

	URL	Transfer Size	Potential Savings
	css/main.4d34121b.chunk.css (melanoma-classification-v1.herokuapp.com)	4.6 KiB	380 ms
<b>A</b>	Reduce initial server response time		0.85 s ^
	Keep the server response time for the main document short because all other requests depo	end on it. <u>Learn more</u> .	
		Show 3rd-party re	esources (0)
	URL		Time Spent
	https://melanoma-classification-v1.herokuapp.com		950 ms
	Remove unused JavaScript		0.6 s ^
	Remove unused JavaScript to reduce bytes consumed by network activity. <u>Learn more</u> .		
	If you are not server-side rendering, split your JavaScript bundles with `React.la	zy()`. Otherwise, code	-split using
	a third-party library such as <u>loadable-components</u> .		
		Show 3rd-party re	esources (1)
	URL	Transfer Size	Potential Savings
	js/9.b219092a.chunk.js (melanoma-classification-v1.herokuapp.com)	954.2 KiB	504.9 KiB
	js/8.b51f6dde.chunk.js (melanoma-classification-v1.herokuapp.com)	190.3 KiB	117.7 KiB
	js/main.cf1968bf.chunk.js (melanoma-classification-v1.herokuapp.com)	74.5 KiB	52.5 KiB
	iCkMy7ymt/analytics.min.js (cdn.segment.com)	110.3 KiB	33 KiB
	Preload key requests		0.3 s ^
	Consider using ` <li>k rel=preload&gt;` to prioritize fetching resources that are currently request more.</li>	ted later in page load.	<u>Learn</u>
		Show 3rd-party re	esources (0)
	URL	Pote	ential Savings
	media/IBMPlexSa2526ba23.ttf (melanoma-classification-v1.herokuapp.com)		300 ms
	media/IBMPlexMoef8b866b.ttf (melanoma-classification-v1.herokuapp.com)		300 ms
	media/IBMPlexSans-Bold.adfad437.ttf (melanoma-classification-v1.herokuapp.com)		160 ms
	Minify JavaScript		0.2 s ^
	Minifying JavaScript files can reduce payload sizes and script parse time. Learn more.		

Minifying JavaScript files can reduce payload sizes and script parse time. <u>Learn more</u>.



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. <u>Learn more</u>.

with this. Learn more.

	Show 3rd-party resources (0)
URL	Transfer Potential Size Savings
js/9.b219092a.chunk.js (melanoma-classification-v1.herokuapp.com)	954.2 KiB 261.5 KiB
<b>Diagnostics</b> — More information about the performance of your application. These Performance score.	e numbers don't <u>directly affect</u> the
▲ Ensure text remains visible during webfont load	^
Leverage the font-display CSS feature to ensure text is user-visible while webfor	onts are loading. <u>Learn more</u> .
	Show 3rd-party resources (0)
URL	Potential Savings
media/IBMPlexSa2526ba23.ttf (melanoma-classification-v1.herokuapp.com)	2,070 ms
$ \textbf{media/IBMPlexMo}\textbf{ef8b866b.ttf} \hspace{0.2cm} (\textbf{melanoma-classification-v1.herokuapp.com})$	1,280 ms
media/IBMPlexSans-Bold.adfad437.ttf (melanoma-classification-v1.herokuapp.o	com) 2,490 ms
▲ Serve static assets with an efficient cache policy — 10 resources found	^
A long cache lifetime can speed up repeat visits to your page. <u>Learn more</u> .	
	✓ Show 3rd-party resources (1)
URL	Cache TTL Transfer Size
js/9.b219092a.chunk.js (melanoma-classification-v1.herokuapp.com)	None 954 KiB
js/8.b51f6dde.chunk.js (melanoma-classification-v1.herokuapp.com)	None 190 KiB
media/IBMPlexSa2526ba23.ttf (melanoma-classification-v1.herokuapp.com)	None 172 KiB
media/IBMPlexSans-Bold.adfad437.ttf (melanoma-classification-v1.herokuapp.o	com) None 172 KiB
media/IBMPlexMoef8b866b.ttf (melanoma-classification-v1.herokuapp.com)	None 132 KiB
js/main.cf1968bf.chunk.js (melanoma-classification-v1.herokuapp.com)	None 75 KiB
js/29.292504eb.chunk.js (melanoma-classification-v1.herokuapp.com)	None 9 KiB
css/main.4d34121b.chunk.css (melanoma-classification-v1.herokuapp.com)	None 5 KiB
css/9.3bee90c5.chunk.css (melanoma-classification-v1.herokuapp.com)	None 4 KiB
iCkMy7ymt/analytics.min.js (cdn.segment.com)	5 m 110 KiB
Reduce JavaScript execution time — 1.4 s	^

