

WCAG Guidelines

1. How to Meet WCAG (Quick Reference) - https://www.w3.org/WAI/WCAG21/quickref/?currentsidebar=%23col_customize&levels=aaa
2. Simplification of WCAG Guidelines - <https://www.digitala11y.com/wcag-checklist/>

Principle 1 – Perceivable - Information and user interface components must be presentable to users in ways they can perceive.		
CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 1.1: Text Alternatives	https://www.digitala11y.com/understanding-sc-1-1-1-non-text-content/	Provide text alternatives for any non-text content so that it can be changed into other forms people need, such as large print, braille, speech, symbols or simpler language.
1.1.1 Non-text Content Level A	<p>All non-text content that is presented to the user has a text alternative that serves the equivalent purpose.</p> <p>All informative and functional non-text content such as images, icons, charts, image, maps etc must have alternative text that describes the meaning or purpose</p> <p>This success criterion requires that any non-text content that includes active images (imagelinks), area maps, informative images, complex charts and graphs, CSS images, decorative images, input image controls, CAPTCHA and audio and video contents must have text alternatives.</p>	<ul style="list-style-type: none">• Always provide alternative options like audio or OTP (one time password) for CAPTCHA.• Always provide textual summary or description for complex charts and graphs apart from shot alt text.• Always use title attribute for additional info while using alt attribute in image links.

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CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 1.2 – Time-based Media	https://www.digitala11y.com/understanding-sc-1-2-1-audio-only-and-video-only-prerecorded/	Provide alternatives for time-based media.
1.2.1 Audio-only and Video-only (Prerecorded) Level A	<ul style="list-style-type: none">1.2.1 Audio-only and Video-only (Prerecorded): For prerecorded audio-only and prerecorded video-only media, the following are true, except when the audio or video is a media alternative for text and is clearly labeled as such: (Level A)Prerecorded Audio-only: An alternative for time-based media is provided that presents equivalent information for prerecorded audio-only content.Prerecorded Video-only: Either an alternative for time-based media or an audio track is provided that presents equivalent information for prerecorded video-only content.This success criterion requires that audio-only & video-only content are provided with alternative method of conveying information. A text transcript can be provided for audio track & text transcript or audio track can be provided for a video that doesn't have an audio. Transcripts help all kind of users like blind, hard of hearing, deaf & deaf blind to perceive content & understand it easily.An example of audio-only content is podcast. A video-only content is a video that is silent.	<p>Provide text transcripts for audio tracks.</p> <p>Provide either text transcript or an audio track for a silent video.</p> <p>If an audio is provided for video then text transcript is not required. (Exception)</p>

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CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 1.2 – Time-based Media	https://www.digitala11y.com/understanding-sc-1-2-2-captions-prerecorded/	Provide alternatives for time-based media.
1.2.2 Captions (Prerecorded) Level A	<ul style="list-style-type: none">1.2.2 Captions (Prerecorded): Captions are provided for all prerecorded audio content in synchronized media, except when the media is a media alternative for text and is clearly labeled as such. (Level A)This success criterion intends to provide captions for all the videos that have audio in the form of dialogues, voiceover and other sound clues that combinedly convey information or help to understand the video. Captions, also known as subtitles or CC (Closed caption) in abbreviated form are most helpful for deaf, hard of hearing, deaf blind & users who don't follow the video and depend on captions. Captions include not only the dialogue but also information such as speaker & non-speech information conveyed through sound which is meaningful like the claps of audience and laughter.	<p>Provide captions for the video that has audio.</p> <p>If video is the alternative for text content then it doesn't need captions. (Exception)</p> <p>If possible provide captions in multiple languages as this helps users to choose the language they can follow.</p>

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CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 1.2 – Time-based Media	https://www.digitala11y.com/understanding-sc-1-2-3-audio-description-or-media-alternative-prerecorded/	Provide alternatives for time-based media.
1.2.3 Audio Description or Media Alternative (Prerecorded) Level A	<p>1.2.3 Audio Description or Media Alternative (Prerecorded): An alternative for time-based media or audio description of the prerecorded video content is provided for synchronized media, except when the media is a media alternative for text and is clearly labeled as such. (Level A)</p> <p>This success criterion intends that video with audio that presents significant visual content has another alternative form. Video should be provided with either an audio description or an alternative transcript. The alternative transcript must explain all the visual content part of the video. Having either the audio descriptions or the transcript will pass this success criterion.</p> <p>Understanding WCAG conveys:</p> <p>Providing audio description of the video content: The audio description supplement’s information conveyed through actions, characters, scene changes, and on-screen text available during the dialog pauses and which is conveyed only through visuals. Eg: The advertisements on the television that says, Order our product through the telephone numbers displayed on the screen. This information must be spoken out so that the viewers with blindness and visual challenges too benefit.</p> <p>Providing the information available in the synchronized media in text form: This alternate for the time-based media provides the entire description of the synchronized media content not just restricted to the content during pauses like the audio description. Usually, full descriptions are provided of all visual information, including visual context, actions and expressions of actors, and any other visual material. In addition, non-speech sounds (laughter, off-screen voices, etc.) are described, and transcripts of all dialogue are included. The sequence of description and dialogue transcripts are the same as the sequence in the synchronized media itself. The alternate for the time-based media also takes care of the interactions in the synchronized media.</p>	<p>Provide audio descriptions if possible, or</p> <p>Provide text transcripts for the video.</p> <p>Videos that rely on sound only doesn’t require audio descriptions. Example: interviews, speeches.</p>

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Guideline 1.2 – Time-based Media	https://www.digitala11y.com/understanding-sc-1-2-4-captions-live/	Provide alternatives for time-based media.
1.2.4 Captions (Live) Level AA	<p>1.2.4 Captions (Live): Captions are provided for all live audio content in synchronized media. (Level AA)</p> <p>The intent of this success criterion is to provide captions for the live media content. Live media refers to the audio/video content that is relayed/broadcasted live on the internet platform.</p> <p>Live captioning is seen on live news broadcast, live sports commentaries, live webinars, live events broadcast. Of late, most of the accessibility events are also focusing on providing live captioning for the events so as to make them inclusive.</p>	<p>Provide captions for a live broadcast</p> <p>Use media players or broadcast platforms where live captioning is supported.</p>

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Guideline 1.2 – Time-based Media	https://www.digitala11y.com/understanding-sc-1-2-5-audio-description-prerecorded/	Provide alternatives for time-based media.
1.2.5 Audio Description (Prerecorded) Level AA	<p>1.2.5 Audio Description (Prerecorded): Audio description is provided for all prerecorded video content in synchronized media. (Level AA)</p> <p>The intent of this success criterion is to provide audio descriptions to the videos so as to aid blind & visually impaired users understand the visual aspect of the video content. Videos often contain a lot of content that need sight to understand! If audio descriptions are provided, then the same content can be explained to non-sighted users & they will not lose any aspect of the video. This helps both sighted & non-sighted users to have similar experience. Audio descriptions also help people with cognitive difficulties to understand the video well</p>	<p>Provide audio descriptions where visual aspect is not explained in the dialog of the video</p> <p>The audio description can either be separate from the original video or be an integral part of the video</p> <p>Audio description must include scene changes, settings, actions that are described in dialogues and any other visual information that is not conveyed via a speech or dialog</p> <p>Use media players that support audio descriptions.</p>

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Guideline 1.3 – Adaptable	https://www.digita11y.com/understanding-sc-1-3-1-info-and-relationship/	Create content that can be presented in different ways (for example simpler layout) without losing information or structure.
1.3.1 Info and Relationships Level A	<p>Information, structure, and relationships conveyed through presentation can be programmatically determined or are available in text. (Level A)</p> <p>This success criterion requires that presentation cannot alone show the information, structure and relationship. Also, it stresses that the information, relationship and the presentation must be separated when creating websites.</p> <p>What do we mean by presentation?</p> <p>A large text which is bolded says “Chapter 1: Introduction to Algebra” followed by a blank line and then texts. What does this signify here? The answer is, the text “Chapter 1: Introduction to Algebra” is visually styled as the section heading of the succeeding paragraphs. Does the screen reader user know this information and relationship?</p> <p>On the left side, the label reads “User Name” and on the right side, there is an input field. Sighted users understand the purpose or the name of the field as “User Name” through the position. While tabbing to the same field, would a blind screen reader user know this?</p> <p>This is the same case with a group of same type of elements or links that constitute a visual list or a group of fields that have a common purpose or an arrangement of data that constitutes a visual table.</p>	<p>Emphasis – Use <code></code> and <code></code> instead of using Italics and Bold texts to highlight important texts; use <code><blockquote></code> to mark quotations</p> <p>Headings – Provide hierarchically logical heading markup for the contents</p> <p>Table – Provide HTML table markup and provide column headers for simple tables and column headers and row headers for complex tables</p> <p>Table – When using nested tables, consider the possibility of breaking the content into logical individual tables instead of</p>

