API Assignment Questions

1. Explain the following:

A. PUT and PATCH methods

1. PUT Method

- **Purpose:** Replaces the **entire resource** with new data.
- **Behaviour:** If any field is missing in the request body, it is either removed or reset on the server.
- **Idempotent:** Yes — sending the same request multiple times results in the same state.

2. PATCH Method

- **Purpose:** Updates **only specific fields** in the resource.
- **Behaviour:** Does a **partial update**. Fields not included in the request remain unchanged.
- **Idempotent:** Yes — typically considered idempotent, but this depends on implementation.

B. Headers and Cookies

1. Headers:

- Headers are key-value pairs sent in HTTP requests and responses.
- They provide **metadata** (information about the request or response).
- Examples:
    - Content-Type: application/json ○ Authorization: Bearer <token> ○ User-Agent: Mozilla/5.0

2. Cookies:

- Cookies are small pieces of data stored on the client (browser) and sent with each request to the server.
- Used for **session management**, **user tracking**, and **personalization**.
- Example:
  Set-Cookie: sessionId=abc123; Path=/; HttpOnly

C. Endpoint and Base URL **Base**

URL:

- The **common root address** for all API calls.
- Example: https://api.example.com **Endpoint:**
- A specific **path** added to the base URL to access a particular resource.
- Example:
    - Base URL: https://api.example.com ○ Endpoint: /users/123
    - Full URL: https://api.example.com/users/123

D. Query Parameters and Path Parameters

1. Path Parameters:

- Part of the **URL path** used to identify specific resources.
- Example:
  GET /products/45 ○ 45 is a path parameter (product ID)

2. Query Parameters:

- Appended to the URL **after a question mark (?)**.
- Used for **filtering, sorting, or pagination**.
- Example:
  GET /products?category=shoes&sort=price

E. What are error codes? Explain all series of error codes.

Error codes (or HTTP status codes) are issued by a server in response to a client's request. They indicate the result of the request.

Here are the **5 series** of status codes:

Series	Code Range	Meaning	Examples and Description
1xx	100–199	Informational responses	100 Continue, 101 Switching Protocols
2xx	200–299	Success	200 OK (request successful), 201 Created (resource created)
3xx	300–399	Redirection	301 Moved Permanently, 302 Found, 304 Not Modified
4xx	400–499	Client errors	400 Bad Request, 401 Unauthorized, 403 Forbidden, 404 Not Found
5xx	500–599	Server errors	500 Internal Server Error, 502 Bad Gateway, 503 Service Unavailable

2. Create a new collection in Postman named "Sample APIs." Use https://reqres.in/ and implement GET, POST, PUT, PATCH, and DELETE operations. https://api.postman.com/collections/42836423-1aa4b90f-867a-4ad5-96d9e22834f7eac1?access_key=PMAT-01JY6G6H50FZ0P6S9JJNZBBD7R

3. What is the difference between given(), when(), and then() in Rest Assured?

1. given() — Setup / Pre-condition

- Used to set up the request, such as headers, parameters, body, authentication, etc.
- This represents the "Given" step of a BDD test.

2. when() — Action / Trigger

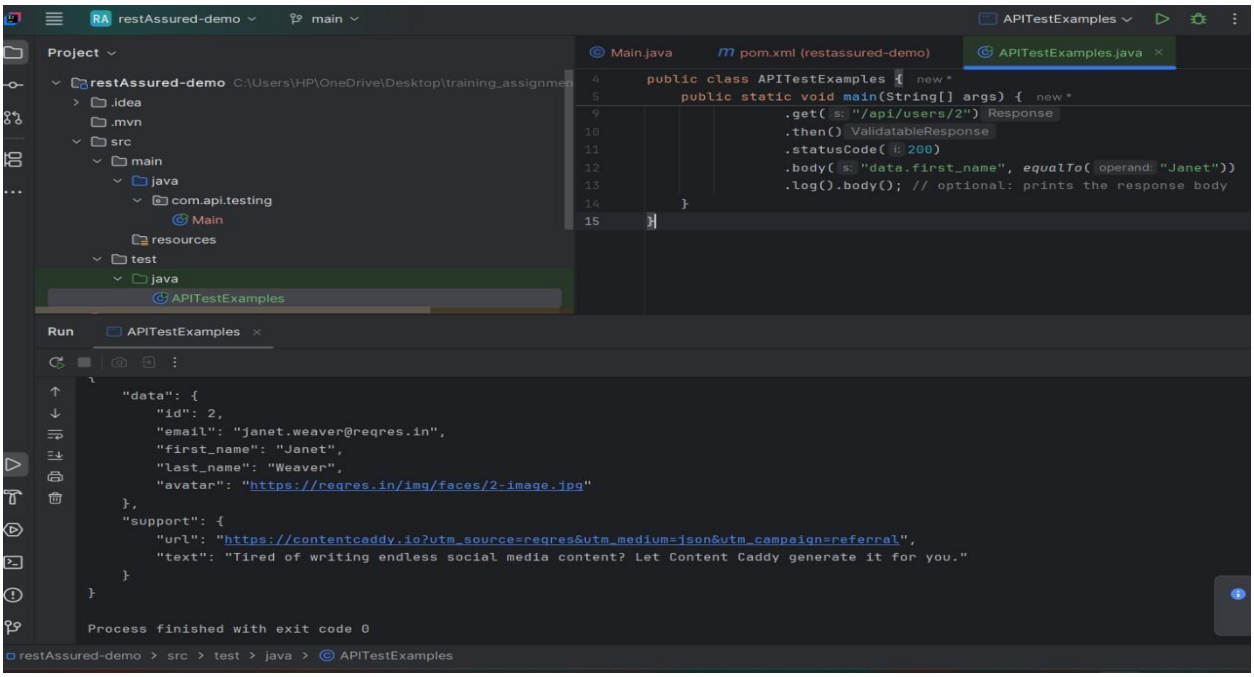
- Used to specify the HTTP method (GET, POST, PUT, DELETE, etc.) and trigger the API request.
- This represents the "When" step in BDD, describing the action being performed.

