# PARAM Fundamentals of Quality Assurance Final Project

**API AND UI TEST AUTOMATION**

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**Summary**

This project, part of a Software Quality Assurance Fundamentals course, demonstrates comprehensive software testing techniques. **API testing**, using Postman, automates HTTP requests to check functionality and error handling. **UI testing**, using Selenium, automates user interactions to verify user interface elements and functionality. The combined approach ensures application reliability and quality. A detailed report documents the testing process and results. This project effectively bridges theoretical knowledge with practical application.

## API Testing Points

- Base URL : https://a_leibpaqkgx3.v7.demo.nocobase.com/api/order:list

## HEADERS :

● AUTHORIZATION: BEARER EYJHBGCIOIJIUZI1NIISINR5CCI6IKPXVCJ9.EYJ1C2VYSWQIOJESINJVBGVOYW1LIJOICM9VDCISIMLHDCI6MTCZNTEZMJY0NCWIZXHWIJOXNZM3NZI0NJQ0FQ.K8WKEX1HPDEPBWXF-T8MJEV91YTM9J9LSFPX7PCCZ8I

● ACCEPT:APPLICATION/JSON

● CONTENT-TYPE: APPLICATION/JSON

We tested 6 scenarios focusing on GET, POST, PUT and DELETE methods to cover positive (success) and negative (error) cases

Workspace Access: You can directly Find it on GitHub “Postman workspace”.

```
https://a_leibpaqkgx3.v7.demo.nocobase.com/api/order:list
```

```
to verify that its endpoints handle both success and failure scenarios correctly.
Wecheckedthe status codes, response formats, error handling, and
performance. We used Postman for automation, placing our test scripts in the
“Scripts” → “Post-res” section (which runs after a response is received).
```

## Test Cases Overview

Our testing plan originally focused on Six main scenarios involving Create (POST) and Get (GET).
Also including Update (PUT) and Delete (DELETE), ensuring full CRUD coverage.

1. **Create Order Scenario (200)**
   Verifies successful creation of an order with valid input and proper authentication, returning a 200 OK status.

2. **Create Order Scenario (403)**
   Tests for forbidden access when attempting to create an order without the necessary authorization, returning a 403 Forbidden status.

3. **Get Order Scenario (200)**
   Validates retrieval of an existing order by its ID with proper authorization, ensuring a 200 OK response with the order details.

4. **Get Order Scenario (400**)
   Checks behavior when attempting to fetch a non-existent or malformed order ID, expecting a 400 Bad Request response.

5. **Update Order Scenario (200)**
   Confirms the ability to update an existing order with valid data, returning a 200 OK response with updated order information.

6. **Delete Order Scenario (200)**
   Ensures successful deletion of a specified order with valid input and authorization, expecting a 200 OK confirmation response.

For each scenario, our Postman test scripts checked status codes, response body fields, headers, and performance .

**Scenario Case 1 :**

**Create Order Scenario ( 200 ).**

**Method:** POST

A POST request to create an order with valid input and proper authentication, returning a 200 OK status.

**Request Body:**


```
{
  "customer_id": 123,
  "order_date": "2024-12-25",
  "items": [
    { "product_id": 101, "quantity": 2 },
    { "product_id": 102, "quantity": 1 }
  ]
}
```


## Headers:

- **Authorization:** Bearer eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJ1c2VySWQiOjEsInJvbGVOYW1lIjoicm9vdCIsImlhdCI6MTczNTEzMjY0NCwiZXhwIjoxNzM3NzI0NjQ0fQ.k8WkeX1HpDEPBWXF-T8mjeV91YTm9j9LSFPx7pCCz8I
- **Content-Type:** application/json

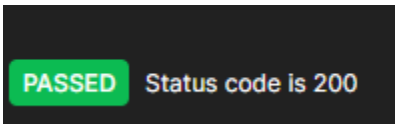
**Expected Response :** 200 OK

**Actual Response :**


```
"data": [
    {
        "createdAt": "2024-02-21T22:41:21.293Z",
        "updatedAt": "2024-04-04T02:18:16.113Z",
        "id": 1,
        "total": 12198,
        "company_ID": 3,
        "tax": 0,
        "contact_id": 49,
        "subtotal": 12198,
        "discount": 1,
        "adjustment": 0,
        "currency_ID": null,
        "order_ID": "202402210000",
        "status": "2",
        "sort": 1,
        "createdById": 1,
        "updatedById": 1
```

