

### Performance

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

▲ 0–49    ■ 50–89    ● 90–100



#### METRICS

Expand view

<div>● First Contentful Paint</div> <div>0.3 s</div>	<div>■ Time to Interactive</div> <div>4.3 s</div>
<div>● Speed Index</div> <div>0.7 s</div>	<div>■ Total Blocking Time</div> <div>220 ms</div>
<div>● Largest Contentful Paint</div> <div>0.4 s</div>	<div>● Cumulative Layout Shift</div> <div>0</div>

View Original Trace

View Treemap

Show audits relevant to: [All](#) [FCP](#) [TBT](#) [LCP](#) [CLS](#)

#### DIAGNOSTICS

▲ Avoid enormous network payloads — Total size was 4,338 KiB


Large network payloads cost users real money and are highly correlated with long load times. [Learn more.](#) [LCP](#)

URL	Transfer Size
/instruments/trumpet-mp3.js (earfit.vercel.app)	1,894.5 KiB
/instruments/acoustic_grand_piano-mp3.js (earfit.vercel.app)	1,426.0 KiB
/instruments/acoustic_guitar_nylon-mp3.js (earfit.vercel.app)	849.4 KiB
...chunks/framework-91d7f78b5b4003c8.js (earfit.vercel.app)	43.0 KiB

URL	Transfer Size
...chunks/main-b81cfcc549....js (earfit.vercel.app)	27.5 KiB
...chunks/287-648061f2b0ec10e9.js (earfit.vercel.app)	26.8 KiB
...css/3e4348556ca05131.css (earfit.vercel.app)	24.6 KiB
/images/tooltipIcon.png (earfit.vercel.app)	19.5 KiB
...pages/_app-6f58a57d59fce643.js (earfit.vercel.app)	7.7 KiB
/favicon.ico (earfit.vercel.app)	5.3 KiB

User Timing marks and measures — 4 user timings

Consider instrumenting your app with the User Timing API to measure your app's real-world performance during key user experiences. [Learn more.](#)

 Use the React DevTools Profiler, which makes use of the Profiler API, to measure the rendering performance of your components. [Learn more.](#)

~~NEXT~~. Consider using `Next.js Analytics` to measure your app's real-world performance. [Learn more.](#)

Name	Type	Start Time	Duration
Next.js-before-hydration	Measure	0 ms	582.33 ms
Next.js-hydration	Measure	582.33 ms	24.31 ms
beforeRender	Mark	582.35 ms	
afterHydrate	Mark	606.65 ms	

Keep request counts low and transfer sizes small — 20 requests • 4,332 KiB

To set budgets for the quantity and size of page resources, add a budget.json file. [Learn more.](#)

Resource Type	Requests	Transfer Size
Total	20	4,332.3 KiB
Other	5	4,170.1 KiB
Script	11	115.6 KiB
Stylesheet	2	25.2 KiB
Image	1	19.5 KiB
Document	1	1.8 KiB
Media	0	0.0 KiB
Font	0	0.0 KiB


Resource Type	Requests	Transfer Size
Third-party	2	0.3 KiB

Largest Contentful Paint element

1 element found

This is the largest contentful element painted within the viewport. [Learn More](#) LCP

Element



h1.display-4

Avoid long main-thread tasks

3 long tasks found

Lists the longest tasks on the main thread, useful for identifying worst contributors to input delay. [Learn more](#) TBT

URL	Start Time	Duration
...pages/_app-6f58a57d59fce643.js (earfit.vercel.app)	4,207 ms	170 ms
...chunks/framework-91d7f78b5b4003c8.js (earfit.vercel.app)	1,806 ms	157 ms
...pages/_app-6f58a57d59fce643.js (earfit.vercel.app)	2,607 ms	99 ms

More information about the performance of your application. These numbers don't [directly affect](#) the Performance score.

PASSED AUDITS (34) Hide

Eliminate render-blocking resources

Resources are blocking the first paint of your page. Consider delivering critical JS/CSS inline and deferring all non-critical JS/styles. [Learn more](#) FCP LCP

NEXT

Use the `next/script` component to defer loading of non-critical third-party scripts. [Learn more](#).

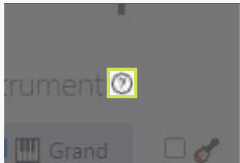
Properly size images

Potential savings of 19 KiB

Serve images that are appropriately-sized to save cellular data and improve load time. [Learn more](#).