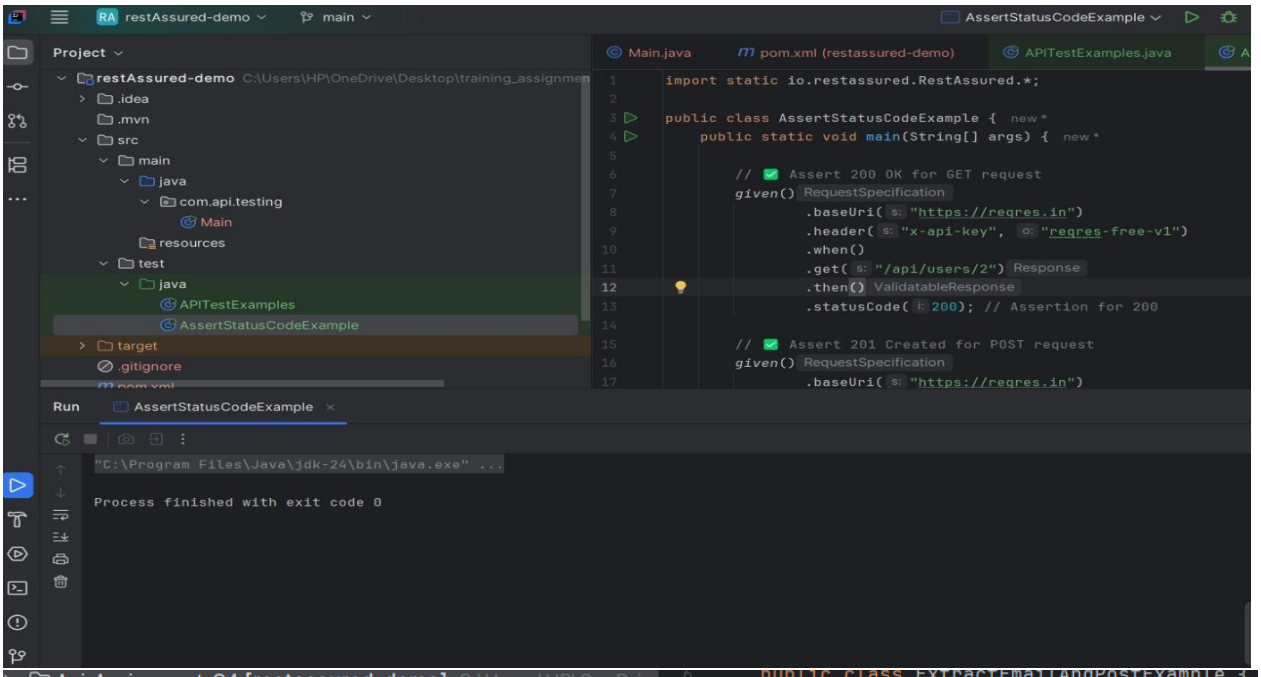
3. then() — Validation / Assertion

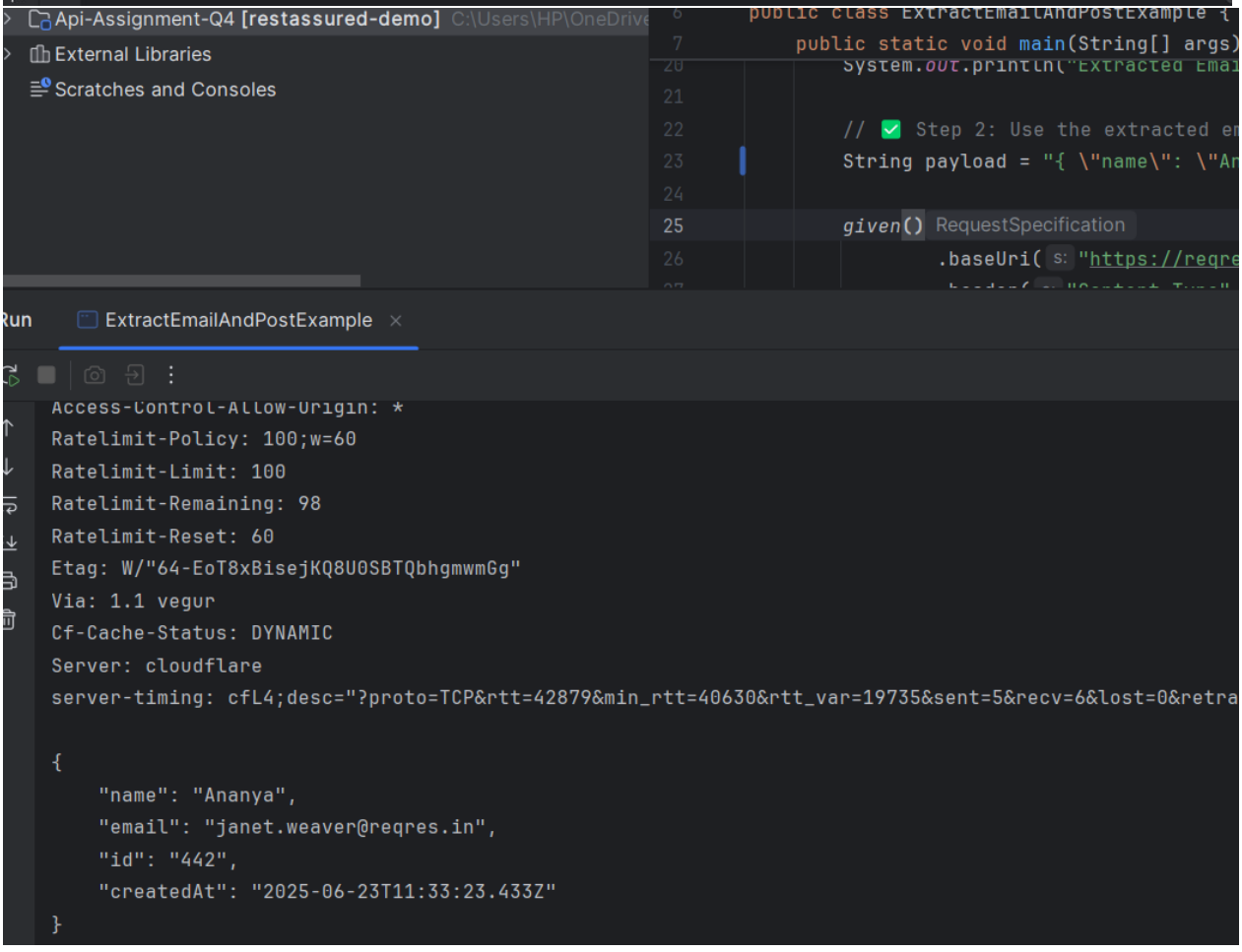
- Used to verify the response received from the server.
- You perform assertions here on status code, response body, headers, etc.
- This represents the "Then" step in BDD, describing the expected outcome.