Consider reducing the time spent parsing, compiling, and executing JS. You may find delivering smaller JS payloads helps

Show	3rd-party resources	(1)	
SHOW	JIU-Daily IESUUICES	\ I /	

URL	Total CPU Time	Script Evaluation	Script Parse
js/main.cf1968bf.chunk.js (melanoma-classification-v1.herokuapp.com)	828 ms	740 ms	5 ms
js/8.b51f6dde.chunk.js (melanoma-classification-v1.herokuapp.com)	273 ms	213 ms	28 ms
iCkMy7ymt/analytics.min.js (cdn.segment.com)	220 ms	170 ms	20 ms
js/9.b219092a.chunk.js (melanoma-classification-v1.herokuapp.com)	165 ms	41 ms	58 ms
Unattributable	142 ms	2 ms	0 ms
https://melanoma-classification-v1.herokuapp.com	136 ms	18 ms	22 ms
<pre>chrome-extension://kbfnbcaeplbcioakkpcpgfkobkghlhen/src/js/Grammarly- check.js</pre>	54 ms	40 ms	13 ms

### Avoid chaining critical requests — 6 chains found

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.

#### Maximum critical path latency: 7,390 ms

#### Initial Navigation

https://melanoma-classification-v1.herokuapp.com

...css/9.3bee90c5.chunk.css (melanoma-classification-v1.herokuapp.com) - 250 ms, 4.05 KiB

...css/main.4d34121b.chunk.css (melanoma-classification-v1.herokuapp.com)

...media/IBMPlexSa....2526ba23.ttf (melanoma-classification-v1.herokuapp.com) - 2,070 ms, 171.7 KiB

...media/IBMPlexMo....ef8b866b.ttf (melanoma-classification-v1.herokuapp.com) - 1,280 ms, 131.85 KiB

...media/IBMPlexSans-Bold.adfad437.ttf (melanoma-classification-v1.herokuapp.com) - 2,490 ms, 171.6 KiB

 $...js/9.b219092a.chunk.js \ \ (melanoma-classification-v1.herokuapp.com) \textbf{-1,220 ms, 954.19 KiB}$ 

...js/main.cf1968bf.chunk.js (melanoma-classification-v1.herokuapp.com) - 310 ms, 74.5 KiB

## User Timing marks and measures — 2 user timings

Consider instrumenting your app with the User Timing API to measure your app's real-world performance during key user experiences. <u>Learn more</u>.



Use the React DevTools Profiler, which makes use of the Profiler API, to measure the rendering performance of your components. <u>Learn more.</u>

Name	Туре	Start Time Durat	ion
@grammarly-extension:checkScriptInitStart	Mark	3,430.1 ms	
@grammarly-extension:checkScriptInitEnd	Mark	3,448 ms	

To set budgets for the quantity and size of page resources, add a budget.json file. <u>Learn more</u>.

	Resource Type	Requests	Tra	ansfer Size
	Total	16	1,	825.3 KiB
	Script	5		1,338 KiB
	Font	3		475.1 KiB
	Stylesheet	2		8.7 KiB
	Document	1		2.7 KiB
	Other	5		0.8 KiB
	Image	0		0 KiB
	Media	0		0 KiB
	Third-party	6		111.1 KiB
	Largest Contentful Paint element — 1 element found			^
	This is the largest contentful element painted within the view	vport. <u>Learn More</u>		
	Element			
•	Avoid large layout shifts — 1 element found			^
	These DOM elements contribute most to the CLS of the page	ge.		
	Element		CLS C	ontribution
				0
	Avoid long main-thread tasks — 4 long tasks found			^
	Lists the longest tasks on the main thread, useful for identify	ying worst contributors to input delay.	Learn more	
		<b>✓</b>	Show 3rd-party res	ources (1)
	URL		Start Time	Duration
	js/9.b219092a.chunk.js (melanoma-classification-v1.heroku	app.com)	2,543 ms	378 ms
	js/8.b51f6dde.chunk.js (melanoma-classification-v1.herokua	app.com)	4,546 ms	273 ms
	iCkMy7ymt/analytics.min.js (cdn.segment.com)		2,990 ms	191 ms
	chrome-extension://kbfnbcaeplbcioakkpcpgfkobkghlhen/src,	/js/Grammarly-check.js	536 ms	50 ms

