IBCS-PRIMAX
CARPÉ DIEM!

EDGE
ENHANCING DIGITAL GOVERNMENT AND ECONOMY

Center for Project Management
& Information System (PMIS)
University of Dhaka

SOFTWARE QUALITY ASSURANCE

IBCS-PRIMAX SOFTWARE(BANGLADESH) LTD.

Presented by - Usrah Saba

Presentation Overview

- Importance of SQA
- Manual Testing – What, why & tested websites
- Automation Testing – What, why & tested scenarios
- API Testing – What, why & tested APIs
- Conclusion – Key takeaways

SQA (Software Quality Assurance)

SQA is a process that ensures software meets quality standards by preventing defects and improving reliability. It involves testing, process monitoring, and automation to deliver high-quality, error-free software.

ENSURES SOFTWARE RELIABILITY AND PERFORMANCE

DETECTS AND PREVENTS BUGS EARLY

REDUCES DEVELOPMENT AND MAINTENANCE COSTS

IMPROVES USER EXPERIENCE AND TRUST

ENSURES COMPLIANCE WITH INDUSTRY STANDARDS

Manual Testing

WHAT? TESTING DONE MANUALLY WITHOUT SCRIPTS OR TOOLS

WHY? ENSURES USABILITY, UI/UX, AND DETECTS ISSUES BEFORE AUTOMATION

BEST FOR EXPLORATORY, USABILITY, AND AD-HOC TESTING

Manual Testing on Insurance Website

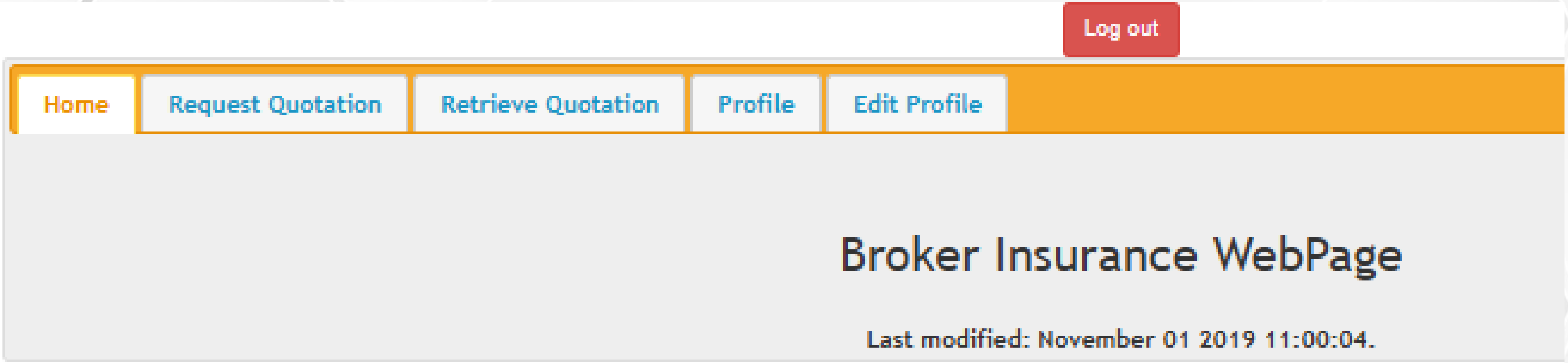
Login/logout Functionality

Form Validation

Button Functionality

Dropdown Test