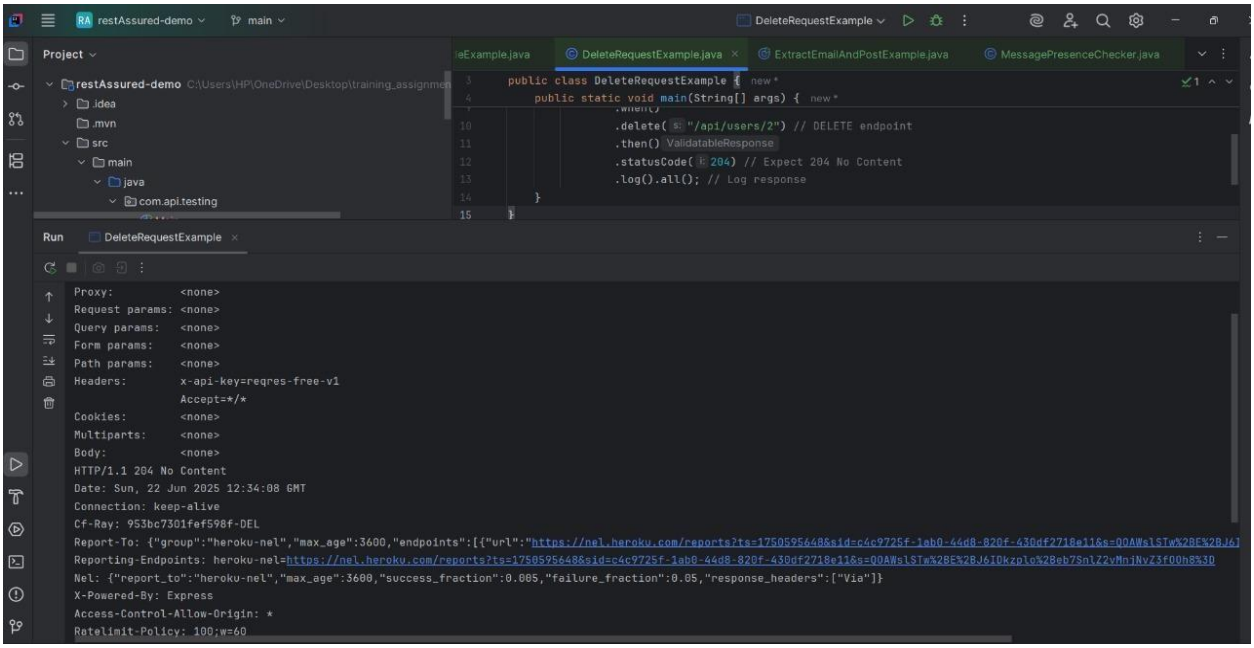
4. Perform the operations with Rest Assured (use https://reqres.in/):

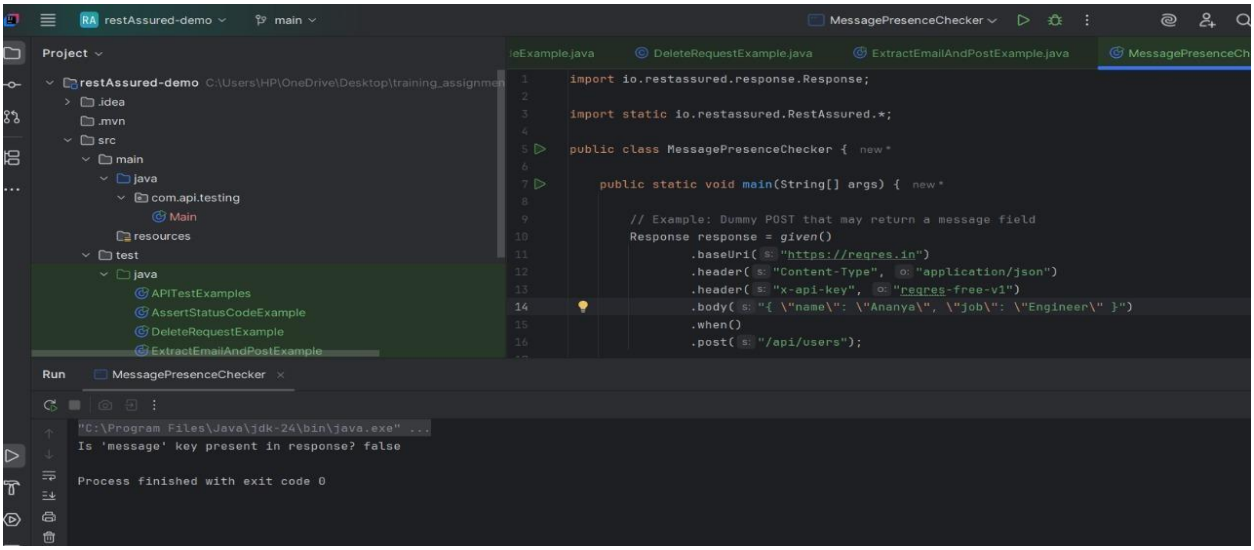
A. Create GET, POST, PUT, PATCH, and DELETE
B. Assert for 200/201 response
C. Verify “first_name” key value from GET response
D. Extract “email” from GET request and add it to the subsequent POST request payload and hit the request
E. Write a function to verify presence of Message in response body

