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Class : Friday (9 to 12)

Day 6 - Deployment Preparation and Staging Environment Setup

Objective:

Today, I will focus on fine-tuning my marketplace for deployment. This involves setting up a staging environment, configuring hosting platforms, and ensuring my application is fully optimized for customers. Building upon the testing and refinements from Day 5, I will simulate a production-like environment to guarantee smooth operation. Additionally, I will explore industry best practices for handling various environments, including non-production (TRN, DEV, SIT) and production (UAT, PROD, DR), ensuring a seamless transition from development to live deployment.

Step 1: Hosting Platform Setup

Choose a Platform:

I have chosen **Vercel** as my deployment platform due to its speed and ease of use. Vercel allows for quick and efficient deployment of modern web applications with minimal configuration.

➢ **Fast & Simple Deployment** – Vercel provides seamless integration with GitHub, GitLab, and Bitbucket, enabling one-click deployments.
➢ **Optimized for Frontend Frameworks** – It is designed specifically for frameworks like Next.js, React, and Vue.js.
➢ **Global Edge Network** – Ensures fast loading times by distributing content across multiple locations worldwide.
➢ **Automatic Scaling** – The platform automatically scales applications based on demand, reducing manual server management.
➢ **Free SSL & Custom Domains** – Enhances security with free HTTPS and easy domain configuration.

Connect Repository:
To deploy my project using **Vercel**, I need to connect my GitHub repository and configure the necessary settings for deployment.

Steps to Connect GitHub Repository to Vercel:

- ➢ **Sign in to Vercel** – Go to Vercel and log in using a GitHub account.
- ➢ **Import Repository** – Click on "New Project" and select the GitHub repository I want to deploy.
- ➢ **Configure Build Settings** –

  - ✧ Vercel auto-detects frameworks like Next.js, React, and others.
  - ✧ If needed, I can specify a custom build command (e.g., npm run build) and output directory.

- ➢ **Set Environment Variables** – If my project requires environment variables (API keys, database URLs), I will add them under **Project Settings > Environment Variables**.
- ➢ **Deploy the Project** – Click on "Deploy" to start the build process and go live.

Step 2: Configure Environment Variables

Create a .env File:

This file will contain environment variables for my application. I will add the following key-value pairs to store important information, including API keys and other secrets:

```
NEXT_PUBLIC_SANITY_PROJECT_ID="your_sanity_project_id"
NEXT_PUBLIC_SANITY_DATASET="your_sanity_dataset"
SANITY_API_TOKEN="your_sanity_api_token"
NEXT_PUBLIC_CLERK_PUBLISHABLE_KEY="your_clerk_publishable_key"
CLERK_SECRET_KEY="your_clerk_secret_key"
SHIPENGINE_API_KEY="your_shipengine_api_key"
SHIPENGINE_FIRST_COURIER="your_first_courier"
SHIPENGINE_SECOND_COURIER="your_second_courier"
SHIPENGINE_THIRD_COURIER="your_third_courier"
SHIPENGINE_FOURTH_COURIER="your_fourth_courier"
NEXT_PUBLIC_STRIPE_PUBLISHABLE_KEY="your_stripe_publishable_key"
STRIPE_SECRET_KEY="your_stripe_secret_key"
```

Upload Variables to the Hosting Platform :

Once the .env file is ready, I need to upload these environment variables to my hosting platform Vercel securely.

- ➢ · Go to your project's dashboard on Vercel.
- ➢ · Navigate to the **Settings** section.
- ➢ · Under **Environment Variables**, add each of the variables from the .env file.
- ➢ · Set the **Environment** to "Production" or "Preview" based on your needs.
- ➢ · Click **Save**.

This process ensures that sensitive information is not exposed in the codebase but remains accessible during the deployment and runtime.

# Step 3: Deploy to Staging

Deploy Application

To deploy my application to a staging environment, I will follow these steps:

➢ **Log in to Vercel**
➢ Navigate to the **project dashboard**.
➢ If I haven't already done so, I will connect my GitHub repository by importing the repository.
➢ Once connected, select the **"Deploy"** button. Vercel will automatically detect the framework and start the deployment process.
➢ Vercel deploys the application to a **staging environment** with a unique URL (e.g., `your-project-name.vercel.app`).
➢ During deployment, Vercel will use the `.env` variables and configuration settings to ensure everything works in the staging environment.