NEXT

Use the `next/image` component to set the appropriate `sizes`. [Learn more](#).

URL	Resource Size	Potential Savings
<div><div></div><div>img</div><div>/images/tooltipIcon.png (earfit.vercel.app)</div></div>	19.3 KiB	19.3 KiB

●

Defer offscreen images

^

Consider lazy-loading offscreen and hidden images after all critical resources have finished loading to lower time to interactive. [Learn more](#).


NEXT. Use the `next/image` component, which defaults to `loading="lazy"`. [Learn more](#).

●

Minify CSS

^

Minifying CSS files can reduce network payload sizes. [Learn more](#). FCP LCP




If your build system minifies CSS files automatically, ensure that you are deploying the production build of your application. You can check this with the React Developer Tools extension. [Learn more](#).

●

Minify JavaScript

^

Minifying JavaScript files can reduce payload sizes and script parse time. [Learn more](#). FCP LCP



If your build system minifies JS files automatically, ensure that you are deploying the production build of your application. You can check this with the React Developer Tools extension. [Learn more](#).

●

Reduce unused CSS

— Potential savings of 24 KiB

^

Reduce unused rules from stylesheets and defer CSS not used for above-the-fold content to decrease bytes consumed by network activity. [Learn more](#). FCP LCP

NEXT. Consider setting up `PurgeCSS` in `Next.js` configuration to remove unused rules from stylesheets. [Learn more](#).


URL	Transfer Size	Potential Savings
...css/3e4348556ca05131.css (earfit.vercel.app)	24.6 KiB	23.5 KiB

●

Reduce unused JavaScript

^

Reduce unused JavaScript and defer loading scripts until they are required to decrease bytes consumed by network activity. [Learn more](#). LCP



If you are not server-side rendering, [split your JavaScript bundles](#) with `React.lazy()`. Otherwise, code-split using a third-party library such as [loadable-components](#).

NEXT. Use `Webpack Bundle Analyzer` to detect unused JavaScript code. [Learn mode](#)

●

Efficiently encode images

^

Optimized images load faster and consume less cellular data. [Learn more](#).

NEXT. Use the `next/image` component instead of `<img>` to optimize images. [Learn more](#).

●

Serve images in next-gen formats

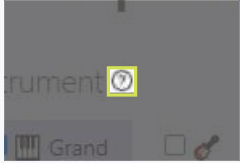
— Potential savings of 15 KiB

^

Image formats like WebP and AVIF often provide better compression than PNG or JPEG, which means faster downloads and less data consumption. [Learn more](#).

NEXT. Use the `Next.js` Image Optimization API to serve modern formats like `WebP` and `AVIF`. [Learn more](#).

URL	Resource Size	Potential Savings
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URL		Resource Size	Potential Savings
	img  /images/tooltipicon.png (earfit.vercel.app)	19.3 KiB	15.0 KiB

Enable text compression

^

Text-based resources should be served with compression (gzip, deflate or brotli) to minimize total network bytes. [Learn more.](#) FCP LCP

NEXT: Enable compression on your Next.js server. [Learn more.](#)

Preconnect to required origins


^

Consider adding `preconnect` or `dns-prefetch` resource hints to establish early connections to important third-party origins. [Learn more.](#) FCP LCP

Initial server response time was short — Root document took 310 ms

^

Keep the server response time for the main document short because all other requests depend on it. [Learn more.](#) FCP LCP


 If you are server-side rendering any React components, consider using `renderToNodeStream()` or `renderToStaticNodeStream()` to allow the client to receive and hydrate different parts of the markup instead of all at once. [Learn more.](#)

URL	Time Spent
/piano (earfit.vercel.app)	310 ms

Avoid multiple page redirects

^

Redirects introduce additional delays before the page can be loaded. [Learn more.](#) FCP LCP

 If you are using React Router, minimize usage of the `` component for [route navigations](#).

Preload key requests

^

Consider using `` to prioritize fetching resources that are currently requested later in page load. [Learn more.](#) FCP LCP

Use HTTP/2

^

HTTP/2 offers many benefits over HTTP/1.1, including binary headers and multiplexing. [Learn more.](#)

Use video formats for animated content

^

Large GIFs are inefficient for delivering animated content. Consider using MPEG4/WebM videos for animations and PNG/WebP for static images instead of GIF to save network bytes. [Learn more](#) LCP

Remove duplicate modules in JavaScript bundles

^

Remove large, duplicate JavaScript modules from bundles to reduce unnecessary bytes consumed by network activity.

