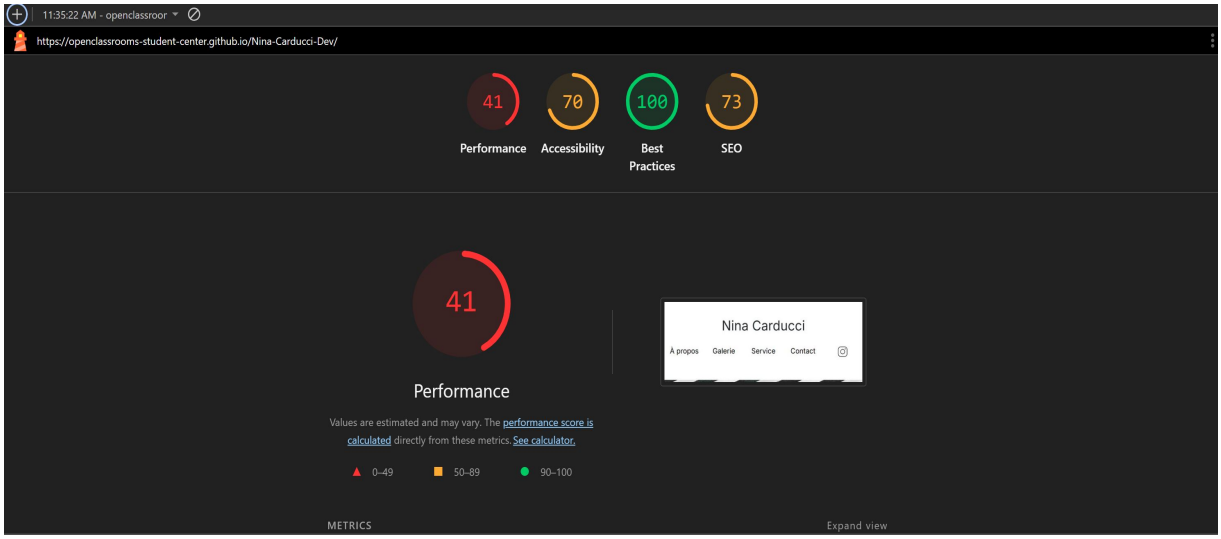
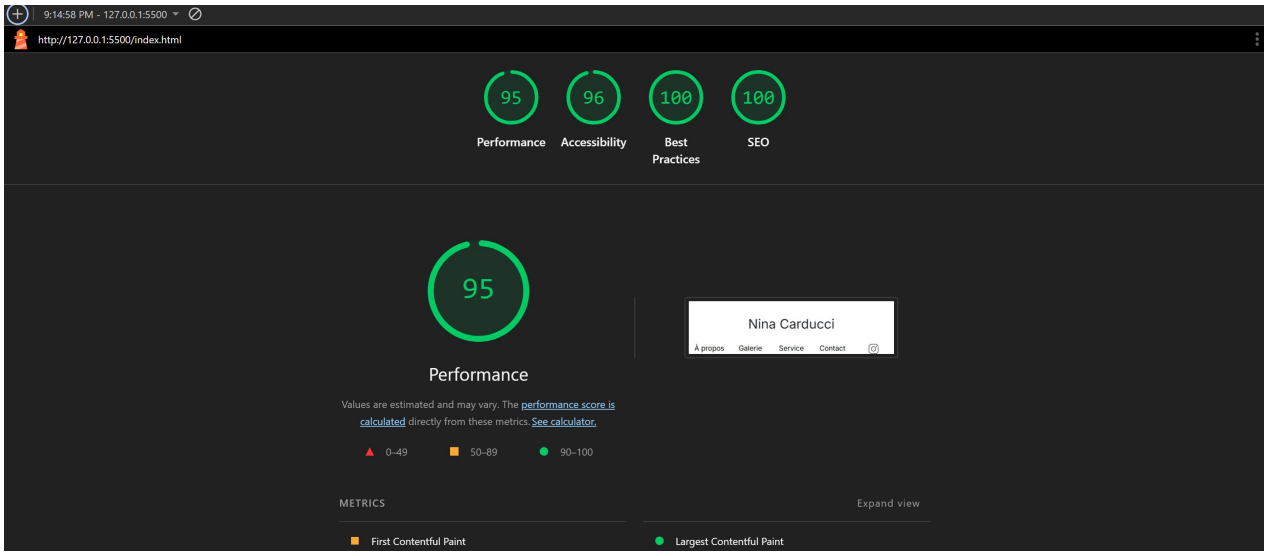
Intervention Report-
Nina Carducci

