RestAssured

RestAssured is an API/Library through which we can automate RestAPI’s.

Pre-requisites:

1. Java 9+ & Eclipse
2. TestNG Framework
3. Maven (comes with Eclipse)

Install TestNG from Eclipse marketplace.

Specify all dependencies in pom.xml

Create Maven Project.



Src/main/java & src/main/resources => used by developers

Src/test/java & src/test/resources => used by testers

Check TestNG is present:



Dependencies:

RestAssured: <https://rest-assured.io/>

Dependencies: <https://github.com/rest-assured/rest-assured/wiki/GettingStarted>

Add dependencies: Maven, Gradle, XmlPath, etc.

Dependencies to add in pom.xml:

1. io.rest-assured (io is package name) => rest-assured.
2. json-path
3. json
4. gson
5. testng
6. scribejava-apis
7. json-schema-validator
8. xml-schema-validator

Get dependencies from <https://mvnrepository.com/>.

1. io.rest-assured (io is package name) => rest-assured: <https://mvnrepository.com/artifact/io.rest-assured/rest-assured/5.4.0>.
2. json-path: <https://mvnrepository.com/artifact/io.rest-assured/json-path/5.4.0>
3. json: <https://mvnrepository.com/artifact/org.json/json/20240303>.
4. gson: <https://mvnrepository.com/artifact/com.google.code.gson/gson/2.10.1>.
5. testng: <https://mvnrepository.com/artifact/org.testng/testng/7.9.0> .
6. scribejava-apis: <https://mvnrepository.com/artifact/com.github.scribejava/scribejava-apis/8.3.1> .
7. json-schema-validator: <https://mvnrepository.com/artifact/com.github.java-json-tools/json-schema-validator/2.2.14> .
8. xml-schema-validator:

HTTP Requests:

1. get
2. post
3. put
4. delete

Ex: <https://reqres.in/>

Gherkin -keywords

By default, restassured supports BDD Ghekin langusge so no need to add dependencies like cucumber

TestNG style

* given():

Content type, set cookies, add auth i.e. authentication, add param i.e. parameters, set headers info i.e. information, etc.

* when():

get, post, put, delete requests.

* then():

validate status code, extract response, extract headers cookies & response body

Add static Packages: <https://github.com/rest-assured/rest-assured/wiki/GettingStarted#static-imports>

io.restassured.RestAssured.\*

io.restassured.matcher.RestAssuredMatchers.\*

org.hamcrest.Matchers.\*

For which ever method starts first we don’t need to specify dot ‘.’ Else start with dot.

Ex: given()

.when()

.then()

Given ex:

GET List user: <https://reqres.in/api/users?page=2> . Response code: 200

GET user: <https://reqres.in/api/users/2> . Response code: 200

POST Create user: <https://reqres.in/api/users>. Response code: 201

{

"name": "morpheus",

"job": "leader"

}

PUT Update user: <https://reqres.in/api/users/2> . Response code: 200

{

"name": "morpheus",

"job": "zion resident"

}

DELETE user: <https://reqres.in/api/users/2> . Response code: 204

Static packages, ex:

**package** day1HTTPMatehods;

**import** org.testng.annotations.Test;

**import** **static** io.restassured.RestAssured.\*;

**import** **static** io.restassured.matcher.RestAssuredMatchers.\*;

**import** **static** org.hamcrest.Matchers.\*;

/\*

given():

Content type, set cookies, add auth i.e. authentication, add param i.e. parameters, set headers info i.e. information, etc.

when():

get, post, put, delete requests.

then():

validate status code, extract response, extract headers cookies & response body

\*/

**public** **class** HTTPRequests {

//using testng test

//for single user

@Test

**void** getUser() {

*given*()

.when()

.get("https://reqres.in/api/users?page=2")

.then()

.statusCode(200)

.body("page", *equalTo*(2))

.log().all();

}

}

**Example:**

**package** day1HTTPMatehods;

**import** org.testng.annotations.Test;

**import** **static** io.restassured.RestAssured.\*;

**import** **static** io.restassured.matcher.RestAssuredMatchers.\*;

**import** **static** org.hamcrest.Matchers.\*;

**import** java.util.HashMap;

/\*

given():