Validate Deployment

After the deployment is completed, I need to validate the deployment to ensure everything is set up properly:

➢ **Ensure the build completes successfully** – Check the Vercel dashboard for any errors during the build process. If errors appear, I will review the logs, identify the issue, and fix it.
➢ **Verify basic functionality** – Open the staging URL and perform tests to ensure the application functions as expected. This includes:

    ✧ Ensuring the layout looks correct and is responsive.
    ✧ Checking that environment-dependent features (like API calls) are working.
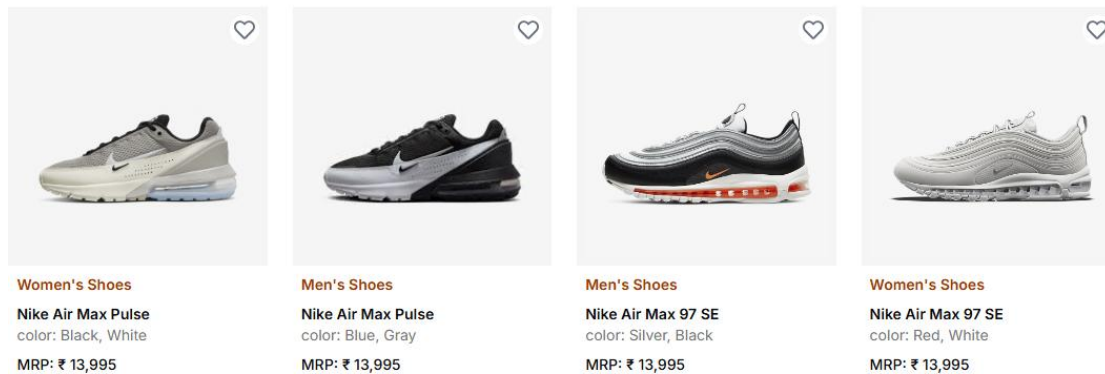   ✧ Verifying that the deployed version matches the latest code and environment settings.
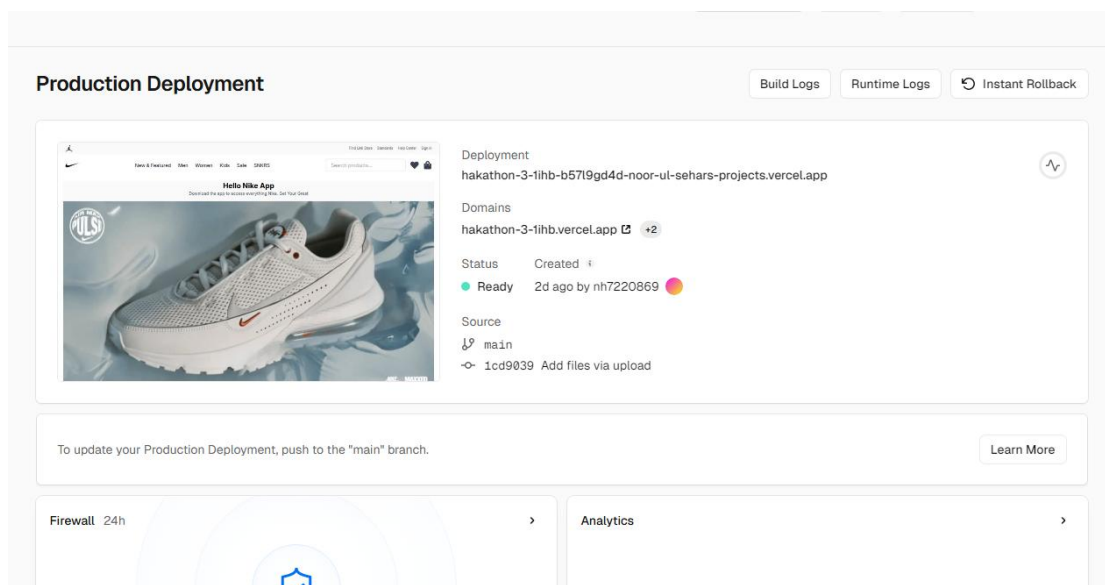
Step 4: Staging Environment Testing