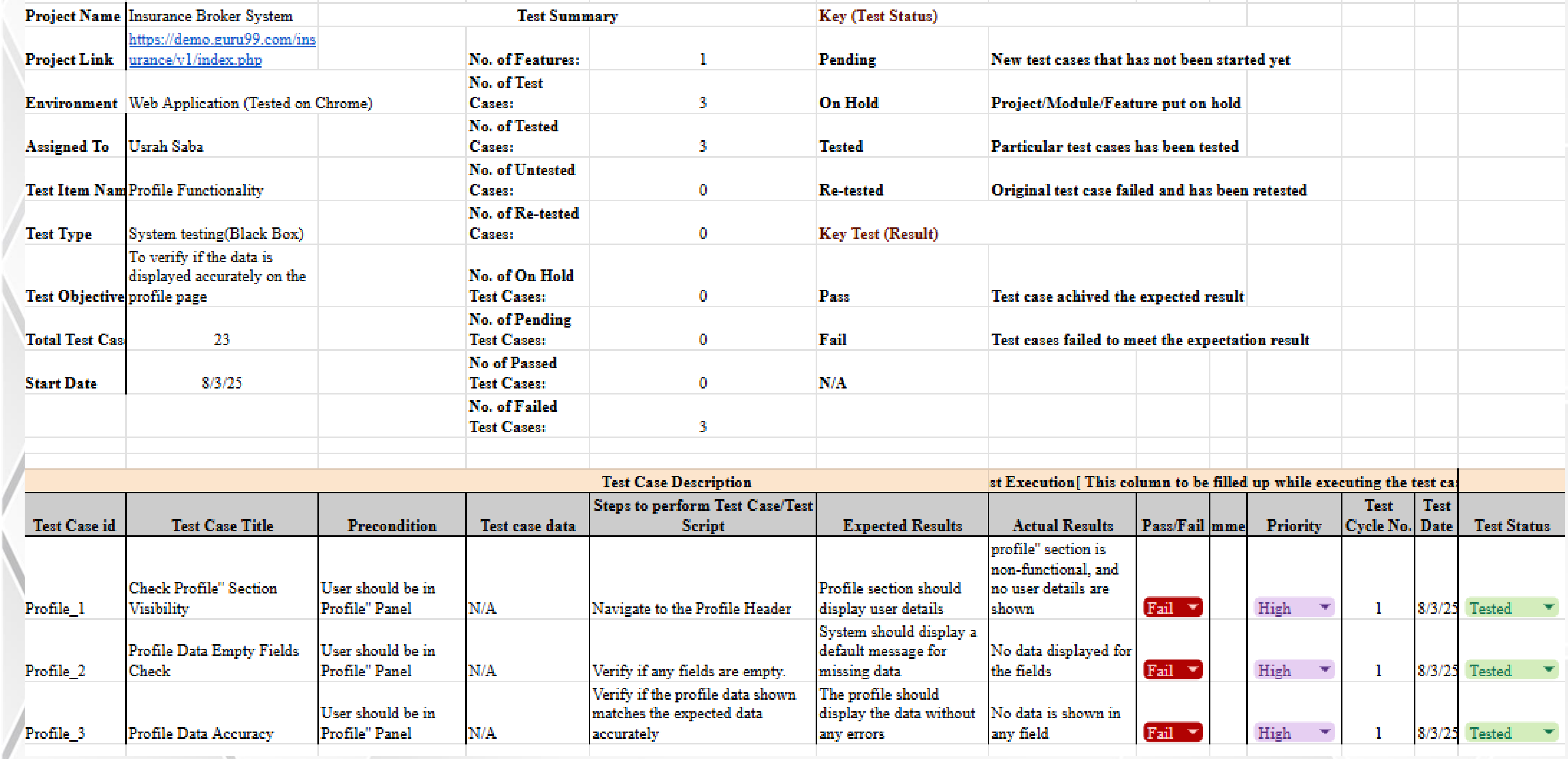
Input Handling



Broker Insurance WebPage

Last modified: November 01 2019 11:00:04.

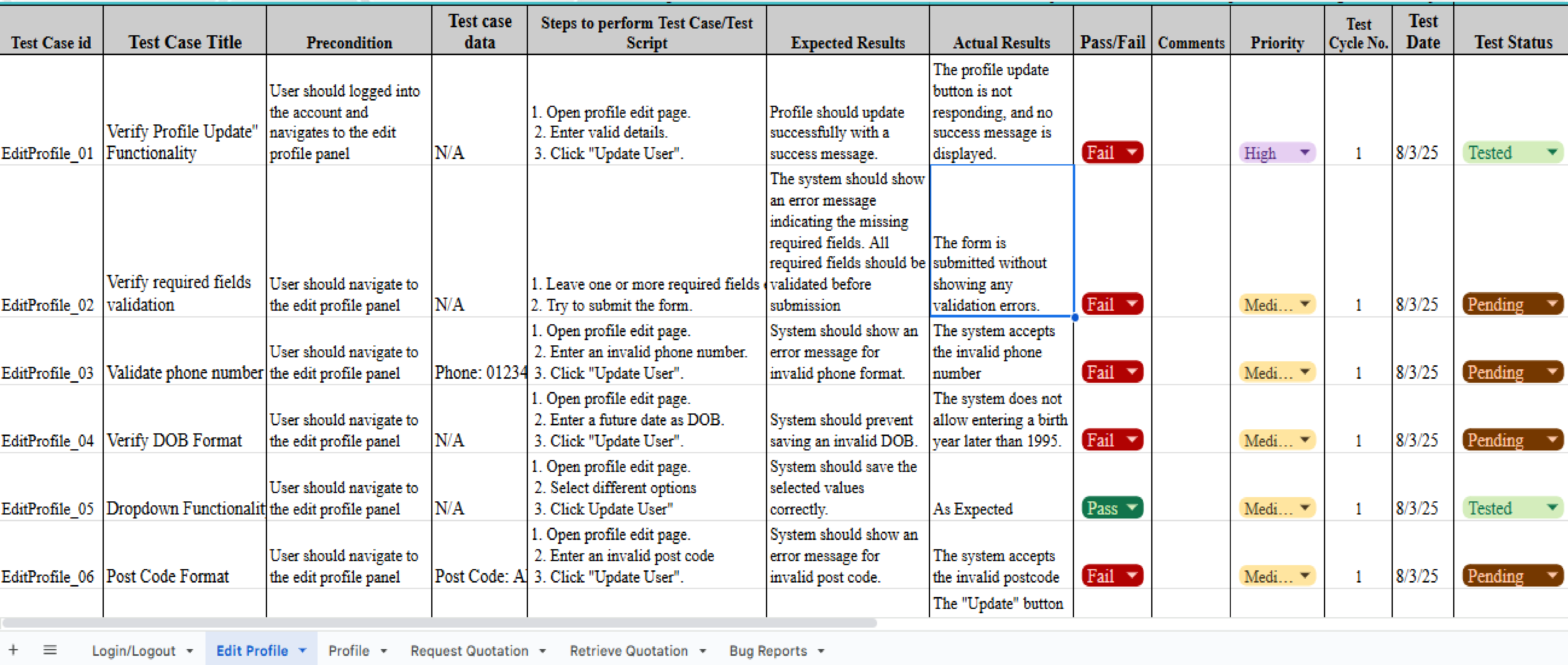
Manual Testing Workflow (Profile')



Project Name	Insurance Broker System		**Test Summary**		**Key (Test Status)**	
Project Link	https://demo.guru99.com/insurance/v1/index.php		**No. of Features:**	1	**Pending**	**New test cases that has not been started yet**
Environment	Web Application (Tested on Chrome)		**No. of Test Cases:**	3	**On Hold**	**Project/Module/Feature put on hold**
Assigned To	Usrah Saba		**No. of Tested Cases:**	3	**Tested**	**Particular test cases has been tested**
Test Item Nam	Profile Functionality		**No. of Untested Cases:**	0	**Re-tested**	**Original test case failed and has been retested**
Test Type	System testing(Black Box)		**No. of Re-tested Cases:**	0	**Key Test (Result)**	
Test Objective	To verify if the data is displayed accurately on the profile page		**No. of On Hold Test Cases:**	0	**Pass**	**Test case achived the expected result**
Total Test Cas	23		**No. of Pending Test Cases:**	0	**Fail**	**Test cases failed to meet the expectation result**
Start Date	8/3/25		**No of Passed Test Cases:**	0	**N/A**	
			No. of Failed Test Cases:	3		