Content type, set cookies, add auth i.e. authentication, add param i.e. parameters, set headers info i.e. information, etc.

when():

get, post, put, delete requests.

then():

validate status code, extract response, extract headers cookies & response body

\*/

**public** **class** HTTPRequests {

**int** id;

//using testng test

//for single user

@Test(priority=1)

**void** getUser() {

*given*()

.when()

.get("https://reqres.in/api/users?page=2")

.then()

.statusCode(200)

.body("page", *equalTo*(2))

.log().all();

}

@Test(priority=2)

**void** createUser() {

HashMap data = **new** HashMap(); //hashmap is in key value pair

data.put("name", "rutuja");

data.put("job", "sdet");

id = *given*()

.contentType("application/json")

.body(data)

.when()

.post("https://reqres.in/api/users")

.jsonPath().getInt("id");

/\*

.then()

.statusCode(201)

.log().all();

\*/

}

@Test(priority=3,dependsOnMethods = {"createUser"})

**void** updateUser() {

HashMap data = **new** HashMap();

data.put("name", "John");

data.put("job", "SDE");

*given*()

.contentType("application/json")

.body(data)

.when()

.put("https://reqres.in/api/users/"+id)

.then()

.statusCode(200)

.log().all();

}

@Test(priority=4)

**void** deleteUser() {

*given*()

.when()

.delete("https://reqres.in/api/users/"+id)

.then()

.statusCode(204)

.log().all();

}

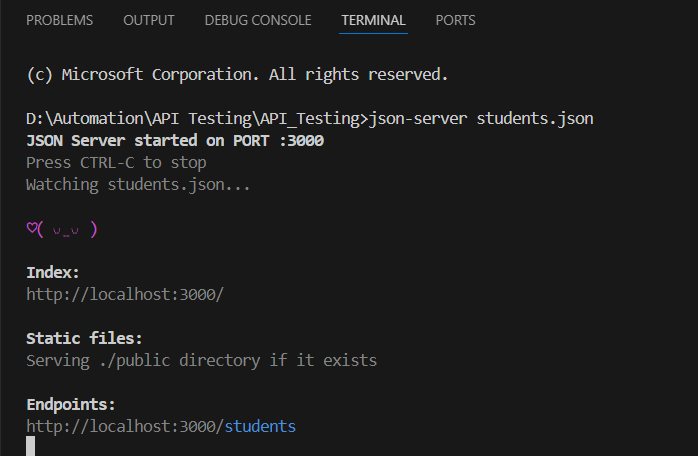
}

**Creating Post Request Payloads in Multiple Ways**

How many ways we create request body:

