

Google



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50-89



90-100



MASTER

THE 4 VITAL FACTORS

OF THE WEB

16

59

100

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ABOUT THE AUTHOR

Daniel Paz is a professional with over a decade of experience in the web market. Throughout his career, he has worked on hundreds of projects both in Brazil and abroad, acquiring vast expertise in Digital Marketing, SEO, and WordPress.

In addition to his extensive professional experience, Daniel is a regular participant in communities and meetups on these topics, keeping himself up-to-date and connected with other industry professionals.

As a content producer for the YouTube Channel Alta Performance, Daniel shares his knowledge and experience with thousands of people interested in standing out in the digital universe.

And as the creator of the WP LIGHT Course, a WordPress website optimization course with a focus on Core Web Vitals, Daniel offers comprehensive and practical training for those looking to improve their skills and achieve the best results in their web projects.

With his commitment, dedication, and technical knowledge, Daniel Paz is a professional who stands out in the market and contributes to the development of a more efficient and accessible web for all.

UNDERSTANDING THE UPDATE

Starting on April 30th, 2020, the page experience update began a true revolution on the internet, where factors such as speed, usability, and accessibility now have a ranking factor in search and directly affect tiebreaker criteria.

Web Vitals is a Google initiative to provide essential quality guidelines and standards to deliver the best experience on your website and identify improvement opportunities.

It is important to note that the metrics that make up the core web vitals evolve over time and that new metrics and rules may emerge over the years.

In 2020, when the vital factors of the web were launched, three aspects entered the user experience statistics: loading time, interactivity, and visual stability.

Initially, the vital factors of the web were only for mobile, a true update of the first mobile update that occurred in 2015.

Desktop became important starting in July 2021 when the vital factors of the web gained great importance for technical SEO.

UNDERSTANDING THE UPDATE

Although it may not seem like it, optimizing the vital factors for the web on desktop devices (computers and laptops) can be a bit more difficult. The reason is that in the analysis of desktop pages, greater processing power, better connections, and larger screen sizes are taken into consideration.

The first Chrome user experience report shows that, for the top 1,000 media sites in the world, only 59% comply with visual stability on their desktop site, compared to 67% for mobile devices.

This means that, in the first report, the large analyzed sites suffered from unexpected layout changes during page loading, which drastically affected the user experience.

Although the vital factors of the web started in April 2020, the algorithm only began counting in June 2021, and since then several changes have occurred.

Rest assured that by the end of this e-book, you will have a complete understanding of what the web vital factors are and how to diagnose problems related to Core Web Vitals. I am sure that after solving all these problems, you will offer the best experience to your user.

WHAT ARE THE 4 VITAL FACTORS

The Web Vitals are 4: Performance, Accessibility, Best Practices, and SEO, but I'll be honest with you, not all of them are taken into consideration at this time (January 2023). The Web Vitals change over time, and since their conception, only the first factor is basically taken into account. The others are not yet factored in.

But this does not mean that you should ignore them, as they will soon be part of the calculation. The reason for this is that the Google Core Web Vitals update is a gradual update.

Performance: Without a doubt, this is the main factor of the Core Web Vitals update. The initial and total page loading time is 100% related to the user experience and impacts not only the ranking but also the conversion of your site.

Even before the Core Web Vitals, in 2017, Amazon showed that if a page takes 4 seconds to load, 25% of users give up accessing it. Another study conducted by Kissmetrics shows that 40% of visitors abandon pages that take more than 3 seconds to load.

Now, you may be wondering what the ideal loading time is. For this, you need to understand some metrics: FCP, LCP, TTFB, and TTI.

HOW TO TEST TOOLS

The Core Web Vitals are important metrics that directly affect the user experience on a website.

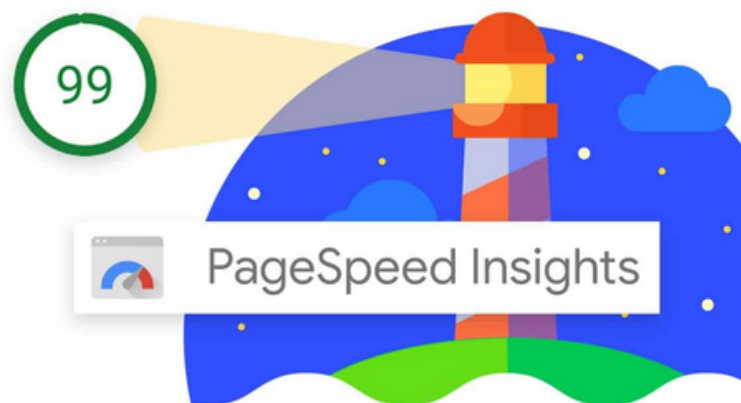
They focus on three main areas: page loading, interactivity, and visual stability.

Here are four tools that you can use to test the Core Web Vitals of your website:

Google PageSpeed Insights: Google PageSpeed Insights is a free tool that analyzes the performance of your website on desktop and mobile devices, providing detailed reports on the Core Web Vitals.

It also provides optimization suggestions to improve the speed of your website.

<https://developers.google.com/speed/pagespeed/insights/>



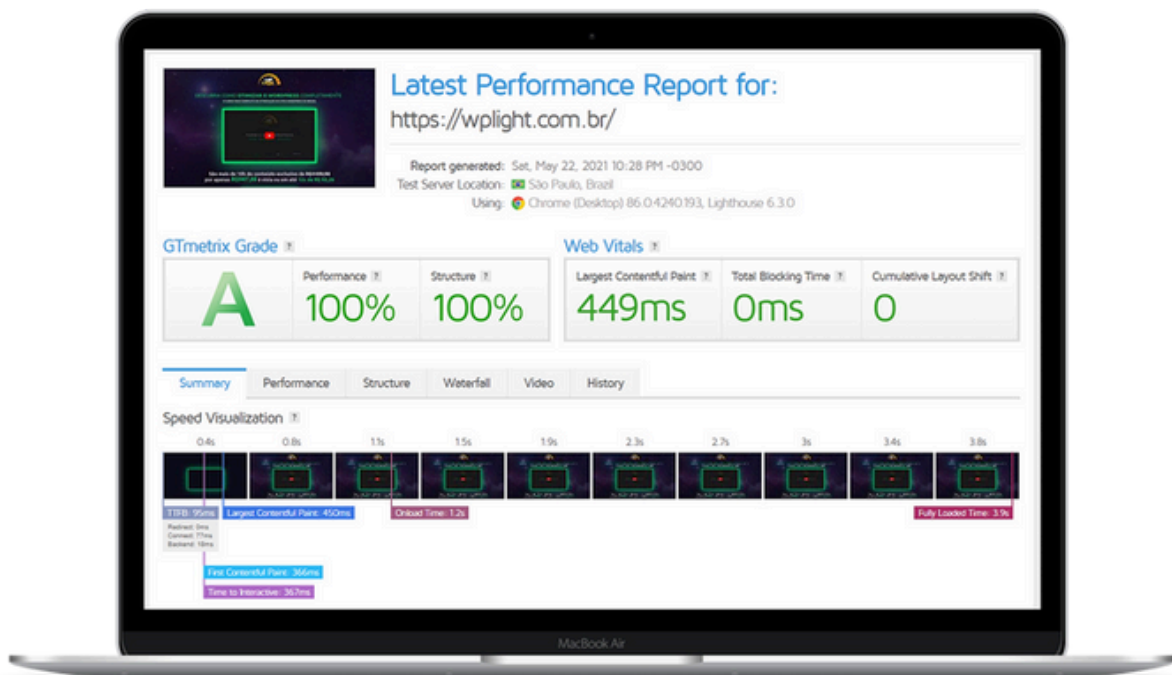
HOW TO TEST TOOLS

GTmetrix: GTmetrix is another popular tool for testing website speed and performance.

It provides a website performance score, as well as detailed reports on the Core Web Vitals, including suggestions for improvements.

GTmetrix offers both a free and paid version with additional features. The main difference between the free and paid version is that the free version only allows testing on desktop devices.