•	Properly size images	^
	Serve images that are appropriately-sized to save cellular data and improve load time. <u>Learn more</u> .	
•	Defer offscreen images	^
	Consider lazy-loading offscreen and hidden images after all critical resources have finished loading to lower time to interactive. <u>Learn more</u> .	
•	Minify CSS	^
	Minifying CSS files can reduce network payload sizes. <u>Learn more</u> .	
	If your build system minifies CSS files automatically, ensure that you are deploying the production build application. You can check this with the React Developer Tools extension. <u>Learn more</u> .	of your
•	Remove unused CSS	^
	Remove dead rules from stylesheets and defer the loading of CSS not used for above-the-fold content to reduce unnecessary bytes consumed by network activity. <u>Learn more</u> .	
•	Efficiently encode images	^
	Optimized images load faster and consume less cellular data. <u>Learn more</u> .	
•	Serve images in next-gen formats	^
	Image formats like JPEG 2000, JPEG XR, and WebP often provide better compression than PNG or JPEG, which no faster downloads and less data consumption. <u>Learn more</u> .	neans
•	Enable text compression	^
	Text-based resources should be served with compression (gzip, deflate or brotli) to minimize total network bytes. <u>Le</u> <u>more</u> .	<u>earn</u>
•	Preconnect to required origins	^
	Consider adding `preconnect` or `dns-prefetch` resource hints to establish early connections to important third-party <a href="Learn more"><u>Learn more</u></a> .	origins.
•	Avoid multiple page redirects	^
	Redirects introduce additional delays before the page can be loaded. <u>Learn more</u> .	
	If you are using React Router, minimize usage of the ` <redirect>` component for <u>route navigations</u>.</redirect>	
•	Use HTTP/2 — 10 requests not served via HTTP/2	^
	HTTP/2 offers many benefits over HTTP/1.1, including binary headers, multiplexing, and server push. <u>Learn more</u> .	
	Show 3rd-party res	ources (0)
	URL Protoco	ol
	https://melanoma-classification-v1.herokuapp.com http/1.	1
	css/9.3bee90c5.chunk.css (melanoma-classification-v1.herokuapp.com) http/1.	1

