To evaluate the responsiveness, usability, and efficiency of our application across major user flows, we performed performance testing using Google Chrome Lighthouse on key pages of the site. This included the homepage, cart, and product listing pages.

Tested Pages & Results

Page URL	Performance	Accessibility	Best Practices	SEO	FCP	LCP	TBT	CLS	speed
/	83	98	100	92	0.4s	3.3s	40ms	0.009	0.4s
/products	72	99	70	100	0.4s.	1.6s	40ms	0.523	0.4s
/cart	91	98	78	100	0.6s	1.8s	40ms	0.071	0.6s
/checkout	97	100	78	100	0.6s	1.2s	40ms	0.005	0.6s

- The homepage performed well overall, with good responsiveness and no major blocking.
- The cart page had strong performance (91), though its Best Practices score dropped due to minor JavaScript warnings (e.g., deprecated APIs or missing security headers).
- The product listing page had slightly lower performance (72) due to heavier content, large images, and JavaScript bundle size.

Analysis & Optimization Opportunities
Lighthouse highlighted a few improvement areas:
- Serve images in next-gen formats (e.g., WebP)
- Minify and reduce unused JavaScript and CSS
- Properly size and cache images
- Eliminate render-blocking resources

Performance Expectations
The system was designed to support a moderate user base, such as university students browsing and checking out dorm-related items. Based on the Lighthouse results:
- All tested pages meet acceptable performance thresholds (scores ≥ 70)
- Core user flows are fast and accessible
- There were no crashes, UI delays, or unexpected slowdowns during testing

We conclude that the system successfully meets predefined performance expectations for responsiveness and reliability.

83 Performance
98 Accessibility
100 Best Practices
92 SEO

SI FCP
CLS LCP
83
TBT

Performance

Values are estimated and may vary. The performance score is calculated directly from these metrics. See calculator.

▲ 0–49   ■ 50–89   ● 90–100

91 Performance
98 Accessibility
78 Best Practices
100 SEO

91

Performance

Values are estimated and may vary. The performance score is calculated directly from these metrics. See calculator.

▲ 0–49   ■ 50–89   ● 90–100

97 Performance
100 Accessibility
78 Best Practices
100 SEO

97

Performance

Values are estimated and may vary. The performance score is calculated directly from these metrics. See calculator.

▲ 0–49   ■ 50–89   ● 90–100

72 Performance
99 Accessibility
70 Best Practices
100 SEO

72

Performance

Values are estimated and may vary. The performance score is calculated directly from these metrics. See calculator.

▲ 0–49   ■ 50–89   ● 90–100