	<p>What do we do now?</p> <p>All that we need to do is while styling the contents visually to convey info and relationship, we must add the semantic markup that is available in the technology that we work on. To break it further:</p> <p>Mark the headings that visually look like headings using either h1 to h6 tags in HTML or use ARIA role to do so. Where the data is arranged to indicate a tabular format, ensure appropriate table markup is used and row header and column header are properly marked up to establish the information and relationship between cells. Where there are visual lists of elements or contents, use ordered or unordered list markup respectively. Where there are group of related form controls, provide semantic grouping and label that is programmatically associated. Where there are form controls, programmatically associate their visible labels with them. Where there are quotations or highlighted texts, use appropriate semantic markup.</p>	<p>nested tables</p> <p>Forms – Provide programmatic association of visible labels or appropriate accessible names to all the form elements</p> <p>Lists – Markup the contents that logically fall into list as ordered or unordered list. Do not put huge text blocks which is otherwise are paragraphs as lists</p> <p>Grouping – Provide grouping and group level labels to mark a group of form elements like radio buttons or checkboxes; use <fieldset> and legend to achieve grouping and group level association for native form elements; use ARIA to achieve the same where custom form controls are used</p> <p>Use native semantic markup frequently and ARIA sparingly.</p>
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Guideline 1.3 – Adaptable	https://www.digitala11y.com/understanding-sc-1-3-2-meaningful-sequence/	Create content that can be presented in different ways (for example simpler layout) without losing information or structure.
1.3.2 Meaningful Sequence Level A	<p>1.3.2 Meaningful Sequence: When the sequence in which content is presented affects its meaning, a correct reading sequence can be programmatically determined. (Level A)</p> <p>This success criterion requires that content presented on the page must be meaningful during navigation to all users. Users navigate content from left to right & assistive technology users such as screen reader users depend on the accessibility tree & DOM structure to let them know how the content is presented on the page. It is a best practice to match the DOM order & visual order. Writing clean HTML & then managing the design with CSS is the best way to preserve the meaning of content which is logical & intuitive.</p> <p>Example That Fails This SC</p> <p>Please use a screen reader to understand this example.</p> <p>List of fruits</p> <p>Cricket</p> <p>Hockey</p> <p>Chess</p>	<p>Make sure that content presented on the page is logical & intuitive.</p> <p>Write HTML first & then manage design with CSS.</p> <p>Make sure visual order matches the DOM order.</p> <p>Use headings, lists, paragraphs etc to mark your content.</p> <p>Make sure your users can differentiate the navigation menus from main content.</p> <p>The best way to check this success criterion is to invest in a screen reader like NVDA or by checking if content is making sense by disabling the style sheets.</p>

	<p>List of sports</p> <p>Apple</p> <p>Bananna</p> <p>Orange</p> <p>In the above example, “List of fruits” is visually followed by its related content & “List of sports” is followed by its content. But in reality this is not the case, if you observe the DOM “List of Fruits” is followed by content of “List of sports” & vice versa. Using CSS the reading order is changed visually but for an assistive technology user this content will be confusing & is not logical/intuitive. As a result the above content fails this checkpoint.</p>	
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Guideline 1.3.3 Sensory Characteristics	https://www.digitala11y.com/understanding-sc-1-3-3-sensory-characteristics/	Create content that can be presented in different ways (for example simpler layout) without losing information or structure.
1.3.3 Sensory Characteristics Level A	<p>Instructions provided for understanding and operating content do not rely solely on sensory characteristics of components such as shape, size, visual location, orientation, or sound. (Level A)</p> <p>This success criterion requires that instructions or information to understand or operate the web content do not use only visual or auditory clues. Such clues include shape, size, location, orientation and sound clues. This doesn't mean use of shape and/or location is discouraged altogether as using shape and/or size is an effective way of providing information. Similarly, in some of the languages, 'above' and 'below' mean the immediate 'previous' or 'after' contents. In such cases, if the reading order is correct, then it is fine with statements like "Choose one of the options below".</p> <p>Note that this success criterion applies only to digital content and not to physical devices such as ATMs or check-in kiosks where the shape of the physical buttons (tactile clues) must be understood in their form.</p> <p>For Whom it benefits</p> <p>People who are blind or low vision who cannot see the shape, size or location</p> <p>People with cognitive disabilities who cannot understand shape, size or location as clues</p> <p>People who are deaf and deaf-blind who cannot understand audio clues.</p>	<p>While using shape and or location, provide visible labels/names to the controls</p> <p>When combining color and shape/size/location/orientation, provide off-screen text for screen reader users</p> <p>When using sound as a clue, combine it with text/color based clues.</p>

	<p>Examples that would fail</p> <p>A calendar widget where the current date and the selected date have a diamond shaped glyph alone to indicate so</p> <p>In a shopping flow, the completed steps have an (X) icon alone to indicate so</p> <p>In an online learning site, while doing exercises, completion of steps is conveyed with a sound of the bell alone</p> <p>In an online survey, the instruction says “click the triangle button at the bottom right to go to the next page”</p> <p>How do I address this?</p> <p>To address this, simply use more than one clue to instruct or inform the users. Using a combination of shape/size/location/orientation along with color/text would take care of all the users’ needs.</p>	
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Guideline 1.3.4 Orientation	https://www.digitala11y.com/understanding-sc-1-3-4-orientation/	Create content that can be presented in different ways (for example simpler layout) without losing information or structure.
1.3.4 Orientation Level AA	<p>Success Criterion 1.3.4 Orientation (Level AA): Content does not restrict its view and operation to a single display orientation, such as portrait or landscape, unless a specific display orientation is essential.</p> <p>Examples where a particular display orientation may be essential are a bank check, a piano application, slides for a projector or television, or virtual reality content where content is not necessarily restricted to landscape or portrait display orientation.</p> <p>Devices like smart phones & hand-held tablets have the feature of accessing the content in landscape & portrait modes. As & when the device is rotated the sensors in these devices identify the position off the device & content is displayed accordingly. The intent of this success criterion is to make sure that developers don't restrict the usage of a mobile application or website to work in a specific mode. People with motor impairments tend to fix the devices to their wheel chair or use specifically landscape or portrait mode as it helps the users to access the content easily. Low vision and blind users lock the device either in portrait or landscape mode. When the application is rendered in the device it should render the content in whichever mode the user has chosen.</p> <p>If the mobile application or the website doesn't work in both landscape & portrait modes, then it fails this success criterion. When an application or website is moved from portrait mode to landscape mode there might be some loss of content or functionality & this is not a failure of this success criterion. In landscape mode we generally tend to have more space</p>	<ul style="list-style-type: none">• Don't restrict your application or website to just work in landscape or portrait mode.• Make sure to honor the device settings while displaying the application in landscape or portrait mode.

& hence the content will be aligned accordingly.

Exceptions

There are some exceptions provided for this success criterion as some content cannot be rendered in portrait mode, some of these exceptions are:

To capture a check: the process in a banking app can be performed only in landscape due to the larger width compared with the height of the check. In landscape mode the width is usually more than height.

A Piano app can only be accessed in landscape so that all the keys of the app can be effectively used.