Testing Types :

Functional testing ensures that all features of the application work as expected in the staging environment. This includes :

➢ **Product Listing :**

  ✧   · **Verify Display:** Ensure products are displayed correctly on the site. Check that product images, names, prices, and descriptions match the backend data.
  ✧   · **Pagination/Infinite Scroll:** Test pagination or infinite scroll if implemented, ensuring that products load correctly when navigating through pages.
  ✧   · **Sorting and Filtering:** Test different sorting options (e.g., by price, popularity, etc.) and filter categories to verify they work as expected.
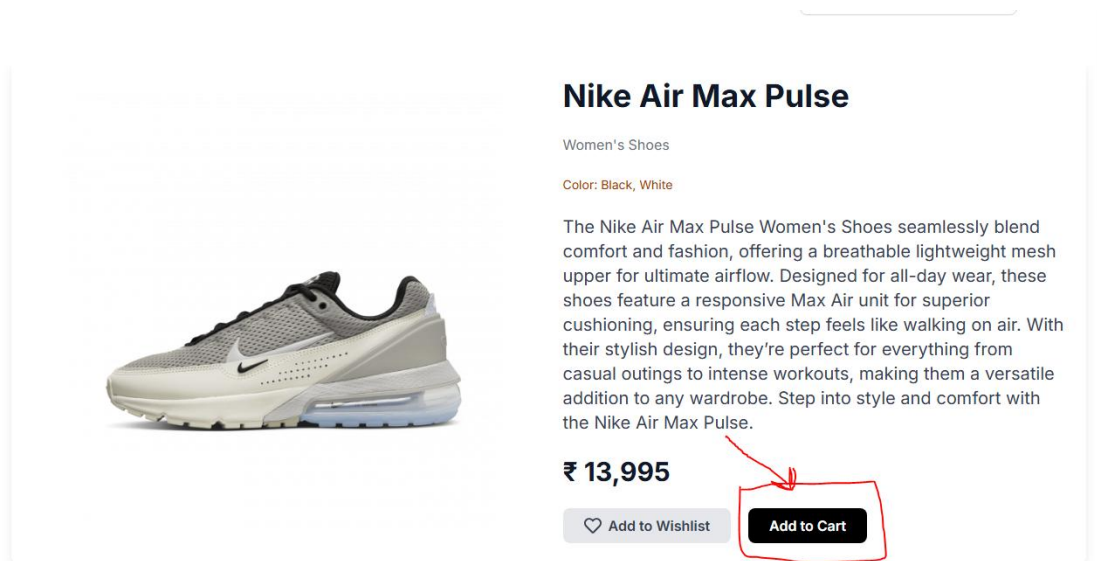 ✧   · **Availability:** Ensure that out-of-stock items are displayed as unavailable, with appropriate messaging.

Women's Shoes	Men's Shoes	Men's Shoes	Women's Shoes
Nike Air Max Pulse	Nike Air Max Pulse	Nike Air Max 97 SE	Nike Air Max 97 SE
color: Black, White	color: Blue, Gray	color: Silver, Black	color: Red, White
MRP: ₹ 13,995	MRP: ₹ 13,995	MRP: ₹ 13,995	MRP: ₹ 13,995