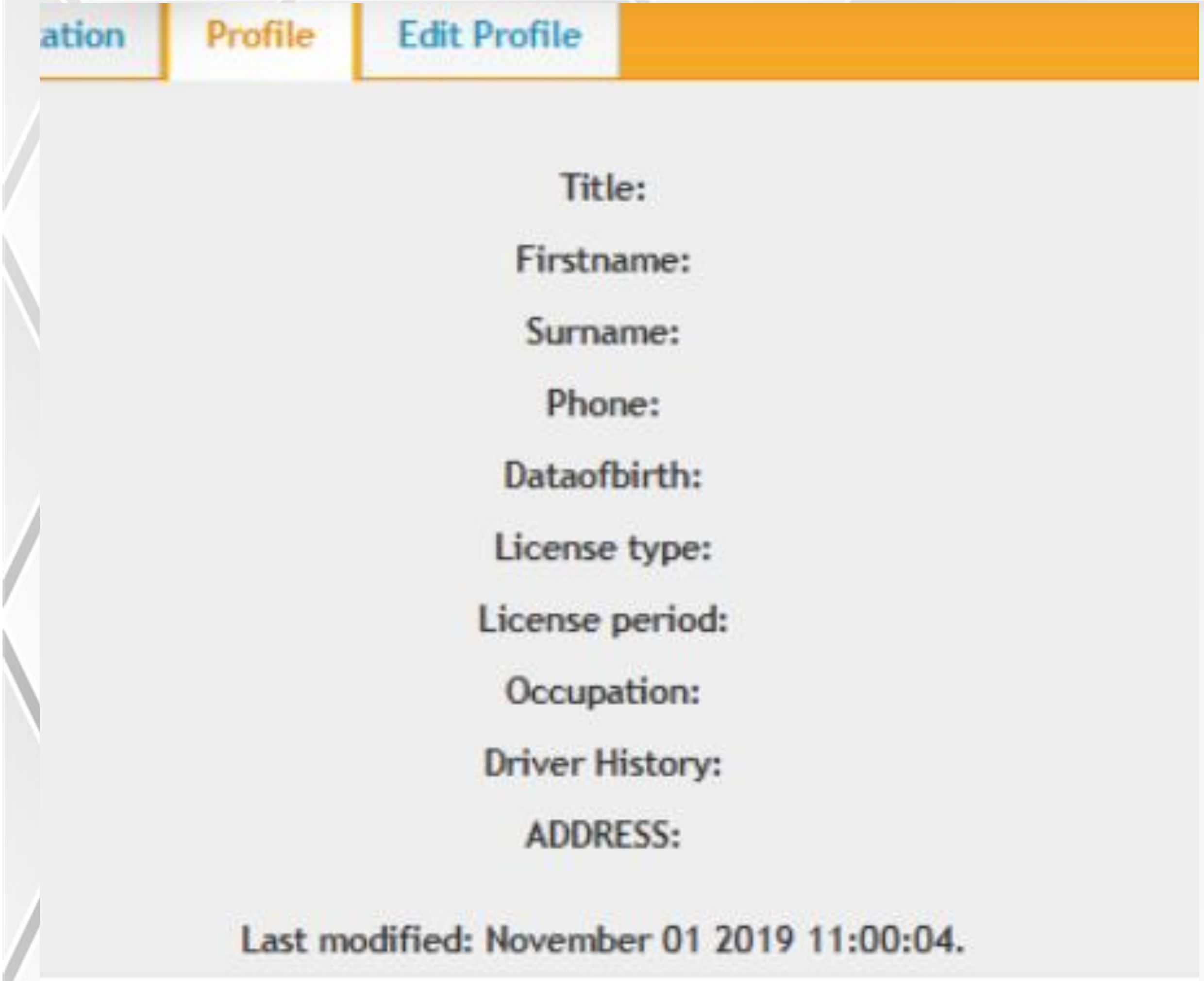
Test Case Description						**st Execution[This column to be filled up while executing the test ca**						
Test Case id	**Test Case Title**	**Precondition**	**Test case data**	**Steps to perform Test Case/Test Script**	**Expected Results**	**Actual Results**	**Pass/Fail**	**mme**	**Priority**	**Test Cycle No.**	**Test Date**	**Test Status**
Profile_1	Check Profile" Section Visibility	User should be in Profile" Panel	N/A	Navigate to the Profile Header	Profile section should display user details	profile" section is non-functional, and no user details are shown	Fail		High	1	8/3/25	Tested
Profile_2	Profile Data Empty Fields Check	User should be in Profile" Panel	N/A	Verify if any fields are empty.	System should display a default message for missing data	No data displayed for the fields	Fail		High	1	8/3/25	Tested
Profile_3	Profile Data Accuracy	User should be in Profile" Panel	N/A	Verify if the profile data shown matches the expected data accurately	The profile should display the data without any errors	No data is shown in any field	Fail		High	1	8/3/25	Tested

Manual Testing Workflow- (Edit Profile)