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1.3 – Adaptable	https://www.digitala11y.com/understanding-sc-1-3-5-identify-input-purpose/	Create content that can be presented in different ways (for example simpler layout) without losing information or structure.
1.3.5 Identify Input Purpose Level AA	<p>Success Criterion 1.3.5 Identify Input Purpose (Level AA): The purpose of each input field collecting information about the user can be programmatically determined when:</p> <p>The input field serves a purpose identified in the Input Purposes for User Interface Components section; and</p> <p>The content is implemented using technologies with support for identifying the expected meaning for form input data.</p> <p>For people with some or other cognitive disabilities that include memory, learning, reading etc., remembering their own personal data and filling them each time are difficult tasks. This applies to even persons with motor disabilities who find entering input data much irksome.</p> <p>The goal of this success criterion is to simplify this process by providing a purpose to those fields that collect users' personal data like name, date of birth, email etc. This includes programmatically determinable methods apart from using labels and the type attribute as they are more broader for the cognitively disabled users to understand.</p> <p>How does this help?</p> <p>One method suggested as part of this SC is to use the HTML 5.2 autocomplete attribute with appropriate tokens. This helps the browsers to store very specific personal data and fill them as appropriate. Further, for people who find difficult to understand words, an</p>	<p>Provide programmatically determinable input purpose</p> <p>Use appropriate token values while using autocomplete attribute</p> <p>Do not use autocomplete on input fields that does not ask for user data.</p>

	<p>assistive technology can add a personalized symbol after identifying the programmatically determinable purpose of the input fields. For example, a birthday cake picture can be added close to the field that asks for date of birth so that the users can fill their date of birth.</p> <p>Examples of autocomplete attribute</p> <p>First name: autocomplete="given-name"</p> <p>Last Name: autocomplete="family-name"</p> <p>User Name: autocomplete="username"</p> <p>There are 53 fields and respective autocomplete attribute tokens that are defined in HTML 5.2 that the developers can use to provide purpose to the input fields that collect user data.</p> <p>Exception</p> <p>This applies to only user data and not to other data. For example, an email field in the gift card page can mean the sender (user) and recipient. In this, the autocomplete attribute can be applied to only the sender or the direct user and not to the recipient's email.</p>	
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Guideline 1.4 – Distinguishable	https://www.digitala11y.com/understanding-sc-1-4-1-use-of-color/	Make it easier for users to see and hear content including separating foreground from background.
1.4.1 Use of Color Level A	<p>1.4.1 Use of Color: Color is not used as the only visual means of conveying information, indicating an action, prompting a response, or distinguishing a visual element. (Level A)</p> <p>Note: This success criterion addresses color perception specifically. Other forms of perception are covered in Guideline 1.3 including programmatic access to color and other visual presentation coding.</p> <p>This success criterion requires that color should not be the sole method of conveying information to the users. People with low vision, color blind, elderly & people with situational disabilities depend on more than one way to find information on the page & if that information is represented in the form of color alone, then it fails this check point.</p> <p>Some of the best examples of use of color are, marking input fields in red color to convey errors or ‘required’ information, a button marked in green that performs the essential action like submitting a form, a text prompt that says “click the green button to submit the form”, a graph that uses only color to indicate the growth/decline percentage, etc. In all the above examples user is being asked to refer to a particular color to find information & if they cannot get to that color or understand what that color represents, then it is a failure of this check point.</p>	<p>Don’t use color as sole method to convey information.</p> <p>Make sure instructions/prompts provided in text don’t refer to color alone.</p> <p>Make sure instructions are provided in text for graphs & charts where color is used to convey information.</p> <p>Provide more than one visual clue that include common icons and colors to differentiate texts and user interface elements.</p>

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Guideline 1.4 – Distinguishable	https://www.digitala11y.com/understanding-sc-1-4-2-audio-control/	Make it easier for users to see and hear content including separating foreground from background.
1.4.2 Audio Control Level A	<p>1.4.2 Audio Control: If any audio on a Web page plays automatically for more than 3 seconds, either a mechanism is available to pause or stop the audio, or a mechanism is available to control audio volume independently from the overall system volume level. (Level A)</p> <p>Note: Since any content that does not meet this success criterion can interfere with a user's ability to use the whole page, all content on the Web page (whether or not it is used to meet other success criteria) must meet this success criterion.</p> <p>Automatic playing content distracts users, especially cognitive, screen reader users & will hinder in performing their tasks effectively. If you can avoid, don't play audio automatically. While there is an exception that audio that is less than 3seconds can be added to a web page & an exception that providing a pause/stop or volume control will pass this success criterion we still recommend not to play audio automatically on the web page.</p> <p>While many may argue that the system could be lowered to prevent distractions, that solution would not solve the problem. It is mainly because the assistive technologies like screen reader volume is based on the system volume and the volume of the automatically playing audio content must be independent of the system volume.</p> <p>The best example of playing audio automatically is Youtube videos & other video sharing sites.</p>	<ul style="list-style-type: none">• Don't play audio automatically if possible.• Make sure your audio is less than 3 seconds.• If audio is more than 3 seconds then provide a pause/stop or a mechanism to control the audio player volume from the overall system volume.• Make sure that focus is on the pause/stop or volume control as soon as page opens if audio is playing automatically.

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Guideline 1.4 – Distinguishable	https://www.digitala11y.com/understanding-sc-1-4-3-contrast-minimum/	Make it easier for users to see and hear content including separating foreground from background.
1.4.3 Contrast (Minimum) Level AA	<p>The visual presentation of text and images of text has a contrast ratio of at least 4.5:1, except for the following:</p> <p>Large Text</p> <p>Large-scale text and images of large-scale text have a contrast ratio of at least 3:1;</p> <p>Incidental</p> <p>Text or images of text that are part of an inactive user interface component, that are pure decoration, that are not visible to anyone, or that are part of a picture that contains significant other visual content, have no contrast requirement.</p> <p>Logotypes</p> <p>Text that is part of a logo or brand name has no contrast requirement.</p> <p>This success criterion requires that the texts and image of texts that are regular in size meet the color contrast ratio of 4.5:1 against their background color. For the large or large scale texts, this SC mandates at least 3:1 against their background. This requirement solely relies on the content authors, designers and the developers and the user agents or contrast enhancing assistive technology, be it at the system level or independent.</p>	<ul style="list-style-type: none">• Develop the style guide in such a way that all the texts that are crucial meet the minimum contrast• Choose color schemes that are contrastive enough for everyone to see and read• Provide a “Contrast” mode with the help of alternative CSS if you can’t• Design and develop the content with the minimum contrast requirement.

	<p>Differentiators for the regular/large text</p> <p>Based on different research and books, WCAG defines a large text which uses 18 PT font or 14 PT bold text. To put into CSS pixels, 1 PT=1.333 CSS PX and therefore, 14 PT bold and 18 PT are 18.5 PX and 24 PX approximately. Anything below these font size requirement is considered regular text and therefore must meet 4.5:1 ratio.</p> <p>These specificities are arrived at so that it covers people with moderately low vision who don't use any assistive technology to enhance the contrast and people who have color deficiency too. Moreover, large texts are easily readable in lower contrast.</p> <p>Exceptions</p> <p>The contrast minimum excludes the following in meeting the contrast requirements:</p> <p>Incidental or decorative texts that are part of inactive components or invisible to users</p> <p>Brand names and logo type images</p> <p>Texts that are part of pictures that contain most visuals. (the sign of the painter on a painting)</p>	
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Guideline 1.4 – Distinguishable	https://www.digitala11y.com/understanding-sc-1-4-4-resize-text/	Make it easier for users to see and hear content including separating foreground from background.
1.4.4 Resize text Level AA	<p>Except for captions and images of text, text can be resized without assistive technology up to 200 percent without loss of content or functionality. (Level AA).</p> <p>This success criterion requires that the text – both static and that are part of user interface components that are visible to the users must be resizable (scalable) to 200% without the help of any assistive technologies like screen magnifiers. Even though the user agents like the browsers that meet UAG (User Agent Guidelines) 1.0 bear the responsibility of scaling or zooming the text up to 200%, it is the authors responsible for providing that support to the browsers.</p> <p>What do I do as the content author?</p> <p>The authors or developers have to ensure:</p> <p>The content is scalable to 200% without any loss of information or functionality</p> <p>The content or texts do not overlap or become not available to the users</p> <p>The user interface components do not become unusable or inactive.</p> <p>Who Benefits?</p> <p>Users with low vision or limited vision who consume the content without any assistive technology but use browsers' zoom functionality alone.</p>	<ul style="list-style-type: none">• Where browsers do not support or provide zoom functionality (IE6 as an example), provide alternative CSS for scaling purpose• When zoomed to 200%, ensure there is no much of horizontal scrolling (a best practice)• Where lengthy user interface components or content like subject line of an email is there, truncate and provide ways along with the instructions to access the content.