➢ **Search Functionality:**

  ✧ **Basic Search:** Test the search bar by entering various queries (e.g., product name, brand, keywords) to ensure it returns relevant results.
  ✧ **Advanced Search Filters:** Test advanced search filters, such as price range, categories, or size filters, to ensure they refine search results correctly.
  ✧ **Empty Results Handling:** Check that the system gracefully handles no results, displaying relevant messaging (e.g., "No products found").
  ✧ **Edge Cases:** Test edge cases like very long search terms, typos, or empty searches. Ensure the system provides meaningful feedback in these cases.
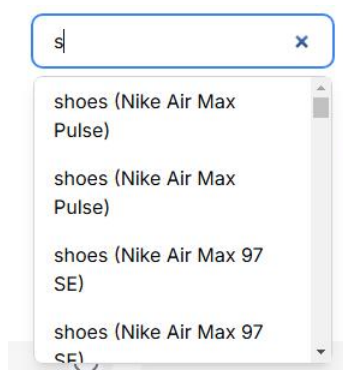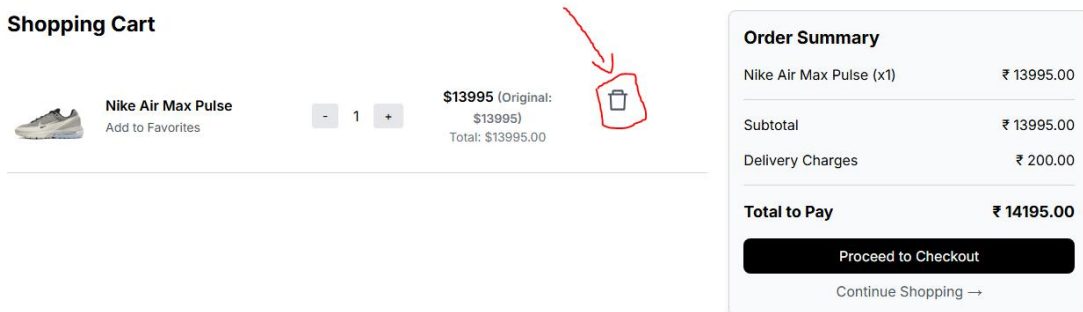
➤ Cart Operations:

✧ **Add to Cart:** Test adding various products to the cart, checking that the correct product, quantity, and price are displayed.

✧ **Update Cart:** Test updating the quantity of products in the cart and ensure the total price updates accordingly.

✧ **Remove Items:** Ensure that items can be removed from the cart and that the cart updates correctly with the remaining items and totals.

✧ **Persist Cart:** Verify that the cart persists across sessions for logged-in users.

✧ **Cart Visibility:** Test that the cart is easily accessible and shows the correct number of items at all times.

Nike Air Max Pulse

Women's Shoes

Color: Black, White

The Nike Air Max Pulse Women's Shoes seamlessly blend comfort and fashion, offering a breathable lightweight mesh upper for ultimate airflow. Designed for all-day wear, these shoes feature a responsive Max Air unit for superior cushioning, ensuring each step feels like walking on air. With their stylish design, they're perfect for everything from casual outings to intense workouts, making them a versatile addition to any wardrobe. Step into style and comfort with the Nike Air Max Pulse.

₹ 13,995

♡ Add to Wishlist   **Add to Cart**

Shopping Cart

| | Nike Air Max Pulse
Add to Favorites | - 1 + | $13995 (Original: $13995)
Total: $13995.00 | 🗑 |

Order Summary

Nike Air Max Pulse (x1)	₹ 13995.00
Subtotal	₹ 13995.00
Delivery Charges	₹ 200.00
Total to Pay	**₹ 14195.00**

Proceed to Checkout

Continue Shopping →

Shopping Cart

Your cart is empty!

Order Summary	
Subtotal	₹ 0.00
Delivery Charges	₹ 200.00
Total to Pay	**₹ 200.00**

<div>Proceed to Checkout</div>

Continue Shopping →

➢ **User Authentication and Account Management :**

✧ **Login/Logout:** Test login and logout functionality for registered users. Verify that the correct data (like user name and order history) is shown upon login.

✧ **Sign-Up and Password Reset:** Test the sign-up process, ensuring all fields are validated (email, password strength), and verify the password reset functionality works as expected.

✧ **Profile Update:** Ensure users can update their profile information, including email, shipping address, and payment methods.

Sign in to react demo

Welcome back! Please sign in to continue

G Continue with Google

or

Email address or username

Enter email or username

Continue ▶

Don't have an account? Sign up

Secured by ⓒ clerk

Development mode

Create your account

Welcome! Please fill in the details to get started.

[G Continue with Google]

--- or ---

Username

[   ]

Email address

[Enter your email address   ]

Password

[Enter your password   👁]

[**Continue** ▸]

Already have an account? **Sign in**

Account

Manage your account info.

