Date : 19-January-2025

# TESTING, ERROR HANDLING, AND BACKEND INTEGRATION REFINEMENT-Day 5

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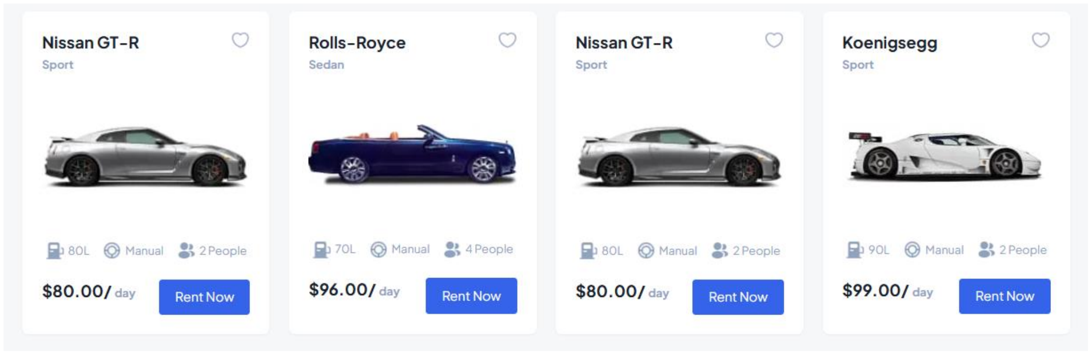
**Objective**: Ensuring all components are thoroughly tested, optimized for performance, and ready to handle customer-facing traffic. The emphasis is on testing backend integrations, implementing error handling, and refining the user experience.

## Steps for Implementation:

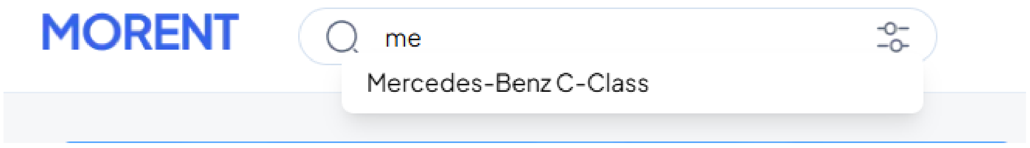
## Step 1: Functional Testing

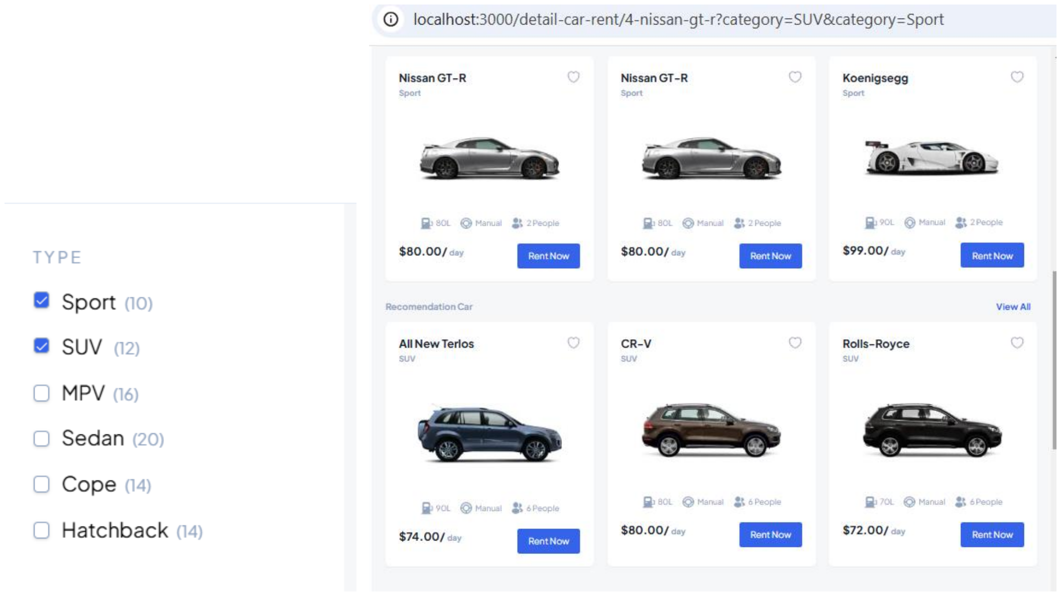
### 1. Test Core Features:

- ***Product listing:***
  All the products are displayed accurately and correctly.