1. Hashmap
2. Using org.json
3. Using POJO (Plain Old Java Object)
4. Using external json file

Start local server



Different ways to create POST request body

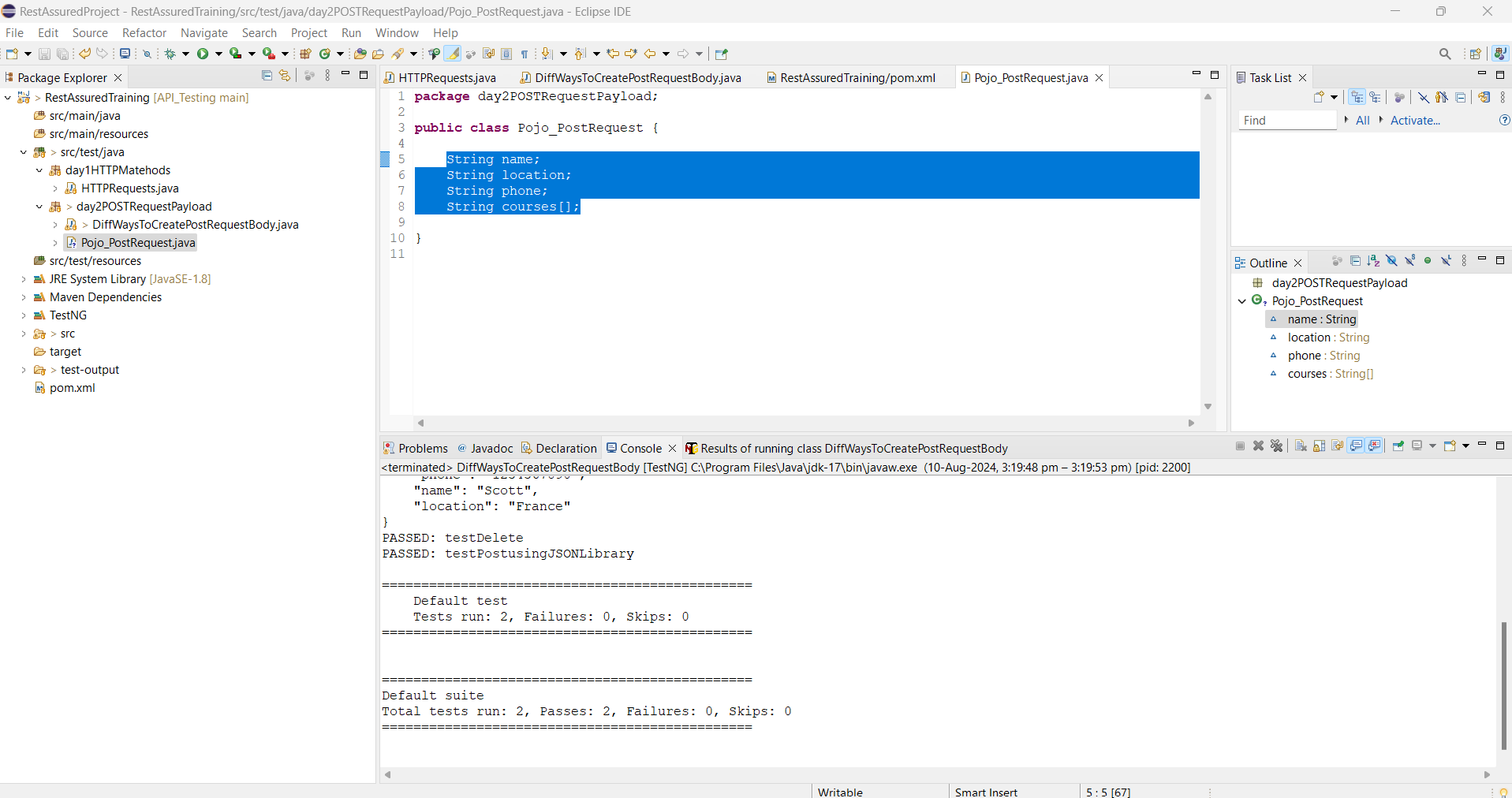
1) Post request body using Hashmap.

2) Post request body creating using Org.JSON

3) Post request body creating using POJO class

4) Post request using external json file data

POJO => Encapsulation followed here.



Source -> Generate Getters and Setters

EX:

package day2POSTRequestPayload;

import static io.restassured.RestAssured.given;

import static org.hamcrest.Matchers.equalTo;

import java.io.File;

import java.io.FileNotFoundException;

import java.io.FileReader;

import java.util.HashMap;

import org.json.JSONObject;

import org.json.JSONTokener;

/\*

Different ways to create POST request body

1) Post request body using Hashmap.

2) Post request body creating using Org.JSON

3) Post request body creating using POJO class

4) Post request using external json file data

\*/

import org.testng.annotations.Test;

public class DiffWaysToCreatePostRequestBody {

//1) POST request body using Hashmap

/\*

//create method

@Test(priority=1)

void testPostusingHashmap() {

HashMap data = new HashMap();

data.put("name", "Scott");

data.put("location", "France");

data.put("phone", "1234567890");

String courseArr[] = {"C", "C++"};

data.put("courses", courseArr);

given()

.contentType("application/json")

.body(data)

.when()

.post("http://localhost:3000/students")

.then()

.statusCode(201)

.body("name", equalTo("Scott"))

.body("location", equalTo("France"))

.body("phone", equalTo("1234567890"))

.body("courses[0]", equalTo("C"))

.body("courses[1]", equalTo("C++"))