	URL	Protocol
	css/main.4d34121b.chunk.css (melanoma-classification-v1.herokuapp.com)	http/1.1
	js/9.b219092a.chunk.js (melanoma-classification-v1.herokuapp.com)	http/1.1
	js/main.cf1968bf.chunk.js (melanoma-classification-v1.herokuapp.com)	http/1.1
	media/IBMPlexSa2526ba23.ttf (melanoma-classification-v1.herokuapp.com)	http/1.1
	js/8.b51f6dde.chunk.js (melanoma-classification-v1.herokuapp.com)	http/1.1
	js/29.292504eb.chunk.js (melanoma-classification-v1.herokuapp.com)	http/1.1
	media/IBMPlexMoef8b866b.ttf (melanoma-classification-v1.herokuapp.com)	http/1.1
	media/IBMPlexSans-Bold.adfad437.ttf (melanoma-classification-v1.herokuapp.com)	http/1.1
•	Use video formats for animated content	^
	Large GIFs are inefficient for delivering animated content. Consider using MPEG4/WebM PNG/WebP for static images instead of GIF to save network bytes. <u>Learn more</u>	videos for animations and
•	Remove duplicate modules in JavaScript bundles	^
	Remove large, duplicate JavaScript modules from bundles to reduce unnecessary bytes	consumed by network activity.
•	Avoid serving legacy JavaScript to modern browsers — Potential savings of 7 KiB	^
	Polyfills and transforms enable legacy browsers to use new JavaScript features. However modern browsers. For your bundled JavaScript, adopt a modern script deployment strate detection to reduce the amount of code shipped to modern browsers, while retaining supplement.	gy using module/nomodule feature
		Show 3rd-party resources (1)
	URL	
		Potential Savings
	js/9.b219092a.chunk.js (melanoma-classification-v1.herokuapp.com)	
	js/9.b219092a.chunk.js (melanoma-classification-v1.herokuapp.com)	Potential Savings
•	js/9.b219092a.chunk.js (melanoma-classification-v1.herokuapp.com)	Potential Savings  0.2 KiB
•	js/9.b219092a.chunk.js (melanoma-classification-v1.herokuapp.com) 9.b219092a.chunk.js:2 @babel/plugin-	Potential Savings  0.2 KiB  transform-classes
•	js/9.b219092a.chunk.js (melanoma-classification-v1.herokuapp.com) 9.b219092a.chunk.js:2 @babel/plugin-fi	Potential Savings  0.2 KiB  transform-classes
•	js/9.b219092a.chunk.js (melanoma-classification-v1.herokuapp.com) 9.b219092a.chunk.js:2 @babel/plugin-fi	Potential Savings  0.2 KiB  transform-classes  mes. Learn more.
•	js/9.b219092a.chunk.js (melanoma-classification-v1.herokuapp.com) 9.b219092a.chunk.js:2 @babel/plugin-f  Avoids enormous network payloads — Total size was 1,825 KiB  Large network payloads cost users real money and are highly correlated with long load till	Potential Savings  0.2 KiB  transform-classes  mes. Learn more.  Show 3rd-party resources (1)
•	js/9.b219092a.chunk.js (melanoma-classification-v1.herokuapp.com) 9.b219092a.chunk.js:2 @babel/plugin- Avoids enormous network payloads — Total size was 1,825 KiB  Large network payloads cost users real money and are highly correlated with long load till  URL	Potential Savings  0.2 KiB  transform-classes  mes. Learn more.  Show 3rd-party resources (1)  Transfer Size
•	js/9.b219092a.chunk.js (melanoma-classification-v1.herokuapp.com) 9.b219092a.chunk.js:2 @babel/plugin-file Avoids enormous network payloads — Total size was 1,825 KiB  Large network payloads cost users real money and are highly correlated with long load tile  URLjs/9.b219092a.chunk.js (melanoma-classification-v1.herokuapp.com)	Potential Savings  0.2 KiB  transform-classes  mes. Learn more.  Show 3rd-party resources (1)  Transfer Size  954.2 KiB
•	js/9.b219092a.chunk.js (melanoma-classification-v1.herokuapp.com) 9.b219092a.chunk.js:2 @babe1/plugin-1 Avoids enormous network payloads — Total size was 1,825 KiB  Large network payloads cost users real money and are highly correlated with long load till  URLjs/9.b219092a.chunk.js (melanoma-classification-v1.herokuapp.com) js/8.b51f6dde.chunk.js (melanoma-classification-v1.herokuapp.com)	Potential Savings  0.2 KiB  transform-classes  mes. Learn more.  Show 3rd-party resources (1)  Transfer Size  954.2 KiB  190.3 KiB

**URL** 

...iCkMy7ymt.../analytics.min.js (cdn.segment.com)

110.3 KiB

...js/main.cf1968bf.chunk.js (melanoma-classification-v1.herokuapp.com)

74.5 KiB

...js/29.292504eb.chunk.js (melanoma-classification-v1.herokuapp.com)

8.7 KiB

...css/main.4d34121b.chunk.css (melanoma-classification-v1.herokuapp.com)

4.6 KiB

Avoids an excessive DOM size — 51 elements

...css/9.3bee90c5.chunk.css (melanoma-classification-v1.herokuapp.com)

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



Parse HTML & CSS

Rendering

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. <u>Learn more</u>. Also, minimize unnecessary re-renders using <u>`shouldComponentUpdate`</u>, <u>`PureComponent`</u>, or <u>`React.memo`</u> and <u>skip effects</u> only until certain dependencies have changed if you are using the `Effect` hook to improve runtime performance.

	Statistic	Element	Value
	Total DOM Elements	Liement	51
	Maximum DOM Depth	<pre><path d="M0 0h24v24H0V0z" fill="none"></path></pre>	17
	Maximum Child Elements	<pre><body data-gr-ext-installed="" data-new-gr-c-s-check-loaded="14.987.0"></body></pre>	5
•	Minimizes main-thread work —	- 1.8 s	^
	Consider reducing the time spe with this. Learn more  Category	nt parsing, compiling and executing JS. You may find delivering smaller JS paylo	pads helps Time Spent
	Script Evaluation		1,229 ms
	Other		271 ms
	Script Parsing & Compilation		149 ms
	Style & Layout		74 ms
	Garbage Collection		62 ms

Minimize third-party usage — Third-party code blocked the main thread for 110 ms

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. <u>Learn more</u>.