URL: <https://gtmetrix.com/>



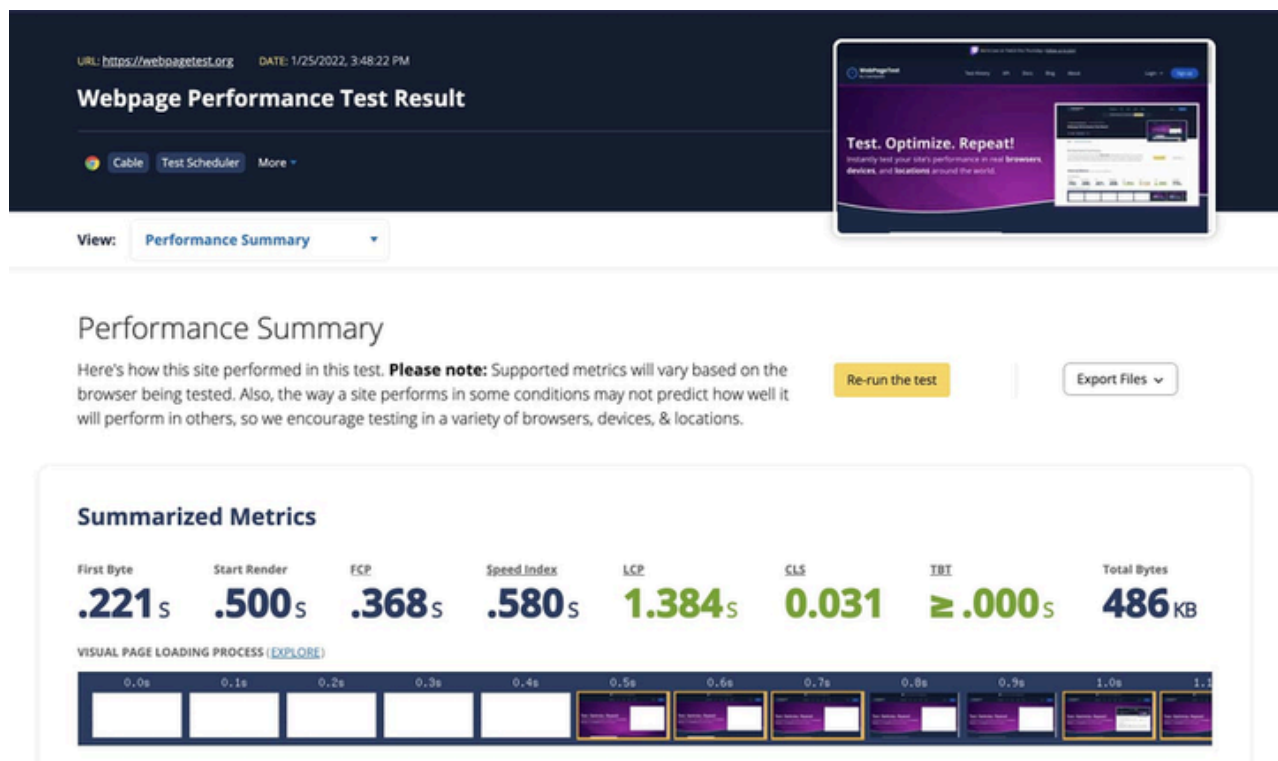
HOW TO TEST TOOLS

WebPageTest: WebPageTest is a free tool that allows you to test the performance of your website on different locations and devices.

It provides detailed reports on the Core Web Vitals, as well as suggestions for improvements.

WebPageTest is an advanced tool and is more suitable for experienced web developers.

Link: <https://www.webpagetest.org/>



HOW TO TEST TOOLS

Lighthouse: Lighthouse is a free, open-source tool developed by Google.

It is the testing foundation for most tools in the market, such as PageSpeed Insights, WebPageTest, and GTMetrix, which use Lighthouse to calculate page performance.

It analyzes the overall quality of your website, including the Core Web Vitals, accessibility, search engine optimization, and much more.

It can be run in your computer's browser or as part of the Google Chrome Developer Tools. To access Lighthouse, you'll need to open the Developer Tools in Google Chrome. You can do this by clicking on "Inspect" or using the keyboard shortcut CTRL + SHIFT + I.

In Developer Tools, look for the Lighthouse tab. There, you can configure how the test will be performed and which factors you want to evaluate, such as the device that will be used for the test.

URL: <https://developers.google.com/web/tools/lighthouse>



HOW TO TEST TOOLS

SpeedVitals: SpeedVitals is a free website performance analysis tool that allows you to check Core Web Vitals metrics. With it, you can get a detailed analysis of your website's performance, including scores for LCP, FID, and CLS, as well as other important metrics like page load time and file size.

To use SpeedVitals, simply enter your website's URL in the search bar and click "Analyze".

The tool will analyze your site and provide a score for each of the Core Web Vitals metrics, as well as personalized suggestions to improve your site's performance.

SpeedVitals is a valuable tool for anyone who wants to monitor their site's Core Web Vitals and ensure it delivers a satisfactory user experience. And best of all, it's completely free!

If you want to improve your site's performance, it's worth taking a look at SpeedVitals.

URL: <https://speedvitals.com/>

HOW TO TEST BROWSER EXTENSIONS

There are several extensions available for Google Chrome that can help improve user experience and optimize your website.

Here are four extensions you can use to analyze the Core Web Vitals of your site:

CLS Visualizer: The CLS Visualizer extension (Cumulative Layout Shift) allows you to visualize layout changes on your site that can affect visual stability.

It tracks the amount of cumulative layout shifts and displays a graph showing when and where these changes occurred.

This can help you identify areas on your site that need to be fixed to improve the user experience.

Link: <https://chrome.google.com/webstore/detail/cls-visualizer/jbbeihojggidiclbckneckhcbllilapahn>

HOW TO TEST BROWSER EXTENSIONS

Web Vitals: The Web Vitals extension displays the metrics of your site's Core Web Vitals, including LCP (Largest Contentful Paint), FID (First Input Delay), and CLS (Cumulative Layout Shift). It provides a clear and concise analysis of these metrics, allowing you to quickly see how your site is performing in terms of performance.

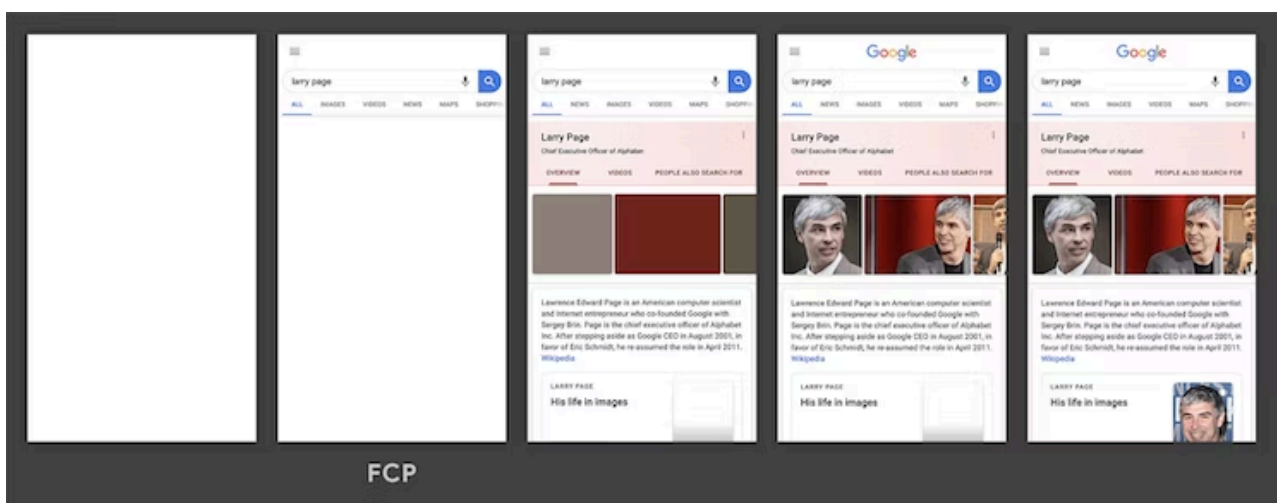
URL:<https://chrome.google.com/webstore/detail/web-vitals/ahfhijdlegdabablpippeagghigmibma>

Lighthouse: The Lighthouse extension is an open-source code auditing tool from Google that can help you improve the overall quality of your site. It analyzes Core Web Vitals, as well as other performance metrics, accessibility, search engine optimization, and much more. It provides a detailed report with suggestions for improvements.

URL:<https://chrome.google.com/webstore/detail/lighthouse/blipmdconlkpinefehnmjammfjpmpbjk>

PERFORMANCE: FCP

Let's start with FCP. FCP or First Contentful Paint is the first impression of the first content fold of your site, and according to the Web Vital metrics, the FCP loading time should be less than 1.8 seconds.

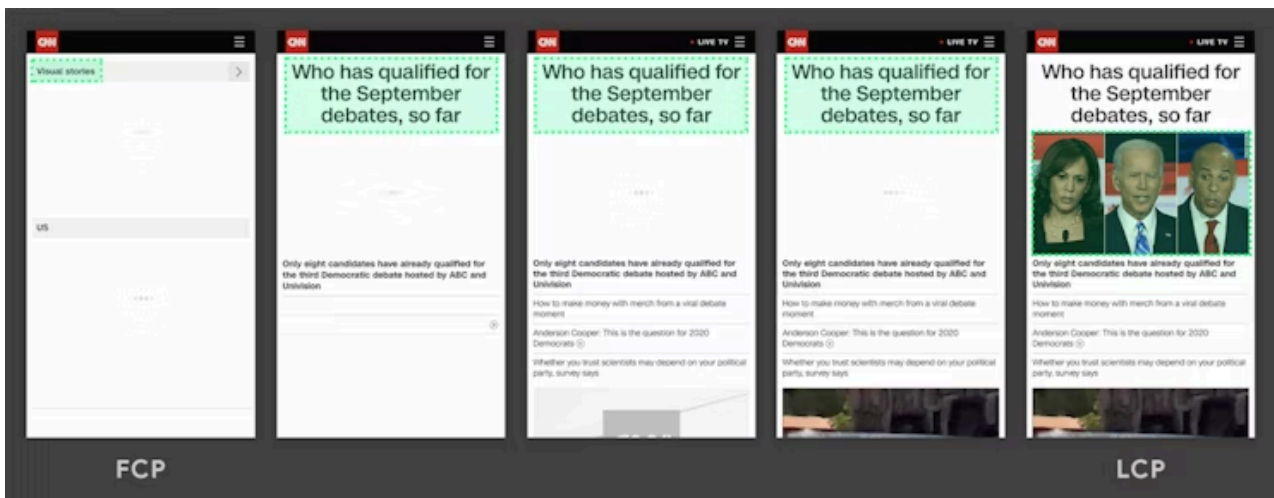


Included in the FCP calculation is all content that is above the fold, including CSS code, Javascript, font files, HTML headers, text, and images.

Here's a tip: The number of requests that occur on the site directly affects this metric. Google recommends a limit of 15 requests per page and a total page size of up to 500kb.

PERFORMANCE: LCP

Now that you know what FCP is, we can move on to our second metric, which is LCP or Largest Contentful Paint, which is the loading time of the main content of the first fold of the page.



The calculation is very similar to FCP, but it is important to take some notes. If you choose to delay any content that is above the fold, it will affect the LCP loading time.