Part One: Nina Carducci Google Lighthouse Scores

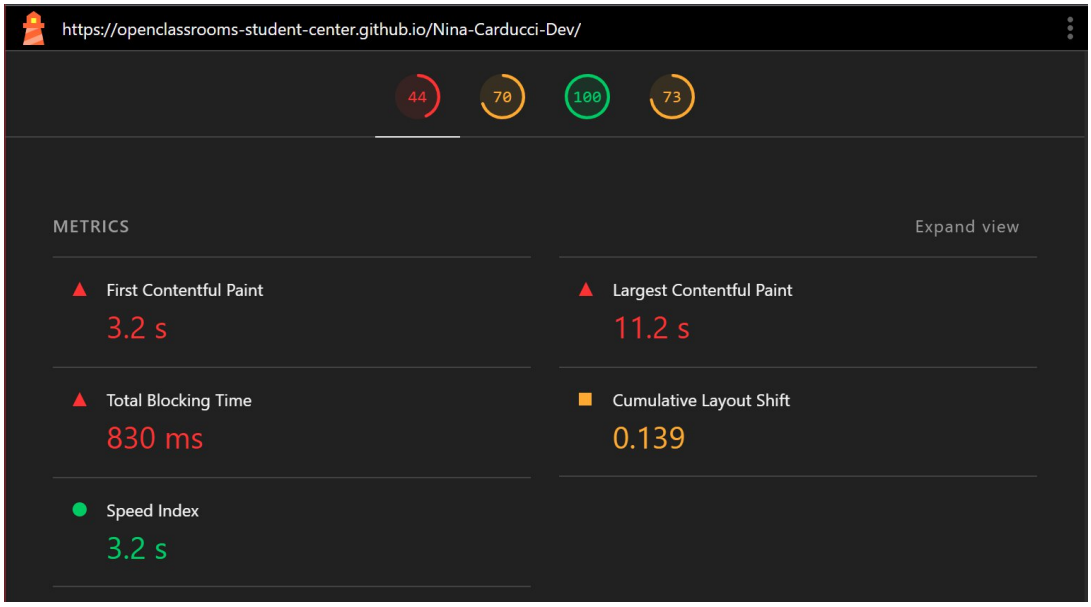
Pre-Optimized Google Lighthouse Scores:

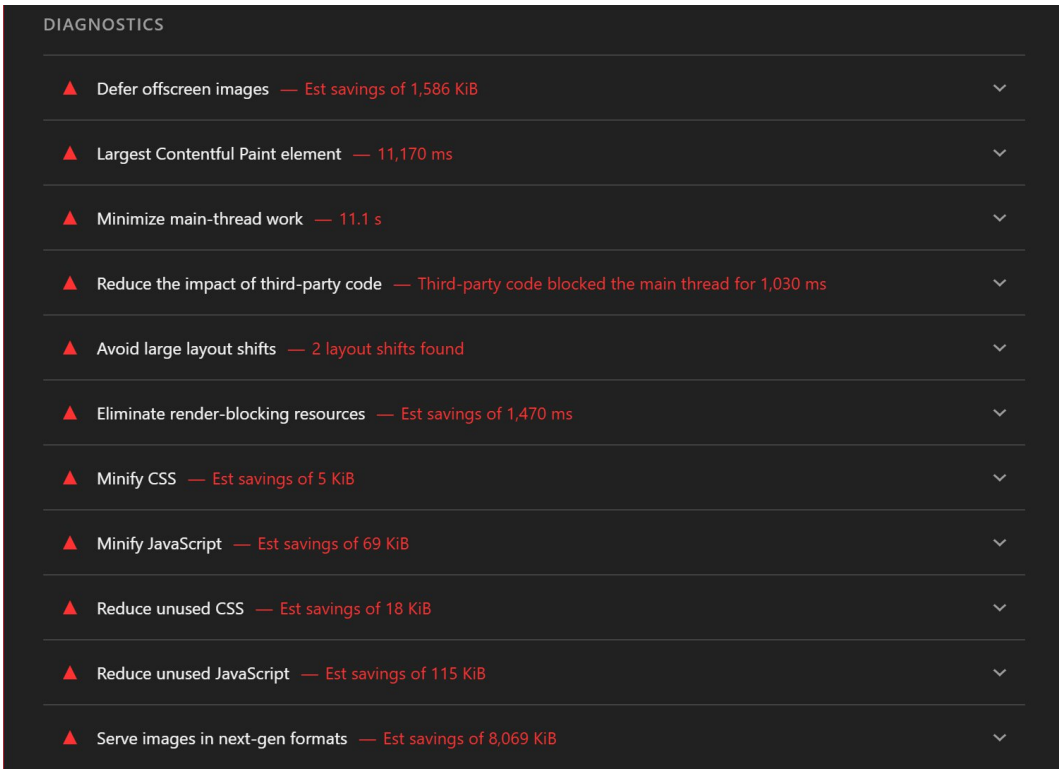


Google Lighthouse highest Scores Post-Optimization:



Part Two: Poor Performance Score Causes & Resolutions:





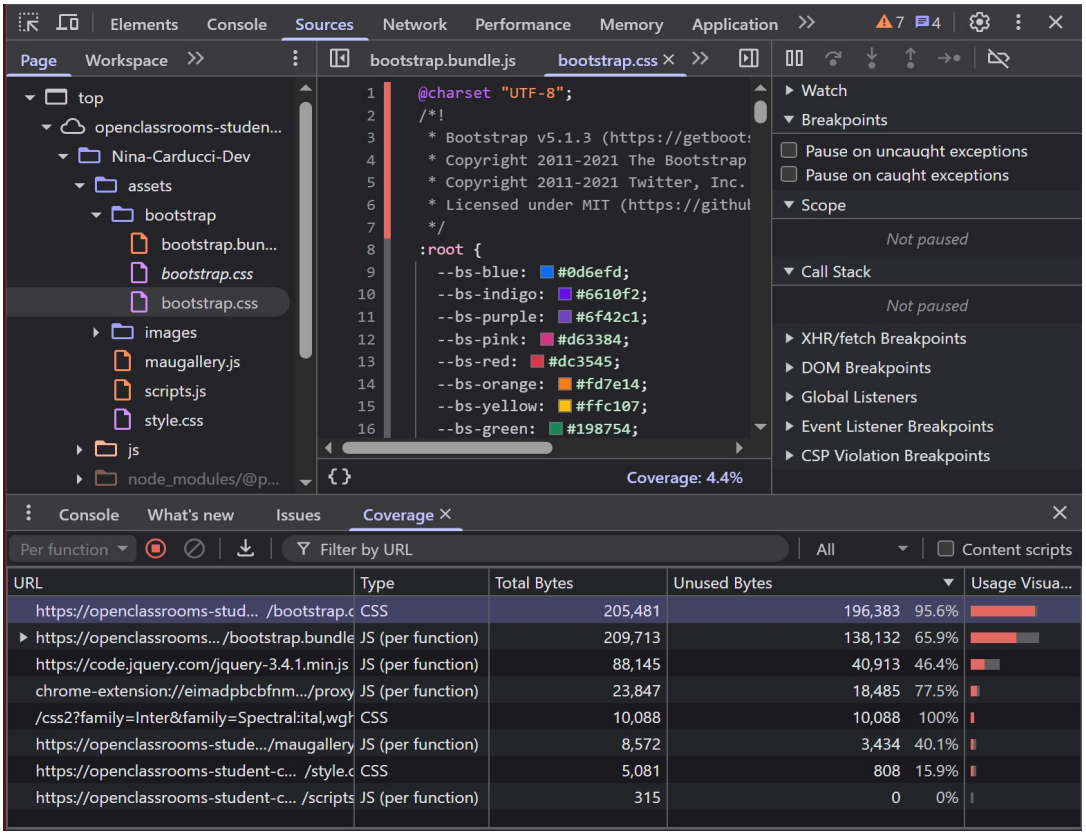
By utilizing Chrome DevTools and reviewing the **diagnostic breakdown** we can identify the major **issues** related to the site's **performance**.

- **Issue: Off-screen images** are a large contributing factor to the reduced performance of the page.
  - **Solution:** Images that aren't immediately visible to the user need to be **deferred**. This has been done via **lazy loading** by giving said images the `**loading="lazy"**`attribute which tells the browser to only render/load the image until their within a certain range of the viewport
- **Issue: Serve images in next-gen formats** this can also heavily affect load times of pages due to the overall size of all images being displayed.
  - **Solution:** Conversion of all images to the **WebP format** for better compression while retaining image quality, and efficient download speeds, data consumption than PNG or JPEG formats
- **Issue: Eliminate Render-Blocking Resources:**

URL	Transfer Size	Est Savings
jQuery CDN Cdn	**30.2 KiB**	**1,600 ms**
/jquery-3.4.1.min.js (code.jquery.com)	30.2 KiB	1,600 ms
GitHub Utility 1st Party	**74.2 KiB**	**1,320 ms**
...bootstrap/bootstrap.bundle.js (openclassrooms-student-center.github.io)	43.9 KiB	830 ms
...assets/maugallery.js (openclassrooms-student-center.github.io)	2.1 KiB	170 ms
...bootstrap/bootstrap.css (openclassrooms-student-center.github.io)	26.6 KiB	170 ms
...assets/style.css (openclassrooms-student-center.github.io)	1.6 KiB	170 ms
Google Fonts Cdn	**1.3 KiB**	**890 ms**
/css2?family=... (fonts.googleapis.com)	1.3 KiB	890 ms

- **Solution**: Deferred any **non-critical** JavaScript (defer & async) & CSS and/or preconnected/preloaded necessary resources for better performance results (Google Fonts, Bootstrap CSS, style.css)