- 🔵 **Profile**
- 🛡 Security

Profile details   ✕

Profile		
Profile	N Noorul Sehar	Update profile
Username	Set username	
Email addresses	nh7220869@gmail.com Primary	⋯
	+ Add email address	
Connected accounts	G Google • nh7220869@gmail.com	⋯

➢ **Responsive Design:**

✧ **Header:**

◆ **For PC**

◆ **For Mobile:**
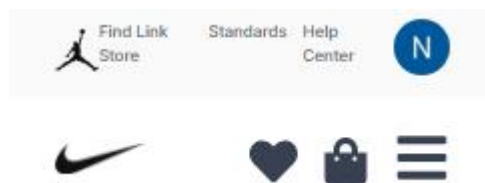
✧ **Footer :**

◆ **For PC**
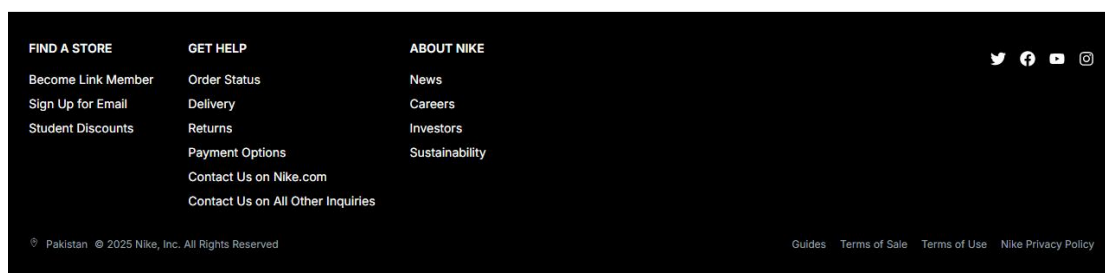
◆ **For Mobile:**
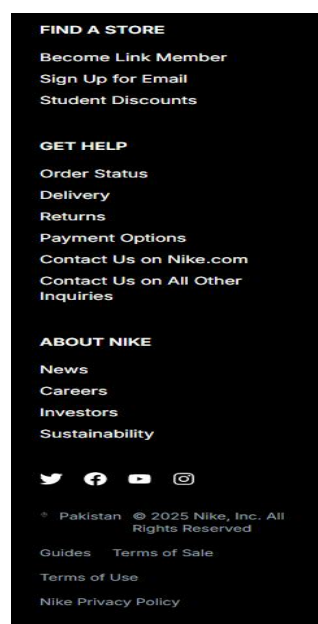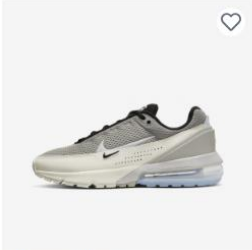
✧ **Product Listing Page :**

◆ **For PC**

◆ **For Mobile:**

✧ **Product Details Page :**

◆ **For PC**

Nike Air Max Pulse

Women's Shoes

Color: Black, White

The Nike Air Max Pulse Women's Shoes seamlessly blend comfort and fashion, offering a breathable lightweight mesh upper for ultimate airflow. Designed for all-day wear, these shoes feature a responsive Max Air unit for superior cushioning, ensuring each step feels like walking on air. With their stylish design, they're perfect for everything from casual outings to intense workouts, making them a versatile addition to any wardrobe. Step into style and comfort with the Nike Air Max Pulse.