Show 3rd-party resources (0)
------------------------------

31 ms

18 ms

Transfer Size

4 KiB

	Third-Party	Transfer Size	Main-Thread Blocking Time
	Segment	111 KiB	109 ms
	iCkMy7ymt/analytics.min.js (cdn.segment.com)	110 KiB	109 ms
•	Uses passive listeners to improve scrolling performance		^
	Consider marking your touch and wheel event listeners as `passive`	to improve your page's sc	roll performance. <u>Learn more</u> .
•	Avoids document.write()		^
	For users on slow connections, external scripts dynamically injected seconds. <u>Learn more</u> .	via `document.write()` can	delay page load by tens of
	Avoid non-composited animations		^
	Animations which are not composited can be janky and increase CLS	S. <u>Learn more</u>	
	Image elements have explicit width and height		^
	Set an explicit width and height on image elements to reduce layout	shifts and improve CLS. <u>L</u>	earn more



# 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.

**Names and labels** — These are opportunities to improve the semantics of the controls in your application. This may enhance the experience for users of assistive technology, like a screen reader.

▲ Buttons do not have an accessible name

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. <u>Learn more</u>.

Failing Elements

button.css-3xqji8.edgvbvh5

**Contrast** — These are opportunities to improve the legibility of your content.

▲ Background and foreground colors do not have a sufficient contrast ratio.

Low-contrast text is difficult or impossible for many users to read. Learn more.

## Failing Elements

small.css-6hirad.euu6i2w0

	Iditional items to manually check (10) — These items address areas which an automated testing tool cannot cover. Learn ore in our guide on conducting an accessibility review.	^
•	The page has a logical tab order	^
	Tabbing through the page follows the visual layout. Users cannot focus elements that are offscreen. <u>Learn more</u> .	
	Interactive controls are keyboard focusable	^
	Custom interactive controls are keyboard focusable and display a focus indicator. <u>Learn more</u> .	
	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. <u>Learn more</u> .	
	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. <u>Learn more</u> .	
	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. <u>Learn more</u> .	
	Custom controls have associated labels	^
	Custom interactive controls have associated labels, provided by aria-label or aria-labelledby. <u>Learn more</u> .	
	Custom controls have ARIA roles	^
	Custom interactive controls have appropriate ARIA roles. <u>Learn more</u> .	
	Visual order on the page follows DOM order	^
	DOM order matches the visual order, improving navigation for assistive technology. <u>Learn more</u> .	
	Offscreen content is hidden from assistive technology	^
	Offscreen content is hidden with display: none or aria-hidden=true. <u>Learn more</u> .	
	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.  <u>Learn more</u>.</nav></main>	
Pa	ssed audits (14)	^
•	[aria-*] attributes match their roles	_

[aria-hidden="true"] is not present on the document <body> Assistive technologies, like screen readers, work inconsistently when `aria-hidden="true"` is set on the document `<body>`. Learn more. [aria-hidden="true"] elements do not contain focusable descendents Focusable descendents within an `[aria-hidden="true"]` element prevent those interactive elements from being available to users of assistive technologies like screen readers. Learn more. [aria-\*] attributes have valid values Assistive technologies, like screen readers, can't interpret ARIA attributes with invalid values. Learn more. [aria-\*] attributes are valid and not misspelled Assistive technologies, like screen readers, can't interpret ARIA attributes with invalid names. Learn more. The page contains a heading, skip link, or landmark region Adding ways to bypass repetitive content lets keyboard users navigate the page more efficiently. Learn more. 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 Heading elements appear in a sequentially-descending order 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. Learn more. <html> element has a [lang] attribute 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. Learn more. <a href="html"><a href="html">html</a>> element has a valid value for its [lang] attribute Specifying a valid BCP 47 language helps screen readers announce text properly. Learn more. Links have a discernible name 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. Learn more. Lists contain only <1i> elements and script supporting elements (<script> and <template>). Screen readers have a specific way of announcing lists. Ensuring proper list structure aids screen reader output. Learn more. [user-scalable="no"] is not used in the <meta name="viewport"> element and the [maximum-scale] attribute is not less than 5.