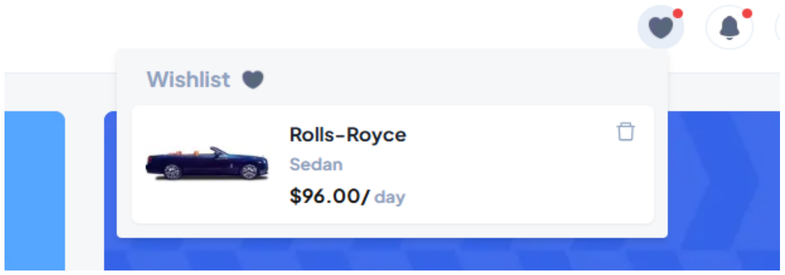


- ***Filters and Search:***
  Search results and filters are producing accurate results based on user inputs and selections.

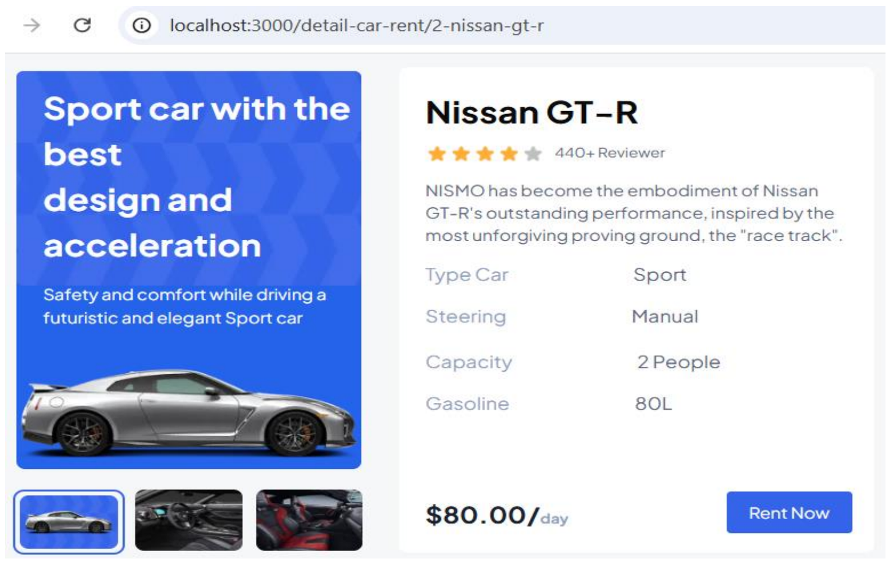




- ***Wishlist Operations:***
  Adding, updating and deleting items from the wish list.



- ***Dynamic Routing:***
  Implementation of dynamic routing through slug, displaying individual product details correctly.


localhost:3000/detail-car-rent/2-nissan-gt-r
Sport car with the best design and acceleration
Safety and comfort while driving a futuristic and elegant Sport car
Nissan GT-R
440+ Reviewer
Rent Now

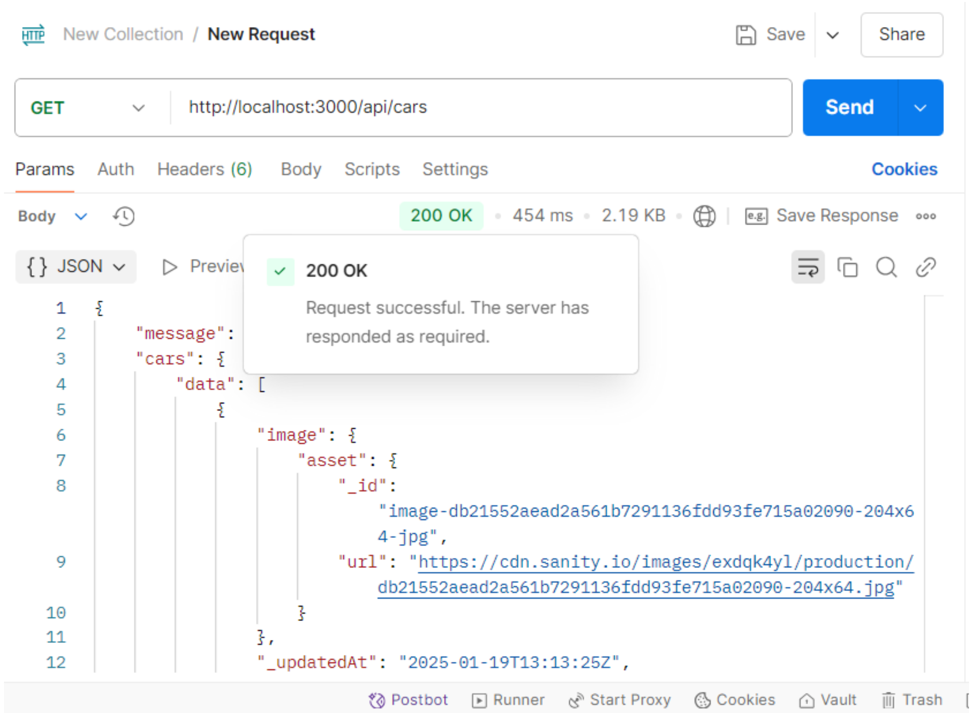
NISMO has become the embodiment of Nissan GT-R's outstanding performance, inspired by the most unforgiving proving ground, the "race track".