//verify header

.header("Content-Type", "application/json; charset=utf-8")

//print entire response body

.log().all();

}

\*/

//2) Post request body creating using Org.JSON

/\*

//create method

@Test(priority=1)

void testPostusingJSONLibrary() {

JSONObject data = new JSONObject();

data.put("name", "Scott");

data.put("location", "France");

data.put("phone", "1234567890");

String courseArr[] = {"C", "C++"};

data.put("courses", courseArr);

given()

.contentType("application/json")

.body(data.toString())

.when()

.post("http://localhost:3000/students")

.then()

.statusCode(201)

.body("name", equalTo("Scott"))

.body("location", equalTo("France"))

.body("phone", equalTo("1234567890"))

.body("courses[0]", equalTo("C"))

.body("courses[1]", equalTo("C++"))

//verify header

.header("Content-Type", "application/json") //;charset=utf-8")

//print entire response body

.log().all();

}

\*/

//3) Post request body creating using POJO class

/\*

//create method

@Test(priority=1)

void testPostusingPOJO() {

Pojo\_PostRequest data = new Pojo\_PostRequest();

//Pojo\_PostRequest data = new Pojo\_PostRequest();

data.setName("Scott");

data.setLocation("France");

data.setPhone("1234567890");

String courseArr[] = {"C", "C++"};

data.setCourses(courseArr);

given()

.contentType("application/json")

.body(data)

.when()

.post("http://localhost:3000/students")

.then()

.statusCode(201)

.body("name", equalTo("Scott"))

.body("location", equalTo("France"))

.body("phone", equalTo("1234567890"))

.body("courses[0]", equalTo("C"))

.body("courses[1]", equalTo("C++"))

//verify header

.header("Content-Type", "application/json") //;charset=utf-8")

//print entire response body

.log().all();

}

\*/

//4) Post request using external json file data

//create method

@Test(priority=1)

void testPostusingExternalJSONFile() throws FileNotFoundException {

File f = new File(".\\body.json");

FileReader fr = new FileReader(f);

JSONTokener jt = new JSONTokener(fr);

JSONObject data = new JSONObject(jt);

given()

.contentType("application/json")

.body(data.toString())

.when()

.post("http://localhost:3000/students")

.then()

.statusCode(201)

.body("name", equalTo("Scott"))

.body("location", equalTo("France"))

.body("phone", equalTo("1234567890"))

.body("courses[0]", equalTo("C"))

.body("courses[1]", equalTo("C++"))

//verify header

.header("Content-Type", "application/json") //;charset=utf-8")

//print entire response body

.log().all();

}

//Deleting student record

@Test(priority=2)

void testDelete() {

given()

.when()

.delete("http://localhost:3000/students/2b50")

.then()

.statusCode(200);

}

}

**Cookies & Headers | Query & Path Parameters**

1. Path & Query Parameters

<https://reqres.in/api/users?page=2>

<https://reqres.in/api/users?page=2&id=5>

here, ‘user’ = path parameter; ‘page’ & ‘id’ = query parameter.

Anything after ‘?’ is query parameter.

1. Cookies & Headers

Cookies:

**package** day3CookiesHeadersQueryPathParameters;

**import** org.testng.annotations.Test;

**import** io.restassured.response.Response;

**import** **static** io.restassured.RestAssured.\*;

**import** **static** io.restassured.matcher.RestAssuredMatchers.\*;

**import** **static** org.hamcrest.Matchers.\*;

**import** java.util.HashMap;

**import** java.util.Map;

**public** **class** CookiesDemo {

@Test(priority=1)

**void** testCookies() {

*given*()

.when()

.get("https://www.google.com")

.then()

.cookie("AEC", "AVYB7cq7fYZfxDlK1mGmZR2OojvMI79YlIzN0ZMkJHQ7XMolrXm4WN6IWQ")

.log().all();

}

@Test(priority=2)

**void** getCookiesInfo() {

Response res = *given*()

.when()

.get("https://www.google.com");

//get single cookie info

String cookie\_value=res.getCookie("AEC");

System.***out***.println("Value of cookie is ====>"+cookie\_value);