₹ 13,995

♡ Add to Wishlist   Add to Cart

◆ **For Mobile:**
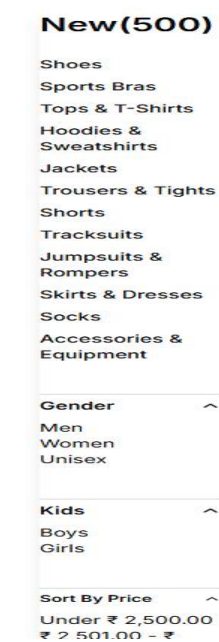

Nike Air Max Pulse
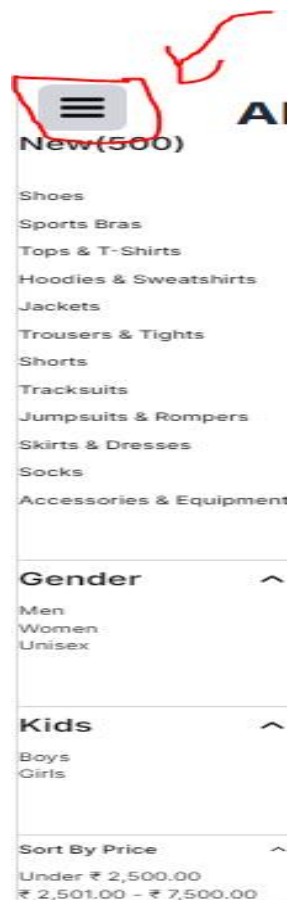
Women's Shoes

Color: Black, White

The Nike Air Max Pulse Women's Shoes seamlessly blend comfort and fashion, offering a breathable lightweight mesh upper for ultimate airflow. Designed for all-day wear

- ❖ **Side Bar :**

  - ◆ **For PC**

  - ◆ **For Mobile:**

✧ **Cart Page :**

◆ **For PC:**

Shopping Cart

	Nike Air Max Pulse Add to Favorites	- 2 +	$13995 (Original: $13995) Total: $27990.00	🗑	

Order Summary

Nike Air Max Pulse (x2)	₹ 27990.00
Subtotal	₹ 27990.00
Delivery Charges	₹ 200.00
Total to Pay	**₹ 28190.00**

Proceed to Checkout

Continue Shopping →

◆ **For Mobile:**

Shopping Cart

Nike Air Max |
Add to Favorites

$13995

- 2 + (Original:
$13995)

🗑

Order Summary

Nike Air Max Pulse (x2)	₹ 27990.00
Subtotal	₹ 27990.00
Delivery Charges	₹ 200.00
Total to Pay	**₹ 28190.00**

Proceed to Checkout

Continue Shopping

✧ **WishList Page :**

◆ **For PC:**

Your Wishlist
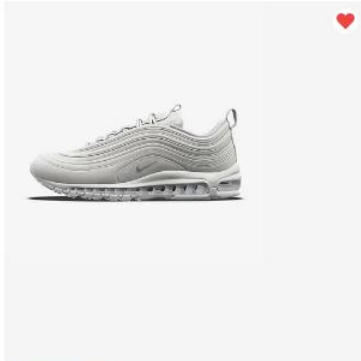
Women's Shoes
Nike Air Max 97 SE
color: Red, White
MRP: ₹ 13,995

◆ **For Mobile:**

Your Wishlist

Women's Shoes

Nike Air Max 97 SE
color: Red, White

MRP: ₹ 13,995

➢ Security and Privacy Testing:

✧ **Data Protection:** Ensure that sensitive data, such as credit card information, is securely handled during the checkout process.

✧ **Session Timeout:** Test that user sessions time out after inactivity to protect sensitive user data.

Security overview

🔒 ⓘ ⚠

This page is secure (valid HTTPS).

🔒 Certificate - valid and trusted

The connection to this site is using a valid, trusted server certificate issued by R10.

(View certificate)

🔒 Connection - secure connection settings

The connection to this site is encrypted and authenticated using TLS 1.3, X25519, and CHACHA20_POLY1305.

🔒 Resources - all served securely

All resources on this page are served securely.

Test Case Reporting

Documenting the results of all tests is essential for tracking issues and ensuring proper fixes are applied. I will create a CSV file with the following structure:

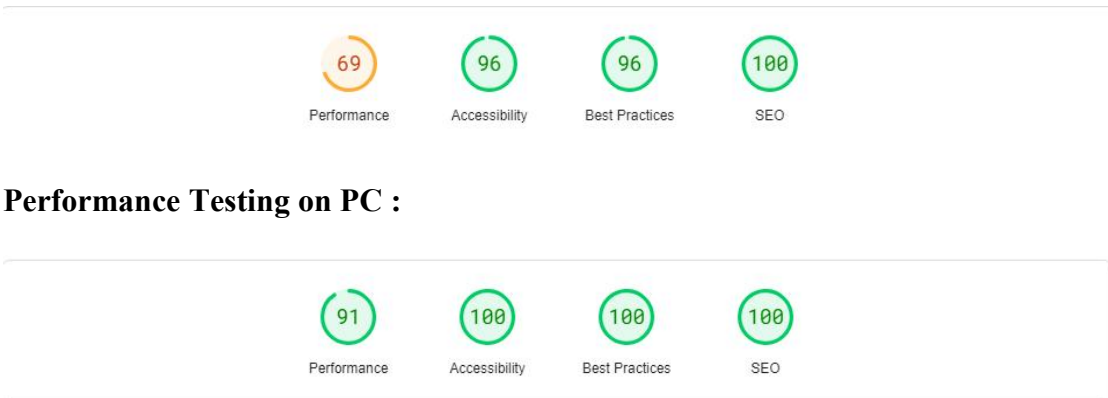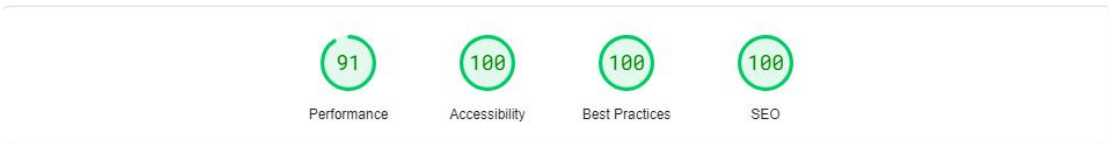| Test Case	Test Case Name	Test Steps	Expected Outcome	Actual Result	Status	Severity Level	Remarks
TC001	Product Listing	Verify product display	Products load dynamically	Displayed correctly	Passed	High	No issues found
TC002	Filters and Search	Apply filters and search	Filters show relevant results	Filters worked as expected	Passed	Medium	Test successful
TC003	Cart Operations - Add	Add items to cart	Items added successfully	Items added successfully	Passed	Medium	Test successful
TC004	Cart Operations - Update	Update item quantities	Quantities update correctly	Quantities updated	Passed	Medium	Test successful
TC005	Cart Operations - Remove	Remove items from cart	Items removed successfully	Items removed	Passed	Medium	Test successful
TC006	Cart Summary	Check cart summary	Correct total and item count	Summary reflected correctly	Passed	Medium	Test successful
TC007	Dynamic Routing	Verify dynamic routing	Correct product details load	Dynamic routing works	Passed	High	No issues found
TC008	Postman API Test	Test API responses	API returns correct data	API responses validated	Passed	High	No issues found
TC009	React Testing Library	Test component behavior	Components behave as expected	Component tests passed	Passed	High	No issues found
TC010	Error Handling	Simulate errors and handle	Errors are handled gracefully	Errors displayed properly	Passed	Critical	Security measures added
TC011	Performance Optimization	Optimize performance	Performance is improved	Improved load times	Passed	High	Performance optimized
TC012	Cross-Browser Testing	Test on different devices	Website functions on all devices	All devices compatible	Passed	Medium	Responsive across devices
TC013	Security Testing	Validate inputs & security	No security vulnerabilities	Security tests passed	Passed	Critical	Security validation done
TC014	User Acceptance Testing	Simulate user workflows	Smooth user experience	User workflows verified	Passed	Medium	UAT passed
TC015	Documentation Updates	Document findings	Complete documentation	Documentation updated	Passed	Medium	All updates documented

Performance Testing

Performance testing ensures the application loads quickly and performs well under various conditions. Tools like Lighthouse or GTmetrix can be used to analyze:

➢ **Page Load Speed**: Use Lighthouse or GTmetrix to check the speed of the site. Analyze performance scores and see if it meets acceptable thresholds (e.g., 90+ for performance).
➢ **Responsiveness**: Test the application on various screen sizes (desktop, tablet, mobile) to ensure it's responsive and performs well on all devices.
➢ **Time to Interactive (TTI)**: Ensure that the application loads quickly and becomes interactive without delay.

Performance Testing on Mobile :

69	96	96	100
Performance	Accessibility	Best Practices	SEO

Performance Testing on PC :

91	100	100	100
Performance	Accessibility	Best Practices	SEO

Checklist for Day 6 :

Deployment Preparation:	✔	-
Staging Environment Testing:	✔	-
Documentation:	✔	-
Form Submission:	✔	-
Final Review:	✔	-