TBT

●

Avoid serving legacy JavaScript to modern browsers

— Potential savings of 0 KiB

^

Polyfills and transforms enable legacy browsers to use new JavaScript features. However, many aren't necessary for modern browsers. For your bundled JavaScript, adopt a modern script deployment strategy using module/nomodule feature detection to reduce the amount of code shipped to modern browsers, while retaining support for legacy browsers. [Learn More](#)

TBT

URL	Potential Savings
...chunks/main-b81cfcc549...js (earfit.vercel.app)	0.1 KiB
main-b81cfcc549862624.js:1 @babel/plugin-transform-classes	
...chunks/287-648061f2b0ec10e9.js (earfit.vercel.app)	0.1 KiB
287-648061f2b0ec10e9.js:1 @babel/plugin-transform-classes	

○

Preload Largest Contentful Paint image

^

Preload the image used by the LCP element in order to improve your LCP time. [Learn more](#). 

LCP

●

Uses efficient cache policy on static assets

— 0 resources found

^

A long cache lifetime can speed up repeat visits to your page. [Learn more](#).

NEXT. Configure caching for immutable assets and 'Server-side Rendered' (SSR) pages. [Learn more](#).

●

Avoids an excessive DOM size

— 122 elements

^

A large DOM will increase memory usage, cause longer [style calculations](#), and produce costly [layout reflows](#). [Learn more](#). 

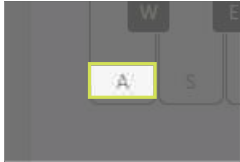
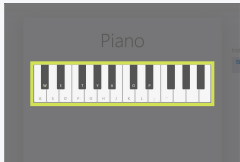
TBT

Consider using a "windowing" library like 'react-window' to minimize the number of DOM nodes created if you are rendering many repeated elements on the page. [Learn more](#). Also, minimize unnecessary re-renders using 'shouldComponentUpdate', 'PureComponent', or 'React.memo' and [skip effects](#) only until certain dependencies have changed if you are using the 'Effect' hook to improve runtime performance.

Statistic

Element

Value

Total DOM Elements		122
Maximum DOM Depth		div.ReactPiano__NoteLabel.ReactPiano__NoteLabel--natural11
Maximum Child Elements		div.ReactPiano__Keyboard24

○

Avoid chaining critical requests

^

The Critical Request Chains below show you what resources are loaded with a high priority. Consider reducing the length of chains, reducing the download size of resources, or deferring the download of unnecessary resources to improve page load.  
[Learn more](#). FCP LCP

Maximum critical path latency: **310 ms**

Initial Navigation  
 /piano (earfit.vercel.app) - **310 ms, 1.80 KiB**

JavaScript execution time — 0.5 s ^

Consider reducing the time spent parsing, compiling, and executing JS. You may find delivering smaller JS payloads helps with this. [Learn more](#). TBT

URL	Total CPU Time	Script Evaluation	Script Parse
...pages/_app-6f58a57d59fce643.js (earfit.vercel.app)	656 ms	270 ms	0 ms
...chunks/framework-91d7f78b5b4003c8.js (earfit.vercel.app)	283 ms	213 ms	3 ms
Unattributable	231 ms	3 ms	0 ms
/piano (earfit.vercel.app)	159 ms	3 ms	1 ms

Minimizes main-thread work — 1.4 s ^

Consider reducing the time spent parsing, compiling and executing JS. You may find delivering smaller JS payloads helps with this. [Learn more](#) TBT

Category	Time Spent
Other	681 ms
Script Evaluation	579 ms
Style & Layout	127 ms
Rendering	22 ms
Parse HTML & CSS	20 ms
Script Parsing & Compilation	9 ms
Garbage Collection	9 ms

All text remains visible during webfont loads ^

Leverage the font-display CSS feature to ensure text is user-visible while webfonts are loading. [Learn more](#). FCP LCP

Minimize third-party usage ^

Third-party code can significantly impact load performance. Limit the number of redundant third-party providers and try to load third-party code after your page has primarily finished loading. [Learn more](#). TBT