❖ **Issue:** JavaScript & CSS file bloat

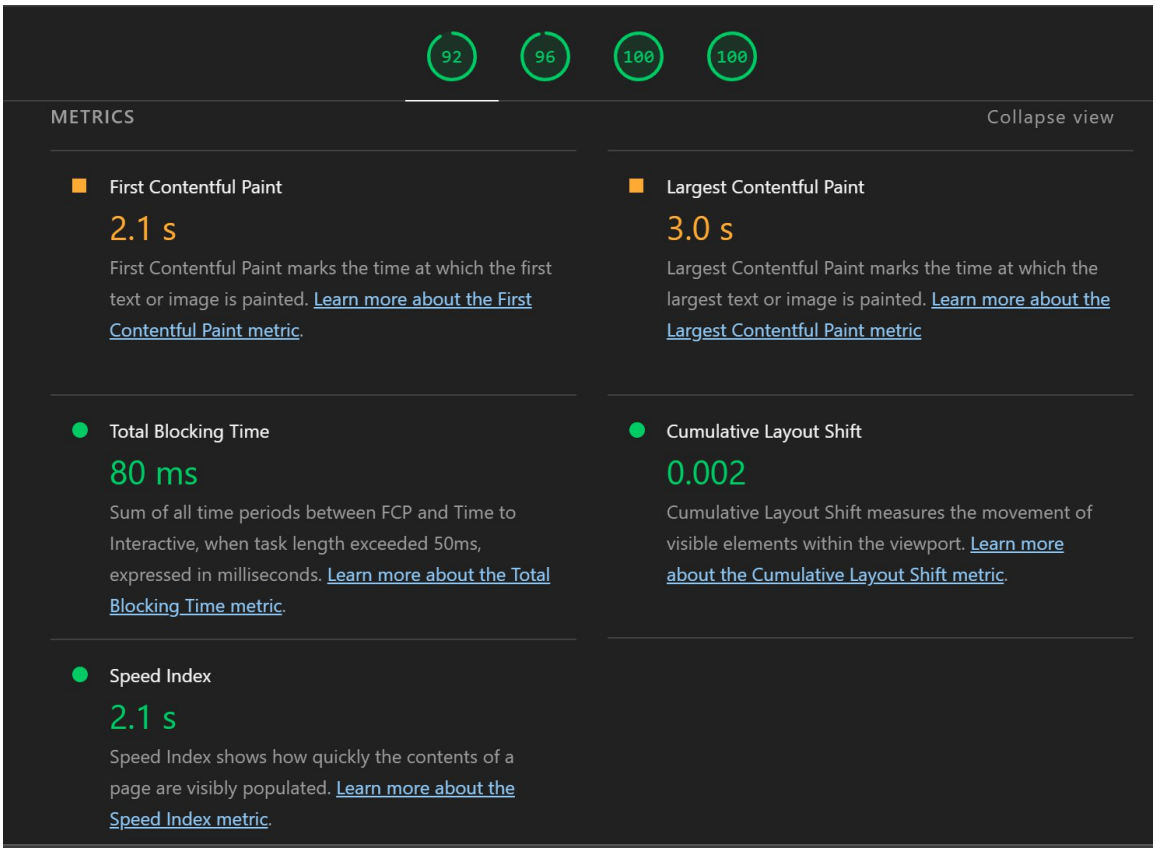


❖ **Solution:** Consulting the **Sources tab** in DevTools and will allow us to track the **coverage** of both CSS & JavaScript files to accurately determine how much and which content within the files is going unused before completely removing them manually (this can be a long process depending on the file size).

- The removal process can be simplified with tools like PurgeCSS or PurifyCSS.
- However, do keep in mind that the page's DOM elements for this page are also being **dynamically adjusted** via JavaScript both locally within the site and from a CDN (jQuery) so it isn't recommended to only reference the HTML elements and classes that are initially and only visible within the HTML file itself, otherwise it will cause negative unexpected behavior.

- **Minification** is also recommended for JavaScript and CSS files as it allows the browser to read to the code more efficiently

Part Three: Summary of Fixes



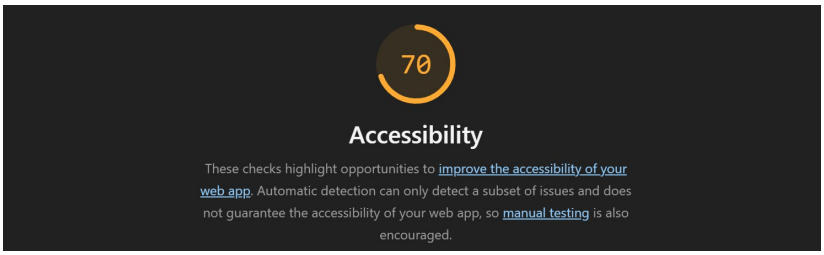
- Conversion and compression of all images to WebP greatly improved performance of the site, positively influencing the speed index, FCP, LCP, and total blocking time
  - **Resizing images** and giving them explicit height & width properties aid in improving performance as well while reducing unnecessary **layout shifts,** which if left unchecked, would force browsers to guess the appropriate size(s) of visible elements
    - Images within the slider that are immediately visible heavily impacted the FCP & LCP scores originally due to their large sizes (ranging

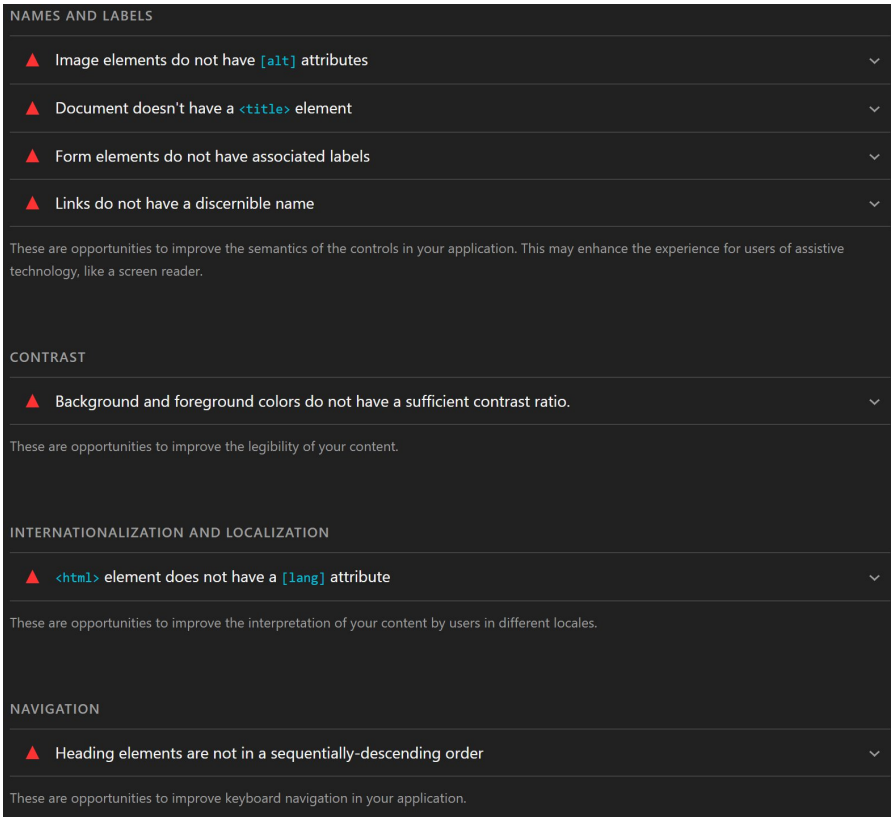
from **1.54MB** to **5.43MB**)(now ranging from 99.6KB to 229KB while retaining as much of the original image quality as possible)