Each ARIA 'role' supports a specific subset of 'aria-\*' attributes. Mismatching these invalidates the 'aria-\*' attributes. Learn

web page. Learn more. No element has a [tabindex] 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. Learn more. Not applicable (25) [accesskey] values are unique Access keys let users quickly focus a part of the page. For proper navigation, each access key must be unique. Learn more. ARIA input fields have accessible names 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. Learn more. [role]s have all required [aria-\*] attributes Some ARIA roles have required attributes that describe the state of the element to screen readers. Learn more. Elements with an ARIA [role] that require children to contain a specific [role] have all required children. Some ARIA parent roles must contain specific child roles to perform their intended accessibility functions. Learn more. [role]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. Learn more. [role] values are valid ARIA roles must have valid values in order to perform their intended accessibility functions. Learn more. 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. Learn more. <dl>'s contain only properly-ordered <dt> and <dd> groups, <script>, <template> or <div> elements. When definition lists are not properly marked up, screen readers may produce confusing or inaccurate output. Learn more. Definition list items are wrapped in <dl> elements Definition list items ('<dt>' and '<dd>') must be wrapped in a parent '<dl>' element to ensure that screen readers can properly announce them. Learn more. [id] attributes on active, focusable elements are unique All focusable elements must have a unique 'id' to ensure that they're visible to assistive technologies. Learn more. ARIA IDs are unique

Disabling zooming is problematic for users with low vision who rely on screen magnification to properly see the contents of a

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. Learn more. <frame> or <iframe> elements have a title Screen reader users rely on frame titles to describe the contents of frames. 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. <input type="image"> elements have [alt] text When an image is being used as an `<input>` button, providing alternative text can help screen reader users understand the purpose of the button. Learn more. Form elements have associated labels Labels ensure that form controls are announced properly by assistive technologies, like screen readers. Learn more. Presentational elements avoid using , <caption> or the [summary] attribute. A table being used for layout purposes should not include data elements, such as the thor caption elements or the summary attribute, because this can create a confusing experience for screen reader users. Learn more. List items () are contained within or parent elements Screen readers require list items ('') to be contained within a parent '' or '' to be announced properly. Learn more. The document does not use <meta http-equiv="refresh"> 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. Learn more. <object> elements have [alt] text Screen readers cannot translate non-text content. Adding alt text to `<object>` elements helps screen readers convey meaning to users. Learn more. Cells in a element that use the [headers] attribute refer to table cells within the same table. Screen readers have features to make navigating tables easier. Ensuring `` cells using the `[headers]` attribute only refer to other cells in the same table may improve the experience for screen reader users. Learn more. elements and elements with [role="columnheader"/"rowheader"] 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. Learn more.

The value of an ARIA ID must be unique to prevent other instances from being overlooked by assistive technologies. Learn

[lang] attributes have a valid value

Specifying a valid <u>BCP 47 language</u> on elements helps ensure that text is pronounced correctly by a screen reader. <u>Learn</u> more.

<video> elements contain a <track> element with [kind="captions"]

When a video provides a caption it is easier for deaf and hearing impaired users to access its information. Learn more.

<video> elements contain a <track> element with [kind="description"]

Audio descriptions provide relevant information for videos that dialogue cannot, such as facial expressions and scenes. <u>Learn more</u>.



# **Best Practices**

#### General

▲ Missing source maps for large first-party JavaScript

Error: Invalid response status code: 404

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. <u>Learn more</u>.

Show 3rd-party resources (0) **URL** Map URL ...js/9.b219092a.chunk.js (melanoma-classification-...js/9.b219092a.chunk.js.map (melanoma-classificationv1.herokuapp.com) v1.herokuapp.com) Large JavaScript file is missing a source map Error: Invalid response status code: 404 ...js/8.b51f6dde.chunk.js.map (melanoma-classification-...js/8.b51f6dde.chunk.js (melanoma-classificationv1.herokuapp.com) v1.herokuapp.com) Large JavaScript file is missing a source map Error: Invalid response status code: 404 ...js/main.cf1968bf.chunk.js.map (melanoma-classification-...js/main.cf1968bf.chunk.js (melanoma-classificationv1.herokuapp.com) v1.herokuapp.com) Error: Invalid response status code: 404 ...js/29.292504eb.chunk.js.map (melanoma-classification-...js/29.292504eb.chunk.js (melanoma-classificationv1.herokuapp.com) v1.herokuapp.com)