## Post-response Script :

```
pm.test("Status code is 200", function () {
    pm.response.to.have.status(200);
});
```




**Scenario Case 2 :**
**Create Order Scenario ( 403 ).**
**Method:** POST

A POST request to create an order with valid input with no authentication, returning a 403 Forbidden status.

```
{
  "customer_id": 123,
  "order_date": "2024-12-25",
  "items": [
    { "product_id": 101, "quantity": 2 },
    { "product_id": 102, "quantity": 1 }
  ]
}
```

## Headers:

- **Authorization:** Bearer eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJ1c2VySWQiOjEsInJvbGVOYW1lIjoicm9vdCIsImlhdCI6MTczNTEzMjY0NCwiZXhwIjoxNzM3NzI0NjQ0fQ.k8WkeX1HpDEPBWXF-T8mjeV91YTm9j9LSFPx7pCCz8I
- **Content-Type:** application/json

**Expected Response :** 403 Forbidden

**Actual Response :**

```
{
    "errors": [
        {
            "message": "No permissions"
        }
    ]
}
```

## Post-response Script :

```
pm.test("Response status code is 403", function () {
    pm.expect(pm.response.code).to.equal(403);
});


pm.test("Response time is less than 200ms", function () {
  pm.expect(pm.response.responseTime).to.be.below(200);
});


pm.test("Response has the required fields", function () {
    const responseData = pm.response.json();

    pm.expect(responseData).to.be.an('object');
    pm.expect(responseData.errors).to.be.an('array');
    responseData.errors.forEach(function(error) {
        pm.expect(error).to.have.property('message');
    });
});


pm.test("Content type is application/json", function () {
    pm.expect(pm.response.headers.get("Content-Type")).to.include("application/json");
});


pm.test("Errors array is present and contains expected number of elements", function () {
    const responseData = pm.response.json();

    pm.expect(responseData).to.be.an('object');
    pm.expect(responseData.errors).to.exist.and.to.be.an('array');
    pm.expect(responseData.errors).to.have.lengthOf(1);
});
```

**Scenario Case 3 :**

**Get Order Scenario ( 200 ).**

**Method:** GET

A GET validates retrieval of an existing order by its ID with proper authorization, ensuring a 200 OK response with the order details.

```
{
  "order_id": 1,
  "customer_id": 123,
  "status": "created",
  "items": [
    { "product_id": 101, "quantity": 2 },
    { "product_id": 102, "quantity": 1 }
  ]
}
```


## Headers:

- **Authorization:** Bearer eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJ1c2VySWQiOjEsInJvbGVOYW1lIjoicm9vdCIsImlhdCI6MTczNTEzMjY0NCwiZXhwIjoxNzM3NzI0NjQ0fQ.k8WkeX1HpDEPBWXF-T8mjeV91YTm9j9LSFPx7pCCz8I
- **Content-Type:** application/json

**Expected Response :** 200 OK

**Actual Response :**

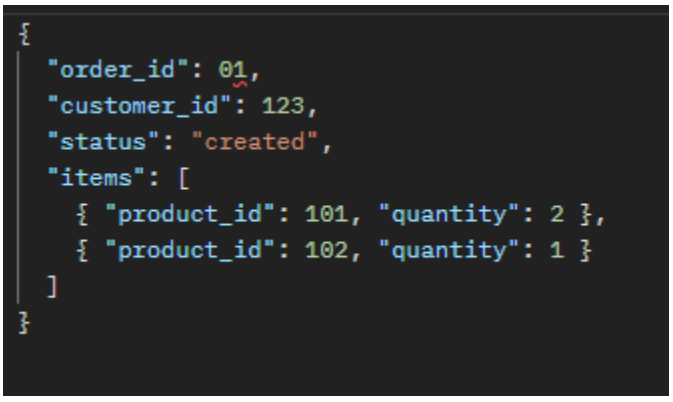

```
{
    "data": [
        {
            "createdAt": "2024-02-21T22:41:21.293Z",
            "updatedAt": "2024-04-04T02:18:16.113Z",
            "id": 1,
            "total": 12198,
            "company_ID": 3,
            "tax": 0,
            "contact_id": 49,
            "subtotal": 12198,
            "discount": 1,
            "adjustment": 0,
            "currency_ID": null,
            "order_ID": "202402210000",
            "status": "2",
            "sort": 1,
            "createdById": 1,
            "updatedById": 1
        },
```