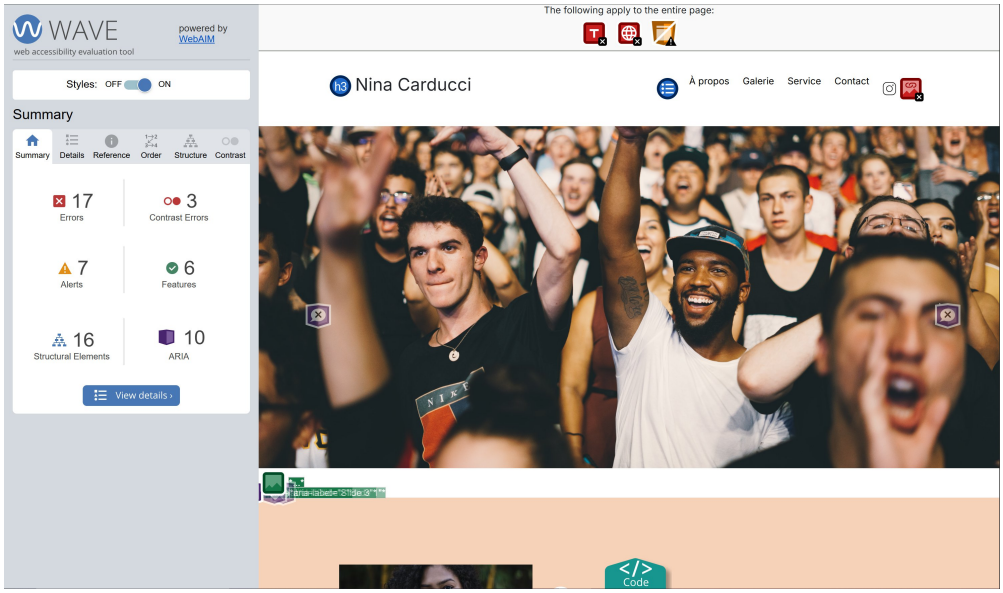
- **Deferring images** not immediately visible to viewports greatly improves performance scores, e.g., the images found within the **gallery**
- **Minification** and **removal** of unused code within CSS & JavaScript also greatly improved Lighthouse Performance scores
- **Preconnecting**/**Preloading** assets such as **Bootstrap.css** & **Google fonts** positively affect website performance
- Appropriately applying **async**/**defer** to <script> tags for JavaScript files that aren't immediately needed effectively reduced blocking time greatly
- **In conclusion**, all of the aforementioned changes being implemented, have made the site **consistently** reach a Google Lighthouse performance score of at least **90** with only slight deviations that stem from a connection to the jQuery CDN. The page contents can now be loaded approximately within **2.1 seconds** with **minimal** **blocking time (~80ms),** a **low** **CLS score. FCP** & **LCP** times have been effectively reduced from ~**3.0+**s (FCP) & **10+s** (LCP), to now acceptable times of ~**2.1s** (FCP) & ~**2.4**-**3.0s** (LCP).

Part Four: Accessibility Issues

Pre-optimized Accessibility







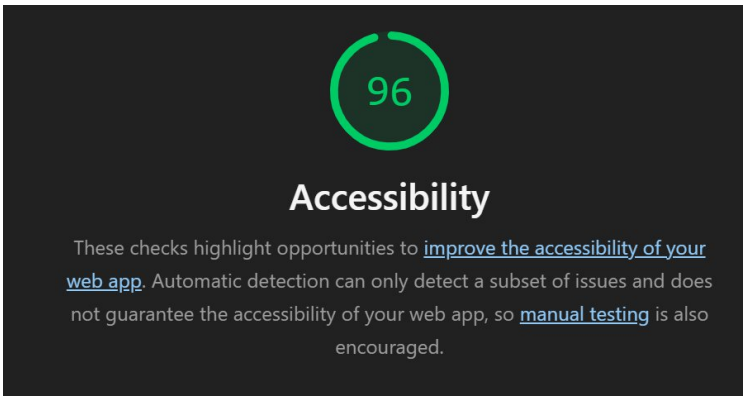
- Identified Issues:
  - Several **image elements** in on the web page **lack** an **alt** attribute
    - **Solution:** Give a respective **succinct description** to each image, which will assist those who use screen readers when navigating/browsing websites
  - Form elements lack related **labels** (**<label>**), limiting the scope of assistive technologies that can announce form controls
    - **Solution**: Create <label> elements with `**for="..."**` that relate to the respective <input> id
  - HTML document lacks a **<title>** element, diminishing SEO and limiting the scope of assistive technology capabilities
    - **Solution**: Within the <head> element of the HTML document, this <title> element was added: `**<title>Photographe Nina Carducci | Photographie Professionelle a Bordeaux</title>**`
  - [**lang**] or [**hreflang**] attribute is not found within **<html>** element
    - **Solution**: Simply give the page `**<html lang="fr-fr">**` to aid screen readers in properly announcing the page's content (particularly text content) in the appropriate language, in this case, French.
  - Heading elements aren't in **sequentially-descending order**
    - **Solution**: Change heading elements like the main page's title from <h3> to <h1>, change 'about' section headers from <h3> to <h2> (about-me__title) and <h6> to <h3> (about-me__introduction), etc.