Test Case id	Test Case Title	Precondition	Test case data	Steps to perform Test Case/Test Script	Expected Results	Actual Results	Pass/Fail	Comments	Priority	Test Cycle No.	Test Date	Test Status
EditProfile_01	Verify Profile Update" Functionality	User should logged into the account and navigates to the edit profile panel	N/A	1. Open profile edit page. 2. Enter valid details. 3. Click "Update User".	Profile should update successfully with a success message.	The profile update button is not responding, and no success message is displayed.	Fail		High	1	8/3/25	Tested
EditProfile_02	Verify required fields validation	User should navigate to the edit profile panel	N/A	1. Leave one or more required fields 2. Try to submit the form.	The system should show an error message indicating the missing required fields. All required fields should be validated before submission	The form is submitted without showing any validation errors.	Fail		Medi...	1	8/3/25	Pending
EditProfile_03	Validate phone number	User should navigate to the edit profile panel	Phone: 01234	1. Open profile edit page. 2. Enter an invalid phone number. 3. Click "Update User".	System should show an error message for invalid phone format.	The system accepts the invalid phone number	Fail		Medi...	1	8/3/25	Pending
EditProfile_04	Verify DOB Format	User should navigate to the edit profile panel	N/A	1. Open profile edit page. 2. Enter a future date as DOB. 3. Click "Update User".	System should prevent saving an invalid DOB.	The system does not allow entering a birth year later than 1995.	Fail		Medi...	1	8/3/25	Pending
EditProfile_05	Dropdown Functionalit	User should navigate to the edit profile panel	N/A	1. Open profile edit page. 2. Select different options 3. Click Update User"	System should save the selected values correctly.	As Expected	Pass		Medi...	1	8/3/25	Tested
EditProfile_06	Post Code Format	User should navigate to the edit profile panel	Post Code: A	1. Open profile edit page. 2. Enter an invalid post code 3. Click "Update User".	System should show an error message for invalid post code.	The system accepts the invalid postcode	Fail		Medi...	1	8/3/25	Pending
						The "Update" button						

Bug Report – Profile Section Not Displaying User Details



Title:

Firstname:

Surname:

Phone:

Dataofbirth:

License type:

License period:

Occupation:

Driver History:

ADDRESS:

Last modified: November 01 2019 11:00:04.

Bug ID: IBS-BUG-001

Module: Profile Section

Priority: High

Issue:

Profile section is empty after login.

Users cannot see their saved details.

Steps to Follow:

Log in / Profile panel

Expected Result:

Profile section should show user details.

Actual Result:

Profile section is blank and not working.

