Hacathon day -5

marketplace E-commerce(Furiro)

testing,error handling, and refinging backend intrigations

objective:

day 5 focuses on ensuring that the furniture marketplace is deployment - ready by throughly testing its functinalities, optimizing its permomance and documenting result.

key area includes:

1. conducting comprehensive testing of core functionlities.

2. implementing robust error handling mechanisms.

3. optimizing for performance,accebilities,and sco.

4. Ensuring cross-browser and cross-device compatibility.

5. Documenting findings and fixes in a profesional format.

key learning outcomes

1. validate all functionalities through functional and user acceptance testing.

2. improve website perfomance metrics using tools like lighthouse.

3. Ensure high accebility scores for users with desabilities.

4. Enhance SEO for better search engine visibility.

5. prepare detailed documention and a CSV-based testing report.

implemention steps:

step 1: functinal testing

description: validate functinalities of key components to ensure they work as expected.

features tested:

.Navigation links: ensure all links navigate correctly

.product listing and details: verify accurate rendering of products.

.shopingcart operation: validate add,update, and remove functionalities.

.Blog accessibility: Ensure blog content is accessible.

.contact form: confirm sucessfull form subbmission.

Tool used:

postman: for API response testing.

react testing library: for component behavior testing.

step2: error handling

Description: implement mechanisms to gracfully handle errors and provide user-friendly feedback.

Approach:

.utilize try-catch blocks to handle API errors.

.Display fallback ui elements ,such as "no product availble" when data is unavailble.

.log errors for debugging purpose.

.Ensure gracefull handling of failed API responce to maintain user trust and interface consistancy.

step3: performance optimization

description: **identify and resolve perfomance bottlenecks using tools like google lighthouse.**

performance:70

accessibily:80

best practices:83

SEO:79

key improvements:

1. Reduce initial server response time (currently 630 ms).

2. optimize images (saving of 39 kiB).

3. Adress cumulative layout shift (CLS:0.494).

4. minimize unused javascripts (saving og 25 KiB).

5. implement lazy loading for large images.

6. compress static assets and enable brower caching to improve repeat visits.

ste4: cross-Browser and Device testing

describtion: Ensure consistent functionality and rendering across browsers and devices.

Browsers Tested:

.chrome, firefox ,safari , Edge.

Devices Tested:

Desktop , tablet , mobile (using browserstack).

focus Areas:

.responsive design.

.consistent navigation and interactivity.

.verified accessibility ,features, including keyboard navigation and screen reader compatibily.

step5: security testing

Description : secure the website against vlulnerabilities.

key action :

.sanitilize user inputs to ptrevent SQL injection and xss attacks.

.Ensure API calls are madeover HTTPOS.

.store sensitive information in enviroment variable.

.OWASP ZAP: for automated vlunerability scanning.

.Burp suite: for penetration testing.

.Manual testing for additional verification of potential vulnerabilities.

step6: User Acceptance testing(UAT)

Description: simulated real-world user interactions to identify usability issues.

scenarios Tested:

.Browsing products.

.Adding and removing items from the cart.

.Completing the checkout page

.Testing multi-step workflows to ensure an intuitive user experience.

Feedback collected:

.Minor UI inconsistencies identifies and resolved.

.Improved workflows for better user experience.

.Adjusted visual hiearchy to nemphasize key actions like "add to cart"

step7: Documentation updates

Description: compile findings and resolutions into a professional report.

includes:

.test case description and results.

.performance optimization steps.

.security measures implented.

.addtional insights into areas for future improvment.

csv-based testing report

Test Case ID	Description	Expected Result	Actual Result	Status	Severity	Remarks
TC001	Test navigation links	All links navigate correctly	All links function as intended	Pass	Low	None
TC002	Verify product listing display	Products display correctly	Products display correctly	Pass	Medium	None
TC003	Test shopping cart functionality	Items add/remove/update correctly	Cart functions as expected	Pass	High	None
TC004	Check blog post accessibility	Blog posts are accessible	Blog posts accessible	Pass	Low	None
TC005	Test contact form submission	Form submits successfully	Form submits successfully	Pass	Medium	None
TC006	Analyze performance metrics	Performance score ≥ 90	Score: 83	Fail	High	Optimization needed
TC007	Check accessibility features	Accessibility score ≥ 90	Score: 100	Pass	Medium	Ensure ongoing compliance
TC008	Evaluate SEO metrics	SEO score ≥ 90	Score: 79	Fail	Medium	Implement recommended SEO practices

csv content

Test Case ID, Description ,Expected Result , Actual Result , Status ,Severity, Remarks

TC001 ,Verify product listing display, products display correctly,

All links function as intended,pass,low,None

TC002, verify product listing display,

Products display correctly ,pass, Medium, None

TC003, Test shoping cart functionality, items add/remove/update

correctly, cart functions as expected, pass,High, None

TC004, check blog post accesibility, blog posts are accessible blog pasts accesible, pass,low,None

TC005,Test contact form submision,form submits sucessfuly., form

submits sucessfully, pass, medium , None

TC006,Analyze performance metrics , performance score ≥ 90, score:

83,fail, High, optimizization needed

T007, check accessibily features, accessibility score ≥ 90, score:

100, pass , medium, ensure ongoing compliance

TC008, Evalute SEO metrics, SEO score ≥ 90 , score:

79,fail , medium, Implement recommended