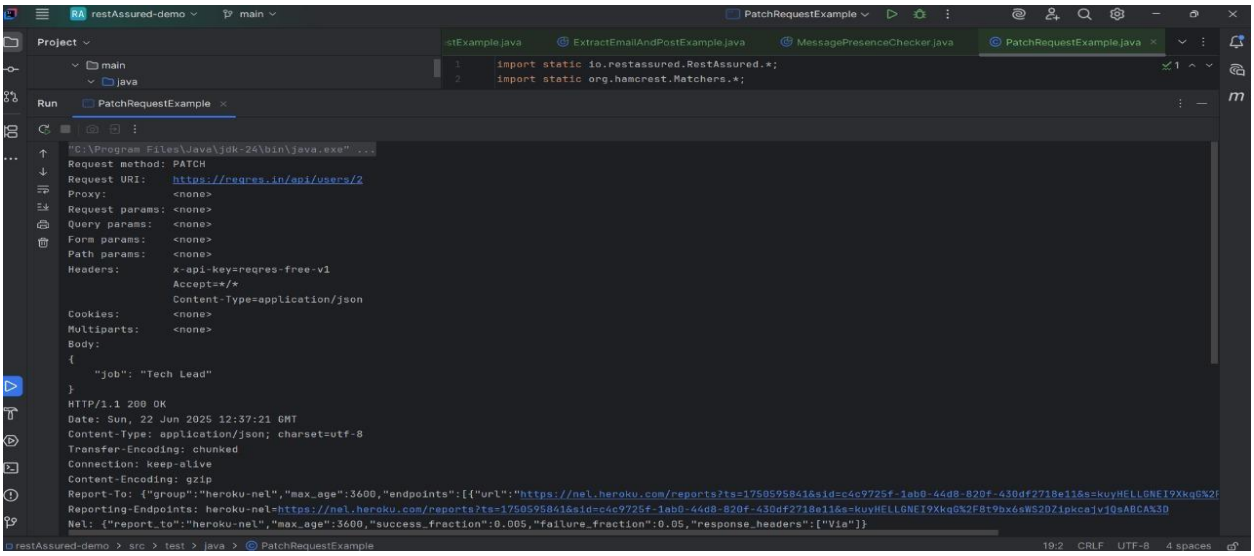


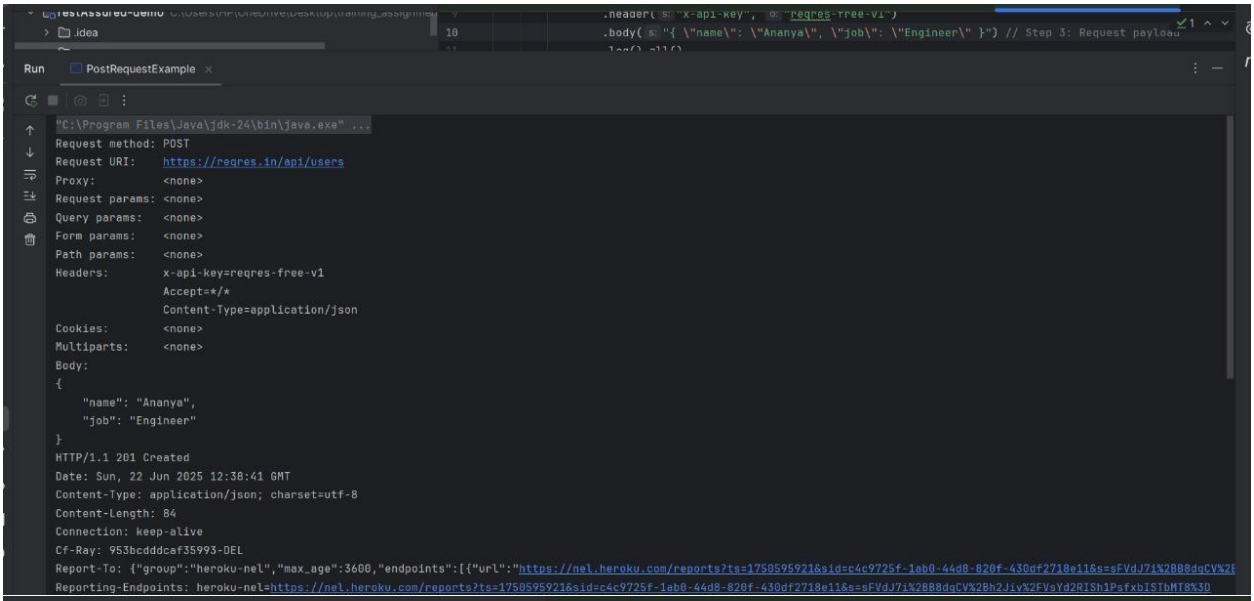

restAssured-demo
main
AssertStatusCodeExample
Project
restAssured-demo C:\Users\HP\OneDrive\Desktop\training_assignmen
.idea
.mvn
src
main
java
com.api.testing
Main
resources
test
java
APITestExamples
AssertStatusCodeExample
target
.gitignore
Main.java
pom.xml (restassured-demo)
APITestExamples.java
import static io.restassured.RestAssured.*;
public class AssertStatusCodeExample {
public static void main(String[] args) {
// Assert 200 OK for GET request
given() RequestSpecification
.baseUri(s: "https://reqres.in")
.header(s: "x-api-key", o: "reqres-free-v1")
.when()
.get(s: "/api/users/2") Response
.then() ValidatableResponse
.statusCode(i: 200); // Assertion for 200
// Assert 201 Created for POST request
given() RequestSpecification
.baseUri(s: "https://reqres.in")
Run
AssertStatusCodeExample
"C:\Program Files\Java\jdk-24\bin\java.exe" ...
Process finished with exit code 0