Lazy load third-party resources with facades ^

Some third-party embeds can be lazy loaded. Consider replacing them with a facade until they are required. <a href="#">Learn more</a> . <span>TBT</span>	
<input type="radio"/> Largest Contentful Paint image was not lazily loaded	^
Above-the-fold images that are lazily loaded render later in the page lifecycle, which can delay the largest contentful paint. <a href="#">Learn more</a> .	
<input type="radio"/> Avoid large layout shifts	^
These DOM elements contribute most to the CLS of the page. <span>CLS</span>	
<input checked="" type="radio"/> Uses passive listeners to improve scrolling performance	^
Consider marking your touch and wheel event listeners as `passive` to improve your page's scroll performance. <a href="#">Learn more</a> .	
<input checked="" type="radio"/> Avoids <code>document.write()</code>	^
For users on slow connections, external scripts dynamically injected via `document.write()` can delay page load by tens of seconds. <a href="#">Learn more</a> .	
<input type="radio"/> Avoid non-composited animations	^
Animations which are not composited can be janky and increase CLS. <a href="#">Learn more</a> <span>CLS</span>	
<input checked="" type="radio"/> Image elements have explicit <code>width</code> and <code>height</code>	^
Set an explicit width and height on image elements to reduce layout shifts and improve CLS. <a href="#">Learn more</a> <span>CLS</span>	
<input checked="" type="radio"/> Has a <code>&lt;meta name="viewport"&gt;</code> tag with <code>width</code> or <code>initial-scale</code>	^
A ` <code>&lt;meta name="viewport"&gt;</code> ` not only optimizes your app for mobile screen sizes, but also prevents <a href="#">a 300 millisecond delay to user input</a> . <a href="#">Learn more</a> . <span>TBT</span>	



### Accessibility

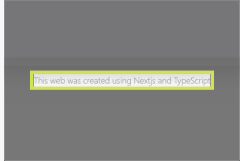
These checks highlight opportunities to [improve the accessibility of your web app](#). Only a subset of accessibility issues can be automatically detected so manual testing is also encouraged.

#### CONTRAST


<input checked="" type="checkbox"/> Background and foreground colors do not have a sufficient contrast ratio.	^
Low-contrast text is difficult or impossible for many users to read. <a href="#">Learn more</a> .	
<div>Failing Elements</div>	



Failing Elements



p.lead.text-muted.text-align-center



body

These are opportunities to improve the legibility of your content.

ADDITIONAL ITEMS TO MANUALLY CHECK (10)		Hide
<input type="radio"/>	The page has a logical tab order	^
Tabbing through the page follows the visual layout. Users cannot focus elements that are offscreen. <a href="#">Learn more.</a>		
<input type="radio"/>	Interactive controls are keyboard focusable	^
Custom interactive controls are keyboard focusable and display a focus indicator. <a href="#">Learn more.</a>		
<input type="radio"/>	Interactive elements indicate their purpose and state	^
Interactive elements, such as links and buttons, should indicate their state and be distinguishable from non-interactive elements. <a href="#">Learn more.</a>		
<input type="radio"/>	The user's focus is directed to new content added to the page	^
If new content, such as a dialog, is added to the page, the user's focus is directed to it. <a href="#">Learn more.</a>		
<input type="radio"/>	User focus is not accidentally trapped in a region	^
A user can tab into and out of any control or region without accidentally trapping their focus. <a href="#">Learn more.</a>		
<input type="radio"/>	Custom controls have associated labels	^
Custom interactive controls have associated labels, provided by aria-label or aria-labelledby. <a href="#">Learn more.</a>		
<input type="radio"/>	Custom controls have ARIA roles	^
Custom interactive controls have appropriate ARIA roles. <a href="#">Learn more.</a>		
<input type="radio"/>	Visual order on the page follows DOM order	^
DOM order matches the visual order, improving navigation for assistive technology. <a href="#">Learn more.</a>		
<input type="radio"/>	Offscreen content is hidden from assistive technology	^
Offscreen content is hidden with display: none or aria-hidden=true. <a href="#">Learn more.</a>		
<input type="radio"/>	HTML5 landmark elements are used to improve navigation	^

Landmark elements (<main>, <nav>, etc.) are used to improve the keyboard navigation of the page for assistive technology. [Learn more.](#)

These items address areas which an automated testing tool cannot cover. Learn more in our guide on [conducting an accessibility review](#).