## Post-response Script :

```
pm.test("Status code is 200", function () {
    pm.response.to.have.status(200);
});

pm.test("Response status code is 200", function () {
  pm.response.to.have.status(200);
});


pm.test("Response time is less than 200ms", function () {
  pm.expect(pm.response.responseTime).to.be.below(200);
});


pm.test("Validate the data schema attributes", function () {
    const responseData = pm.response.json();

    pm.expect(responseData).to.be.an('object');
    pm.expect(responseData.data).to.be.an('array');

    responseData.data.forEach(function(order) {
        pm.expect(order.createdAt).to.exist.and.to.be.a('string');
        pm.expect(order.updatedAt).to.exist.and.to.be.a('string');
        pm.expect(order.id).to.exist.and.to.be.a('number');
        pm.expect(order.total).to.exist.and.to.be.a('number');
        pm.expect(order.company_ID).to.exist.and.to.be.a('number');
        pm.expect(order.tax).to.exist.and.to.be.a('number');
        pm.expect(order.contact_id).to.exist.and.to.be.a('number');
        pm.expect(order.subtotal).to.exist.and.to.be.a('number');
        pm.expect(order.discount).to.exist.and.to.be.a('number');
        pm.expect(order.adjustment).to.exist.and.to.be.a('number');
        pm.expect(order.currency_ID).to.be.a('null');
        pm.expect(order.order_ID).to.exist.and.to.be.a('string');
        pm.expect(order.status).to.exist.and.to.be.a('string');
        pm.expect(order.sort).to.exist.and.to.be.a('number');
        pm.expect(order.createdById).to.exist.and.to.be.a('number');
        pm.expect(order.updatedById).to.exist.and.to.be.a('number');
    });
});
```

**Scenario Case 4 :**
**Get Order Scenario ( 400 ).**
**Method:** GET

A GET validates retrieval of an existing order by its ID with No authorization, ensuring a 400 Bad Request response .



```
{
  "order_id": 01,
  "customer_id": 123,
  "status": "created",
  "items": [
    { "product_id": 101, "quantity": 2 },
    { "product_id": 102, "quantity": 1 }
  ]
}
```

## Headers:

- **Authorization:** Bearer eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJ1c2VySWQiOjEsInJvbGVOYW1lIjoicm9vdCIsImlhdCI6MTczNTEzMjY0NCwiZXhwIjoxNzM3NzI0NjQ0fQ.k8WkeX1HpDEPBWXF-T8mjeV91YTm9j9LSFPx7pCCz8I
- **Content-Type:** application/json

**Expected Response :** 400 Bad Request
**Actual Response :**

```
1   Bad Request
```

**Post-response Script :**

```
pm.test("Response status code is 400", function () {
    pm.expect(pm.response.code).to.equal(400);
});


pm.test("Response time is less than 200ms", function () {
  pm.expect(pm.response.responseTime).to.be.below(200);
});


pm.test("Response Content-Type is text/plain", function () {
    pm.expect(pm.response.headers.get("Content-Type")).to.include("text/plain");
});


pm.test("Response body contains 'Bad Request'", function () {
    pm.expect(pm.response.text()).to.include("Bad Request");
});


pm.test("Schema validation for the response body", function () {
    pm.expect(pm.response.json()).to.be.empty;
});
```