Passed audits (15)

**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. Links to cross-origin destinations are safe Add `rel="noopener"` or `rel="noreferrer"` to any external links to improve performance and prevent security vulnerabilities. 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. Serves images with appropriate resolution Image natural dimensions should be proportional to the display size and the pixel ratio to maximize image clarity. Learn more. Page has the HTML doctype Specifying a doctype prevents the browser from switching to quirks-mode. Learn more. Properly defines charset 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. Learn more. Avoids unload event listeners 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. Learn More **Avoids Application Cache** Application Cache is deprecated. Learn more.

**Detected JavaScript libraries** All front-end JavaScript libraries detected on the page. Learn more. Name Version React Lo-Dash 4.17.20 core-js core-js-pure@2.5.7 Create React App Avoids deprecated APIs Deprecated APIs will eventually be removed from the browser. Learn more. No browser errors logged to the console Errors logged to the console indicate unresolved problems. They can come from network request failures and other browser concerns. Learn more Not applicable (1) Fonts with font-display: optional are preloaded Preload 'optional' fonts so first-time visitors may use them. Learn More



These checks ensure that your page is optimized for search engine results ranking. There are additional factors Lighthouse does not check that may affect your search ranking. Learn more.

Content Best Practices — Format your HTML in a way that enables crawlers to better understand your app's content.

Document does not have a meta description Meta descriptions may be included in search results to concisely summarize page content. Learn more. Additional items to manually check (1) — Run these additional validators on your site to check additional SEO best practices. Structured data is valid

Run the <u>Structured Data Testing Tool</u> and the <u>Structured Data Linter</u> to validate structured data. <u>Learn more</u>.

Passed audits (8)		
•	Has a <meta name="viewport"/> tag With width or initial-scale	
	Add a ` <meta name="viewport"/> ` tag to optimize your app for mobile screens. <u>Learn more</u> .	
•	Document has a <title> element&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;&lt;/td&gt;&lt;td&gt;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. &lt;u&gt;Learn more&lt;/u&gt;.&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;•&lt;/td&gt;&lt;td&gt;Page has successful HTTP status code&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;&lt;/td&gt;&lt;td&gt;Pages with unsuccessful HTTP status codes may not be indexed properly. &lt;u&gt;Learn more&lt;/u&gt;.&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;•&lt;/td&gt;&lt;td&gt;Links have descriptive text&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;&lt;/td&gt;&lt;td&gt;Descriptive link text helps search engines understand your content. &lt;u&gt;Learn more&lt;/u&gt;.&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;•&lt;/td&gt;&lt;td&gt;Links are crawlable&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;&lt;/td&gt;&lt;td&gt;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. &lt;u&gt;Learn More&lt;/u&gt;&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;•&lt;/td&gt;&lt;td&gt;Page isn't blocked from indexing&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;&lt;/td&gt;&lt;td&gt;Search engines are unable to include your pages in search results if they don't have permission to crawl them. &lt;u&gt;Learn more&lt;/u&gt;.&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;•&lt;/td&gt;&lt;td&gt;Document has a valid hreflang&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;&lt;/td&gt;&lt;td&gt;hreflang links tell search engines what version of a page they should list in search results for a given language or region.  &lt;u&gt;Learn more.&lt;/u&gt;&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;•&lt;/td&gt;&lt;td&gt;Document avoids plugins&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;&lt;/td&gt;&lt;td&gt;Search engines can't index plugin content, and many devices restrict plugins or don't support them. &lt;u&gt;Learn more&lt;/u&gt;.&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;No&lt;/td&gt;&lt;td&gt;t applicable (5)&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;&lt;/td&gt;&lt;td&gt;robots.txt is valid&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;&lt;/td&gt;&lt;td&gt;If your robots.txt file is malformed, crawlers may not be able to understand how you want your website to be crawled or indexed. &lt;u&gt;Learn more&lt;/u&gt;.&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;&lt;/td&gt;&lt;td&gt;Image elements have [alt] attributes&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;&lt;/td&gt;&lt;td&gt;Informative elements should aim for short, descriptive alternate text. Decorative elements can be ignored with an empty alt attribute. &lt;u&gt;Learn more&lt;/u&gt;.&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;•&lt;/td&gt;&lt;td&gt;Document has a valid rel=canonical&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;&lt;/td&gt;&lt;td&gt;Canonical links suggest which URL to show in search results. &lt;u&gt;Learn more&lt;/u&gt;.&lt;/td&gt;&lt;/tr&gt;&lt;/tbody&gt;&lt;/table&gt;</title>	

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. <u>Learn more</u>.