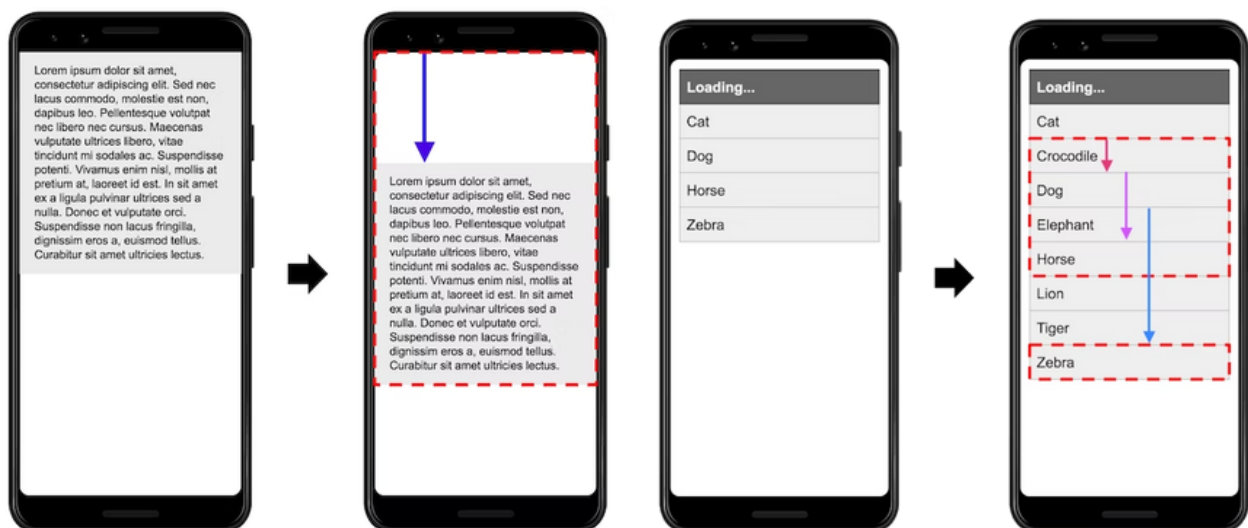
Therefore, as a rule of thumb, all content present in the first fold of the site should not experience any delay. Like FCP, LCP also has a maximum loading time defined, which is 2.5 seconds.

However, don't be fooled, the ideal time is below this value. If your LCP is at 2.5 seconds, Google will inform you that you need to improve the loading time of the LCP.

PERFORMANCE: CLS

Although visual stability is not directly related to performance, it is one of the metrics evaluated in performance, and we will understand step by step what is the cumulative layout shift or layout shift.

First, I need to emphasize that CLS is calculated both on desktop (computers and laptops) and on mobile devices (cell phones and tablets).



CLS or Cumulative Layout Shift can occur both horizontally and vertically on a webpage. A score is calculated for each movement, where zero is the ideal score.

It is common for CLS to be related to dynamic elements loaded in the DOM such as dynamic content and buttons. It is important to note that CLS is not only calculated during page loading, but throughout the entire navigation.

PERFORMANCE: FID

First Input Delay is one of the most difficult metrics to analyze. As the translation suggests, it means a delay in the first interaction, which means there is a maximum time that must be respected for the user's first interaction.

This is closely related to the use of JavaScript, which is very common in slideshows, carousels, and menus.

If the user clicks on an item and it takes more than 100 milliseconds to respond to the user's action, this time will be counted towards the FID.

UPDATE IN 2022

Previously, only the user's first interaction was counted, but in 2022 a new metric was introduced to replace FID. INP or Interaction to Next Paint was introduced in May 2022 and had its last update in December 2022.

INP is an experimental metric and is not yet considered a ranking factor, although INP data is already captured by the browser.

Its literal translation is "interaction with the next paint," and it basically evaluates the capacity and response time of your website. Unlike FID, INP looks at the delay of all interactions the user has during their navigation on the page. A low INP means that the page was able to quickly respond to all interactions.

PERFORMANCE: TTFB

You may be wondering which metric evaluates the hosting where your website is located, and we finally arrived at it:

TTFB or Time to First Byte is one of the fundamental metrics in measuring performance and evaluates basically the initial response time of your hosting server.

This metric helps identify whether the cause of your site's slowness is directly related to the hosting service provider. To calculate the TTFB time, it is necessary to understand what goes into the calculation: redirect times, DNS lookup, connection and SSL certificate validation, request, and response times.

Although many experts recommend always having a TTFB below 100ms, which is quite difficult to achieve, even with the use of a CDN (if you don't know what that is yet, don't worry, we will talk about it soon), the acceptable time for a good TTFB is no more than 800 milliseconds.

Although TTFB is measured and included in the calculation of performance, it is not a vital metric of the Web, meaning it is not absolutely necessary to have the recommended TTFB.

But here's a tip: TTFB directly impacts your site's FCP and LCP, so it is an important metric!

PERFORMANCE: TTFB

The Byte Check tool is a tool used to measure the performance of a website or web application.

The main metric it uses is TTFB (Time To First Byte), which is the time it takes for the first byte of information to be received by the user's browser after making a request to the server.

To calculate TTFB, the Byte Check tool takes into account six items that influence the server response time:

DNS: time it takes to resolve the server IP address from the site's domain.

Connect: time it takes to establish a TCP/IP connection with the server.

SSL: The time it takes to perform the SSL/TLS security negotiation (if the site uses HTTPS).

Send: time it takes to send the request to the server.

Wait: time the browser waits for the server response.

Receive: time it takes to receive the server response.

PERFORMANCE: SPEED INDEX

The Speed Index is another metric that is part of the Performance calculation, and this metric is responsible for measuring the time when the content is visually displayed.

Lighthouse captures a video of the page loading and calculates the visual progress between frames, then uses one of its modules to calculate the Speed Index score.

Here's another tip, if you're looking to improve this metric, consider reducing the amount of javascript on your site, as the Speed Index is directly related to the execution time of Javascript.

Oh, and one more thing, loading custom font files also affects the speed index.

PERFORMANCE: TIME TO INTERACTIVE

Since the update of the Web Vital Factors, many companies choose to optimize content visibility at the expense of interaction, which can cause some frustration in the user experience.

The site seems to be fully loaded, but nothing happens on the first user interaction.

Unlike FCP and LCP, TTI measures the total page loading time, meaning how long it takes for the page to be fully ready for user interaction.

To achieve a good TTI, it is essential that your page responds to user interactions with a maximum delay of 50 milliseconds.

Lighthouse determines this score by comparing your site with the TTI of real sites. See the table below to understand what the ideal TTI time is.

TTI was removed from the Performance factors in 2022, passing its weight to CLS.

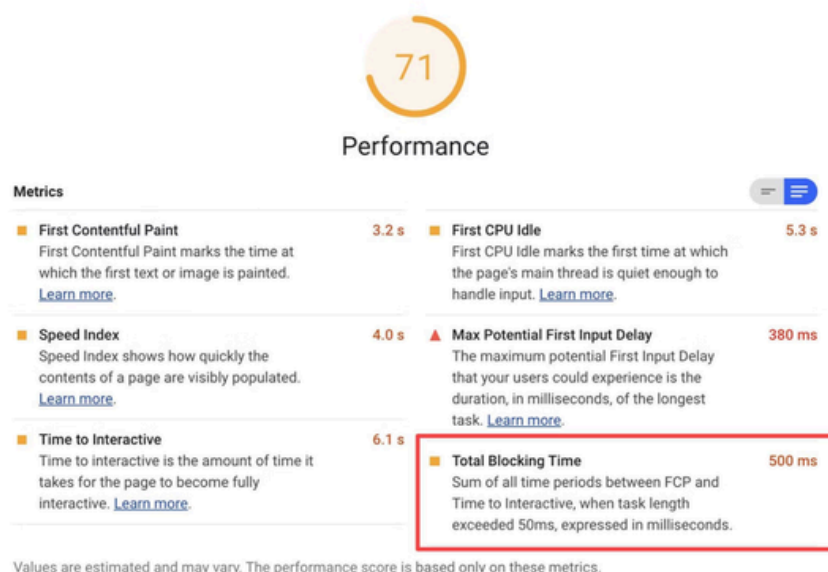
PERFORMANCE: TOTAL BLOCKING TIME

The last but not least important metric in Performance calculation is TBT, Total Blocking Time, which is a Lighthouse performance metric created in 2020, years before the Web Vitals.

TBT measures the total time that your site's page was blocked, preventing the user from interacting with it. To understand how TBT works, we need to understand that TBT has a direct relationship with FCP.

From the first content impression to the end of LCP loading, there is a maximum time in which the page can be blocked.

If this limit is exceeded, we begin to have a Total Blocking Time problem, which cannot be greater than 500 milliseconds.



PERFORMANCE: TOTAL BLOCKING TIME

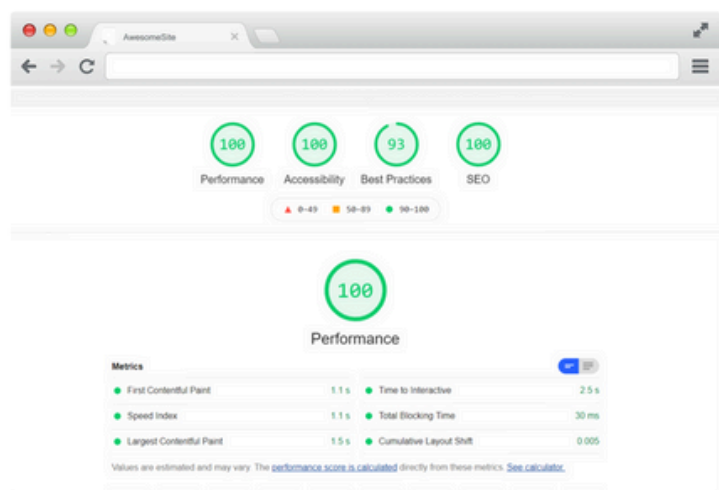
It is important to understand that in most cases, TBT is caused by external resources.

