

# CSE211 Web Programming - Fall 2025-2026

## Final Course Project: Performance Analysis Report

Group Number: 11

Team Members:

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## 1. Executive Summary

This report analyzes the performance of the **EventsX** web application using Google Lighthouse and Chrome DevTools. The goal was to assess loading speeds, accessibility, best practices, and SEO compliance to ensure a smooth user experience across devices.

Testing Tools:

- **Google Lighthouse** (via Chrome DevTools)
- **Browser:** Google Chrome Version 143.0

## 2. Global Metrics & Core Web Vitals

We targeted the following "Green" zones for our metrics:

- **Performance:**  $\geq 90$
- **Accessibility:**  $\geq 90$
- **Best Practices:**  $\geq 90$
- **SEO:**  $\geq 90$

## 3. Page-Level Analysis

### 3.1. Home Page (index.html)

Desktop Performance:

Metric	Score / Value	Status (Pass/Fail)

<b>Overall Performance</b>	99	Pass
<b>Accessibility</b>	94	Pass
<b>Best Practices</b>	100	Pass
<b>SEO</b>	100	Pass
Largest Contentful Paint (LCP)	0.9s	Good
Cumulative Layout Shift (CLS)	0.047s	Good

**Lighthouse Screenshot:**

1/6/26, 1:23 AM

Lighthouse Report Viewer



http://localhost/Final/Part2\_Website\_Project/index.html



Performance



Accessibility



Best Practices



SEO



## Performance

Values are estimated and may vary. The [performance score is calculated](#) directly from these metrics. [See calculator.](#)

▲ 0–49      ■ 50–89      ● 90–100

The screenshot shows the homepage of the EventsX website. At the top, there's a navigation bar with links for Home, Events, Budget, About, Contact, and a Register Now button. Below the navigation, a large banner says "Discover & Plan Amazing Events". It encourages users to join thousands of people who use EventsX to find, register, and manage their events effortlessly. There are two buttons: "Browse Events" and "Calculate Budget". Underneath the banner, there's a section titled "Upcoming Highlights" featuring a photo of a building with a fountain. Below the photo, it says "Spring 2026 Semester Welcome & Orientation". To the right, there's a "Find Events" sidebar with a search bar, a category dropdown set to "All Categories", and a "Search" button.

### METRICS

[Expand view](#)

● First Contentful Paint  
0.5 s

● Largest Contentful Paint  
0.9 s

● Total Blocking Time  
0 ms

● Cumulative Layout Shift  
0.047

### **3.2. Events Listing Page (pages/events.html)**

**Desktop Performance:**

Metric	Score / Value	Status
Overall Performance	79	Pass
Accessibility	85	Pass
Best Practices	100	Pass
SEO	100	Pass
Largest Contentful Paint (LCP)	0.4s	Good
Cumulative Layout Shift (CLS)	0.507	Needs improvement

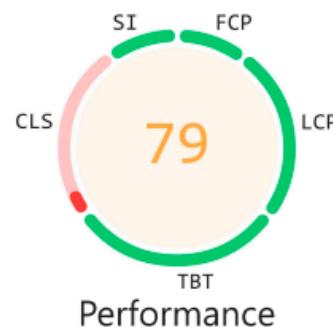
**Lighthouse Screenshot:**

1/6/26, 1:25 AM

Lighthouse Report Viewer



[http://localhost/Final/Part2\\_Website\\_Project/pages/events.html](http://localhost/Final/Part2_Website_Project/pages/events.html)



Values are estimated and may vary. The [performance score is calculated](#) directly from these metrics. [See calculator](#).

▲ 0–49   ■ 50–89   ● 90–100

EventsX

Home - Events

Home - Events

Upcoming Events

Event Name	Date	Location	Category	Cost	Action
Spring 2026 Semester Welcome & Orientation	2026-02-07	GU Campus, Building B	Academic	\$0.00	<a href="#">Register</a>
Robocon 2026: Campus Qualifiers	2026-02-10	GU Campus, Smart Systems Lab	Competition	\$0.00	<a href="#">Register</a>
Basics of Structural Bioinformatics Workshop	2026-02-22	GU Campus, CS Faculty Lab	Workshop	\$50.00	<a href="#">Register</a>
GU Spring Employment Fair 2026	2026-03-16	GU Campus, Exhibition Grounds	Career	\$0.00	<a href="#">Register</a>
Guest Lecture: Future of Digital Banking	2026-03-23	GU Campus, Auditorium 1	Seminar	\$0.00	<a href="#">Register</a>
EID 2026 Graduation Project	2026-04-15	Qatar International	Exhibition	\$100.00	<a href="#">Register</a>

## METRICS

[Expand view](#)