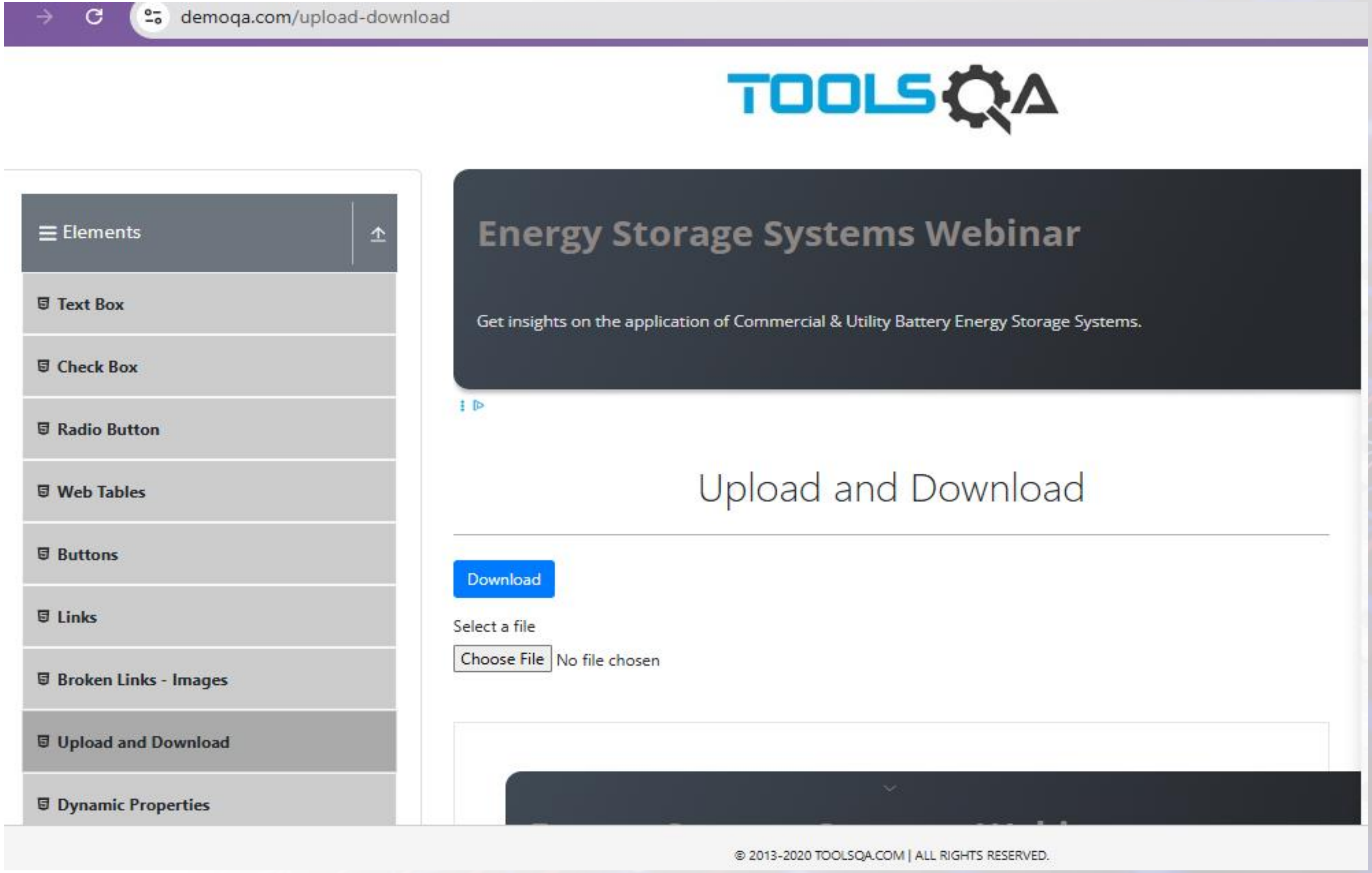
Automation Testing

WHAT? USING SCRIPTS/TOOLS TO AUTOMATE REPETITIVE TESTING TASKS

WHY? SAVES TIME, INCREASES ACCURACY, AND SUPPORTS LARGE-SCALE TESTING

USED PLAYWRIGHT FOR WEBSITE AUTOMATION

Automation Testing Workflow



Energy Storage Systems Webinar

Get insights on the application of Commercial & Utility Battery Energy Storage Systems.

Upload and Download

Select a file

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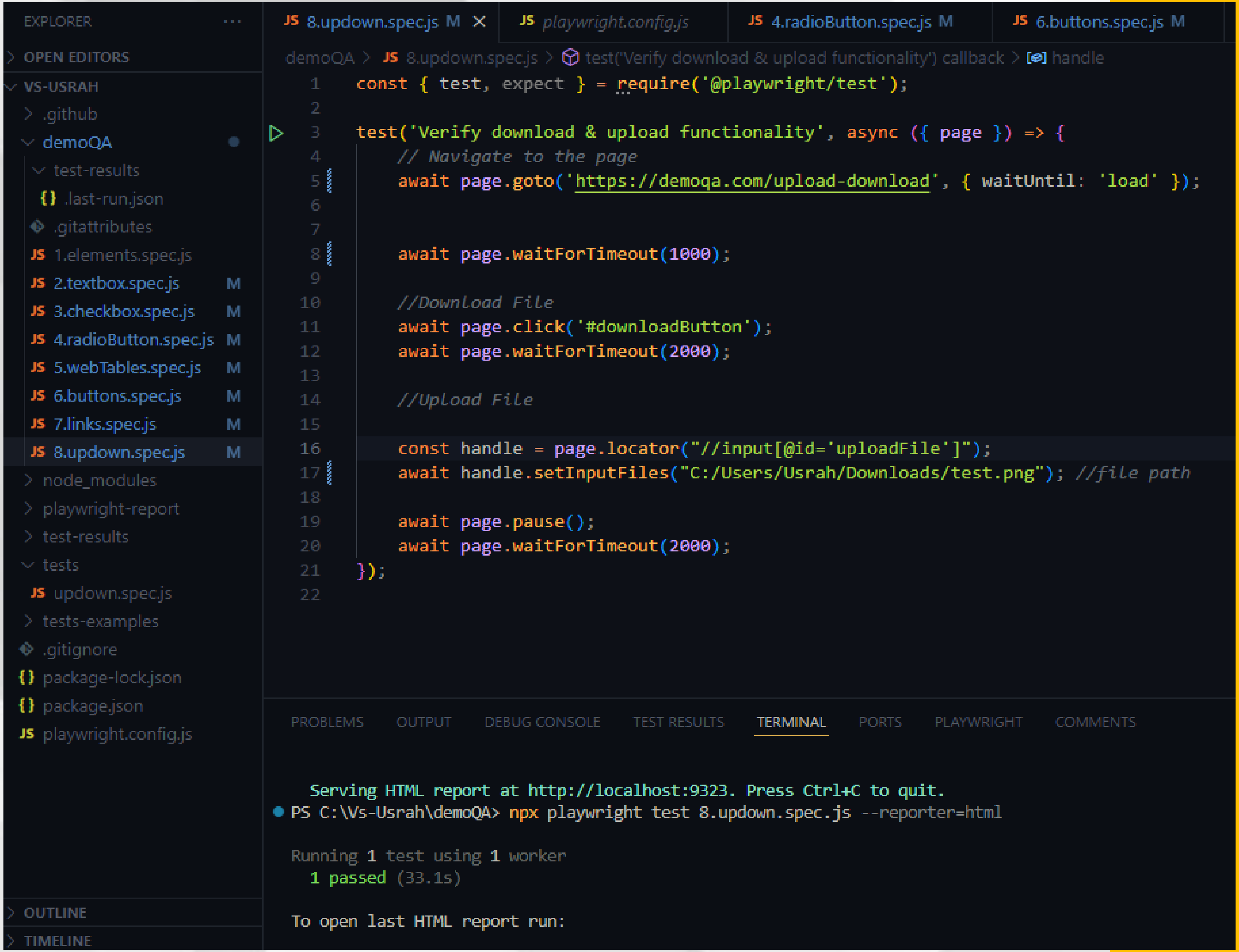
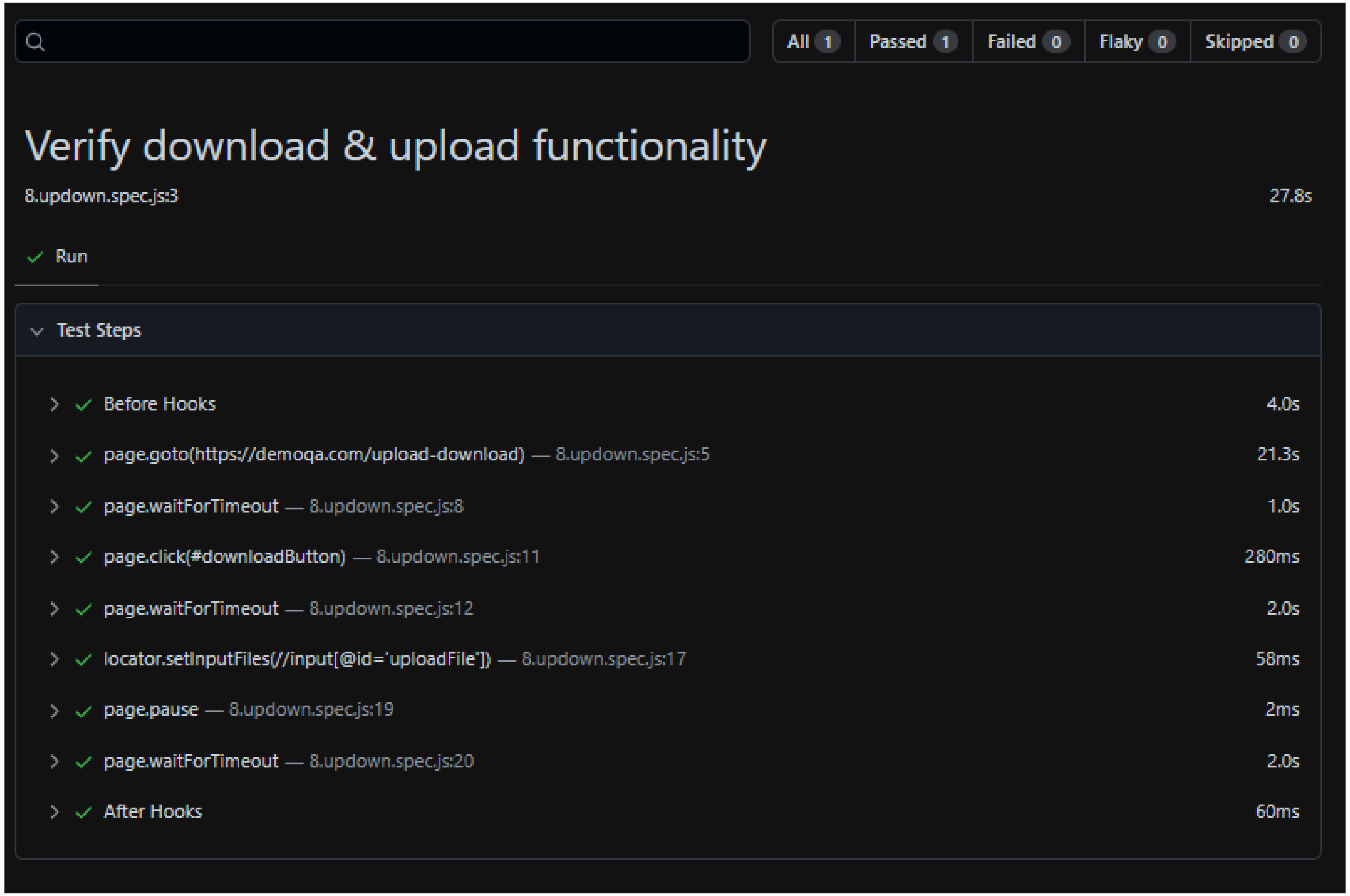
Automation Testing Workflow



```javascript
const { test, expect } = require('@playwright/test');

test('Verify download & upload functionality', async ({ page }) => {
    // Navigate to the page
    await page.goto('https://demoqa.com/upload-download', { waitUntil: 'load' });


    await page.waitForTimeout(1000);

    //Download File
    await page.click('#downloadButton');
    await page.waitForTimeout(2000);

    //Upload File

    const handle = page.locator("//input[@id='uploadFile']");
    await handle.setInputFiles("C:/Users/Usrah/Downloads/test.png"); //file path

    await page.pause();
    await page.waitForTimeout(2000);
});
```

```
  Serving HTML report at http://localhost:9323. Press Ctrl+C to quit.
● PS C:\Vs-Usrah\demoQA> npx playwright test 8.updown.spec.js --reporter=html

Running 1 test using 1 worker
  1 passed (33.1s)

To open last HTML report run:
```