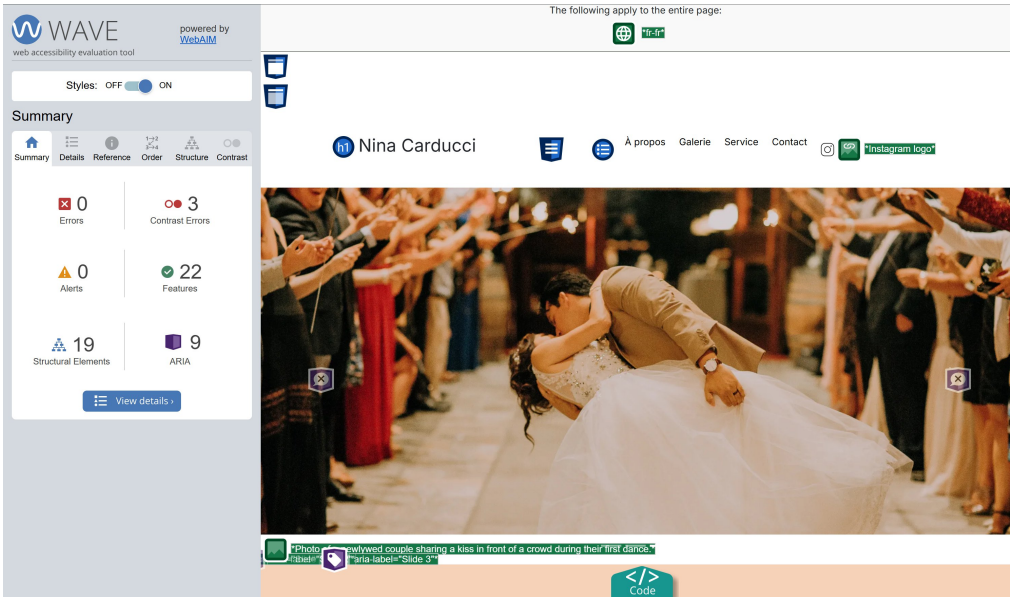
- These changes help **maintain a coherent semantic flow** throughout the page that won't be confusing to navigate through when utilizing assistive technologies

➢ Lack of semantic elements

- **Solution**: wrapping primary page content within a <**main**> element and having elements such as <**header**>, <**nav**>, and <**section**>help greatly with **keyboard navigation** and how screen readers will recognize the structure of the page.

Accessibility Results: Post-intervention & Optimization

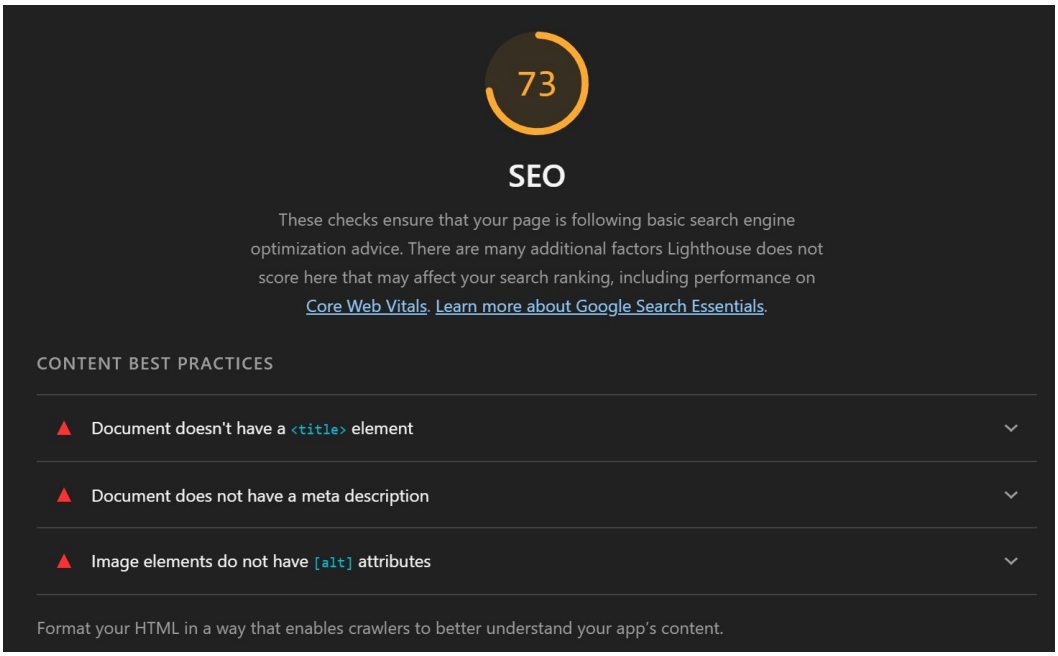




❖ The only thing that can be adjusted for a better score is the color of the filter to a **darker color** to contrast with the white background

Part Five: Search Engine Optimization (SEO)