PASSED AUDITS (16) Hide

<div><div></div><div>[aria-*] attributes match their roles</div><div></div></div>
<div>Each ARIA `role` supports a specific subset of `aria-*` attributes. Mismatching these invalidates the `aria-*` attributes. <a href="#">Learn more.</a></div>
<div><div></div><div>[aria-hidden="true"] is not present on the document &lt;body&gt;</div><div></div></div>
<div>Assistive technologies, like screen readers, work inconsistently when `aria-hidden="true"` is set on the document `&lt;body&gt;`. <a href="#">Learn more.</a></div>
<div><div></div><div>[role]s have all required [aria-*] attributes</div><div></div></div>
<div>Some ARIA roles have required attributes that describe the state of the element to screen readers. <a href="#">Learn more.</a></div>
<div><div></div><div>[role] values are valid</div><div></div></div>
<div>ARIA roles must have valid values in order to perform their intended accessibility functions. <a href="#">Learn more.</a></div>
<div><div></div><div>[aria-*] attributes have valid values</div><div></div></div>
<div>Assistive technologies, like screen readers, can't interpret ARIA attributes with invalid values. <a href="#">Learn more.</a></div>
<div><div></div><div>[aria-*] attributes are valid and not misspelled</div><div></div></div>
<div>Assistive technologies, like screen readers, can't interpret ARIA attributes with invalid names. <a href="#">Learn more.</a></div>
<div><div></div><div>Buttons have an accessible name</div><div></div></div>
<div>When a button doesn't have an accessible name, screen readers announce it as "button", making it unusable for users who rely on screen readers. <a href="#">Learn more.</a></div>
<div><div></div><div>Image elements have [alt] attributes</div><div></div></div>
<div>Informative elements should aim for short, descriptive alternate text. Decorative elements can be ignored with an empty alt attribute. <a href="#">Learn more.</a></div>
<div><div></div><div>Form elements have associated labels</div><div></div></div>
<div>Labels ensure that form controls are announced properly by assistive technologies, like screen readers. <a href="#">Learn more.</a></div>
<div><div></div><div>[user-scalable="no"] is not used in the &lt;meta name="viewport"&gt; element and the [maximum-scale] attribute is not less than 5.</div><div></div></div>
<div>Disabling zooming is problematic for users with low vision who rely on screen magnification to properly see the contents of a web page. <a href="#">Learn more.</a></div>
<div><div></div><div>The page contains a heading, skip link, or landmark region</div><div></div></div>

Adding ways to bypass repetitive content lets keyboard users navigate the page more efficiently. <a href="#">Learn more.</a>	
<div><div></div><div>Document has a <code>&lt;title&gt;</code> element</div><div>^</div></div>	
The title gives screen reader users an overview of the page, and search engine users rely on it heavily to determine if a page is relevant to their search. <a href="#">Learn more.</a>	
<div><div></div><div><code>&lt;html&gt;</code> element has a <code>[lang]</code> attribute</div><div>^</div></div>	
If a page doesn't specify a lang attribute, a screen reader assumes that the page is in the default language that the user chose when setting up the screen reader. If the page isn't actually in the default language, then the screen reader might not announce the page's text correctly. <a href="#">Learn more.</a>	
<div><div></div><div><code>&lt;html&gt;</code> element has a valid value for its <code>[lang]</code> attribute</div><div>^</div></div>	
Specifying a valid <a href="#">BCP 47 language</a> helps screen readers announce text properly. <a href="#">Learn more.</a>	
<div><div></div><div>Links have a discernible name</div><div>^</div></div>	
Link text (and alternate text for images, when used as links) that is discernible, unique, and focusable improves the navigation experience for screen reader users. <a href="#">Learn more.</a>	
<div><div></div><div>Heading elements appear in a sequentially-descending order</div><div>^</div></div>	
Properly ordered headings that do not skip levels convey the semantic structure of the page, making it easier to navigate and understand when using assistive technologies. <a href="#">Learn more.</a>	

NOT APPLICABLE (27)