| | |
|---|---|
| Type Car | Sport |
| Steering | Manual |
| Capacity | 2 People |
| Gasoline | 80L |

$80.00/day

## 2. Testing Tools:

- ***API Response Testing with Postman:***



GET http://localhost:3000/api/cars

200 OK

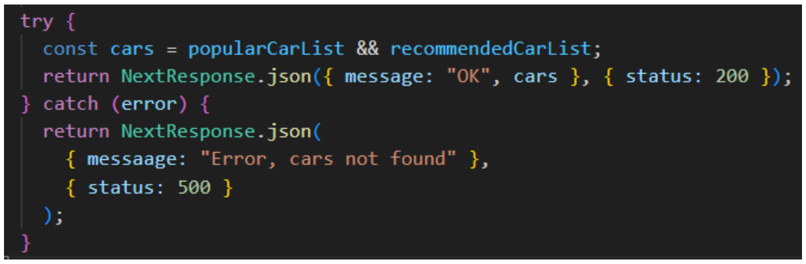
200 OK
Request successful. The server has responded as required.

```
{
    "message":
    "cars": {
        "data": [
            {
                "image": {
                    "asset": {
                        "_id":
                            "image-db21552aead2a561b7291136fdd93fe715a02090-204x6
                            4-jpg",
                        "url": "https://cdn.sanity.io/images/exdqk4yl/production/
                            db21552aead2a561b7291136fdd93fe715a02090-204x64.jpg"
                    }
                },
                "_updatedAt": "2025-01-19T13:13:25Z",
```

## Step 2: Error Handling

### 1. Error Messages:

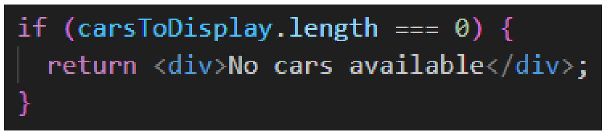
Try-Catch blocks are handling errors messages when the response from API fails.



```
try {
  const cars = popularCarList && recommendedCarList;
  return NextResponse.json({ message: "OK", cars }, { status: 200 });
} catch (error) {
  return NextResponse.json(
    { messaage: "Error, cars not found" },
    { status: 500 }
  );
}
```

### 2. Fallback UI:

To display alternative content when data is unavailable.

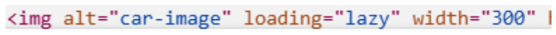


```
if (carsToDisplay.length === 0) {
  return <div>No cars available</div>;
}
```

## Step 3: Performance Optimization

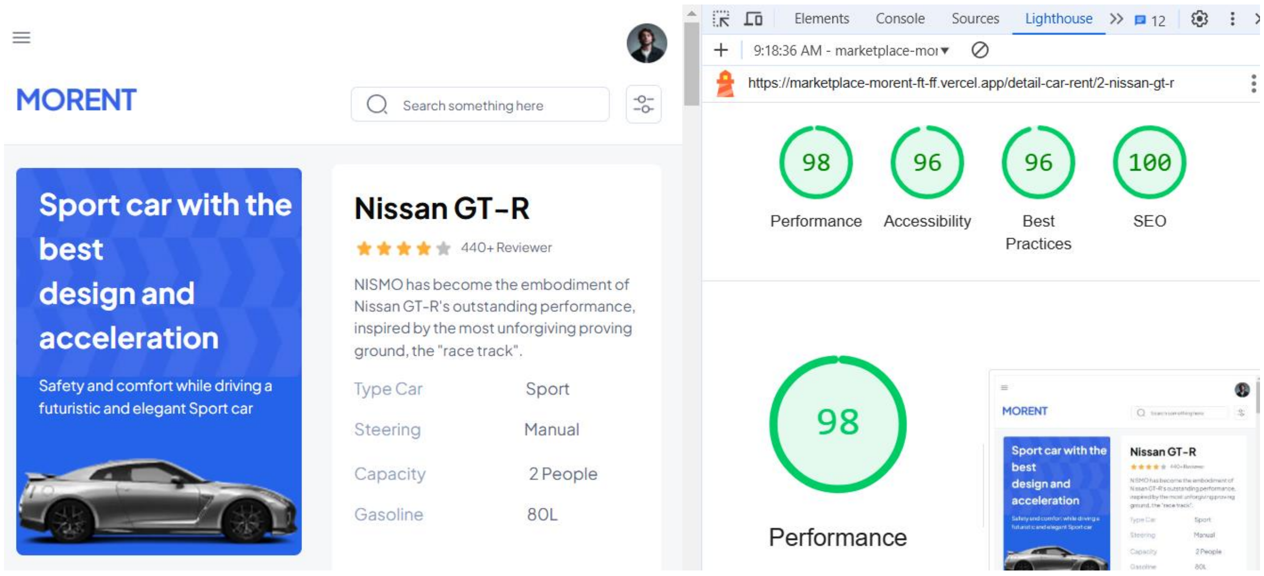
### 1. Optimized Assets:

