**API tests to validate user creation, user update, and data retrieval**

**operations for Reqres (reqres.in).  
  
 Documentation  
Test Case 1:** Create user (Test case verifies if a user can log in with valid data.)

**Request**: Sends a POST request with a username and password.  
**Response:** This JSON response includes a unique identifier and an authentication token likely used to authenticate and authorize a user or session in an API.  
**Post-response Script:** This test checks if the response status code is 200, which means the request was successful and if the response contains two properties: id and token.  
  
**Test Case 2:** Create user (Test case verifies if a user can log in with **invalid** data.)

**Request**: Sends a POST request with a username and password  
**Response:** The error message **{"error": "Note: Only defined users succeed registration"}** indicates that only specific, predefined users can successfully register with the Reqres API. Attempts to register any other users will result in this error.  
**Post-response Script:** This CODE includes two tests: one confirms the response status is 400, and the other checks the response JSON contains the error message "Note: Only defined users succeed registration".

**Test Case 3:** Retrieve user (Test case verifies **to Retrieve User Details**.)

**Request**: Make a GET request to retrieve user details from the API.  
**Response:** Allows easy access to user details and provides metadata for pagination, aiding in the navigation of large datasets.  
**Post-response Script:** The script performs multiple tests on the API response to ensure data integrity, response performance, and correctness of the payload structure.   
  
**Test Case 4:** Update user (Test case verifies to update user information)

**Request**: Sends a PUT request to update user information  
**Response:** Updated user information via PUT request, ensuring status code 200.Confirmed the updated user details match expected values post-update using a subsequent GET request  
**Post-response Script:**   
The script initially verifies if the response status code is 200, indicating a successful update, and then compares the response data with the data sent in the request to confirm the update.

**Notes:**

**# API Testing**

**#Tools and Frameworks Used**

**- \*Postman\*: Utilized for manual API testing and scripting automated tests.**

**# Test Cases Implemented**

**1. \*GET Endpoints\*: Verified that data is retrieved correctly and response times are within acceptable limits.**

**2. \*POST Endpoints\*: Ensured data is submitted correctly, with proper status codes and response messages.**

**3. \*Error Responses\*: Tested API responses for various error conditions, ensuring appropriate error messages and status codes are returned.**

**# Challenges and Solutions**

**- \*Understanding API Automation\*: Initial unfamiliarity with automated API testing tools. Overcame this by following comprehensive tutorials and participating in online forums.**

**- \*Handling Response Data\*: Faced difficulties in parsing and validating complex JSON responses**