SEO Pre-optimization/fixes



- **Identified Issues:**
  - As previously mentioned a **<title>** element is essential for website pages. **Having no <title>** element makes it **difficult** for search engine users to determine if the page is relevant to their search
    - **Solution**: Give the page a <title> using **relevant keywords**: `**<title>Photographe Nina Carducci | Photographie Professionelle a Bordeaux</title>**`
  - HTML Document **lacks** a **meta description**
    - **Solution:** provide a meta description that gives a **concise summary** of the page content while naturally including relevant keywords:
      - "Professional photographer in Bordeaux, France, Nina Carducci captures weddings, portraits, and live events with creativity, passion, and a sharp eye for detail."
  - No social media presence

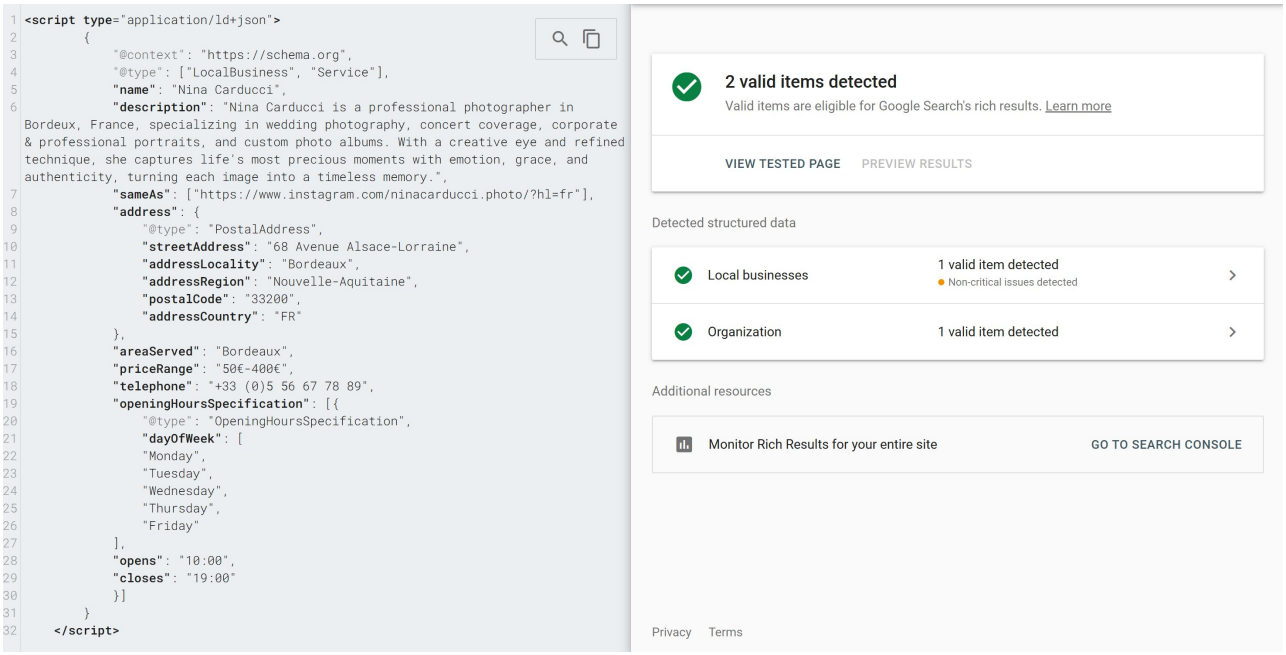
- **Solution**: **<meta>** elements were included in the <title> of the web page for both Open Graphs & Twitter cards

❖ Additional **Improvements**:

➢ As stated before image element [**alt**] attributes have been added with a brief description of their respective image.

➢ Local SEO **Structured Data Script** was created and added to document's **<head>**, incorporating **Schema.org microdata** to describe the business and provide information that would be useful to potential customers

➢ **Google Rich Result Test**:



```
<script type="application/ld+json">
        {
            "@context": "https://schema.org",
            "@type": ["LocalBusiness", "Service"],
            "name": "Nina Carducci",
            "description": "Nina Carducci is a professional photographer in
Bordeux, France, specializing in wedding photography, concert coverage, corporate
& professional portraits, and custom photo albums. With a creative eye and refined
technique, she captures life's most precious moments with emotion, grace, and
authenticity, turning each image into a timeless memory.",
            "sameAs": ["https://www.instagram.com/ninacarducci.photo/?hl=fr"],
            "address": {
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                "streetAddress": "68 Avenue Alsace-Lorraine",
                "addressLocality": "Bordeaux",
                "addressRegion": "Nouvelle-Aquitaine",
                "postalCode": "33200",
                "addressCountry": "FR"
            },
            "areaServed": "Bordeaux",
            "priceRange": "50€-400€",
            "telephone": "+33 (0)5 56 67 78 89",
            "openingHoursSpecification": [{
                "@type": "OpeningHoursSpecification",
                "dayOfWeek": [
                "Monday",
                "Tuesday",
                "Wednesday",
                "Thursday",
                "Friday"
            ],
            "opens": "10:00",
            "closes": "19:00"
            }]
        }
    </script>
```