Whenever there is an external call from our site to other servers, there is a time for sending and responding to each request, and often these block user interaction on the page.

Examples include Google Analytics, Google AdWords, Facebook Pixel, chatbot plugins, and others.

For Google, anything that is not essential for the user should be delayed, and anything that is essential should load instantly.

Throughout this e-book, you will learn how to apply this technique.



HOW IS THE PERFORMANCE SCORE CALCULATED?

For a complete evaluation of a website's performance, several metrics are considered, including FCP, LCP, CLS, TBT, and Speed Index, where each metric has a different weight.

FCP	LCP	CLS	TBT	SI
10%	25%	25%	30%	10%

METRICS FOR MARCH 2023

Now that you know the weight of each metric, get to know the Lighthouse Calculator, which focuses especially on the Core Web Vitals metrics such as FCP, LCP, CLS, TBT, and Speed Index, which are fundamental performance metrics that help evaluate the user experience on your website.

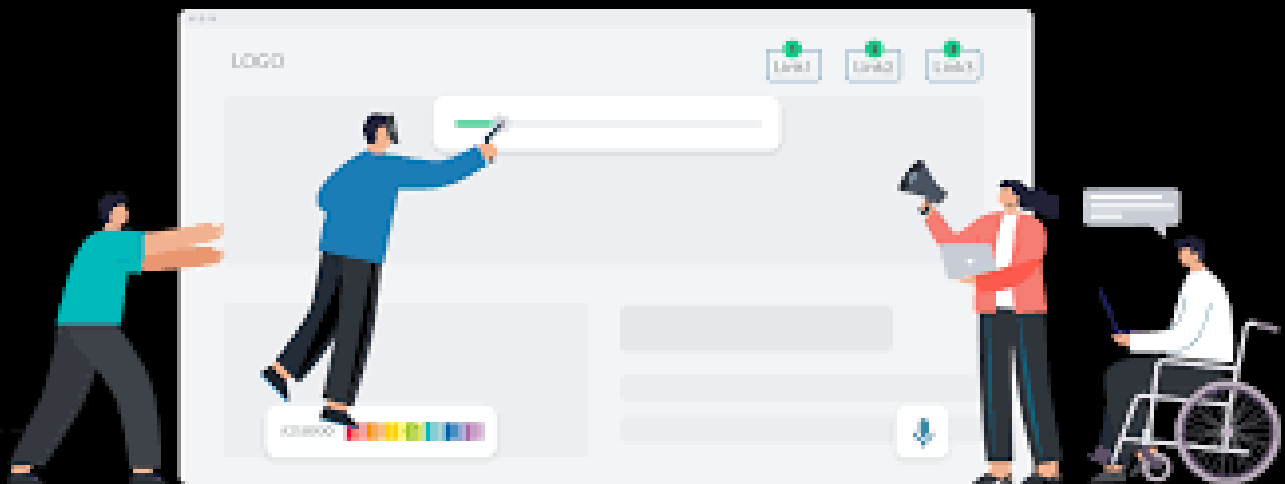


URL: <https://googlechrome.github.io/lighthouse/scorecalc/>

ACCESSIBILITY IS INCLUSION!

To be honest, since the inclusion of this factor in the Core Web Vitals, there have been several discussions about Design vs. Core Web Vitals, but we need to understand that there must be a direct relationship between design and inclusion and that we need to design websites for everyone!

You have probably seen websites with Dark Mode, font size increase and decrease, contrast mode, and so on, which are very common in government websites, since it is a legal requirement for public information websites to be accessible to all.



ACCESSIBILITY IN PRACTICE

You might be wondering what changes with this factor, and I'm here to clarify everything. Font sizes, link descriptions, and contrast between elements are some of the things that need to be adjusted. In short, that's it.

However, let's look at each item in detail so that you understand what needs to be done on your website to make it accessible to all degrees of visual impairment.

That's right, it's not just for completely blind people, but for people with any degree of visual impairment, including those who suffer from blindness.

To make a quick test, no matter how good your vision is, try reading this text.

If you have no vision problems, you probably managed to read the text above, but with some degree of difficulty, maybe you zoomed in.

The best way to talk about accessibility is to visualize the problem, in the example above, we made 2 errors that are taken into consideration when evaluating the accessibility of a website, we will see on the next page what they are.

ACCESSIBILITY

THE IMPORTANCE OF CONTRAST

The contrast between elements is one of the main items in the accessibility category, and it's quite simple to fix.

What needs to be checked are three things: weight, font size, and color in relation to the background color. For example, a font with a size of 14px and weight 300, even if in black color, will have low contrast on a white background.

The recommended font size is at least 16px.

The background color needs to have contrast with the text.

There's no point in having a black background if the text color is dark gray. There's a contrast standard that needs to be followed to ensure good readability for the user.

The Contrast Ratio Level AA is one of the guidelines from WCAG (Web Content Accessibility Guidelines), a series of accessibility recommendations from W3C, an international group led by the inventor of the Web, Tim Berners-Lee, and CEO Jeffrey Jaffe, whose mission is to develop protocols and guidelines that ensure the long-term growth of the Web.

ACCESSIBILITY

COLOR CONTRAST

COLOR CONTRAST COMPLIANCE

AA	AAA
Contrast Ratio 4.5:1	Contrast Ratio 7:1
20/40 vision loss	20/80 vision loss
Affects a small % of ages 45+	Affects age 70+ w/ eye disease

The minimum standard required for websites on the Internet is AA, but to meet the accessibility requirements of Core Web Vitals, the contrast ratio needs to be 7:1 or AAA.

To better understand this calculation, a standard of 4:5:1 or AA will cater to a small amount of people over the age of 45 who have reduced vision between 20 and 40%.

A higher contrast of 7:1 or AAA could also include people over 70 years old with some degree of visual impairment, and even those with only 20% vision.

Normal text is 16px regular

Large text is 18px bold

Large text can also be 24px

Contrast: **4.55:1**

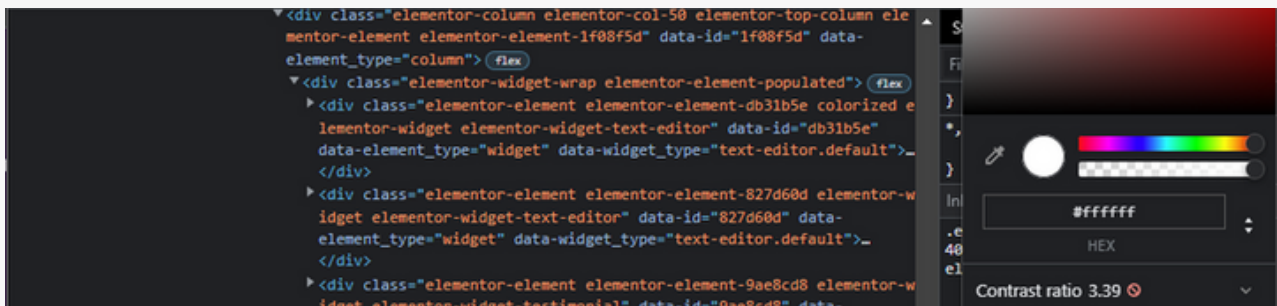
NORMAL TEXT	LARGE TEXT
✓ AA – 4.5:1	✓ AA – 3:1
✗ AAA – 7:1	✓ AAA – 4.5:1

ACCESSIBILITY MEASURING CONTRAST

Now, the most important thing is that to fix this problem, you can use the Google Chrome browser itself, or one of the thousands of tools available on the Internet.

To identify contrast problems with the Google Chrome browser, right-click on the item with the problem and click on the inspect option.

This will open the DevTools tool, in this tool look for color and click on the color.



ONLINE TOOLS

- <https://webaim.org/resources/contrastchecker/>
- <https://contrastchecker.com/>
- <https://accessibleweb.com/color-contrast-checker/>

In all of these tools, you need to input the background color and the text color, and what they do is calculate the contrast ratio.

ACCESSIBILITY MEASURING CONTRAST

After finding the contrast ratio, perform tests until you find the color that has the minimum contrast of 7:1 or AAA, which is the requirement to standardize Accessibility in the Contrast aspect.

To solve the problem, there are three solutions:

1. Increase the font size or weight.
2. Change the font color.
3. Change the background element color.

CHROME EXTENSIONS



The image shows a screenshot of the WCAG Contrast checker extension interface on the left and a website example on the right. The extension interface displays a table of contrast ratios for various elements on a page, with the lowest ratio highlighted in red.

