/delete?key=qackck123> Send

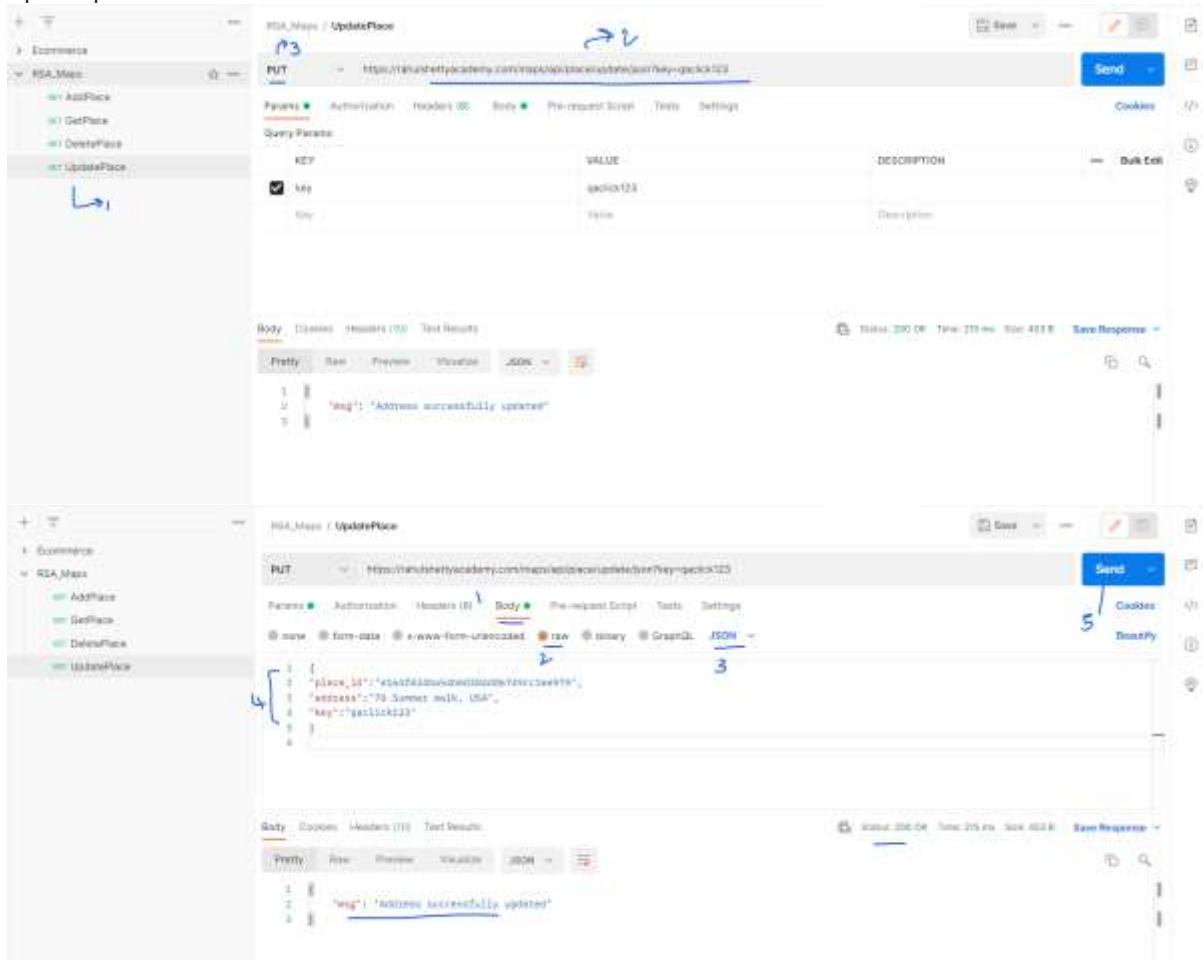
Params Authorization Headers (0) **Body** Pre-request Script Tests Settings Cookies Bulk Edit

Query Params

KEY	VALUE	DESCRIPTION
<input checked="" type="checkbox"/> key	qackck123	
key	Value	Description



Update place:



What is Rest Assured?

Rest Assured is a java based library that is used to test restful web services /apis

3 simple steps to setup rest assured project

1.Install java and set in system variables

2.Install eclipse and create java maven project

File-new -java project , convert java project to maven project – right click on project

→configure→Convert to maven project

We will get pom.xml file created

3.Configure rest assured jars into project

Go to maven repository and search rest assured and select the dependency paste in pom.xml file

Then search testing dependency , hamcrest dependency and add them

<dependencies>

```
-->
<!-- https://mvnrepository.com/artifact/io.rest-assured/rest-assured
<dependency>
  <groupId>io.rest-assured</groupId>
  <artifactId>rest-assured</artifactId>
  <version>5.0.1</version>

</dependency>
<!-- https://mvnrepository.com/artifact/org.testng/testng -->
<dependency>
  <groupId>org.testng</groupId>
  <artifactId>testng</artifactId>
  <version>7.5</version>

</dependency>
<!-- https://mvnrepository.com/artifact/org.hamcrest/hamcrest -->
<dependency>
  <groupId>org.hamcrest</groupId>
  <artifactId>hamcrest</artifactId>
  <version>2.2</version>

</dependency>

</dependencies>
```

For now we have removed `<scope>test</scope>` in all dependencies
Build rest api automation test to add place and validate status code:

```
1 package demo;
2
3 import io.restassured.RestAssured;
4 import static io.restassured.RestAssured.*; //this import should be added manually as it is static
5
6 public class Basics {
7
8     public static void main(String[] args) {
9
10         //validate if Add place API is working as expected
11
12         //Rest API works on 3 things
13
14         //Given - all input details
15         //When - Submit API details
16         //Then - Validate the response
17
18         //step1: set the baseUrl
19         RestAssured.baseURI="https://rahulshettyacademy.com";
20
21         //step2:
22         //given will take what all details we need to provide [all input details in when]
23         //example query params , header - content type-application/json ,authenticate/
24         // authorization details and the json request inside
25         //body as string
26
27         //when - this will take the resource and http method [all input details in when except resource and http method]
28
29         //then - any validations will be in then , like assert statements
30     }
```

```

31 //step3: to see all the request ,response we can use log().all() after the given() , then()
32 - given().log().all().queryParams("key", "qaclick123").header("Content-Type","application/json")
33 .body("{\r\n"
34     + "  \"location\": {\r\n"
35     + "    \"lat\": -38.383494,\r\n"
36     + "    \"lng\": 33.427362\r\n"
37     + "  },\r\n"
38     + "  \"accuracy\": 50,\r\n"
39     + "  \"name\": \"Frontline house\",\r\n"
40     + "  \"phone_number\": \"(+91) 983 893 3937\",\r\n"
41     + "  \"address\": \"29, side layout, cohen 89\",\r\n"
42     + "  \"types\": [\r\n"
43     + "    \"shoe park\",\r\n"
44     + "    \"shop\"\r\n"
45     + "  ],\r\n"
46     + "  \"website\": \"http://google.com\",\r\n"
47     + "  \"language\": \"French-IN\"\r\n"
48     + "}"
49 )
50 - .when().post("naps/api/place/add/json")
51 - .then().log().all().assertThat().statusCode(200);
52
53 //on pasting json in string inside body if escape sequences are not generated automatically
54 //go to window-preferences-Java-Editor-Typing - check mark
55 //escape text when pasting into string literal
56
57 }
58 }

```