2 valid items detected

Valid items are eligible for Google Search's rich results. Learn more

VIEW TESTED PAGE PREVIEW RESULTS

Detected structured data

Local businesses — 1 valid item detected — Non-critical issues detected

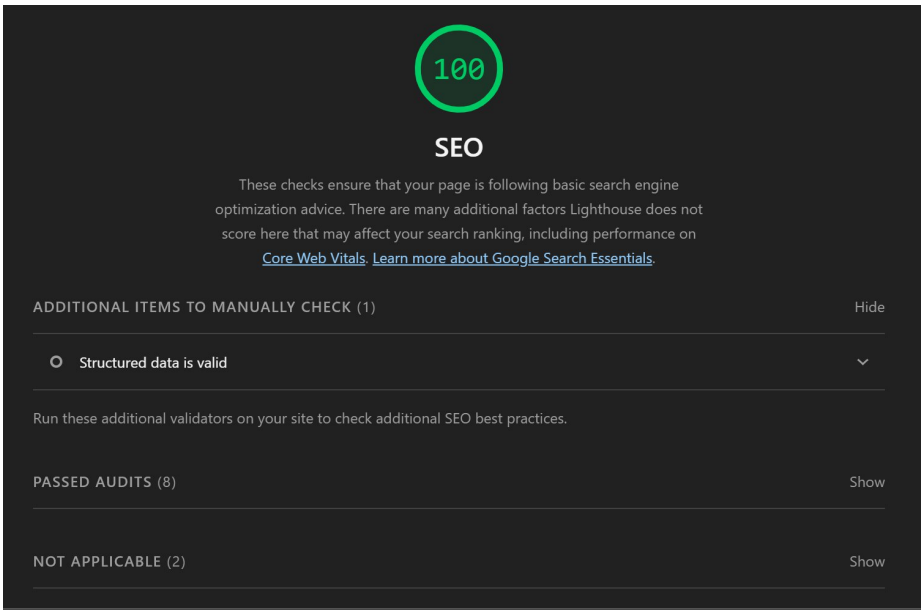
Organization — 1 valid item detected

Additional resources

Monitor Rich Results for your entire site — GO TO SEARCH CONSOLE

Privacy Terms

❖ **SEO Results Post-optimization & Fixes**:



Part Six: Debugging & The Fixes

- It was requested by Nina Carducci, that the code related to the **gallery's image navigation** and **filter buttons** were reviewed for bug fixes.
  - "The gallery's previous and next image navigation doesn't work."
    - **Resolved**. Both modal navigation arrows now function properly without error
  - "When you change filters to display images, the selected category is not visible. The category should normally have a gold background. The same as the default filter."
    - **Resolved**. Clicking a different filter now highlights the active tag
    - **Suggestion**: If a better accessibility score is desired for the page, consider changing the active tag color to a darker color that contrasts well with the white background.
- Breakdown of the Debugging Process:
  - **1) Objective**: **Identify** and **fix** the bug that's preventing **gallery image navigation** within the lightbox/modal.
    - Identified the relevant <script> for the gallery image navigation: `**maugallery.js**` and found the relevant functions `**prevImage()**` & `**nextImage()**`.

- Upon identifying the related functions, developer tools were utilized to add breakpoints in the code for both functions in order to trace logic.
- `**console.log()**` statements were used to check variables such as `activeImage`, `index`, and `imagesCollection`
- After some investigation, it was identified that the issue **primarily** stems from how the **index** variable was being used in relation to the imagesCollection array. Specifically, the **index is correctly calculated** as the position of the **current active image** within imagesCollection, however, the code **fails to increment** or **decrement** the **index** respectively.
- As a result, the **index** variable remains the same and isn't properly updated when the user clicks on either directional button. The fix to this is to simply adjust the **index** by either **subtracting(-) 1** for prevImage() and **adding(+) 1** for nextImage(). Examples below:
  - **Error (**prevImage()**): next = imagesCollection[index] | | imagesCollection[0 - 1]**
  - **Solution** (prevImage())**: next = imagesCollection[index - 1] | | imagesCollection[0 -1]**
- **Result Summary**: Both modal/lightbox navigation arrows now function properly as the index is now dynamically being adjusted

➢ **2) Objective: Identify** and **fix** the bug related to the **active filter highlight** not functioning properly when switching to a different filter category (Tous, Concert, Enterprise, etc.).

- The files related to this issue that were reviewed are `**maugallery.js**` & `**style.css**`
- The **filterByTag()** function is responsible for the necessary class removals and additions that correspond to the linked CSS file
- The classes **active** & **active-tag** are related to the **issue**
- The **problem: `$(".active-tag").removeClass("active active-tag");` `$(this).addClass("active-tag")";`**
  - The `**.active-tag**` class that was added doesn't exist anywhere within the CSS file, making it completely useless. However,

`.active`, does exist and has the relevant CSS rules related to highlighting the active filter. So all that needs to be done replace `.active-tag` with `.active`.

- The **solution**: **`$(".nav-link").removeClass("active");`** **`$(this).addClass("active");`**
- **Result:** Clicking any filter option will now be highlighted in gold due to the `.active` class being properly applied.

The Full Lighthouse Reports:

Final report for mobile can be found at:

https://github.com/EAE00-src/Nina-Carducci_Website-Intervention/blob/master/Report%20Documentation/Nina-Carducci_Lighthouse-Report_mobile.pdf

Final report for desktops can be found at:

https://github.com/EAE00-src/Nina-Carducci_Website-Intervention/blob/master/Report%20Documentation/Nina-Carducci_Lighthouse-Report_desktop.pdf