Hide

<div><div></div><div><code>[accesskey]</code> values are unique</div><div>^</div></div>	
Access keys let users quickly focus a part of the page. For proper navigation, each access key must be unique. <a href="#">Learn more.</a>	
<div><div></div><div><code>button</code>, <code>link</code>, and <code>menuitem</code> elements have accessible names</div><div>^</div></div>	
When an element doesn't have an accessible name, screen readers announce it with a generic name, making it unusable for users who rely on screen readers. <a href="#">Learn more.</a>	
<div><div></div><div><code>[aria-hidden="true"]</code> elements do not contain focusable descendents</div><div>^</div></div>	
Focusable descendents within an <code>[aria-hidden="true"]`</code> element prevent those interactive elements from being available to users of assistive technologies like screen readers. <a href="#">Learn more.</a>	
<div><div></div><div>ARIA input fields have accessible names</div><div>^</div></div>	
When an input field doesn't have an accessible name, screen readers announce it with a generic name, making it unusable for users who rely on screen readers. <a href="#">Learn more.</a>	
<div><div></div><div>ARIA <code>meter</code> elements have accessible names</div><div>^</div></div>	
When an element doesn't have an accessible name, screen readers announce it with a generic name, making it unusable for users who rely on screen readers. <a href="#">Learn more.</a>	
<div><div></div><div>ARIA <code>progressbar</code> elements have accessible names</div><div>^</div></div>	

	When a `progressbar` element doesn't have an accessible name, screen readers announce it with a generic name, making it unusable for users who rely on screen readers. <a href="#">Learn more.</a>	
<input type="radio"/>	Elements with an ARIA <code>[role]</code> that require children to contain a specific <code>[role]</code> have all required children.	^
	Some ARIA parent roles must contain specific child roles to perform their intended accessibility functions. <a href="#">Learn more.</a>	
<input type="radio"/>	<code>[role]</code> s are contained by their required parent element	^
	Some ARIA child roles must be contained by specific parent roles to properly perform their intended accessibility functions. <a href="#">Learn more.</a>	
<input type="radio"/>	ARIA toggle fields have accessible names	^
	When a toggle field doesn't have an accessible name, screen readers announce it with a generic name, making it unusable for users who rely on screen readers. <a href="#">Learn more.</a>	
<input type="radio"/>	ARIA <code>tooltip</code> elements have accessible names	^
	When an element doesn't have an accessible name, screen readers announce it with a generic name, making it unusable for users who rely on screen readers. <a href="#">Learn more.</a>	
<input type="radio"/>	ARIA <code>treeitem</code> elements have accessible names	^
	When an element doesn't have an accessible name, screen readers announce it with a generic name, making it unusable for users who rely on screen readers. <a href="#">Learn more.</a>	
<input type="radio"/>	<code>&lt;dl&gt;</code> 's contain only properly-ordered <code>&lt;dt&gt;</code> and <code>&lt;dd&gt;</code> groups, <code>&lt;script&gt;</code> , <code>&lt;template&gt;</code> or <code>&lt;div&gt;</code> elements.	^
	When definition lists are not properly marked up, screen readers may produce confusing or inaccurate output. <a href="#">Learn more.</a>	
<input type="radio"/>	Definition list items are wrapped in <code>&lt;dl&gt;</code> elements	^
	Definition list items (`<dt>` and ` <code>&lt;dd&gt;</code> `) must be wrapped in a parent ` <code>&lt;dl&gt;</code> ` element to ensure that screen readers can properly announce them. <a href="#">Learn more.</a>	
<input type="radio"/>	<code>[id]</code> attributes on active, focusable elements are unique	^
	All focusable elements must have a unique `id` to ensure that they're visible to assistive technologies. <a href="#">Learn more.</a>	
<input type="radio"/>	ARIA IDs are unique	^
	The value of an ARIA ID must be unique to prevent other instances from being overlooked by assistive technologies. <a href="#">Learn more.</a>	
<input type="radio"/>	No form fields have multiple labels	^
	Form fields with multiple labels can be confusingly announced by assistive technologies like screen readers which use either the first, the last, or all of the labels. <a href="#">Learn more.</a>	
<input type="radio"/>	<code>&lt;frame&gt;</code> or <code>&lt;iframe&gt;</code> elements have a title	^
	Screen reader users rely on frame titles to describe the contents of frames. <a href="#">Learn more.</a>	
<input type="radio"/>	<code>&lt;input type="image"&gt;</code> elements have <code>[alt]</code> text	^