**Scenario Case 5 :**
**Update Order Scenario (200).**
**Method:** PUT

A PUT Confirms the ability to update an existing order with valid data, returning a 200 OK response.

```
{
  "status": "2"
}
```

## Headers:

- **Authorization:** Bearer eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJ1c2VySWQiOjEsInJvbGVOYW1lIjoicm9vdCIsImlhdCI6MTczNTEzMjY0NCwiZXhwIjoxNzM3NzI0NjQ0fQ.k8WkeX1HpDEPBWXF-T8mjeV91YTm9j9LSFPx7pCCz8I
- **Content-Type:** application/json

**Expected Response :** 200 OK

**Actual Response :**


```
"data": [
    {
        "createdAt": "2024-02-21T22:41:21.293Z",
        "updatedAt": "2024-04-04T02:18:16.113Z",
        "id": 1,
        "total": 12198,
        "company_ID": 3,
        "tax": 0,
        "contact_id": 49,
        "subtotal": 12198,
        "discount": 1,
        "adjustment": 0,
        "currency_ID": null,
        "order_ID": "202402210000",
        "status": "2",
        "sort": 1,
        "createdById": 1,
        "updatedById": 1
    },
```

## Post-response Script :

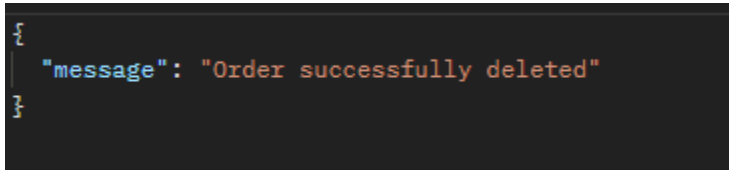
```
pm.test("Status code is 200", function () {
    pm.response.to.have.status(200);
});

pm.test("Response status code is 200", function () {
    pm.response.to.have.status(200);
});


pm.test("Response time is less than 200ms", function () {
  pm.expect(pm.response.responseTime).to.be.below(200);
});


pm.test("Response has the required fields", function () {
  const responseData = pm.response.json();

  pm.expect(responseData).to.be.an('object');
  const requiredFields = ["createdAt", "updatedAt", "id", "total", "company_ID", "tax", "contact_id", "subtotal", "discount", "adjustment",
    "currency_ID", "order_ID", "status", "sort", "createdById", "updatedById"];
  requiredFields.forEach(field => {
    pm.expect(responseData).to.have.property(field);
  });
});


pm.test("Total is a non-negative integer", function () {
  const responseData = pm.response.json();

  pm.expect(responseData.data).to.be.an('array').to.have.lengthOf.at.least(1);
  responseData.data.forEach(function(item) {
    pm.expect(item.total).to.be.a('number').and.to.satisfy((val) => val >= 0, "Total should be a non-negative integer");
  });
});
```

**Scenario Case 6 :**
**Delete Order Scenario (200).**
**Method:** DELETE.

URL: https://a_leibpaqkgx3.v7.demo.nocobase.com/api/order:list/1

Tested DELETE for order:list/1

A DELETE ensures successful deletion of a specified order with valid input and authorization.




## Post-response Script :

```
pm.test("Status code is 200", function () {
    pm.response.to.have.status(200);
});

pm.test("Response status code is 200", function () {
    pm.response.to.have.status(200);
});


pm.test("Response Content-Type header is application/json", function () {
    pm.expect(pm.response.headers.get("Content-Type")).to.include("application/json");
});


pm.test("Response time is less than 200ms", function () {
  pm.expect(pm.response.responseTime).to.be.below(200);
});


pm.test("Response contains required fields", function () {
    const responseData = pm.response.json();

    pm.expect(responseData.data).to.be.an('array').that.is.not.empty;

    responseData.data.forEach((order) => {
        pm.expect(order).to.include.all.keys(
            'createdAt', 'updatedAt', 'id', 'total', 'company_ID',
            'tax', 'contact_id', 'subtotal', 'discount', 'adjustment',
            'currency_ID', 'order_ID', 'status', 'sort', 'createdById', 'updatedById'
        );
    });
});
```