Automation Testing Workflow



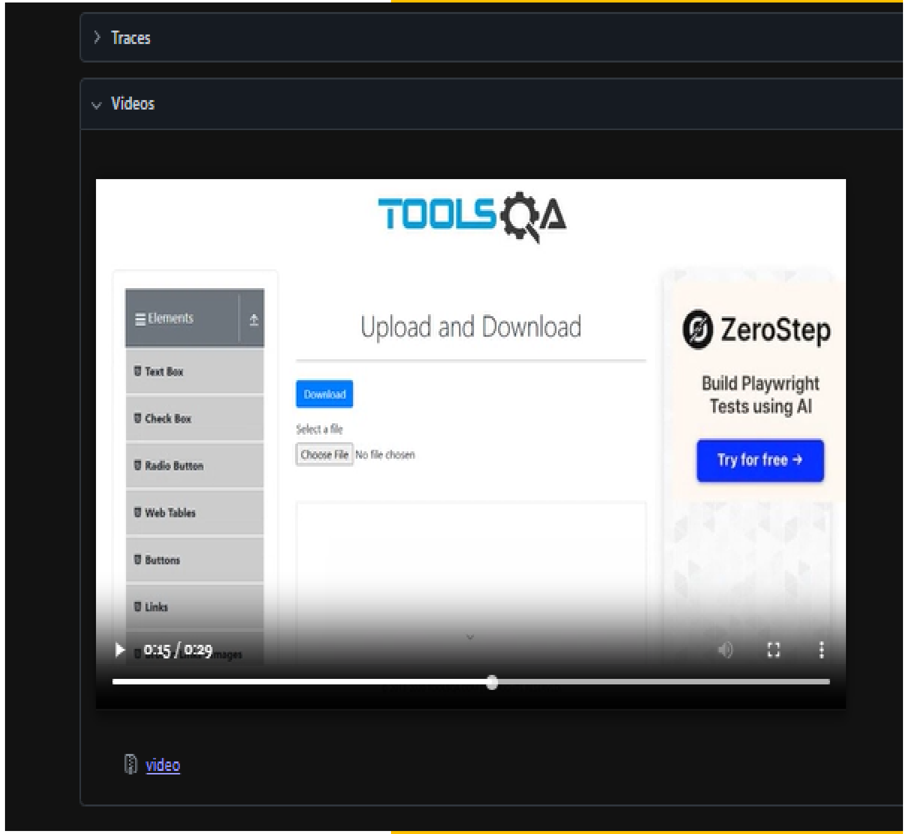
Verify download & upload functionality

8.updown.spec.js:3 27.8s

✓ Run

Test Steps

```
✓ Before Hooks                                                                      4.0s
✓ page.goto(https://demoqa.com/upload-download) — 8.updown.spec.js:5               21.3s
✓ page.waitForTimeout — 8.updown.spec.js:8                                          1.0s
✓ page.click(#downloadButton) — 8.updown.spec.js:11                               280ms
✓ page.waitForTimeout — 8.updown.spec.js:12                                         2.0s
✓ locator.setInputFiles(//input[@id='uploadFile']) — 8.updown.spec.js:17           58ms
✓ page.pause — 8.updown.spec.js:19                                                  2ms
✓ page.waitForTimeout — 8.updown.spec.js:20                                         2.0s
✓ After Hooks                                                                      60ms
```



Application Programming Interface(API) Testing

What? API testing ensures that APIs work correctly, securely, and efficiently. It is a key part of software quality assurance.

Why is it Important? Ensures backend communication is smooth and data is exchanged correctly & securely

Uses tools like **Postman, JMeter** for API validation

API Testing – Websites Tested

Tested Website: Restful Booker API

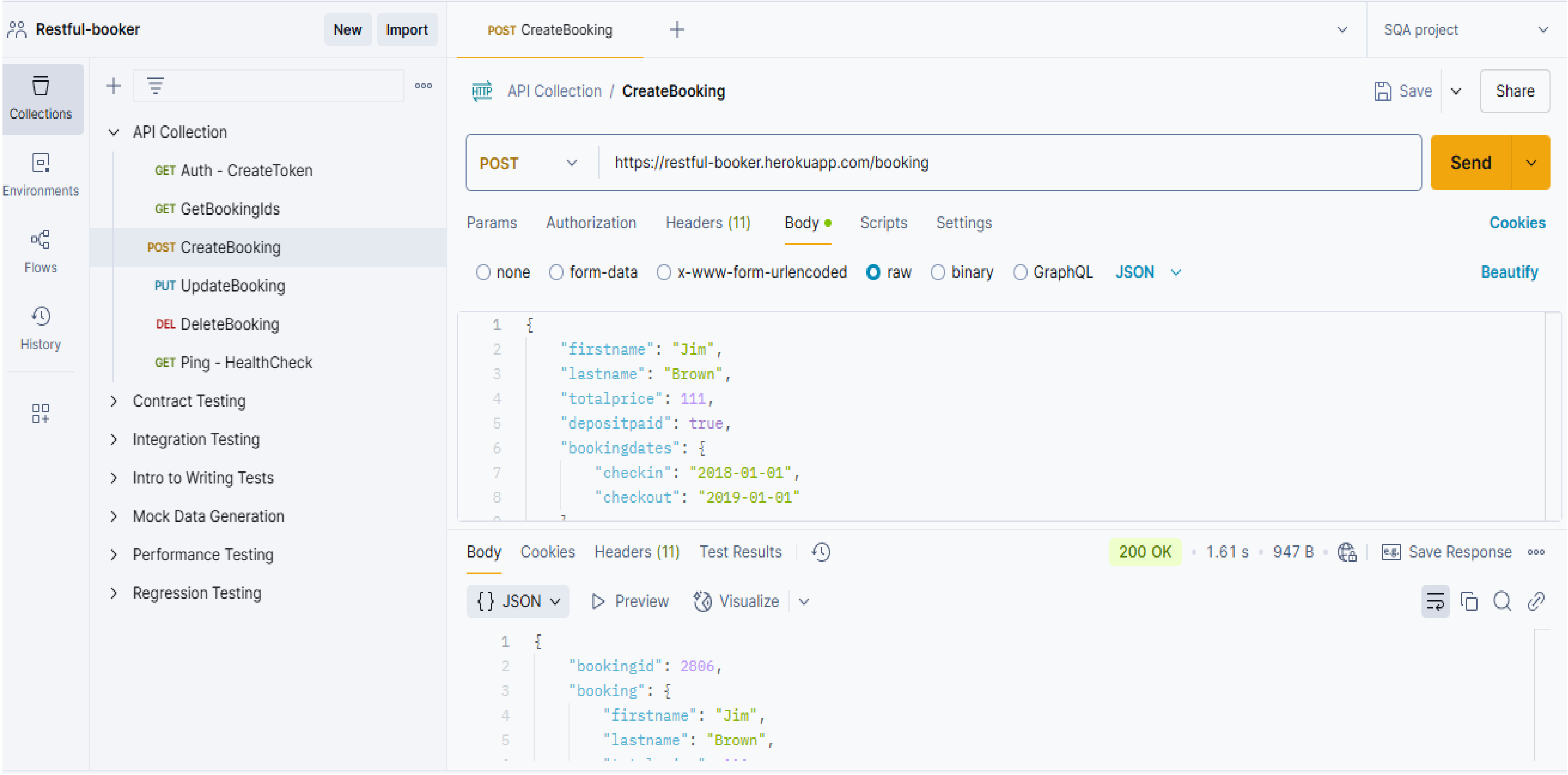
Responses: Checked if the API gives the correct status (like 200 OK) and data.