Contrast	Size	Elements
1	small	3 div
1.01	small	2 div
1.13	small	8 div
1.94	large	1 h2
2.74	small	5 div
3.12	large	1 h2
3.13	small	1 a
3.35	small	1 span
3.39	small	9 [span, small, del]
3.39	large	2 b
3.98	small	9 div
4.93	small	5 span
5.23	large	3 b

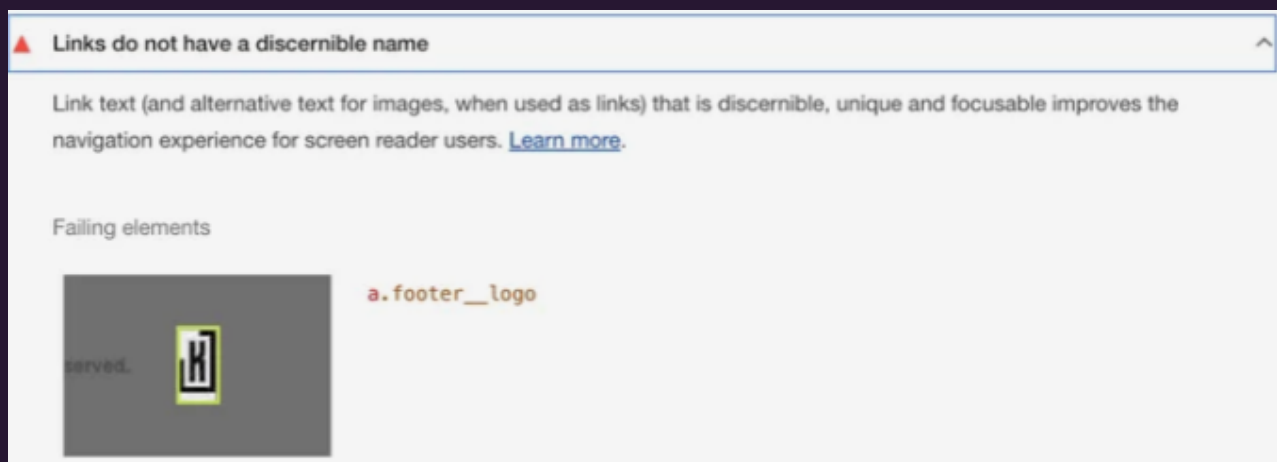
The website example on the right is titled "WEB DESIGNERS E AGÊNCIAS DIGITAIS" and contains text about services and training. It features a dark background with white text and a small profile picture of Luciana Silveira.

With the WCAG Color Contrast Checker extension, it is possible to identify all contrast issues on your website in real-time and test solutions for the problems found.

ACCESSIBILITY LINKS WITH UNDERSTANDABLE NAMES

Do you know how an assistive computer works? It's like Google, it only sees text. To be honest with you, this problem has two causes: links with icons and links with images.

The big problem is that both assistive computers and Google cannot understand what the links are about.



To fix this problem is extremely simple, but you need to have access to the HTML code. There is an attribute that tells Google and assistive tools about what the link is for, this attribute is called Title (You can also use aria-label). Test it out by adding the title attribute to the link that is presenting problems. Do it like this:

```
<a href="https://google.com" title="Redirect to Google" target="_blank" />
```

ACCESSIBILITY

ALT ATTRIBUTE

You must be wondering if there is a problem with links and icons, what about images?

Well, with images we have a very similar situation, people with visual impairments can only associate what assistive technology reads on the page, so it is essential to describe what an image is about.

For this, we use the ALT attribute, where we will describe what the displayed image is about. This text will be read by screen readers and indexing robots, and will be shown in case of images with broken links.



ACCESSIBILITY HEADING STRUCTURE

The header elements are used in HTML documents to structure content into sections and subsections.

They are identified by h1 to h6 tags, where h1 is the main header and h6 is the lowest level of hierarchy.

The sequential descending order means that headings should appear in order of importance, starting with the most important heading (h1) and ending with the least important heading (h6).

This helps readers understand the structure of the content and quickly locate relevant information.

Additionally, it is also important for accessibility, as it helps provide structural information to screen readers and other accessibility devices.

<h1>Cabeçalho 1</h1>

<h2>Cabeçalho 2</h2>

<h3>Cabeçalho 3</h3>

<h4>Cabeçalho 4</h4>

<h5>Cabeçalho 5</h5>

<h6>Cabeçalho 6</h6>



ACCESSIBILITY HEADING STRUCTURE

Example of Content with Incorrect Tags:

```
<h1> Cake Recipes</h1>  
<h2> Chocolate Cake</h2>  
<h3> Ingredients</h3>  
<h2> Preparation</h2>  
<h4> Step 1</h4>  
<h4> Step 2</h4>  
<h2> Tips</h2>
```

In this example, the title 'Chocolate Cake' is marked as h2, which is not in accordance with the descending sequential order of headings.

Furthermore, the 'Ingredients' section is marked as h3, while the 'Preparation' section is marked as h2, which is also incorrect.

The steps in the preparation section should be marked with h3 or h4, depending on the hierarchy we want to give to this information.

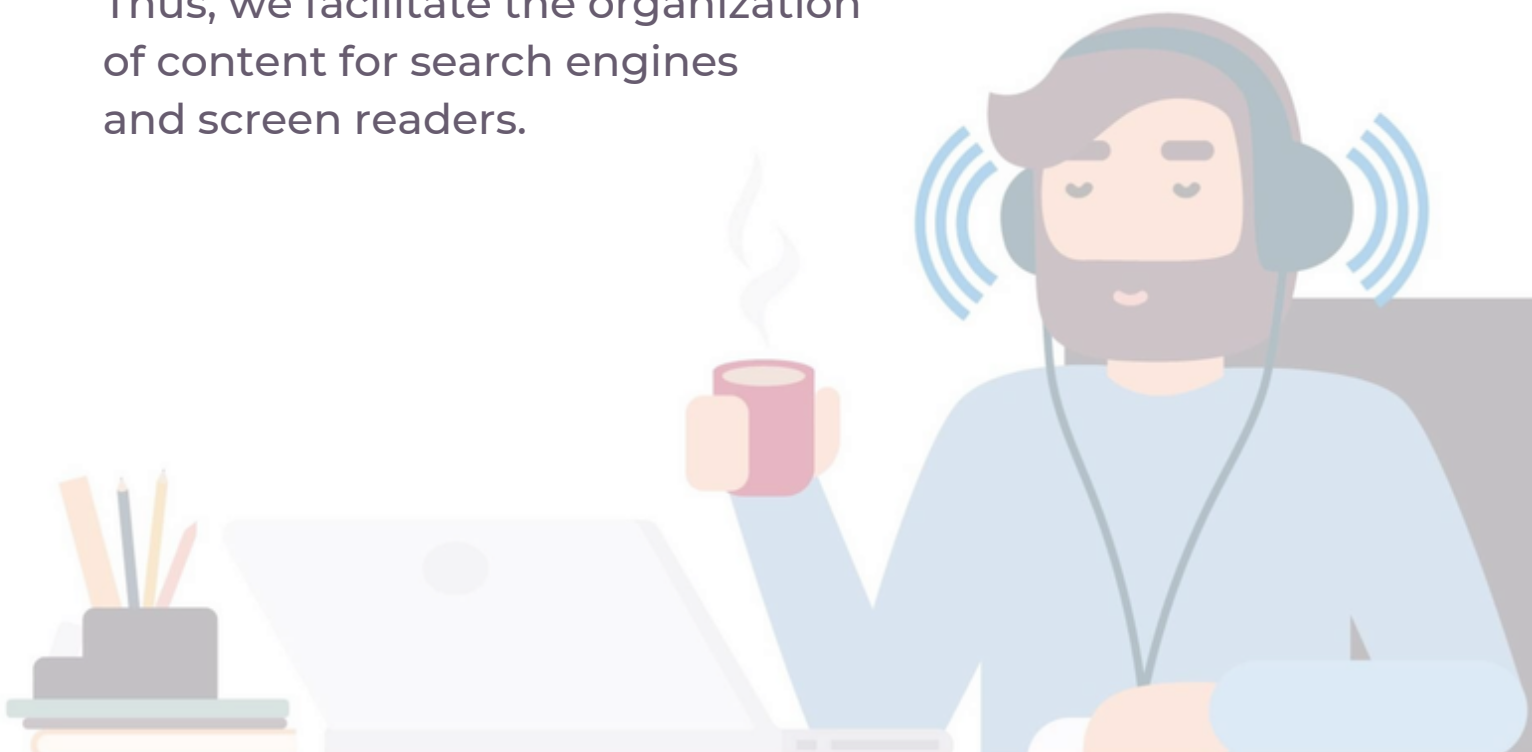
ACCESSIBILITY HEADING STRUCTURE

Correction:

```
<h1> Cake Recipes</h1>  
<h2> Chocolate Cake</h2>  
<h3> Ingredients</h3>  
<h3> Preparation</h3>  
<h4> Step 1</h4>  
<h4> Step 2</h4>  
<h3> Tips</h3>
```

With this, we have as the main title, Cake Recipes, with Chocolate Cake as a subtitle, with an internal section of ingredients, preparation, and tips, with the steps being subtitles of the preparation.

Thus, we facilitate the organization of content for search engines and screen readers.



ACCESSIBILITY

ALLOW ZOOM

Disabling the zoom option on your website can significantly impair users with low vision, as they rely on screen magnification to properly view the content on the page.

Zoom is an important tool for these users, as it allows them to adjust the size of text and other page elements to fit their visual needs.

Without the zoom option, users with low vision may struggle to read the page content, leading to a frustrating and ineffective experience.

Moreover, lack of accessibility can impede inclusion and equal opportunity for all users, regardless of their visual abilities.

Therefore, it is important for website and web application developers to consider accessibility as a fundamental part of the project, ensuring that zoom options are available and functioning properly for all users, including those with low vision.