	When an image is being used as an <code>&lt;input&gt;</code> button, providing alternative text can help screen reader users understand the purpose of the button. <a href="#">Learn more</a> .	
<input type="radio"/>	Lists contain only <code>&lt;li&gt;</code> elements and script supporting elements ( <code>&lt;script&gt;</code> and <code>&lt;template&gt;</code> ).	^
	Screen readers have a specific way of announcing lists. Ensuring proper list structure aids screen reader output. <a href="#">Learn more</a> .	
<input type="radio"/>	List items ( <code>&lt;li&gt;</code> ) are contained within <code>&lt;ul&gt;</code> or <code>&lt;ol&gt;</code> parent elements	^
	Screen readers require list items ( <code>&lt;li&gt;</code> ) to be contained within a parent <code>&lt;ul&gt;</code> or <code>&lt;ol&gt;</code> to be announced properly. <a href="#">Learn more</a> .	
<input type="radio"/>	The document does not use <code>&lt;meta http-equiv="refresh"&gt;</code>	^
	Users do not expect a page to refresh automatically, and doing so will move focus back to the top of the page. This may create a frustrating or confusing experience. <a href="#">Learn more</a> .	
<input type="radio"/>	<code>&lt;object&gt;</code> elements have <code>[alt]</code> text	^
	Screen readers cannot translate non-text content. Adding alt text to <code>&lt;object&gt;</code> elements helps screen readers convey meaning to users. <a href="#">Learn more</a> .	
<input type="radio"/>	No element has a <code>[tabindex]</code> value greater than 0	^
	A value greater than 0 implies an explicit navigation ordering. Although technically valid, this often creates frustrating experiences for users who rely on assistive technologies. <a href="#">Learn more</a> .	
<input type="radio"/>	Cells in a <code>&lt;table&gt;</code> element that use the <code>[headers]</code> attribute refer to table cells within the same table.	^
	Screen readers have features to make navigating tables easier. Ensuring <code>&lt;td&gt;</code> cells using the <code>[headers]</code> attribute only refer to other cells in the same table may improve the experience for screen reader users. <a href="#">Learn more</a> .	
<input type="radio"/>	<code>&lt;th&gt;</code> elements and elements with <code>[role="columnheader"/"rowheader"]</code> have data cells they describe.	^
	Screen readers have features to make navigating tables easier. Ensuring table headers always refer to some set of cells may improve the experience for screen reader users. <a href="#">Learn more</a> .	
<input type="radio"/>	<code>[lang]</code> attributes have a valid value	^
	Specifying a valid <a href="#">BCP 47 language</a> on elements helps ensure that text is pronounced correctly by a screen reader. <a href="#">Learn more</a> .	
<input type="radio"/>	<code>&lt;video&gt;</code> elements contain a <code>&lt;track&gt;</code> element with <code>[kind="captions"]</code>	^
	When a video provides a caption it is easier for deaf and hearing impaired users to access its information. <a href="#">Learn more</a> .	



Best Practices

Ensure CSP is effective against XSS attacks

^

A strong Content Security Policy (CSP) significantly reduces the risk of cross-site scripting (XSS) attacks. [Learn more](#)

Description	Directive	Severity
No CSP found in enforcement mode		High

GENERAL

Detected JavaScript libraries

^

All front-end JavaScript libraries detected on the page. [Learn more](#).

Name	Version
React	
Next.js	12.0.10

PASSED AUDITS (14)

Hide

Uses HTTPS

^

All sites should be protected with HTTPS, even ones that don't handle sensitive data. This includes avoiding [mixed content](#), where some resources are loaded over HTTP despite the initial request being served over HTTPS. HTTPS prevents intruders from tampering with or passively listening in on the communications between your app and your users, and is a prerequisite for HTTP/2 and many new web platform APIs. [Learn more](#).

Avoids requesting the geolocation permission on page load

^

Users are mistrustful of or confused by sites that request their location without context. Consider tying the request to a user action instead. [Learn more](#).

Avoids requesting the notification permission on page load

^

Users are mistrustful of or confused by sites that request to send notifications without context. Consider tying the request to user gestures instead. [Learn more](#).

Avoids front-end JavaScript libraries with known security vulnerabilities

^

Some third-party scripts may contain known security vulnerabilities that are easily identified and exploited by attackers. [Learn more](#).

Allows users to paste into password fields

^

Preventing password pasting undermines good security policy. [Learn more](#).

Displays images with correct aspect ratio

^

Image display dimensions should match natural aspect ratio. [Learn more](#).