● First Contentful Paint

0.4 s

● Largest Contentful Paint

0.4 s

● Total Blocking Time

0 ms

▲ Cumulative Layout Shift

0.507

### **3.3. Registration Page (pages/registration.html)**

**Desktop Performance:**

Metric	Score / Value	Status (Pass/Fail)
<b>Overall Performance</b>	100	Pass
<b>Accessibility</b>	91	Pass
<b>Best Practices</b>	100	Pass
<b>SEO</b>	100	Pass
Largest Contentful Paint (LCP)	0.5s	Good
Cumulative Layout Shift (CLS)	0	Good

**Lighthouse Screenshot:**

1/6/26, 1:39 AM

Lighthouse Report Viewer



http://localhost/Final/Part2\_Website\_Project/pages/registration.html



## Performance

Values are estimated and may vary. The [performance score is calculated](#) directly from these metrics. [See calculator.](#)

▲ 0–49      ■ 50–89      ● 90–100

The screenshot shows a web browser displaying the 'EventsX' website. The URL in the address bar is 'http://localhost/Final/Part2\_Website\_Project/pages/registration.html'. The page title is 'EventsX' and the sub-page title is 'Home > Register'. The main content is a form titled 'Event Registration' with fields for 'Full Name', 'Email Address', 'Select Event', and 'Number of Tickets'. A 'Complete Registration' button is at the bottom. The browser navigation bar includes 'Home', 'Events', 'Budget', 'About', 'Contact', and a 'Register Now' button.

### METRICS

[Expand view](#)

- First Contentful Paint

0.5 s

- Largest Contentful Paint

0.5 s

- Total Blocking Time

0 ms

- Cumulative Layout Shift

0

### **3.4. Budget Calculator (pages/budget-calculator.html)**

**Desktop Performance:**

Metric	Score / Value	Status (Pass/Fail)
<b>Overall Performance</b>	100	Pass
<b>Accessibility</b>	91	Pass
<b>Best Practices</b>	100	Pass
<b>SEO</b>	100	Pass
Largest Contentful Paint (LCP)	0.7s	Good
Cumulative Layout Shift (CLS)	0	Good

**Lighthouse Screenshot:**

1/6/26, 1:25 AM

Lighthouse Report Viewer



http://localhost/Final/Part2\_Website\_Project/pages/budget-calculator.html



## Performance

Values are estimated and may vary. The [performance score is calculated](#) directly from these metrics. [See calculator.](#)

▲ 0–49      ■ 50–89      ● 90–100

The screenshot shows a web application titled "Event Budget Calculator". The page has a header with "EventsX" and navigation links for Home, Events, Budget, About, Contact, and a "Register Now" button. Below the header, there's a breadcrumb trail: "Home > Budget Calculator". The main form is titled "Event Budget Calculator" and contains sections for "Your Budget" and "Event Expenses". Under "Your Budget", there is a field for "Total Planned Budget (\$)" with the value "0.0000". Under "Event Expenses", there are fields for "Ticket Price (\$)", "Estimated Attendees", "Travel & Accommodation", "Travel Cost (\$)", "Accommodation Cost (\$)", "Additional Expenses", "Food & Beverage (\$)", and "Miscellaneous (\$)". All these fields have a value of "0".

### METRICS

[Expand view](#)

- First Contentful Paint

0.7 s

- Largest Contentful Paint

0.7 s

- Total Blocking Time

0 ms

- Cumulative Layout Shift

0

## **4. Mobile Responsiveness Check**

In addition to standard performance, we verified usability on mobile devices using Chrome's Device Toolbar.

EventsX

Register Now

## Discover & Plan Amazing Events

Join thousands of people who use EventsX to find, register, and manage their events effortlessly.

Browse Events

Calculate Budget

### Upcoming Highlights



Tech Conference 2025

2025-03-15 • New York, NY

Mobile View Screenshot:

#### **Observations:**

- The layout successfully switches to a single column on devices smaller than 768px.
- The navigation menu adapts.
- Touch targets (buttons/links) are sized appropriately for fingers.

## **5. Summary of Optimizations**

To achieve these scores, the team implemented the following strategies:

1. **Image Optimization:** All images were resized to their display dimensions and compressed.
2. **Code Minification:** Removed unnecessary comments and whitespace from final CSS/JS builds.
3. **Semantic HTML:** Used proper <header>, <main>, <nav>, and <footer> tags to boost Accessibility and SEO scores.
4. **Layout Stability:** Specified width and height attributes on images to prevent Layout Shift (CLS).

#### Conclusion:

The EventsX application meets the performance requirements set forth in the project specifications, demonstrating fast load times and high accessibility standards.