Authentication: Tested login and security to make sure only authorized users can access.

Request/Response Validation: Verified that the data sent and received is correct and complete.

- **Postman Procedure:**
- Create a Workspace and Collection.
- Add Requests:
  - **POST**: Create resource
  - **GET**: Retrieve data
  - **PUT**: Update resource
  - **PATCH**: Partially update resource
  - **DELETE**: Delete resource

API Testing Workflow



POST https://restful-booker.herokuapp.com/booking

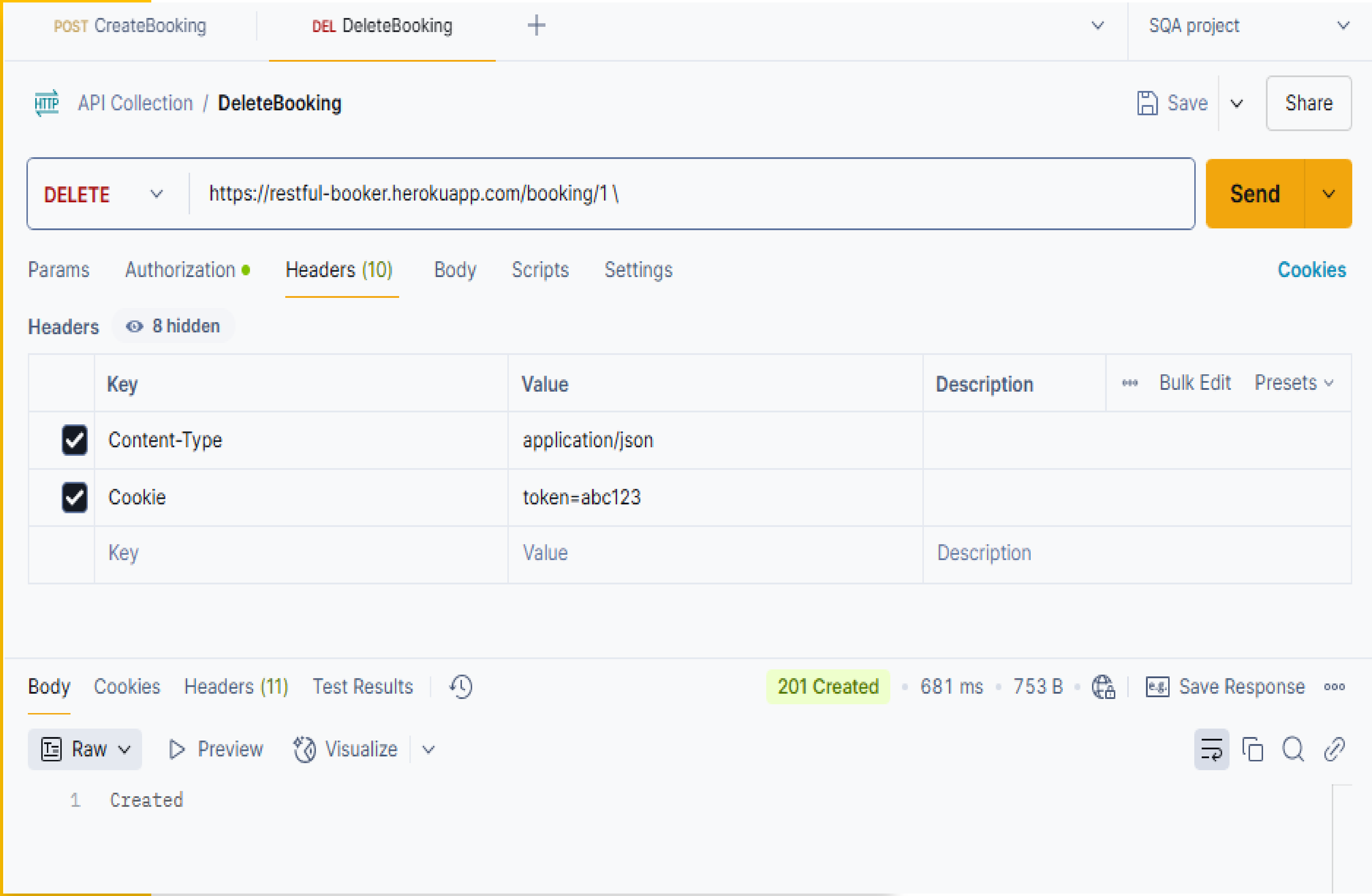
Body: ○ none ○ form-data ○ x-www-form-urlencoded ● raw ○ binary ○ GraphQL JSON

```
{
    "firstname": "Jim",
    "lastname": "Brown",
    "totalprice": 111,
    "depositpaid": true,
    "bookingdates": {
        "checkin": "2018-01-01",
        "checkout": "2019-01-01"
```

200 OK · 1.61 s · 947 B

{ } JSON

```
{
    "bookingid": 2806,
    "booking": {
        "firstname": "Jim",
        "lastname": "Brown",
```



DELETE https://restful-booker.herokuapp.com/booking/1 \

	Key	Value	Description
☑	Content-Type	application/json	
☑	Cookie	token=abc123	
	Key	Value	Description

201 Created • 681 ms • 753 B

```
1   Created
```

API Testing Workflow

Conclusion

Manual, API, and Automation testing are essential for software quality

Automation saves time but manual testing is still important

API testing ensures proper backend communication

Thank You!

Looking forward to your feedback!