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CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 1.4 – Distinguishable	https://www.digitala11y.com/understanding-sc-1-4-5-image-of-text/	Make it easier for users to see and hear content including separating foreground from background.
1.4.5 Images of Text Level AA	<p>If the technologies being used can achieve the visual presentation, text is used to convey information rather than images of text except for the following: (Level AA)</p> <p>Customizable: The image of text can be visually customized to the user’s requirements.</p> <p>Essential: A particular presentation of text is essential to the information being conveyed.</p> <p>Note: Logotypes (text that is part of a logo or brand name) are considered essential.</p> <p>This success criterion encourages authors to use text representations wherever possible where they have employed technologies to achieve a visual representation of the same text. For example, a blog post in an organization’s site quotes the CEO from his/her recent address. In order to highlight the quotation, the quotation has been designed with a font that is otherwise unavailable and so the quotation is a JPG or a Bitmap image designed using an external application.</p> <p>What’s wrong in that?</p> <p>Well, the following problems would arise for the following user groups:</p> <p>People with low vision who may have reading problems because of the font family, size, color and so on. They can’t change the font, resize the text or customize the image of text</p>	<ul style="list-style-type: none">• Use CSS styled headings instead of Bitmap images• Provide site-wide controls to customize the images of texts when there are dynamically generated images of texts• Use CSS to specify spacing, alignment, color and the font family of any UI elements, their texts and icons, quotations etc• Use keyboard generated symbols wherever possible instead of making them as images.

	<p>People with visual tracking problems who can't read the image of text because of spacing and alignment and they can't customize these things</p> <p>People with cognitive disabilities that affect reading.</p> <p>Must we avoid image of text altogether?</p> <p>No, WCAG discourages but not dismisses the idea of image of texts. There are some exceptions to consider here:</p> <p>Graphs, diagrams and screenshots which visually convey more than the text</p> <p>Texts that are essential in pictures like logos and brand images</p> <p>Texts that are designed with a specific font family which cannot be reproduced in any other way except for image and/or the author has no rights to distribute the font at all</p> <p>Image of texts which have controls to customize font, size, alignment and spacing.</p>	
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Principle 1 – Perceivable - Information and user interface components must be presentable to users in ways they can perceive.

CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 1.4 – Distinguishable	https://www.digitala11y.com/understanding-sc-1-4-10-reflow/	Make it easier for users to see and hear content including separating foreground from background.
1.4.10 Reflow Level AA	<p>Success Criterion 1.4.10 Reflow (Level AA): Content can be presented without loss of information or functionality, and without requiring scrolling in two dimensions for:</p> <p>Vertical scrolling content at a width equivalent to 320 CSS pixels;</p> <p>Horizontal scrolling content at a height equivalent to 256 CSS pixels.</p> <p>Except for parts of the content which require two-dimensional layout for usage or meaning.</p> <p>320 CSS pixels is equivalent to a starting viewport width of 1280 CSS pixels wide at 400% zoom. For web content which is designed to scroll horizontally (e.g., with vertical text), 256 CSS pixels is equivalent to a starting viewport height of 1024 CSS pixels at 400% zoom.</p> <p>Examples of content which requires two-dimensional layout are images, maps, diagrams, video, games, presentations, data tables, and interfaces where it is necessary to keep toolbars in view while manipulating content.</p> <p>People with low vision use zoom functionality more often than not to read the contents of a web site. In some cases, some users may require more than 200% or – to be more specific – up to 400% of zoom to read the content. Given this use case, there is a high chance of content being hidden to a particular side or being cut off, making it difficult to read.</p> <p>This success criterion requires that the content reflows vertically or aligned to a single column without requiring the use of two dimensional scrolling. Technically speaking, the reflow must be supported up to 400% zooming on a desktop with 1280 PX screen which is equivalent to 320 CSS PX. This measurement comes down to a mobile device which has the</p>	<ul style="list-style-type: none">• Use Responsive Web Design (RWD) from the conception of design itself• Use accessible links, modals, toggle type elements to show or hide content• Avoid horizontal scroll bars in 400%zoom• Avoid content overlaps, clipping, content loss and functionality loss.

	<p>minimum screen size.</p> <p>How do we meet this?</p> <p>Responsive Web Design (RWD) is the only answer to this critical problem. Writing the CSS media queries for different viewport widths would fix most of the issues here. In simple terms, as the user zooms up to 400% or views the content on a small mobile device, the screen real estate shrinks. RWD, in turn, fits the content into the screen in spite of how smaller the screen is.</p> <p>What is expected?</p> <p>Generally, if a menu is horizontally spread over a big screen, it either shrinks to a single column menu or further wrapped in a hamburger menu at the top of the main content when the user zooms the page. Similarly, content can be wrapped within a toggle type element that can expand/collapse or show/hide them in a single column. All that matters is that the SC requires that there should be no loss of content or functionality and/or a horizontal scroll bar.</p> <p>Exceptions</p> <p>Videos, charts, graphs, complex tables and authoring tools that have editing toolbars and any content or user interface components that require two dimensional scrolling to understand the content need not meet the success criterion.</p>	
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Principle 1 – Perceivable - Information and user interface components must be presentable to users in ways they can perceive.

CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 1.4 – Distinguishable	https://www.digitala11y.com/understanding-sc-1-4-11-non-text-contrast/	Make it easier for users to see and hear content including separating foreground from background.
1.4.11 Non-text Contrast Level AA	<p>Success Criterion 1.4.11 Non-text Contrast (Level AA): The visual presentation of the following have a contrast ratio of at least 3:1 against adjacent color(s):</p> <p>User Interface Components</p> <p>Visual information required to identify user interface components and states, except for inactive components or where the appearance of the component is determined by the user agent and not modified by the author;</p> <p>Graphical Objects</p> <p>Parts of graphics required to understand the content, except when a particular presentation of graphics is essential to the information being conveyed.</p> <p>Modern design practices heavily rely on visual presentations for identification of active user interface components and dissemination of data. But users with moderately low vision have difficulty in distinguishing the visual indicators of active UI elements; their states and graphical objects where colors are the only way to identify and interpret data.</p> <p>This success criterion sets out to ensure that the luminosity contrast of such elements meet a minimum contrast ratio of 3:1 with their adjacent color. This will ensure ease of navigation and operability for low vision users without the need for any contrast enhancing tools.</p> <p>What are visual indicators?</p>	<ul style="list-style-type: none">• Ensure hit-areas and focus indicators have 3:1 contrast ratio with their inner or outer background• Ensure the checked/unchecked states meet the 3:1 ratio against their adjacent color in order to distinguish the states• Ensure parts of graphs and charts where color is the only way to decipher the information, the contrast ratio is met against adjacent colors• Ensure appropriate color combinations are chosen and defined for UI elements and other graphical objects in the style guides and the design documents in order to avoid uncomfortable retrofitting.

	<p>Visual boundary or hit-area of an input field where there is no placeholder (applies to any active interface element)</p> <p>States like checked/unchecked states of radio buttons and checkboxes; focus states like a focus indicator (a border or dotted line)</p> <p>Graphical objects such as charts, graphs and icons like a left-pointing icon of a “previous” button are some of the examples of visual indicators.</p> <p>Note that all such visual indicators must meet the 3:1 ratio if no textual representation or solid alternatives are present.</p> <p>Adjacent colors</p> <p>For any UI components, an adjacent color is the color that is close to the component itself. For a better understanding, let’s take the example given in the understanding document:</p> <p>For an input field with dark border, white internal background and white external background, the external background is the adjacent color. If there are multiple colors, choose only the colors that prevent the users in distinguishing the elements to measure the contrast ratio.</p> <p>Exceptions</p> <p>This success criterion does not force the authors to have visual boundary or a visual indicator. It applies to only the visual boundaries, focus states and other states. Also, if a chart displays the values or has a conforming alternatives, this SC is not applicable there too.</p>	
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Principle 1 – Perceivable - Information and user interface components must be presentable to users in ways they can perceive.

CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 1.4 – Distinguishable	https://www.digitala11y.com/understanding-sc-1-4-12-text-spacing/	Make it easier for users to see and hear content including separating foreground from background.
1.4.12 Text Spacing Level AA	<p>Success Criterion 1.4.12 Text Spacing (Level AA): In content implemented using markup languages that support the following text style properties, no loss of content or functionality occurs by setting all of the following and by changing no other style property:</p> <p>Line height (line spacing) to at least 1.5 times the font size;</p> <p>Spacing following paragraphs to at least 2 times the font size;</p> <p>Letter spacing (tracking) to at least 0.12 times the font size;</p> <p>Word spacing to at least 0.16 times the font size.</p> <p>Exception: Human languages and scripts that do not make use of one or more of these text style properties in written text can conform using only the properties that exist for that combination of language and script.</p> <p>The intent of this success criterion is to make sure that people with low vision & cognitive challenges are provided with option to modify the spacing between characters, lines & paragraphs. Users will be able to read much better when there is enough spacing between letters, lines & paragraphs. Users can avail one or more of these options by loading an alternative CSS style sheet or use an accessibility bookmarklet or a browser extension.</p> <p>The web page author doesn't have to provide these options on the website but need to ensure that content adjusts properly when some of these options are applied. Making sure</p>	<ul style="list-style-type: none">• Don't use fixed containers in your CSS styles.• Make sure that content reflows without overlapping or text cut-offs• Use relative units of font size, line height, spaces between characters, words, lines and paragraphs.

	<p>that website is in responsive design & not using the fixed containers will help achieve this success criterion. Also, ensure there is no loss of functionality when the text spacing is applied by the users.</p> <p>Exceptions</p> <p>PDF's, video captions, images of text & logos are not covered by this success criterion because this guideline applies to the content created by markup languages.</p>	
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Principle 1 – Perceivable - Information and user interface components must be presentable to users in ways they can perceive.

CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 1.4 – Distinguishable	https://www.digitala11y.com/understanding-sc-1-4-13-content-on-hover-or-focus/	Make it easier for users to see and hear content including separating foreground from background.
1.4.13 Content on Hover or Focus Level AA	<p>Success Criterion 1.4.13 Content on Hover or Focus (Level AA): Where receiving and then removing pointer hover or keyboard focus triggers additional content to become visible and then hidden, the following are true:</p> <p>Dismissible</p> <p>A mechanism is available to dismiss the additional content without moving pointer hover or keyboard focus, unless the additional content communicates an input error or does not obscure or replace other content;</p> <p>Hoverable</p> <p>If pointer hover can trigger the additional content, then the pointer can be moved over the additional content without the additional content disappearing;</p> <p>Persistent</p> <p>The additional content remains visible until the hover or focus trigger is removed, the user dismisses it, or its information is no longer valid.</p> <p>In modern design practices, adding new content to the existing work flow is being adopted widely. while the user is interacting with content using a mouse hover or a keyboard focus “the new content may be presented to the user in the form of tooltips, menus, pop-ups & slide outs etc.” These kinds of interactions might pose accessibility challenges to a wide variety of disable user groups as they tend to obscure the content or the user might have trouble pointing the mouse on the triggering element for a long time.</p>	<ul style="list-style-type: none">• Provide a method to dismiss the additional content that appear on hover or keyboard focus.• Make sure that content is present until the user moves away the mouse pointer from the triggering element or content block.• Make sure that experience is persistent.

This success criterion intends to fill that gap between such additional contents and the operability for people with disabilities with the following guidelines:

Dismissible

When a person with low vision uses magnification software to magnify the content on the page & when widgets like tooltips, menus & pop-ups appear, they tend to obscure other content on the page. To avoid this users must be provided a mechanism to dismiss the widgets such as using an escape key or provide a close button while the user is on the additional content itself. By providing these options to dismiss content user can just avail one of these options & get back to the content on the page without moving the mouse pointer.

Hoverable

Generally the new content appears when the mouse pointer hovers over the triggering element or when it receives keyboard focus. Users might want to interact with this content & move the mouse pointer to the newly appeared content block, during this scenario there is a greater chance that content might disappear as the mouse pointer is moved away from the triggering element. Here, user must be given an opportunity to interact with the content & must be allowed to move the mouse pointer to the content block that appears.

Persistent

The intent of this condition is to satisfy the two conditions discussed above. Also, the users with disabilities would need more time to read the additional content. So setting a timed disappearance of the additional content is not encouraged unless the content itself becomes invalid like a “busy” message.

In other words, this is the summary:

	<p>User must be provided with an option to dismiss content.</p> <p>User moves the mouse pointer from the trigger or the content block.</p> <p>The content presented is not valid any more...</p> <p>Exceptions</p> <p>When the mouse pointer is over an HTML control that has a title element, browsers will display the title value. Since the browser performs this action, it is not covered by this success criterion.</p> <p>Modal dialogs are not affected because focus moves into and remains within it until the user dismisses it.</p>	
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Principle 2 – Operable - User interface components and navigation must be operable.

CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 2.1 – Keyboard Accessible	https://www.digitala11y.com/understanding-sc-2-1-1-keyboard/	Make all functionality available from a keyboard.
2.1.1 Keyboard Level A	<p>2.1.1 Keyboard: All functionality of the content is operable through a keyboard interface without requiring specific timings for individual keystrokes, except where the underlying function requires input that depends on the path of the user’s movement and not just the endpoints. (Level A)</p> <p>Note 1: This exception relates to the underlying function, not the input technique. For example, if using handwriting to enter text, the input technique (handwriting) requires path-dependent input but the underlying function (text input) does not.</p> <p>Note 2: This does not forbid and should not discourage providing mouse input or other input methods in addition to keyboard operation.</p> <p>This success criterion requires that all functionalities must be accessible and operable to users using a keyboard. Normally users with disabilities & elderly people depend a lot on keyboard to navigate to all parts of the web page & if any part of the web page is not operable with keyboard then it fails this check point. People generally use tab to move forward, shift+tab to move backward & screen reader users use arrow keys a lot to navigate. This success criterion addresses the needs of people with motor disabilities, visually challenged users & elderly users.</p>	<ul style="list-style-type: none">• Make sure all elements on the page buttons, links, form controls etc. are reachable by tab key.• Make sure that users are able to activate the buttons, links & form controls using the enter and/or spacebar keys.• Write clean HTML & CSS as it is keyboard operable by default & doesn’t require any special tweaks.• Make sure that there is a visible focus for all the active elements on the page.• Make sure that focus order is logical & intuitive.• Provide tabindex=0 for custom UI elements so that they are focusable.• Provide appropriate event handlers for custom scripted elements so that they are operable by their respective keys.• Avoid access keys if possible. If not, at least, ensure they don’t conflict with the user agent and/or AT shortcut keys.• Make sure that there is no time limit to perform any action using the keyboard when more than one key is required to operate a control.

Principle 2 – Operable - User interface components and navigation must be operable.

CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 2.1 – Keyboard Accessible	https://www.digitala11y.com/understanding-sc-2-1-2-no-keyboard-trap/	Make all functionality available from a keyboard.
2.1.2 No Keyboard Trap Level A	<p>2.1.2 No Keyboard Trap: If keyboard focus can be moved to a component of the page using a keyboard interface, then focus can be moved away from that component using only a keyboard interface, and, if it requires more than unmodified arrow or tab keys or other standard exit methods, the user is advised of the method for moving focus away. (Level A)</p> <p>Note: Since any content that does not meet this success criterion can interfere with a user's ability to use the whole page, all content on the Web page (whether it is used to meet other success criteria or not) must meet this success criterion.</p> <p>This success criterion requires that websites must not trap keyboard users in a particular portion of the page or on a form control. Keyboard users navigate the page using tab key. If the keyboard user is trapped in a particular location & is unable to move forward or backward using the navigational keys such as tab or shift+tab & user is forced to use a mouse to move keyboard focus then it fails this check point.</p>	<ul style="list-style-type: none">• Make sure that users can tab to & away from all parts of the site.• If a user is trapped on a portion of the web page for a purpose, a clear instruction must be provided for the user to end that keyboard trap.• Check if all parts of the site is operable using only keyboard, test by unplugging the mouse.• Stick to standard navigation as much as possible like tab, shift+tab & arrow keys.• If custom keystrokes are provided to operate a control make sure hints are exposed to all users.• Make sure your third party widgets are accessible, most of the time they cause major keyboard operability issues.