//get all cookies info

Map<String,String> cookies\_values = res.getCookies();

//System.out.println(cookies\_values.keySet());

**for**(String k:cookies\_values.keySet()) {

String cookie\_valuee = res.getCookie(k);

System.***out***.println(k+" "+cookie\_valuee);

}

}

}

Headers:

Header name: value

Headers:

Header name: value

Header name: value

Header name: value

Ex: **package** day3CookiesHeadersQueryPathParameters;

**import** org.testng.annotations.Test;

**import** io.restassured.http.Header;

**import** io.restassured.http.Headers;

**import** io.restassured.response.Response;

**import** **static** io.restassured.RestAssured.\*;

**import** **static** io.restassured.matcher.RestAssuredMatchers.\*;

**import** **static** org.hamcrest.Matchers.\*;

**import** java.util.HashMap;

**public** **class** HeadersDemo {

@Test(priority=1)

**void** testHeaders() {

*given*()

.when()

.get("https://www.google.com")

.then()

.header("Content-Type", "text/html; charset=ISO-8859-1")

.and()

.header("Content-Encoding", "gzip")

.and()

.header("Server", "gws")

.log().headers(); //print only headers in the response

}

@Test(priority=2)

**void** getHeaders() {

//Response res = (Response) given()

Response res = *given*()

.when()

.get("https://www.google.com/");

//get single header info

String headervalue = res.getHeader("Content-Type");

System.***out***.println("The value of Content-type header is: "+headervalue);

//get all headers info

Headers myheaders = res.getHeaders();

**for**(Header hd:myheaders) {

System.***out***.println(hd.getName()+ " "+hd.getValue());

}

}

}

Looging:

**package** day3CookiesHeadersQueryPathParameters;

**import** **static** io.restassured.RestAssured.\*;

**import** **static** io.restassured.matcher.RestAssuredMatchers.\*;

**import** **static** org.hamcrest.Matchers.\*;

**import** org.testng.annotations.Test;

**public** **class** LoggingDemo {

@Test(priority=1)

**void** testLogs() {

*given*()

.when()

.get("https://reqres.in/api/users?page=2")

.then()

//.log().body()

//.log().cookies() //to print only cookies from the response

//.log().headers() //to print only headers in response

.log().all(); //to print all the logs in response

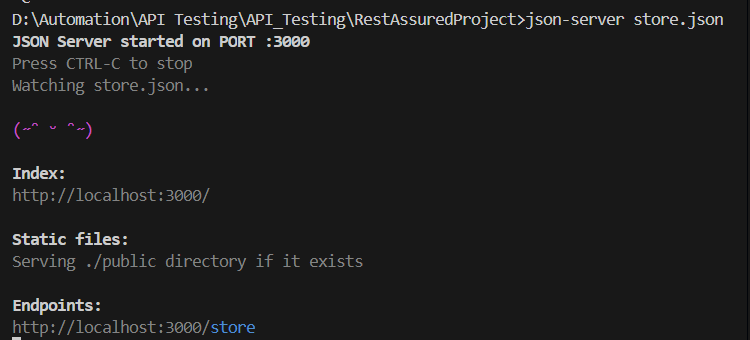
}

}

**Parsing Response Body | JSONObject**

**Parsing:** means we can traverse through json response to get required field.

Run store.json file locally on json server.



Ex:

**package** day4ParsingResponseBodyJSONObject;

**import** **static** io.restassured.RestAssured.*given*;

**import** org.json.JSONObject;

**import** org.testng.Assert;

**import** org.testng.annotations.Test;

**import** io.restassured.http.ContentType;

**import** io.restassured.response.Response;

**public** **class** ParsingJSONResponseData {

@Test(priority=1)

**void** testJSONResponse() {

//Approach 1

/\*

given()

.contentType("ContentType.JSON")

.when()

.get("http://localhost:3000/store")

.then()

.statusCode(200)

.header("Content-Type", "application/json") //; charset=utf-8")

//find JSON Path from https://jsonpathfinder.com/

.body("book[3].title", equalTo("The Lord of the Rings"))

;

\*/

//Approach 2 => Capture entire response in one variable

Response res = *given*()