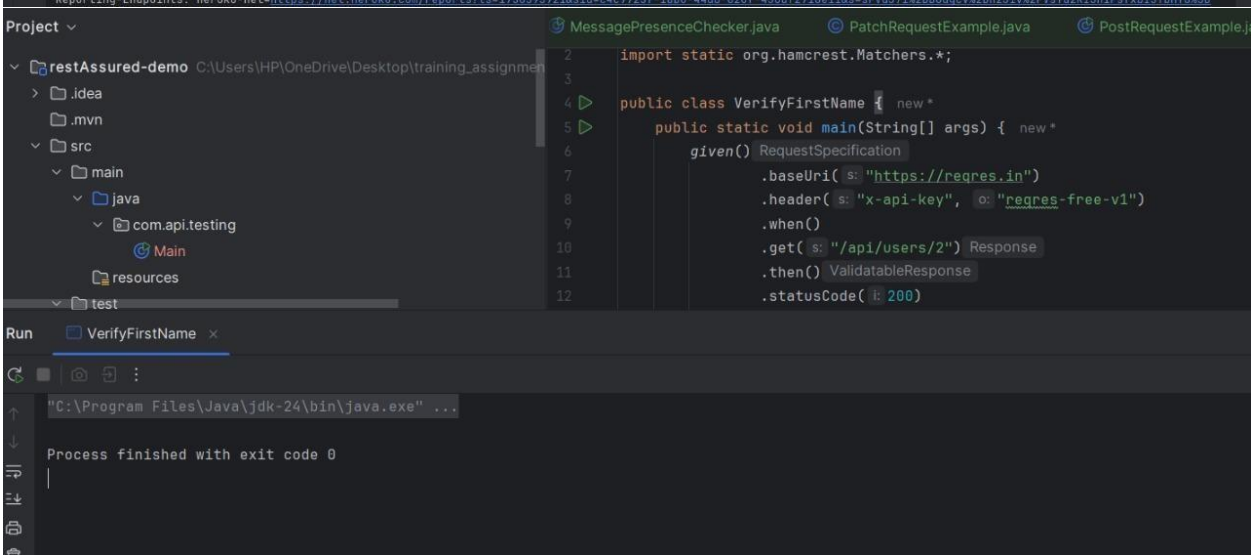

Api-Assignment-Q4 [restassured-demo] C:\Users\HP\OneDrive
External Libraries
Scratches and Consoles
public class ExtractEmailAndPostExample {
public static void main(String[] args)
System.out.println("Extracted Emai
// Step 2: Use the extracted em
String payload = "{ \"name\": \"An
given() RequestSpecification
.baseUri(s: "https://reqre
Run
ExtractEmailAndPostExample
Access-Control-Allow-Origin: *
Ratelimit-Policy: 100;w=60
Ratelimit-Limit: 100
Ratelimit-Remaining: 98
Ratelimit-Reset: 60
Etag: W/"64-EoT8xBisejKQ8U0SBTQbhgmwmGg"
Via: 1.1 vegur
Cf-Cache-Status: DYNAMIC
Server: cloudflare
server-timing: cfL4;desc="?proto=TCP&rtt=42879&min_rtt=40630&rtt_var=19735&sent=5&recv=6&lost=0&retra
{
"name": "Ananya",
"email": "janet.weaver@reqres.in",
"id": "442",
"createdAt": "2025-06-23T11:33:23.433Z"
}