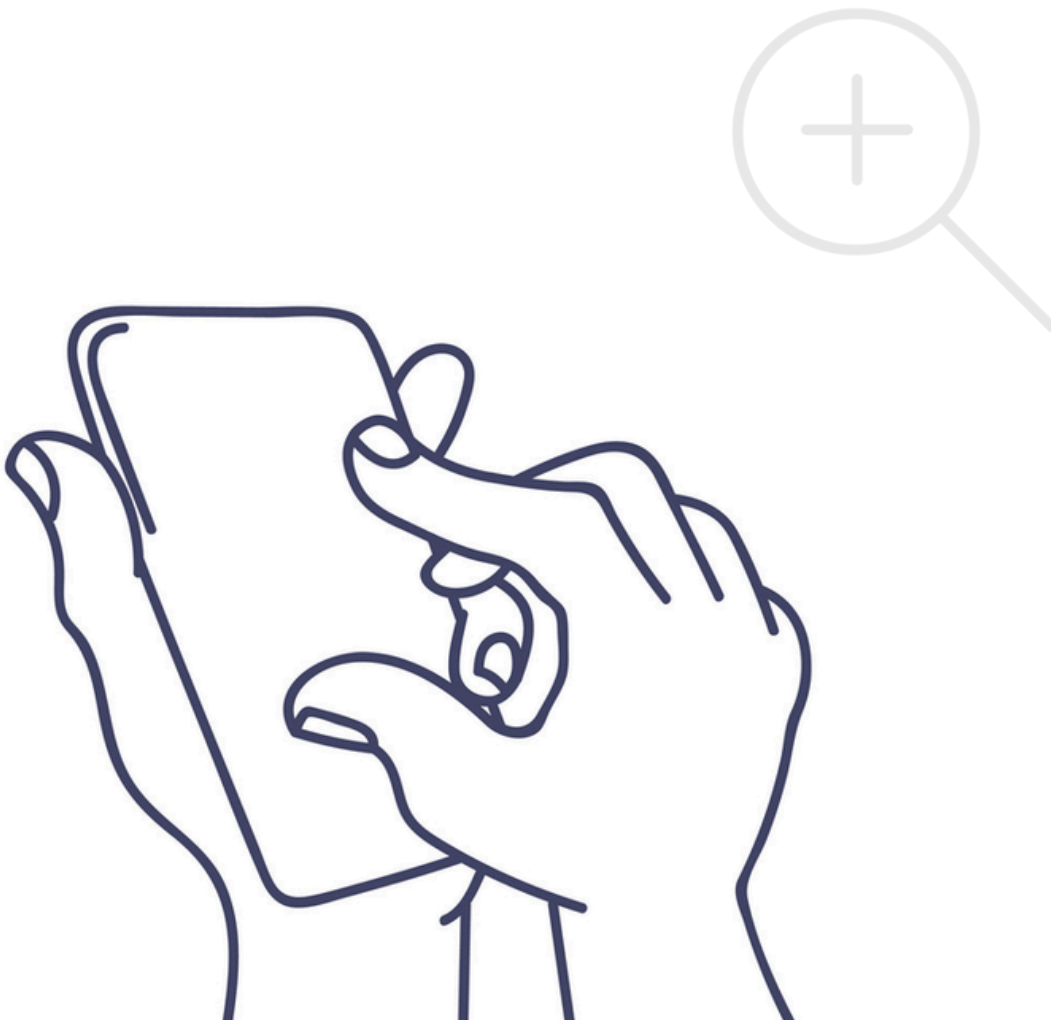
ACCESSIBILITY

ALLOW ZOOM

Understanding the problem:

● `[user-scalable="no"]` is not used in the `<meta name="viewport">` element and the `[maximum-scale]` attribute is not less than 5. ✓

To avoid the problem, it is necessary to ensure that the `user-scalable='no'` attribute is not used in the viewport meta tag, and that the `maximum-scale` attribute is greater than 5.



ACCESSIBILITY

ARIA ATTRIBUTES

An ARIA (Accessible Rich Internet Applications) attribute is a set of tags that can be added to HTML elements to help make web content more accessible to people with disabilities, such as visual or hearing impairments.

These attributes provide additional information to screen readers, allowing them to better understand the structure and meaning of the content on the page.

For example, an ARIA attribute can indicate that an element is a button, a link, or a list, helping people navigate through the content more efficiently.

In summary, ARIA attributes are an important tool for improving web accessibility for all users.

● Os atributos `[aria-*)` têm valores válidos

● Os atributos `[aria-*)` são válidos e não contêm erros de ortografia

ACCESSIBILITY DO NOT USE ARIA-HIDDEN

The "aria-hidden" attribute is used to indicate whether an element on the page should be ignored by screen readers (software used by people with visual impairments to navigate the web).

However, the excessive or incorrect use of the "aria-hidden" attribute can harm the accessibility of the page.

This is because, in some cases, the element that is hidden with the "aria-hidden" attribute may be important for the meaning and understanding of the page.

For these reasons, the use of the "aria-hidden" attribute should be avoided or used with caution. Instead, developers should use other techniques, such as CSS styles, to hide elements on the page that are not important for accessibility.

In summary, the "aria-hidden" attribute is a powerful tool for controlling what is presented to users with visual impairments, but it should be used with care to ensure that the accessibility of the page is preserved.

● `[aria-hidden="true"]` is not present on the document `<body>`

ACCESSIBILITY USE THE TITLE ATTRIBUTE

When web pages are accessed through a screen reader, users with visual impairments rely on these descriptions to understand the content of the page and navigate correctly. Without a "title" attribute, screen readers will not have a clear description of the page content, which can make it difficult for users with visual impairments to understand what the page is trying to communicate.

Furthermore, the "title" attribute is also important for the overall user experience, as it provides additional information about the page and can help guide users before accessing the page.

In summary, the "title" attribute is vital to ensure the accessibility of the page for users with visual impairments and for a positive user experience in general. Therefore, all web pages should include a clear and accurate "title" attribute.

● Document has a `<title>` element



`</div>`
`<title>`
`<meta http-equiv=`
`<meta http-equiv=`
`</head>`
`<body onload="onLoadFunction"`
`class="outerDiv" id=`
`contentDiv"`
`text/java`

ACCESSIBILITY IDENTIFY THE LANGUAGE

The "lang" attribute specifies the language of the page content, which is important to ensure that the content is displayed correctly and that accessibility tools, such as screen readers, can understand and present the content properly.

If the HTML element does not have a specified "lang" attribute, accessibility tools may have difficulty identifying the correct language and, as a result, present the content inaccurately or inaccessibly.

Example:

```
<html lang="pt-BR">
<head>
<title>Example of a page with the correct lang attribute</title>
</head>
<body>
<h1>Welcome to our page.</h1>
<p>Este é o conteúdo da página em português brasileiro.</p>
</body>
</html>
```

● `<html>` element has a `[lang]` attribute

● `<html>` element has a valid value for its `[lang]` attribute

ACCESSIBILITY FOCUSABLE ELEMENTS

The focusable elements are web page elements that can be selected and activated by the user, such as buttons, links, checkboxes, and input fields.

These elements are important for accessibility, as they allow users to navigate and interact with the page content using the keyboard or other alternative input devices.

It is important to ensure that all focusable elements on the web page are identifiable and accessible to all users, including those with disabilities. This can be achieved by using good coding practices and ensuring that focusable elements are accessible to assistive technologies, such as screen readers.

● `[id]` attributes on active, focusable elements are unique

If more than one active and focusable element has the same "id" attribute, assistive technologies will not be able to correctly identify each element, which can cause navigation and interaction problems for users with disabilities.

ACCESSIBILITY FOCUSABLE ELEMENTS

● `[aria-hidden="true"]` elements do not contain focusable descendents

The `"aria-hidden='true'"` attribute means that the element and its descendants are not visible to assistive technologies such as screen readers.

This can harm accessibility, as focusable elements within the element with `"aria-hidden='true'"` will not be accessible to users with disabilities.

It is important to avoid using `"aria-hidden='true'"` on elements that contain focusable elements to ensure the accessibility of the page.

○ Interactive controls are keyboard focusable

Interactive controls on web pages, such as buttons, links, and checkboxes, need to be keyboard focusable to ensure accessibility.

This allows users with motor difficulties or who use only the keyboard to navigate the web to access and interact with the content of the page.

It is important to ensure that all interactive controls are keyboard focusable to make the page accessible to all users.

ACCESSIBILITY FOCUSABLE ELEMENTS

B

Checkout form

Below is an example form built entirely with Bootstrap's form controls. Each required form group has a validation state that can be triggered by attempting to submit the form without completing it.

Billing address

First name

3

Last name

4

Username

@ Username

Email (Optional)

you@example.com

Address

1234 Main St

Address 2 (Optional)

Apartment or suite

Your cart

3

Product name Brief description	\$12
Second product Brief description	\$8
Third item Brief description	\$5
Promo code EXAMPLECODE	-\$5
Total (USD)	\$20

1

Promo code

2

Redeem

The correct focus order on text fields in a form is important for accessibility, allowing users to easily navigate the form with the keyboard.

This ensures that the form is filled out in a logical and efficient manner for all users.

ACCESSIBILITY CONTENT IN TABS

To ensure accessibility, it is important to follow the following recommendations when using tabs on a web page:

1. Provide clear and descriptive labels for each tab
2. Allow keyboard navigation
3. Maintain a logical order of tab selection when navigating with the keyboard
4. Ensure that the content of the currently selected tab is accessible to screen readers.

This will ensure that all users, including those with disabilities, can access and interact with tab content efficiently and effectively.

● No element has a `[tabindex]` value greater than 0

Not assigning a `tabindex` value greater than 0 to elements means ensuring that the focus order on the page is logical and based on the HTML structure.