//.contentType("ContentType.JSON")

.contentType(ContentType.***JSON***)

.when()

.get("http://localhost:3000/store");

//res.getStatusCode()

Assert.*assertEquals*(res.getStatusCode(), 200) ; //validation 1

Assert.*assertEquals*(res.header("Content-Type"), "application/json");

String bookname = res.jsonPath().get("book[3].title").toString();

Assert.*assertEquals*(bookname, "The Lord of the Rings");

}

@Test(priority=2)

**void** testJSONResponsebodyData() {

Response res =

*given*()

.contentType(ContentType.***JSON***)

.when()

.get("http://localhost:3000/store");

/\*

//res.getStatusCode()

Assert.assertEquals(res.getStatusCode(), 200) ; //validation 1

Assert.assertEquals(res.header("Content-Type"), "application/json");

String bookname = res.jsonPath().get("book[3].title").toString();

Assert.assertEquals(bookname, "The Lord of the Rings");

\*/

//JSONObject class

JSONObject jo = **new** JSONObject(res.toString()); //converting response to json object type

/\*

for(int i=0; i<jo.getJSONArray("book").length(); i++) {

String bookTitle = jo.getJSONArray("book").getJSONObject(i).get("title").toString();

System.out.println(bookTitle);

\*/

//search for title of book in json - validation 1

**boolean** status=**false**;

**for**(**int** i=0; i<jo.getJSONArray("book").length(); i++) {

String bookTitle = jo.getJSONArray("book").getJSONObject(i).get("title").toString();

**if**(bookTitle.equals("The Lord of the Rings"))

{

status=**true**;

**break**;

}

}

Assert.*assertEquals*(status, **true**);

/\*

if(status==false) {

//not found

}

\*/

//validating total price of books - validation 2

**double** totalprice=0;

**for**(**int** i=0; i<jo.getJSONArray("book").length(); i++) {

String price = jo.getJSONArray("book").getJSONObject(i).get("price").toString() ;

totalprice = totalprice + Double.*parseDouble*(price);

}

System.***out***.println("total price of book is:"+totalprice);

Assert.*assertEquals*(totalprice, 53.92);

}

}

**Parsing XML Response Body | File Upload & Download API’s**

Parsing XML

Ex: **package** day5ParsingXMLResponseBodyFileUploadDownloadAPI;

**import** org.testng.Assert;

**import** org.testng.annotations.Test;

**import** io.restassured.path.xml.XmlPath;

**import** io.restassured.response.Response;

**import** **static** io.restassured.RestAssured.\*;

**import** **static** io.restassured.matcher.RestAssuredMatchers.\*;

**import** **static** org.hamcrest.Matchers.\*;

**import** java.util.List;

**public** **class** ParsingXMLResponse {

@Test(priority=1)

**void** testXMLResponse() {

//Approach 1

/\*

given()

.when()

.get("http://restapi.adequateshop.com/api/Traveler?page=1")

.then()

.statusCode(200)

// .header("Content-Type", "text/html; charset=us-ascii")

.header("Content-Type", "application/xml")

.body("TravelerinformationResponse.page", equalTo("1"))

.body("TravelerinformationResponse.travelers.Travelerinformation[0].name", equalTo("Vijay Bharat Reddy"))

;

\*/

//Aproach 2

Response res = *given*()

.when()

.get("http://restapi.adequateshop.com/api/Traveler?page=1");

Assert.*assertEquals*(res.getStatusCode(), 200 );

Assert.*assertEquals*(res.header("Content-Type"), "application/xml");

String pageNo = res.xmlPath().get("TravelerinformationResponse.page").toString();

Assert.*assertEquals*(pageNo, "1");

String travelName = res.xmlPath().getString("TravelerinformationResponse.travelers.Travelerinformation[0].name").toString();

Assert.*assertEquals*(travelName, "Vijay Bharat Reddy");

}

@Test(priority=2)

**void** testXMLResponseBody() {

Response res = *given*()

.when()

.get("http://restapi.adequateshop.com/api/Traveler?page=1");

XmlPath xmlobj = **new** XmlPath(res.asString());