Lazy loading is enabled for images to improve page performance.



```
<img alt="car-image" loading="lazy" width="300" |
```

### 2. Performance Analysis with Lighthouse:



MORENT

Search something here

Sport car with the best design and acceleration

Safety and comfort while driving a futuristic and elegant Sport car

Nissan GT-R

440+ Reviewer

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| | |
|---|---|
| Type Car | Sport |
| Steering | Manual |
| Capacity | 2 People |
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Elements
Console
Sources
Lighthouse
12
9:18:36 AM - marketplace-mor
https://marketplace-morent-ft-ff.vercel.app/detail-car-rent/2-nissan-gt-r

| Performance | Accessibility | Best Practices | SEO |
|---|---|---|---|
| 98 | 96 | 96 | 100 |

98

Performance

### 3. Tested Load Time:

*1.9 - 2.5 seconds*

## Step 4: Cross-Browser & Device Testing

### 1. Browser Testing:

Consistent rendering, functionality and responsiveness on different browsers like Chrome, Safari, and Edge.

### 2. Device Testing:

Manually tested on a mobile device to ensure responsiveness.

## Step 5: Security Testing

### Secure API Communication:

Sensitive data like API KEYS stored in secure environment variables.

## Step 6: User Acceptance Test (UAT)

### Simulated Real-World Usage:

- Performed tasks like browsing cars, adding them to the wish list.
- No usability issues found.

## Test Cases:

| Test Case ID | Feature/ Module | Test Case Description | Test Steps | Expected Result | Actual Result | Status | Severity | Remarks |
|---|---|---|---|---|---|---|---|---|
| TC001 | Car Listing | Verify all products display correctly. | Navigated to the pages having car listings. | All products are displayed correctly. | Got the expected results | Passed | Low | Added fallback UI if no products. |
| TC002 | Search Functionality | Verify the search feature returns relevant results. | 1. Entered "Audi" in the search bar. | Only Audi displayed in the results. | Got the expected results | Passed | Low | Added "No cars found" fallback. |
| TC003 | Filter Functionality | Verify filters work as intended. | Applied category filters | Products are sorted by category. | Cars appeared with selected categories | Passed | High | Added "No cars found" fallback if doesn't match. |
| TC004 | Wishlist Operations | Verify adding cars to the wish list. | 1. Added a car to the wish list. 2. Verified it appears in the wishlist. | The product appears in the wishlist. | Got the expected results | Passed | Medium | Added "Your wishlist is empty!" fallback if no cars in the wishlist. |
| TC005 | Dynamic Routing | Verify product detail pages | 1. Clicked on a car. | Product detail page | Got the expect | Passed | Medium | Rendered successfully |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | load correctly. | 2. Verified the detail page loads with relative information | loads with correct details. | ed results | | | |
| TC006 | Error Handling | Verify error message on API failure. | 1.Simulate an API failure by disconnecting the internet.<br>2. Check the error message displayed. | Displays “**localhost** is currently unable to handle this request.” with status 500 | Expected : “Error, cars not found ” status: 500 | Failed | High | Failed to get the expected message. |
| TC007 | Performance Optimization | Verify page load time is under 2 seconds. | 1. Run a Lighthouse audit.<br>2. Measure load time and performance score. | Load time is was around 1.9s | Got the expected results | Passed | High | Page loaded under required time unexpectedly. |
| TC008 | Responsive Design | Verify the site is responsive on different devices. | 1. Test the website for desktop, tablet, and mobile. | The layout adjusts correctly on all devices. | Got the expected results | Passed | Medium | Worked well. |
| TC009 | Cross-Browser Testing | Verify functionality across major browsers. | 1. Test on Chrome and Edge. | Site works consistently on all browsers. | Got the expected results | Passed | Medium | Worked well. |