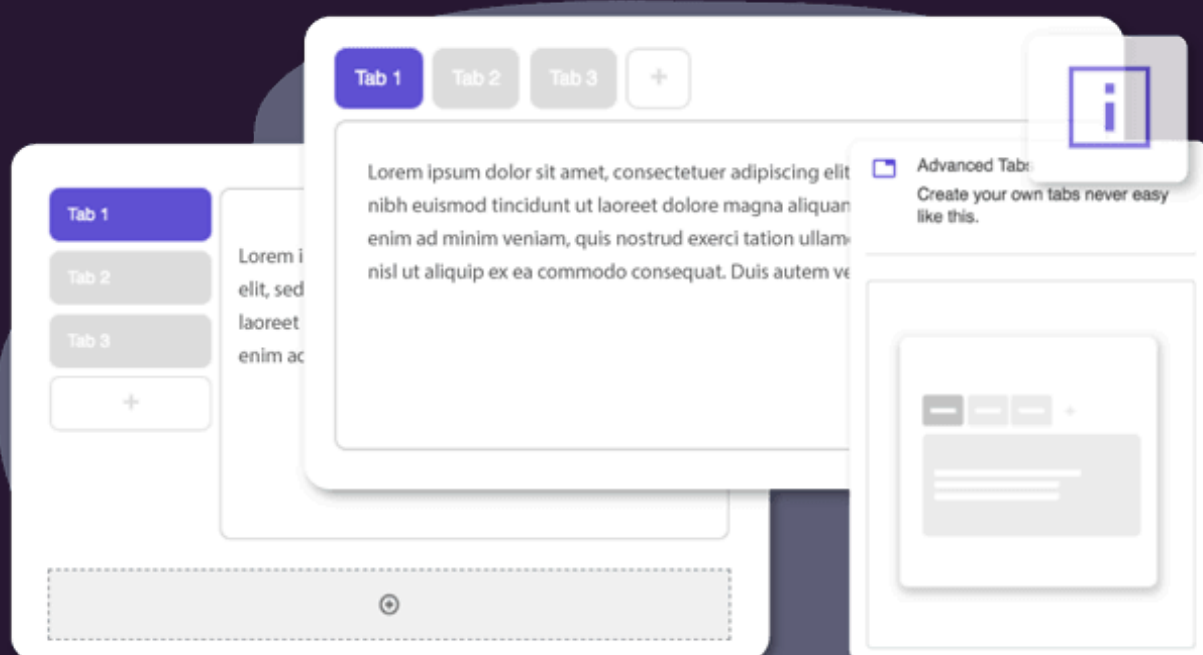
This ensures that keyboard navigation is predictable and accessible to all users.

ACCESSIBILITY CONTENT IN TABS

To ensure accessibility, it is important to follow the following recommendations when using tabs on a web page:

1. Provide clear and descriptive labels for each tab
2. Allow keyboard navigation
3. Maintain a logical order of tab selection when navigating with the keyboard
4. Ensure that the content of the currently selected tab is accessible to screen readers.

This will ensure that all users, including those with disabilities, can access and interact with the content of the tabs efficiently and effectively.



ACCESSIBILITY BE CAREFUL WITH IFRAMES

Some accessibility considerations when using iframes include:

1. Providing an alternative description for the iframe content through "title" or "aria-describedby" attributes.
2. Ensuring that the content inside the iframe is accessible, including using accessibility features such as captions and audio description for videos.
3. Making sure the iframe has a defined size and can be resized by the user.
4. Checking compatibility with screen readers. Providing a mechanism to exit the iframe if necessary.

 `<frame>` or `<iframe>` elements do not have a title

In the above error, the `<iframe>` element does not have the "title" attribute.

To provide a descriptive label for the iframe, use the "aria-label" or "aria-labelledby" attributes along with appropriate alternative text.

This text can be read by screen readers and helps users understand the purpose of the iframe on the page.

ACCESSIBILITY BE CAREFUL WITH TABLES

When working with tables, some important accessibility considerations include:

Using appropriate semantic markup, such as "thead," "tbody," "th," and "td." Providing headers for columns and rows using the "scope" or "headers" attribute.

Ensuring that table cells have meaningful content and not just whitespace.

Avoiding nested tables unless absolutely necessary.
Checking compatibility with screen readers by testing keyboard navigation through the table.

Providing alternatives to tables, such as lists or text descriptions, for users with special needs.

○ `<th>` elements and elements with `[role="columnheader"/"rowheader"]` have data cells they describe.

The `<th>` elements and elements with `[role="columnheader"/"rowheader"]` provide descriptive labels for data cells they describe.

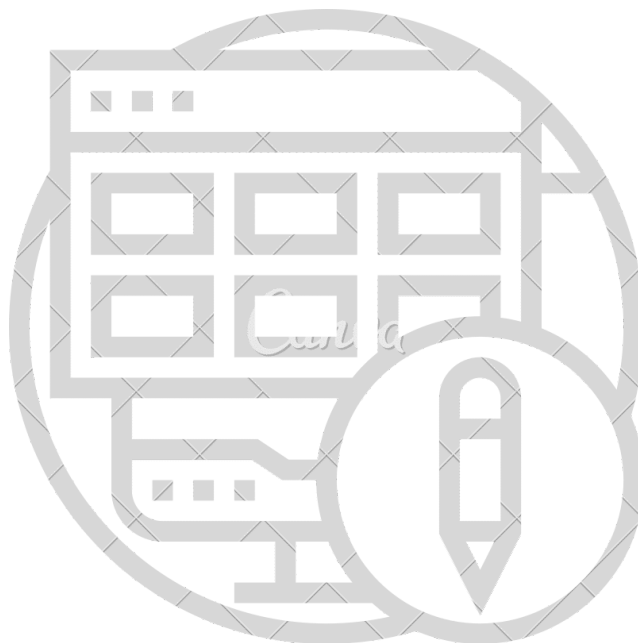
This relationship helps screen readers to understand the structure and organization of data within the table.

ACCESSIBILITY BE CAREFUL WITH TABLES

-
- Cells in a `<table>` element that use the `[headers]` attribute refer to table cells within the same table.
-

Cells in a `<table>` element that use the `[headers]` attribute refer to table cells within the same table.

The `[headers]` attribute is used to associate data cells with header cells, providing additional information about the structure and relationships within the table for users of assistive technologies such as screen readers.



ACCESSIBILITY: ROLES

The `[role]` attribute is used to indicate the semantic role of an element on the page. It is used to provide additional information about the purpose of the element to screen readers and other assistive technologies.

In the context of accessibility, the ARIA (Accessible Rich Internet Applications) role is a technique that uses ARIA attributes to provide additional information to users who use assistive technologies, such as screen readers.

Therefore, it is important to ensure that the values assigned to ARIA attributes are accurate and valid in order to maximize the accessibility of your website for all users.

● `[role]`s têm todos os atributos `[aria-*)` obrigatórios

● Os valores de `[role]` são válidos



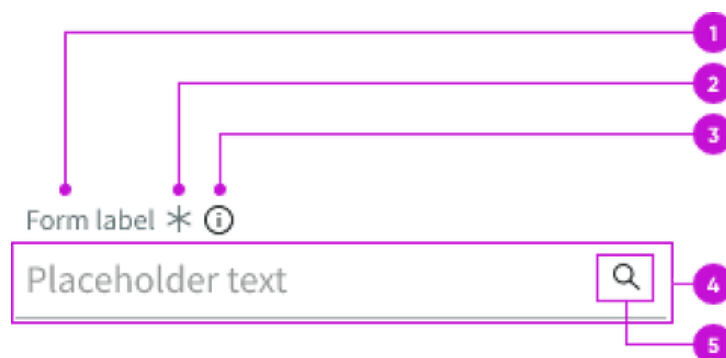
ACCESSIBILITY FORMS

Accessibility for forms is a set of techniques and best practices that aim to make web page forms more accessible for people with disabilities.

Some of these techniques include using clear and descriptive form labels, creating form fields that are accessible for screen readers, using real-time form validation, and including accessibility options for people with visual disabilities.

- Os elementos de formulário têm etiquetas associadas

To address this problem, it is important to ensure the semantic structure of forms by adopting the use of the `<label>` tag for each `<input>` field in the form.



BEST PRACTICES: THIS IS ABOUT SECURITY

Best practices are an important factor of Core Web Vitals and are crucial to ensuring the quality and efficiency of the user experience on web pages.

We can summarize best practices in three items: security, quality, and privacy.

Regarding security, there are several points addressed in the Page Speed Insights report that are directly related to security.

 Utiliza HTTPS

The use of SSL is essential to ensure the security and reliability of online transactions and to protect users from potential security threats.

SSL (Secure Socket Layer) is a security protocol that helps protect users' privacy and security on the internet.

It encrypts communication between the user's browser and the web server, preventing hackers and malicious third parties from intercepting and accessing sensitive information such as passwords and banking information.

BEST PRACTICES: THIS IS ABOUT SECURITY

In addition, to avoid security issues it is also necessary to take some precautions with third-party resources, I am referring to obsolete APIs and JavaScript libraries with known vulnerabilities.

- Evita bibliotecas JavaScript de front-end com vulnerabilidades de segurança conhecidas

- Evita APIs obsoletas

Another big problem that relates to security but also to quality, is the display of errors. Besides indicating that something is wrong with your web project, errors in the console also make it clear to potential hackers/intruders that there is a security vulnerability on your site that can be exploited.

- Nenhum erro do navegador registrado no console

- Nenhum problema no painel [Issues](#) do Chrome Devtools

BEST PRACTICES: THIS IS ABOUT PRIVACY

It is common for websites on the internet to request geolocation permission or force the user to provide data after the page is loaded.

Requesting geolocation permission immediately upon page load should be avoided as it can negatively impact the user experience and affect user privacy.

The immediate request for geolocation permission can be seen as intrusive and annoying to some users, as well as reducing trust in the page and increasing the likelihood of rejection of the request.

Additionally, it is important to respect user privacy and request geolocation permission only when it is truly necessary for a specific page functionality, such as providing local information or offering discounts in a specific region.

In summary, requesting geolocation permission on page load can be considered an invasive and harmful practice for user experience and privacy. Therefore, it is important to carefully evaluate the need and appropriate timing for requesting this permission.

BEST PRACTICES: THIS IS ABOUT PRIVACY

- Evita o pedido da permissão de geolocalização no carregamento de página
- Evita o pedido da permissão de notificação no carregamento de página

When you access some websites, you may be asked to allow the site to send notifications to your device.

However, many users don't like this practice because it can be annoying or confusing to receive notifications without context or without understanding their purpose.

To avoid this notification permission request upon page load, it is recommended to link it to user gestures, such as clicking a button or taking a specific action within the site.