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. <u>Learn more</u>.



# Progressive Web App

These checks validate the aspects of a Progressive Web App. Learn more.

Fast and reliable

Page load is not fast enough on mobile networks

Your page loads too slowly and is not interactive within 10 seconds. Look at the opportunities and diagnostics in the "Performance" section to learn how to improve.

- Interactive on simulated mobile network at 14.9 s

A fast page load over a cellular network ensures a good mobile user experience. Learn more.

▲ Current page does not respond with a 200 when offline

If you're building a Progressive Web App, consider using a service worker so that your app can work offline. Learn more.

start\_url does not respond with a 200 when offline No usable web app manifest found on page.

A service worker enables your web app to be reliable in unpredictable network conditions. Learn more.

## + Installable

Uses HTTPS

All sites should be protected with HTTPS, even ones that don't handle sensitive data. This includes avoiding <u>mixed content</u>, 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. <u>Learn more</u>.

▲ Does not register a service worker that controls page and start\_url

The service worker is the technology that enables your app to use many Progressive Web App features, such as offline, add to homescreen, and push notifications. <u>Learn more</u>.

▲ Web app manifest does not meet the installability requirements Failures: No manifest was fetched.

Browsers can proactively prompt users to add your app to their homescreen, which can lead to higher engagement. <u>Learn</u> more.

# **PWA Optimized** Does not redirect HTTP traffic to HTTPS If you've already set up HTTPS, make sure that you redirect all HTTP traffic to HTTPS in order to enable secure web features for all your users. Learn more. Is not configured for a custom splash screen Failures: No manifest was fetched. A themed splash screen ensures a high-quality experience when users launch your app from their homescreens. Learn more. Does not set a theme color for the address bar. Failures: No manifest was fetched, No `<meta name="theme-color">` tag found. The browser address bar can be themed to match your site. Learn more. Content is sized correctly for the viewport If the width of your app's content doesn't match the width of the viewport, your app might not be optimized for mobile screens. Learn more. Has a <meta name="viewport"> tag with width or initial-scale Add a `<meta name="viewport">` tag to optimize your app for mobile screens. Learn more. Contains some content when JavaScript is not available Your app should display some content when JavaScript is disabled, even if it's just a warning to the user that JavaScript is required to use the app. Learn more. Does not provide a valid apple-touch-icon For ideal appearance on iOS when users add a progressive web app to the home screen, define an 'apple-touch-icon'. It must point to a non-transparent 192px (or 180px) square PNG. Learn More. Manifest doesn't have a maskable icon No manifest was fetched A maskable icon ensures that the image fills the entire shape without being letterboxed when installing the app on a device. Learn more. Additional items to manually check (3) — These checks are required by the baseline PWA Checklist but are not automatically checked by Lighthouse. They do not affect your score but it's important that you verify them manually. Site works cross-browser To reach the most number of users, sites should work across every major browser. Learn more. Page transitions don't feel like they block on the network

Transitions should feel snappy as you tap around, even on a slow network. This experience is key to a user's perception of performance. <u>Learn more</u>.

Each page has a URL

Ensure individual pages are deep linkable via URL and that URLs are unique for the purpose of shareability on social media. <u>Learn more</u>.

### Runtime Settings

URL	https://melanoma-classification-v1.herokuapp.com/
Fetch Time	Dec 17, 2020, 8:03 AM GMT+5:30
Device	Emulated Desktop
Network throttling	40 ms TCP RTT, 10,240 Kbps throughput (Simulated)
CPU throttling	1x slowdown (Simulated)
Channel	devtools
User agent (host)	Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/87.0.4280.88 Safari/537.36
User agent (network)	Mozilla/5.0 (Macintosh; Intel Mac OS X 10_14_6) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/84.0.4143.7 Safari/537.36 Chrome-Lighthouse
CPU/Memory Power	937
Axe version	3.5.5

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