<div><div></div><div>Serves images with appropriate resolution</div><div></div></div>	
Image natural dimensions should be proportional to the display size and the pixel ratio to maximize image clarity. <a href="#">Learn more</a> .	
<div><div></div><div>Page has the HTML doctype</div><div></div></div>	
Specifying a doctype prevents the browser from switching to quirks-mode. <a href="#">Learn more</a> .	
<div><div></div><div>Properly defines charset</div><div></div></div>	
A character encoding declaration is required. It can be done with a ` <meta/> ` tag in the first 1024 bytes of the HTML or in the Content-Type HTTP response header. <a href="#">Learn more</a> .	
<div><div></div><div>Avoids <code>unload</code> event listeners</div><div></div></div>	
The `unload` event does not fire reliably and listening for it can prevent browser optimizations like the Back-Forward Cache. Consider using the `pagehide` or `visibilitychange` events instead. <a href="#">Learn more</a>	
<div><div></div><div>Avoids deprecated APIs</div><div></div></div>	
Deprecated APIs will eventually be removed from the browser. <a href="#">Learn more</a> .	
<div><div></div><div>No browser errors logged to the console</div><div></div></div>	
Errors logged to the console indicate unresolved problems. They can come from network request failures and other browser concerns. <a href="#">Learn more</a>	
<div><div></div><div>No issues in the <code>Issues</code> panel in Chrome Devtools</div><div></div></div>	
Issues logged to the `Issues` panel in Chrome Devtools indicate unresolved problems. They can come from network request failures, insufficient security controls, and other browser concerns. Open up the Issues panel in Chrome DevTools for more details on each issue.	
<div><div></div><div>Page has valid source maps</div><div></div></div>	
Source maps translate minified code to the original source code. This helps developers debug in production. In addition, Lighthouse is able to provide further insights. Consider deploying source maps to take advantage of these benefits. <a href="#">Learn more</a> .	
NOT APPLICABLE (1)	Hide
<div><div></div><div>Fonts with <code>font-display: optional</code> are preloaded</div><div></div></div>	
Preload `optional` fonts so first-time visitors may use them. <a href="#">Learn more</a>	



SEO

These checks ensure that your page is following basic search engine optimization advice. There are many additional factors Lighthouse does not

score here that may affect your search ranking, including performance on [Core Web Vitals](#). [Learn more](#).

ADDITIONAL ITEMS TO MANUALLY CHECK (1)

Hide

Structured data is valid

^

Run the [Structured Data Testing Tool](#) and the [Structured Data Linter](#) to validate structured data. [Learn more](#).

Run these additional validators on your site to check additional SEO best practices.

PASSED AUDITS (10)

Hide

Has a `<meta name="viewport">` tag with `width` or `initial-scale`

^

A `<meta name="viewport">` not only optimizes your app for mobile screen sizes, but also prevents [a 300 millisecond delay to user input](#). [Learn more](#). TBT

Document has a `<title>` element

^

The title gives screen reader users an overview of the page, and search engine users rely on it heavily to determine if a page is relevant to their search. [Learn more](#).

Document has a meta description

^

Meta descriptions may be included in search results to concisely summarize page content. [Learn more](#).

Page has successful HTTP status code

^

Pages with unsuccessful HTTP status codes may not be indexed properly. [Learn more](#).

Links have descriptive text

^

Descriptive link text helps search engines understand your content. [Learn more](#).

Links are crawlable

^

Search engines may use ``href`` attributes on links to crawl websites. Ensure that the ``href`` attribute of anchor elements links to an appropriate destination, so more pages of the site can be discovered. [Learn More](#)

Page isn't blocked from indexing

^

Search engines are unable to include your pages in search results if they don't have permission to crawl them. [Learn more](#).

Image elements have `[alt]` attributes

^

Informative elements should aim for short, descriptive alternate text. Decorative elements can be ignored with an empty alt attribute. [Learn more](#).

Document has a valid `hreflang`

^

hreflang links tell search engines what version of a page they should list in search results for a given language or region. [Learn more](#).

Document avoids plugins

^

Search engines can't index plugin content, and many devices restrict plugins or don't support them. [Learn more](#).



- robots.txt is valid

^
- If your robots.txt file is malformed, crawlers may not be able to understand how you want your website to be crawled or indexed. [Learn more.](#)
- Document has a valid `rel=canonical`

^
- Canonical links suggest which URL to show in search results. [Learn more.](#)
- Document uses legible font sizes

^
- Font sizes less than 12px are too small to be legible and require mobile visitors to “pinch to zoom” in order to read. Strive to have >60% of page text ≥12px. [Learn more.](#)
- Tap targets are sized appropriately

^
- Interactive elements like buttons and links should be large enough (48x48px), and have enough space around them, to be easy enough to tap without overlapping onto other elements. [Learn more.](#)