This way, the user has more context about what they're allowing and can make an informed decision about whether they want to receive notifications or not.

This practice also helps increase user trust in the site, as it shows that the site respects the user's privacy and notification preferences.

BEST PRACTICES: THIS IS ABOUT QUALITY

- Exibe imagens com a proporção correta
- Exibe imagens em resolução adequada

When displaying images on a website or application, it is important that they are presented with the correct aspect ratio and in an adequate resolution.

The correct aspect ratio means that the image should not be distorted, appearing strange or unprofessional. Instead, the image should have the same relationship between height and width as the original image, so that it looks natural and pleasing to the eye.

Adequate resolution means that the image should have a sufficient visual quality to be displayed clearly and sharply. If an image is displayed in a very low resolution, it may appear blurry or pixelated, which impairs the appearance of the website or application.

BEST PRACTICES: THIS IS ABOUT QUALITY

To display images with the correct aspect ratio and appropriate resolution, it is important to choose the correct dimension and resolution for the images you want to display. Additionally, you can also use techniques such as resizing and image compression to ensure that they are displayed correctly and without compromising the loading speed of your website or application.



Rendered size: 1073 × 304 px

Rendered aspect ratio: 1073:304

File size: 8.5 kB

Rendered size: The actual size being displayed. Rendered aspect ratio: The displayed aspect ratio.

BEST PRACTICES: THIS IS ABOUT QUALITY

Rendered size: 366 × 92 px

Rendered aspect ratio: 183:46

Intrinsic size: 519 × 130 px

Intrinsic aspect ratio: 519:130

When an image has a different size and proportion than what is being displayed on the screen, we have a variation in the quality of the image display, which can cause the image to appear stretched, flattened, or even blurred.

To check the real size of the image and the displayed size, in the Google Chrome browser, simply inspect the Element, in the case of an image, by clicking inspect and hovering over the image path, it will show the information.

If this image is a background image, it is necessary to look at the background property in the CSS styles used in this HTML element.

SEO - GOOGLE WANTS YOU TO DO THE BASICS

When you search on Google, the search engine returns a list of results that are relevant to your query.

SEO helps improve a website's ranking in search results so that it appears prominently and attracts more visitors.

To improve a website's ranking in search results, it needs to be optimized to be relevant and useful to the user.

This involves choosing the right keywords, creating high-quality content, and building an organized and easy-to-navigate site structure.

Additionally, it's important to ensure that the site is fast, secure, and accessible on all devices, such as computers, tablets, and smartphones.

When a website is optimized for SEO, it can attract more organic traffic, meaning visitors who find the site in search results without needing to pay for ads.

This can increase brand visibility, generate leads and sales, and improve the website's reputation online.

SEO - GOOGLE WANTS YOU TO DO THE BASICS

There are 14 SEO-related audits, some of which have already been covered in other factors such as Accessibility.

Some audits are more related to accessibility than SEO itself, but they help to achieve better ranking results.

● A página não está bloqueada para indexação

The first audit I'm going to mention here is about crawlability, ensuring that your site is visible to Google's robots is mandatory. It is common during the process of creating a website to keep the "no-index" meta tag to avoid indexing unfinished or even sample content.

However, it is necessary to ensure that this tag is used correctly, being added only to pages that should not appear in search results.

● Os links são rastreáveis

Still talking about crawlability, this other audit has a direct relationship with links. They need to have a valid destination, whether internal or external. The purpose of a link is to direct the user to another part of the page or another internal or external page. Links without a defined href attribute will fail in this metric.

SEO - GOOGLE WANTS YOU TO DO THE BASICS

Another important point, still talking about crawlability, is the status code of your page.

To summarize, when your server has problems or there is an issue with the site, the response is usually an error of the 400 or 500 class.

Google requires your site to return a 200 response, which means the content was successfully received.

Returning 400 or 500 errors for an extended period of time can even lead to penalties and the removal of your site from Google.

-
- A página tem um código de status HTTP bem-sucedido



SEO - GOOGLE WANTS YOU TO DO THE BASICS

Now we need to talk about Basic S.E.O, not providing a title for your page or leaving your page without a meta-description is a serious mistake that harms the proper indexing of your site and also the user experience.

- O documento tem um elemento `<title>`

- O documento tem uma metadescrição

Despite being a very easy problem to solve, there are thousands of websites on the internet with this issue; a simple search for "Untitled" will return thousands of results.

The ideal size for an SEO page title is about 50 to 60 characters.

This is because search engines typically display only the first 50-60 characters of a page's title in search results.

Therefore, it's important to use these initial characters to include relevant keywords and important information about the page's content.

SEO - GOOGLE WANTS YOU TO DO THE BASICS

The meta description is how Google displays the description of your website on the search results page.

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The meta description is an important element of a page that appears below the page title in Google search results. It is a brief description of the page content and usually has about 150-160 characters. The meta description is an opportunity to convince users to click on your result and visit your page.

The meta description should be clear, concise, and persuasive, summarizing the content of the page and providing useful information for users. It should include relevant keywords for the page and encourage users to click on the result.



SEO - GOOGLE WANTS YOU TO DO THE BASICS

robots.txt é válido

The robots.txt file is a text file used to inform search engines, such as Google, which parts of your site they can crawl and index.

The robots.txt file is placed in the root of the site and contains a list of directories and files that search engines are allowed or prohibited from accessing.

For example, if you want a particular page or directory of your site not to be displayed in Google search results, you can specify it in the robots.txt file.

This can be useful if you have pages or information that you want to keep private or not relevant to users who find your site in search results.

However, it's important to remember that the robots.txt file is not a security measure. It only informs search engines which parts of your site they can or cannot access.

If you have sensitive or confidential information on your site, it's important to protect it in other ways, such as restricting access with passwords or encrypting the data.

SEO - GOOGLE WANTS YOU TO DO THE BASICS

As I mentioned earlier, some SEO directives are more related to accessibility, and some of them even extend to accessibility metrics, such as the ALT attribute in images and the description for links.

- Os elementos de imagem têm atributos `[alt]`
- Os links têm texto descritivo

A S.E.O tip is to use the ALT attribute of images to help with positioning.

Many people forget about image search and don't know that a lot of traffic comes from there.

Adding your keyword together with the image description helps rank your site's images in Google's image search.

This is particularly important for local businesses.



SEO - GOOGLE WANTS YOU TO DO THE BASICS

Within SEO, there are also guidelines for user experience on mobile devices. Items such as text size, touch area sizes, and viewport tags with defined sizes can affect SEO.

● O documento usa tamanhos de fonte legíveis — 100% do texto legível

● As áreas de toque estão dimensionadas corretamente — 100% de áreas de toque dimensionadas corretamente

About font sizes, the ideal is to use at least 12px, but I usually use 16px as a standard for accessibility reasons.

Interactive elements such as buttons and links are parts of a website or application that can be clicked or touched by users to perform an action.

To ensure that users can efficiently interact with these elements, they need to be large enough and have enough space around them.

The recommended size for these elements is 48x48 pixels, which means they should be at least this size to be easily touched or clicked by users.

Additionally, it's important that there's enough space around the elements to avoid overlap with other elements on the screen.

SEO - GOOGLE WANTS YOU TO DO THE BASICS

To conclude, let's talk about Canonicals. When browsing the internet, you often come across pages that seem very similar or almost identical.

This can happen for various reasons, such as when the same content is accessible through different URLs, or when a page is accidentally duplicated.

To help search engines understand which is the correct page to index and display in search results, developers can use a tag called "rel=canonical".

This tag is added to the page's code and indicates which URL is the canonical or main one that should be considered by the search engine.

By adding a valid rel=canonical, developers are indicating to the search engine that a page is the main version of a content, thus avoiding the indexing of duplicate pages or pages with very similar content.

This is important to improve the user experience and ensure that search results are accurate and relevant.

BÔNUS - MONITORING

It's important to remember that Google periodically revisits pages to re-evaluate user experience.

This re-evaluation is done through Google Chrome, which collects real user navigation data to evaluate Core Web Vitals metrics.

This means that even if you fix issues on your site, it will still take some time for Google to recognize the improvements and update its rankings.

The validation time for changes can also be lengthy. Google typically takes 15 to 28 days to revalidate changes made to your site with respect to Core Web Vitals.

This means that it's important to make changes as soon as possible so that they can be evaluated and updated in Google's rankings as quickly as possible.

Therefore, it's important to use monitoring tools to regularly track Core Web Vitals metrics and take action to improve user experience on your site.

BÔNUS - MONITORING

DebugBear is a website performance monitoring tool that allows you to track your Core Web Vitals, as well as other important metrics such as page loading time, user interactivity, and visual stability. It provides real-time alerts and detailed reports so that you can quickly fix issues.

URL: <https://www.debugbear.com/>

RUM Vision is another website performance monitoring tool that provides real-time analysis of your Core Web Vitals, as well as other important metrics such as bounce rate and server response time. It also provides personalized suggestions to improve your site's performance based on the data collected.

URL: <https://www.rum-vision.com/>

With these monitoring tools, you can ensure that your website meets the Core Web Vitals metrics and provides a fast and satisfactory user experience.

THANK YOU

I hope this material provides you with valuable insights and useful information to boost your success on the internet.

If you have any questions or suggestions about the e-book, please don't hesitate to contact us.

Once again, thank you for choosing this product.

Sincerely,

Daniel Paz





▲ 0-49

■ 50-89

● 90-100



MASTER

THE 4 VITAL FACTORS

OF THE WEB

I decided to combine all my 2-year knowledge of Core Web Vitals with my nearly 15 years of experience in the digital market to create this e-book and clarify how to solve once and for all the issues related to the latest Google update on user experience.

The foundation to solve the problem is to understand the cause and then think about the solution.



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