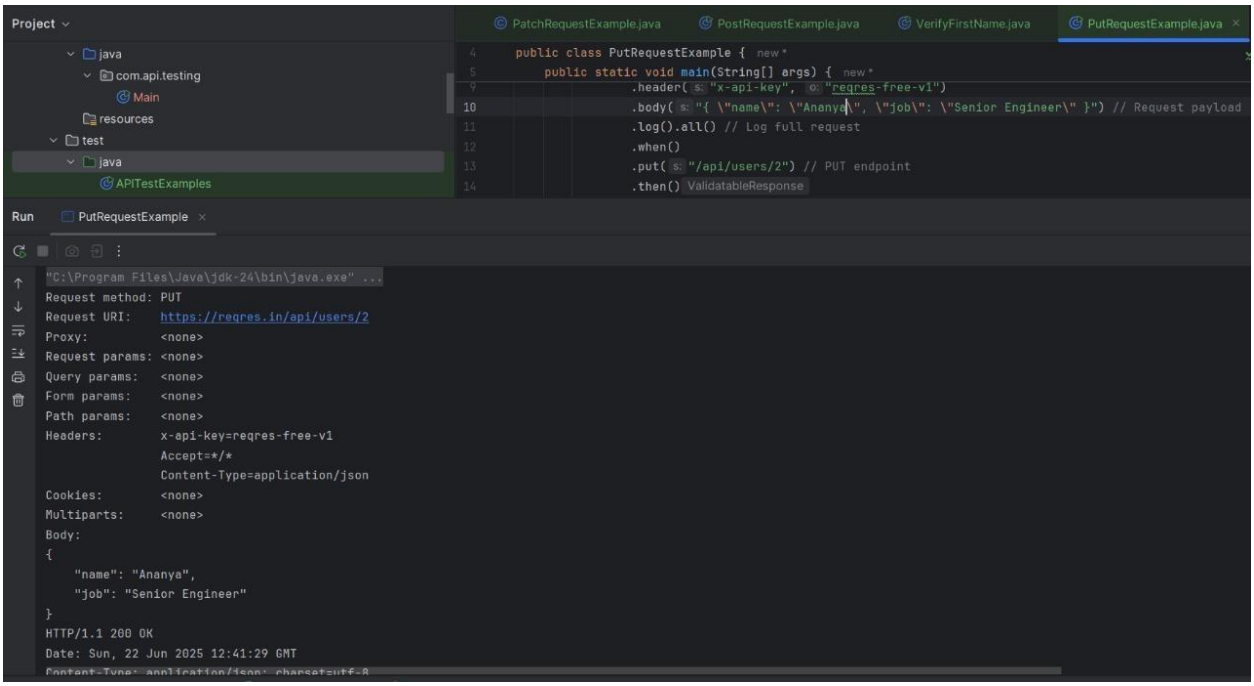

restAssured-demo
main
DeleteRequestExample
Project
DeleteRequestExample.java
ExtractEmailAndPostExample.java
MessagePresenceChecker.java
public class DeleteRequestExample {
public static void main(String[] args) {
.delete(s: "/api/users/2") // DELETE endpoint
.then() ValidatableResponse
.statusCode(i: 204) // Expect 204 No Content
.log().all(); // Log response
Run
DeleteRequestExample
Proxy: <none>
Request params: <none>
Query params: <none>
Form params: <none>
Path params: <none>
Headers: x-api-key=reqres-free-v1
Accept=*/*
Cookies: <none>
Multiparts: <none>
Body: <none>
HTTP/1.1 204 No Content
Date: Sun, 22 Jun 2025 12:34:08 GMT
Connection: keep-alive
Cf-Ray: 953bc7301fef598f-DEL
Report-To: {"group":"heroku-nel","max_age":3600,"endpoints":[{"url":"https://nel.heroku.com/reports?ts=1750595648&sid=c4c9725f-1ab0-44d8-820f-430df2718e11&s=QOAWslSTw%2BE%2BJ6I
Reporting-Endpoints: heroku-nel=https://nel.heroku.com/reports?ts=1750595648&sid=c4c9725f-1ab0-44d8-820f-430df2718e11&s=QOAWslSTw%2BE%2BJ6IDkzplo%2Beb7SnlZ2yMnjNvZ3fO0h8%3D
Nel: {"report_to":"heroku-nel","max_age":3600,"success_fraction":0.005,"failure_fraction":0.05,"response_headers":["Via"]}
X-Powered-By: Express
Access-Control-Allow-Origin: *
Ratelimit-Policy: 100;w=60


restAssured-demo
main
MessagePresenceChecker
Project
DeleteRequestExample.java
ExtractEmailAndPostExample.java
import io.restassured.response.Response;
import static io.restassured.RestAssured.*;
public class MessagePresenceChecker {
public static void main(String[] args) {
// Example: Dummy POST that may return a message field
Response response = given()
.baseUri(s: "https://reqres.in")
.header(s: "Content-Type", o: "application/json")
.header(s: "x-api-key", o: "reqres-free-v1")
.body(s: "{ \"name\": \"Ananya\", \"job\": \"Engineer\" }")
.when()
.post(s: "/api/users");
com.api.testing
Main
resources
test
java
APITestExamples
AssertStatusCodeExample
DeleteRequestExample
ExtractEmailAndPostExample
Run
MessagePresenceChecker
"C:\Program Files\Java\jdk-24\bin\java.exe" ...
Is 'message' key present in response? false
Process finished with exit code 0


