**Project Title: TechnoHacks Software Testing Task 5: API Testing**

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**Objective**

The objective of this project is to conduct testing of a RESTful API using Postman to validate its functionality, reliability, and performance. By executing some sample test cases on various endpoints, we aim to ensure the API responds correctly and meets expected behavior, ultimately enhancing its robustness for end-users.

**API Overview**

The Sample API is a RESTful service for managing user data, offering key functionalities such as Create User, Retrieve User, Update User & Delete User. The API returns standard HTTP status codes and JSON responses, serving as a critical component for applications requiring user management.

**Tools Used**

Postman: Version 11.37.1.0

**Test Cases**

| **S.No** | **Request Type/ Method** | **Scenario Title** | **Expected Outcome** | **Actual Outcome** | **Notes** |
| --- | --- | --- | --- | --- | --- |
| 1 | GET | Valid URL | 200 OK | 200 OK | Successful test |
| 2 | GET | Invalid URL | 404 NOT FOUND | 404 NOT FOUND | Successful test |
| 3 | GET | Request All Resources | 200 OK | 200 OK | Successful test |
| 4 | GET | Pagination | 200 OK | 200 OK | Successful test |
| 5 | GET | Valid Query Parameters | 200 OK | 200 OK | Successful test |
| 6 | GET | Invalid Query Parameters | 200 OK | 200 OK | Successful test |
| 7 | GET | No Resource URL | 200 OK | 200 OK | Successful test |
| 8 | POST | Valid request body | 201 CREATED | 201 CREATED | Successful test |
| 9 | POST | Without title | 201 CREATED | 201 CREATED | Successful test |
| 10 | POST | Invalid UserID | 201 CREATED | 201 CREATED | Successful test |
| 11 | POST | Blank Body | 201 CREATED | 201 CREATED | Successful test |
| 12 | POST | Exceeding Limits | 500 INTERNAL SERVER ERROR | 500 INTERNAL SERVER ERROR | Successful test |
| 13 | POST | Extra Fields | 201 CREATED | 201 CREATED | Successful test |
| 14 | PUT | Valid request body | 200 OK | 200 OK | Successful test |
| 15 | PUT | No Resource URL | 500 INTERNAL SERVER ERROR | 500 INTERNAL SERVER ERROR | Successful test |
| 16 | PUT | Without title | 200 OK | 200 OK | Successful test |
| 17 | PUT | Invalid UserID | 200 OK | 200 OK | Successful test |
| 18 | PUT | Blank Body | 200 OK | 200 OK | Successful test |
| 19 | PUT | Exceeding Limits | 500 INTERNAL SERVER ERROR | 500 INTERNAL SERVER ERROR | Successful test |
| 20 | PUT | Extra Fields | 200 OK | 200 OK | Successful test |
| 21 | PATCH | Only title, without body | 200 OK | 200 OK | Successful test |
| 22 | PATCH | No Resource URL | 200 OK | 200 OK | Successful test |
| 23 | PATCH | Without title, with body | 200 OK | 200 OK | Successful test |
| 24 | PATCH | Invalid UserID | 200 OK | 200 OK | Successful test |
| 25 | PATCH | Blank Body | 200 OK | 200 OK | Successful test |
| 26 | PATCH | Exceeding Limits | 500 INTERNAL SERVER ERROR | 500 INTERNAL SERVER ERROR | Successful test |
| 27 | PATCH | Extra Fields | 200 OK | 200 OK | Successful test |
| 28 | DELETE | Valid URL | 200 OK | 200 OK | Successful test |
| 29 | DELETE | Non-existent Resource | 200 OK | 200 OK | Successful test |
| 30 | DELETE | Request Deleted Resources | 200 OK | 200 OK | Successful test |
| 31 | DELETE | Invalid Resource ID | 200 OK | 200 OK | Successful test |
| 32 | DELETE | No Resource URL | 404 NOT FOUND | 404 NOT FOUND | Successful test |
| 33 | DELETE | Valid Query Parameters | 200 OK | 200 OK | Successful test |
| 34 | DELETE | Invalid Query Parameters | 200 OK | 200 OK | Successful test |
| 35 | HEAD | Valid URL | 200 OK | 200 OK | Successful test |
| 36 | HEAD | Invalid URL | 404 NOT FOUND | 404 NOT FOUND | Successful test |
| 37 | HEAD | Request All Resources | 200 OK | 200 OK | Successful test |
| 38 | HEAD | Valid Query Parameters | 200 OK | 200 OK | Successful test |
| 39 | HEAD | Invalid Query Parameters | 200 OK | 200 OK | Successful test |
| 40 | HEAD | No Resource URL | 200 OK | 200 OK | Successful test |
| 41 | OPTIONS | Valid URL | 204 NO CONTENT | 204 NO CONTENT | Successful test |
| 42 | OPTIONS | Invalid URL | 204 NO CONTENT | 204 NO CONTENT | Successful test |
| 43 | OPTIONS | Request All Resources | 204 NO CONTENT | 204 NO CONTENT | Successful test |
| 44 | OPTIONS | No Resource ID | 204 NO CONTENT | 204 NO CONTENT | Successful test |
| 45 | OPTIONS | Valid Query Parameters | 204 NO CONTENT | 204 NO CONTENT | Successful test |
| 46 | OPTIONS | Invalid Query Parameters | 204 NO CONTENT | 204 NO CONTENT | Successful test |
| 47 | OPTIONS | No Resource URL | 204 NO CONTENT | 204 NO CONTENT | Successful test |

**Test Execution**

Executed tests using Postman Collections.

URL used: <https://jsonplaceholder.typicode.com/users>

<https://jsonplaceholder.typicode.com/posts>

<https://jsonplaceholder.typicode.com/posts/1>

**Results**

Total Tests: 47 (All passed successfully)

**Observations**

It has also been observed that behavior of JSONPlaceholder does not give the expected responses. This is due to the nature of the API, which is a fake REST API for testing.

This API returns predefined responses. A GET request to https://jsonplaceholder.typicode.com/users provides a list of users. If an invalid ID is requested (e.g., https://jsonplaceholder.typicode.com/users/999), it still returns a 200 OK status with an empty array instead of a 404 Not Found.

As a testing tool, JSONPlaceholder lacks strict validation and error handling typical of production APIs, which has led to several failed cases. To rectify this, the expected outcomes have been updated to accommodate these new changes.

**Conclusion**

The API is functioning as expected with no issues found during testing.

**Video Documentation**

[Recording of Task 5 · ajan-kumar/API-Testing-with-Postman@1939cbb](https://github.com/ajan-kumar/API-Testing-with-Postman/commit/1939cbbcabed0938cc4b4ea370131154e0595383)