//Verify total number of travelers

List<String> travelers = xmlobj.getList("TravelerinformationResponse.travelers.Travelerinformation");

Assert.*assertEquals*(travelers.size(), 10);

//Verify traveler name is present in response

List<String> traveler\_names = xmlobj.getList("TravelerinformationResponse.travellers.Travelerinformation.name");

**boolean** status=**false**;

**for**(String travelername:traveler\_names) {

//System.out.println(travelername);

**if**(travelername.equals("Vijay Bharat Reddy")) {

status=**true**;

**break**;

}

}

Assert.*assertEquals*(status, **true**);

;

}

}

**File Upload:**

Create file-upload-RestAPI.jar file.

Run it locally using command “java -jar file-upload-RestAPI.jar”

**package** day5ParsingXMLResponseBodyFileUploadDownloadAPI;

**import** **static** io.restassured.RestAssured.\*;

**import** **static** io.restassured.matcher.RestAssuredMatchers.\*;

**import** **static** org.hamcrest.Matchers.\*;

**import** java.io.File;

**import** org.testng.annotations.Test;

**public** **class** FileUploadAndDownload {

@Test(priority=1)

**void** singleFileUpload() {

File myfile = **new** File("D:\\Automation\\API Testing\\API\_Testing\\RestAssuredProject\\RestAssuredTraining\\Text1.txt");

*given*()

.multiPart("file",myfile)

.contentType("multipart/form-data")

.when()

.post("https://localhost:8080/uploadFile")

.then()

.statusCode(200)

.body("fileName", *equalTo*("Test1.txt"))

.log().all();

}

@Test(priority=3)

**void** multipleFileUpload() {

File myfile1 = **new** File("D:\\Automation\\API Testing\\API\_Testing\\RestAssuredProject\\RestAssuredTraining\\Text1.txt");

File myfile2 = **new** File("D:\\Automation\\API Testing\\API\_Testing\\RestAssuredProject\\RestAssuredTraining\\Text2.txt");

*given*()

.multiPart("files",myfile1)

.multiPart("files",myfile2)

.contentType("multipart/form-data")

.when()

.post("https://localhost:8080/uploadMultipleFiles")

.then()

.statusCode(200)

.body("[0].fileName", *equalTo*("Test1.txt"))

.body("[1].fileName", *equalTo*("Test2.txt"))

.log().all();

}

//Approach - using single array (won't work for all kinds of api)

@Test(priority=4)

**void** multipleFileUpload2() { //(won't work for all kinds of api)

File myfile1 = **new** File("D:\\Automation\\API Testing\\API\_Testing\\RestAssuredProject\\RestAssuredTraining\\Text1.txt");

File myfile2 = **new** File("D:\\Automation\\API Testing\\API\_Testing\\RestAssuredProject\\RestAssuredTraining\\Text2.txt");

File filearr[] = {myfile1, myfile2};

*given*()

.multiPart("files",filearr)

.contentType("multipart/form-data")

.when()

.post("https://localhost:8080/uploadMultipleFiles")

.then()

.statusCode(200)

.body("[0].fileName", *equalTo*("Test1.txt"))

.body("[1].fileName", *equalTo*("Test2.txt"))

.log().all();

}

// File Download

@Test(priority=2)

**void** fileDownload() {

*given*()

.when()

//.get("http://localhost:8080/downloadFile/Test1.txt")

.get("http://localhost:8080/downloadFile/Test2.txt")

.then()

.statusCode(200)

.log().body();

}

}

**JSON & XML Schema validations | Serial & De-serilisation**

1. Response validation: data
2. Schema Validation: type of data

Convert JSON to JSON Schema and pass it.

Run json server locally using command: ‘json-server store.json’.

XML Schema validation is not possible in Postman. Possible in RestAssured.

1. Json Response (.json) -> Json Schema (.json)
2. XML Response (.xml) -> Xml Schema (.xsd)

For XML Schema -> first convert JSON to XML format. Then convert XML format to XSD format.

<https://www.site24x7.com/tools/json-to-xml.html>.

<https://www.liquid-technologies.com/online-xml-to-xsd-converter>.