restAssured-demo
main
PatchRequestExample
Project
MessagePresenceChecker.java
PatchRequestExample.java
import static io.restassured.RestAssured.*;
import static org.hamcrest.Matchers.*;
Run
PatchRequestExample
"C:\Program Files\Java\jdk-24\bin\java.exe" ...
Request method: PATCH
Request URI: https://reqres.in/api/users/2
Proxy: <none>
Request params: <none>
Query params: <none>
Form params: <none>
Path params: <none>
Headers: x-api-key=reqres-free-v1
Accept=*/*
Content-Type=application/json
Cookies: <none>
Multiparts: <none>
Body:
{
"job": "Tech Lead"
}
HTTP/1.1 200 OK
Date: Sun, 22 Jun 2025 12:37:21 GMT
Content-Type: application/json; charset=utf-8
Transfer-Encoding: chunked
Connection: keep-alive
Content-Encoding: gzip
Report-To: {"group":"heroku-nel","max_age":3600,"endpoints":[{"url":"https://nel.heroku.com/reports?ts=1750595841&sid=c4c9725f-1ab0-44d8-820f-430df2718e11&s=kuyHELLGNEI9XkqG%2F
Reporting-Endpoints: heroku-nel=https://nel.heroku.com/reports?ts=1750595841&sid=c4c9725f-1ab0-44d8-820f-430df2718e11&s=kuyHELLGNEI9XkqG%2F8t9bx6sWS2DZipkcajvj0sABCA%3D
Nel: {"report_to":"heroku-nel","max_age":3600,"success_fraction":0.005,"failure_fraction":0.05,"response_headers":["Via"]}
restAssured-demo > src > test > java > PatchRequestExample
19:2 CRLF UTF-8 4 spaces


.idea
.body(s: "{ \"name\": \"Ananya\", \"job\": \"Engineer\" }") // Step 3: Request payload
Run
PostRequestExample
"C:\Program Files\Java\jdk-24\bin\java.exe" ...
Request method: POST
Request URI: https://reqres.in/api/users
Proxy: <none>
Request params: <none>
Query params: <none>
Form params: <none>
Path params: <none>
Headers: x-api-key=reqres-free-v1
Accept=*/*
Content-Type=application/json
Cookies: <none>
Multiparts: <none>
Body:
{
"name": "Ananya",
"job": "Engineer"
}
HTTP/1.1 201 Created
Date: Sun, 22 Jun 2025 12:38:41 GMT
Content-Type: application/json; charset=utf-8
Content-Length: 84
Connection: keep-alive
Cf-Ray: 953bcdddcaf35993-DEL
Report-To: {"group":"heroku-nel","max_age":3600,"endpoints":[{"url":"https://nel.heroku.com/reports?ts=1750595921&sid=c4c9725f-1ab0-44d8-820f-430df2718e11&s=sFVdJ7i%2B88dqCV%2
Reporting-Endpoints: heroku-nel=https://nel.heroku.com/reports?ts=1750595921&sid=c4c9725f-1ab0-44d8-820f-430df2718e11&s=sFVdJ7i%2B88dqCV%2Bh2Jiv%2FVsYd2RISh1PsfxbISTbMT8%3D


Project
restAssured-demo C:\Users\HP\OneDrive\Desktop\training_assignmen
.idea
.mvn
src
main
java
com.api.testing
Main
resources
test
MessagePresenceChecker.java
PatchRequestExample.java
PostRequestExample.j
import static org.hamcrest.Matchers.*;
public class VerifyFirstName { new *
public static void main(String[] args) { new *
given() RequestSpecification
.baseUri(s: "https://reqres.in")
.header(s: "x-api-key", o: "reqres-free-v1")
.when()
.get(s: "/api/users/2") Response
.then() ValidatableResponse
.statusCode(i: 200)
Run
VerifyFirstName
"C:\Program Files\Java\jdk-24\bin\java.exe" ...
Process finished with exit code 0


Project
java
com.api.testing
Main
resources
test
java
APITestExamples
PatchRequestExample.java
PostRequestExample.java
VerifyFirstName.java
PutRequestExample.java
public class PutRequestExample { new *
public static void main(String[] args) { new *
.header(s: "x-api-key", o: "reqres-free-v1")
.body(s: "{ \"name\": \"Ananya\", \"job\": \"Senior Engineer\" }") // Request payload
.log().all() // Log full request
.when()
.put(s: "/api/users/2") // PUT endpoint
.then() ValidatableResponse
Run
PutRequestExample
"C:\Program Files\Java\jdk-24\bin\java.exe" ...
Request method: PUT
Request URI: https://reqres.in/api/users/2
Proxy: <none>
Request params: <none>
Query params: <none>
Form params: <none>
Path params: <none>
Headers: x-api-key=reqres-free-v1
Accept=*/*
Content-Type=application/json
Cookies: <none>
Multiparts: <none>
Body:
{
"name": "Ananya",
"job": "Senior Engineer"
}
HTTP/1.1 200 OK
Date: Sun, 22 Jun 2025 12:41:29 GMT