Principle 2 – Operable - User interface components and navigation must be operable.

CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 2.1 – Keyboard Accessible	https://www.digitala11y.com/understanding-sc-2-1-4-character-key-shortcuts/	Make all functionality available from a keyboard.
2.1.4 Character Key Shortcuts Level A	<p>Success Criterion 2.1.4 Character Key Shortcuts (Level A): If a keyboard shortcut is implemented in content using only letter (including upper- and lower-case letters), punctuation, number, or symbol characters, then at least one of the following is true:</p> <p>Turn off</p> <p>A mechanism is available to turn the shortcut off;</p> <p>Remap</p> <p>A mechanism is available to remap the shortcut to include one or more non-printable keyboard keys (e.g., Ctrl, Alt);</p> <p>Active only on focus</p> <p>The keyboard shortcut for a user interface component is only active when that component has focus.</p> <p>In recent years productivity has been the one of the key driving factor & as a result developers are building applications with shortcut keys. Developers implement shortcut keys that you can invoke & most of the functionality can be achieved without touching a mouse. Some of these shortcut keys trigger just with a single key or with a combination of keys. For example on YouTube you can pause the video by just pressing “K” but this key stroke conflicts with the screen reader. When the key “K” is pressed while a screen reader is running the shortcut key doesn’t trigger the “play” as it moves from one link to another link n NVDA.</p>	<ul style="list-style-type: none">• Don’t use single character key shortcuts if possible.• Provide a mechanism to turn off the character key shortcuts.• design all the keyboard shortcuts with the combinations of non-printable keys.• Let the user trigger the shortcut key only when the element has keyboard focus.

Similarly, when people who use speech recognition software like dragon naturally speaking or similar software's, they tend to spell the words out character by character & there is a higher probability that these shortcut keys that trigger with a single key will get triggered. The user cannot perform the task at hand due to these challenges. For example, In a transactions page, a single printable key "d" is assigned as a short cut key to delete a transaction. On the same page, the users can search transactions. When speech input users dictate the letters to input a search term and when they dictate "d", instead of printing the character "d" in the search field, this might delete any transaction.

The intent of this success criterion is to provide the user with full control on how these character key shortcuts [single key events] can be managed. The SC has provided 3 specific guidelines to pass this success criterion,

Turn off: A mechanism is available to turn the shortcut off;

Remap: A mechanism is available to remap the shortcut to use one or more non-printable keyboard characters (e.g. Ctrl, Alt, etc.);

Active only on focus: The keyboard shortcut for a user interface component is only active when that component has focus.

Gmail is a perfect example to manage these single character key shortcuts. For example, when the users are in the messages grid of the inbox, then 'x' will select any email and # will delete those selected emails. But both the shortcuts will not work outside the email grid.

Principle 2 – Operable - User interface components and navigation must be operable.

CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 2.2 – Enough Time	https://www.digitala11y.com/understanding-sc-2-2-1-timing-adjustable/	Provide users enough time to read and use content.
2.2.1 Timing Adjustable Level A	<p>2.2.1 Timing Adjustable: For each time limit that is set by the content, at least one of the following is true: (Level A)</p> <p>Turn off: The user is allowed to turn off the time limit before encountering it; or</p> <p>Adjust: The user is allowed to adjust the time limit before encountering it over a wide range that is at least ten times the length of the default setting; or</p> <p>Extend: The user is warned before time expires and given at least 20 seconds to extend the time limit with a simple action (for example, “press the space bar”), and the user is allowed to extend the time limit at least ten times; or</p> <p>Real-time Exception: The time limit is a required part of a real-time event (for example, an auction), and no alternative to the time limit is possible; or</p> <p>Essential Exception: The time limit is essential and extending it would invalidate the activity; or</p> <p>20 Hour Exception: The time limit is longer than 20 hours.</p> <p>This success criterion requires that generally users & people with disabilities must be provided with enough time limit to complete the tasks. Imagine you are reading a web page or completing a task & if the web page expires without warning, you will get distracted & will not be able to finish the reading of the page or complete the task. Generally, users need more time to read such content & people with disabilities & elderly need more time than common users to read such pages.</p>	<p>Points To Ponder</p> <ul style="list-style-type: none">• Provide a control on the landing page for the user to initiate a longer session time or no session timeout.• Provide a way for the user to turn off the session time out.• Provide a means to set the time limit to 10 times the default time limit.• Prompt the user with help of a pop-up or modal so that enough warning is available for the user to reset the time limit.• Make sure controls provided to extend the time limit are keyboard operable.• Moving, scrolling and/or blinking content must have mechanism to pause or stop the movement or scroll or blink.• Auto updating content must be provided with feature to extend the time limit to 10 times of its actual update frequency.

Exceptions

There are some exceptions for this success criterion too pass

The time limit is more than 20 hours.

Time limit is essential for business such as flight booking sites where unlimited time cannot be provided as it impacts the business.

If content is a live video stream.

The time limit is due to real-time events, like bidding in an auction.

Who Benefits

People with physical disabilities require more time to complete tasks as they require more time to type or navigate to controls

People who have low vision need more time to locate content/controls and read them

People who are blind and who use screen readers require more time to understand the screen layout, read the content, locate controls and operate them

People who are deaf require more time to understand the audio content as a sign language interpreter interprets to them

People with reading disabilities and cognitive disabilities require more time to read contents and understand them and react.

Principle 2 – Operable - User interface components and navigation must be operable.

CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 2.2 – Enough Time	https://www.digitala11y.com/understanding-sc-2-2-2-pause-stop-hide/	Provide users enough time to read and use content.
2.2.2 Pause, Stop, Hide Level A	<p>2.2.2 Pause, Stop, Hide: For moving, blinking, scrolling, or auto-updating information, all of the following are true: (Level A)</p> <p>Moving, blinking, scrolling: For any moving, blinking or scrolling information that (1) starts automatically, (2) lasts more than five seconds, and (3) is presented in parallel with other content, there is a mechanism for the user to pause, stop, or hide it unless the movement, blinking, or scrolling is part of an activity where it is essential; and</p> <p>Auto-updating: For any auto-updating information that (1) starts automatically and (2) is presented in parallel with other content, there is a mechanism for the user to pause, stop, or hide it or to control the frequency of the update unless the auto-updating is part of an activity where it is essential.</p> <p>This success criterion intends to avoid distractions when the users are interacting with any web page. Moving. Blinking an automatically updating contents such as motion pictures, animations, real-time games, multimedia presentations and auto-updating stock tickers cause problems for screen reader users, users with reading difficulties, low vision users, users with attention deficit disorder and other cognitive disabilities while they operate and consume the content.</p> <p>This success criterion doesn't prevent such contents with such designs being used. But it just instructs that Blinking, moving & scrolling content that lasts more than 5seconds and Parallely presented must be provided with pause, stop or hide button. While blinking content is not equivalent to flashing content if the content that blinks more than 3 times</p>	<p>Points to Ponder</p> <ul style="list-style-type: none">• Avoid moving, blinking scrolling content if possible.• Content should not blink more than 3 times per second, if it does blink 3times per second then it is considered as flashing & will fail WCAG.• Auto updating content should be provided with a pause button or provide a mechanism for the user to specify when the update can happen.• If the entire page contains moving, blinking, scrolling & auto updating content then pause, stop or hide buttons are not required as there is no parallel content.• Animation that conveys the users that a page or content is loading doesn't require to meet this success criterion

	<p>per second it is considered as flashing content. It is a best practice to avoid content that is blinking, moving or scrolling.</p> <p>When Auto updating content is found on news websites, live sports sites that update scores etc., even this content should be provided with pause button or provide a mechanism where the user can set the interval of when the update of the live region can take place. Sometimes the auto updating content might refresh entire page or only the portion of the content that is being updated. Note that when a live score or such live update happens and if the user resumes from pause state, it is not necessary to resume where the user has paused but to resume where the live event is at the point of resume.</p>	
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Principle 2 – Operable - User interface components and navigation must be operable.

CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 2.3 – Seizures and Physical Reactions	https://www.digitala11y.com/understanding-sc-2-3-1-three-flashes-or-below-threshold/ https://trace.umd.edu/peat/	Do not design content in a way that is known to cause seizures or physical reactions.
2.3.1 Three Flashes or Below Threshold Level A	<p>2.3.1 Three Flashes or Below Threshold: Web pages do not contain anything that flashes more than three times in any one second period, or the flash is below the general flash and red flash thresholds. (Level A)</p> <p>Note: Since any content that does not meet this success criterion can interfere with a user’s ability to use the whole page, all content on the Web page (whether it is used to meet other success criteria or not) must meet this success criterion.</p> <p>This success criterion conveys that there mustn’t be any flashing content that flashes more than 3 times per second. In the past, flashing content has caused Epileptic seizure in users. So it is a best practice to avoid the flashing content totally & achieve the same design & functionality using other development techniques.</p> <p>How do I know if the flash meets the criterion?</p> <p>PEAT-Photosensitive Epilepsy Analysis Tool can be used to determine if the flashing content passes this check point.</p> <p>Exception</p> <p>An exception has been provided for this check point so that designers/developers who want to use flashing content can use with caution. Here is the exception:</p> <p>The combined area of flashes occurring concurrently occupies no more than a total of .006 steradians within any 10 degree visual field on the screen (25% of any 10 degree visual field on the screen) at typical viewing distance.</p>	<ul style="list-style-type: none">• Avoid flashing content completely if possible.• Make sure that flashing content doesn’t flash more than 3 times per second.• Use PEAT to confirm if the flashing content passes this check point.

Principle 2 – Operable - User interface components and navigation must be operable.

CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 2.4 – Navigable	https://www.digitala11y.com/understanding-sc-2-4-1-bypass-blocks/	Provide ways to help users navigate, find content, and determine where they are.
2.4.1 Bypass Blocks Level A	<p>2.4.1 Bypass Blocks: A mechanism is available to bypass blocks of content that are repeated on multiple Web pages. (Level A)</p> <p>The intent of this success criterion is to provide a skip mechanism that will enable the users skip the repeated content blocks such as navigational menus, advertisements or help the users to jump to a particular location on the web page. The mechanism can comprise of “Skip links”, landmarks and/or headings or a combination of any of these.</p> <p>While Assistive technologies such as screen readers provide a mechanism to jump according to headings, landmarks, lists & form controls it is always a best practice to provide a skip link at the top of the page & where ever it is appropriate.</p>	<p>Provide a skip link on top of the page to skip navigational menus.</p> <p>Provide skip links to navigate to content on a large page.</p> <p>Make sure that skip link is visible when it receives focus.</p> <p>Make sure that purpose of the link is clear, provide skip link text as skip to main content or skip navigation etc.</p> <p>When providing ARIA landmarks, ensure multiple landmarks of the same type is not provided.</p> <p>If provided, ensure to use aria-label to assign unique names to such landmarks</p> <p>“Primary navigation”, “secondary navigation” etc.</p>

Principle 2 – Operable - User interface components and navigation must be operable.

CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 2.4 – Navigable	https://www.digitala11y.com/understanding-sc-2-4-2-page-titled/	Provide ways to help users navigate, find content, and determine where they are.
2.4.2 Page Titled Level A	<p>Web pages have titles that describe topic or purpose. (Level A)</p> <p>The intent of this success criteria is to provide clear & descriptive titles to the web pages so that they are understood easily by all users. This success criteria is helpful for visually challenged users, cognitive users, motor disable users & users with short-term memory. Titles of the pages will give a clear & concise picture to the user what the web page is about & what to expect on the web page. While 2.4.4 link purpose talks about the purpose of the link, it is a best practice to link to web pages using their respective page titles.</p> <p>By reading the title of the page, user must understand the purpose of the page. Screen readers such as JAWS & NVDA provide a shortcut key insert+t to check the title of the page. If there is more than one tab opened, then user can just look at the title & identify which page he/she is working on. In addition to that, a unique title would also help the users to ensure whether they are on the right page/step. Moreover, providing unique title would help index the site properly by search engines.</p> <p>Code Example</p> <pre><!DOCTYPE HTML> lt;html lang="en-us"> <head></pre>	<p>Provide a unique title.</p> <p>Make sure that title is between 50-75 characters.</p> <p>Make sure title of the page is the heading level H1 on the page.</p> <p>Title should contain web page name, bit of description & site name.</p> <p>Make sure title describes purpose of the page.</p>

```
<header>  
<title>ACCESSIBLE CAROUSEL EXAMPLE USING ARIA</title>  
</header>  
</head>
```

In the above example we can easily see that <title> is being used to provide the title for the web page. This is the attribute that provides title even when we are running websites on CMS platforms like WordPress or Drupal.

Principle 2 – Operable - User interface components and navigation must be operable.

CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 2.4 – Navigable	https://www.digitala11y.com/focus-order-understanding-sc-2-4-3/	Provide ways to help users navigate, find content, and determine where they are.
2.4.3 Focus Order Level A	<p>If a Web page can be navigated sequentially and the navigation sequences affect meaning or operation, focusable components receive focus in an order that preserves meaning and operability. (Level A)</p> <p>Intent of this Success Criterion</p> <p>The intent of this Success Criterion is to ensure that when users navigate sequentially through content, they encounter information in an order that is consistent with the meaning of the content and can be operated from the keyboard. This helps the users to construct a mental model of the content thereby reduces confusion.</p> <p>Different logical orders</p> <p>Based on the arrangement of the content, there may be different logical orders that would convey the relationships. For example, when traversing within a table, the order of elements could be determined either by column to column or row to row. One of these will pass this criterion but a mixture of this would fail.</p>	<p>Avoid using tabindex values that are >1 to manage focus order as they may supersede logical tab order</p> <p>Align the focus order with the reading order as much as possible in order to maintain a logical and intuitive navigation of the content. Too much deviation would put a lot of users with disabilities into confusion</p>

Who benefits?

People with motor disabilities who use keyboard would need a logical and usable focus order

People who have reading disorders would need a logical focus order as if the focus jumps or is lost, they would be disoriented

People who are blind and who rely on screen reader and keyboard would benefit out of a logical order as if the focus jumps unexpectedly, they would be confused

People with low vision who rely on magnifiers would benefit out of this criterion as a logical order would prevent improper association of contents during magnification

Examples

In a login page, when the focus is forcefully set on the first field, then the subsequent tabs must take the users to the next form controls and then to the next section below or beside the form depending on the logical order of the page. The focus must not jump to the header after the last element of the form.

When a modal opens:

The focus is set on the modal (first element)

The focus is trapped within the modal (cycles between the elements inside the modal)

The focus is returned to the element that triggered the modal

On a page with megamenu with submenus:

The users encounter only one tab focus for the entire menu

The users use right/left arrow keys to navigate between main menus

The users use down/up arrow keys to expand/ a main menu and navigate down the submenus.

Principle 2 – Operable - User interface components and navigation must be operable.

CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 2.4 – Navigable	https://www.digitala11y.com/link-purpose-in-context-understanding-sc-2-4-4/	Provide ways to help users navigate, find content, and determine where they are.
2.4.4 Link Purpose (In Context) Level A	<p>Purpose of each link can be determined from the link text alone or from the link text together with its programmatically determined link context, except where the purpose of the link would be ambiguous to users in general. (Level A)</p> <p>The intent of this success criterion is to provide links that are clear & understood by all the users. Hyperlinks can be provided in multiple ways & each one of those must be clear to the users in their context.</p> <p>Assistive technologies such as screen readers provide the list of links & users must be able to determine the purpose of the link just by reading the link text. Purpose of the link must be clear within its context & context refers to paragraph, sentence, table cell or a list item! Users can navigate</p> <p>To any part of the web page & should be able to determine what the link is meant for by reading the link text or associating the link with the surrounding text.</p> <p>Examples</p> <p>This blog covers various topics related to digital accessibility.</p> <p>The link blog is linked to a Wikipedia page and not clear for any user, let alone for assistive technology user & the link digital accessibility is clear with in its context.</p>	<ul style="list-style-type: none">• Let the purpose of the link be clear just by the link text alone! E.G. “My Blog”, “Visit our Blog”.• Ensure appropriate alt text is provided when only an image stands as a link.• Avoid ambiguous links like “here” or “click here”. If they are required make sure that they are placed at the end of the sentence or paragraph so that they are understood from context.• Do not duplicate the alt text and the link text when there is an image and the link adjacent to each other and convey the same info or lead to same destination. Rather, wrap the image with the link and provide alt="" for the image.• Ensure Links having the same link text leads to same destination.

Principle 2 – Operable - User interface components and navigation must be operable.

CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 2.4 – Navigable	https://www.digitala11y.com/2-4-5-multiple-ways-to-locate-web-pages/	Provide ways to help users navigate, find content, and determine where they are.
2.4.5 Multiple Ways Level AA	<p>Multiple Ways: More than one way is available to locate a Web page within a set of Web pages except where the Web Page is the result of, or a step in, a process. (Level AA)</p> <p>Intent of this Success Criterion</p> <p>The intent of this Success Criterion is to make it possible for users to locate content in a manner that best meets their needs. Users may find one technique easier or more comprehensible to use than another.</p> <p>Even small sites should provide users some means of orientation. For a three or four page site, with all pages linked from the home page, it may be sufficient simply to provide links from and to the home page where the links on the home page can also serve as a site map.</p> <p>Who benefits?</p> <p>Blind and visually impaired users would prefer a search functionality over navigating a large menu</p> <p>Some users with cognitive disabilities would prefer Table of contents or Site Map to get an overview of the site</p> <p>Some users would prefer sequential/linear navigation to understand the concepts and the structure of the site</p> <p>Some users with limited cognitive abilities would prefer search rather than understanding a complex hierarchy of the site.</p>	<ul style="list-style-type: none">• More than one way must be available to meet this success criteria• Though breadcrumb is quite old, it still works if the users want to go back in a process or a layered structure• Search function is most powerful to achieve faster navigation.• Menus may become larger and cumbersome; still they work wonders when you look up for a category.

	<p>Examples of Multiple ways to navigate</p> <p>A home page with links to all the pages</p> <p>A search functionality</p> <p>Site map</p> <p>Table of contents</p> <p>Primary and secondary navigation menus</p> <p>A left/right navigation section in the main content that would move to relevant/recent/backward/forward pages</p> <p>Repetition of mainly important links in the footer</p> <p>A breadcrumb navigation for processes and sub-layered pages.</p>	
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Principle 2 – Operable - User interface components and navigation must be operable.

CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 2.4 – Navigable	https://www.digitala11y.com/headings-labels-understanding-sc-2-4-6/	Provide ways to help users navigate, find content, and determine where they are.
2.4.6 Headings and Labels Level AA	<p>2.4.6 Headings and Labels: Headings and labels describe topic or purpose. (Level AA)</p> <p>The intent of this success criteria is to provide descriptive headings & labels that are understood by all the users. Descriptive means clear, concise & easily understood content. Users with low vision, motor impaired & cognitive users will benefit most from this checkpoint.</p>	<ul style="list-style-type: none">• Headings must be clear, concise & descriptive• Headings must follow a sequential order to avoid confusion.• Ensure that headings are consistent throughout the site• Ensure that labels are descriptive enough so that users can take necessary actions

Principle 2 – Operable - User interface components and navigation must be operable.

CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 2.4 – Navigable	https://www.digitala11y.com/focus-visible-understanding-sc-2-4-7/	Provide ways to help users navigate, find content, and determine where they are.
2.4.7 Focus Visible Level AA	<p>Focus Visible: Any keyboard operable user interface has a mode of operation where the keyboard focus indicator is visible. (Level AA)</p> <p>Focus visible is very important for low vision users, people with motor disability & attention disorders. If there is no visible focus on any active element or the element that receives keyboard focus users might not be able to determine where their current focus is & will be lost. While browsers handle the default visible focus for active elements it is always a best practice to provide visible focus to the elements using the CSS techniques.</p> <p>Code Example</p> <p>For the current site the visible focus is provided in style.css in the following way</p> <pre>a:focus { outline: thin dotted; } a:hover, a:active { outline: 0; }</pre>	<ul style="list-style-type: none">• Let browsers handle the visible focus for active elements• ensure that active element is provided with visible focus.• Ensure that when the user is navigating through the page using keyboard visible focus moves along for every element presented on the page• Ensure that there is sufficient contrast between the visible focus & the background of the element, for example if the visible focus is black & the background of the element is black then focus visible is not visually distinguishable.

Principle 2 – Operable - User interface components and navigation must be operable.

CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 2.5 – Input Modalities	https://www.digitala11y.com/understanding-sc-2-5-1-pointer-gestures/	Make it easier for users to operate functionality through various inputs beyond keyboard.
2.5.1 Pointer Gestures Level A	<p>All functionality that uses multipoint or path-based gestures for operation can be operated with a single pointer without a path-based gesture, unless a multipoint or path-based gesture is essential.</p> <p>This requirement applies to web content that interprets pointer actions (i.e. this does not apply to actions that are required to operate the user agent or assistive technology).</p> <p>Modern design patterns and UI controls are exploring more ways to make the user interaction to be more fun and lively. With the touch interface at hand, there is more room to invent UI controls that require multi-pointer and/or path based gestures to interact with the controls/contents/widgets. A carousel on a touch interface that requires users to use two finger swipe right or two fingers swipe left to move the slides is an example. This seems cool on the surface. But this is a difficult method for many pointing devices such as a head movement tracking device, eye-gazing technology or a speech input mechanism.</p> <p>This success criterion intends to recommend more than one method to control the contents in case of a multi-pointer or a path based gesture. A path based gesture involves user interaction where not only the end-points matter but the medium paths that are close to the start point or the end points too. For example, imagine a map with pinch to zoom feature. Now, if the user wants to zoom a particular hotspot in a map where pinch to zoom is the only way, how would people with limited motor abilities, or users who use adaptive devices like speech control be able to perform this function? The answer to this question is to have a single pointer action that is an alternative. This includes single click, double click, single tap or double tap on a touch device.</p> <p>Note that this criterion does not discourage the use of multi-pointer or path based gesture. All that it asks for is to have a range of input mechanisms other than such gestures.</p>	<ul style="list-style-type: none">• Do not use multi-pointer or path based gesture as a sole method to control content• Provide single tap or double tap/click as alternatives• Always have in mind that one mode does fit for all.

	<p>Benefits</p> <p>Users with limited motor abilities would benefit with single pointer actions</p> <p>Users with limited cognitive abilities who cannot understand complex gestures and multi-pointer actions would benefit with alternatives when they are well-informed of them</p> <p>Users who use assistive technology such as screen readers may not be able to perform complex gestures as they may conflict with AT's gestures.</p> <p>Examples of alternatives</p> <p>A carousel with thumbnails that are operable or a previous/next buttons to move between the slides</p> <p>A form with a checkbox to declare/confirm one's identity instead of a signature alone.</p>	
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Principle 2 – Operable - User interface components and navigation must be operable.

CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 2.5 – Input Modalities	https://www.digitala11y.com/2-5-2-pointer-cancellation/	Make it easier for users to operate functionality through various inputs beyond keyboard.
2.5.2 Pointer Cancellation Level A	<p>Success Criterion 2.5.2 Pointer Cancellation (Level A): For functionality that can be operated using a single pointer, at least one of the following is true:</p> <p>No Down-EventThe down-event of the pointer is not used to execute any part of the function;</p> <p>Abort or UndoCompletion of the function is on the up-event, and a mechanism is available to abort the function before completion or to undo the function after completion;</p> <p>Up ReversalThe up-event reverses any outcome of the preceding down-event;</p> <p>EssentialCompleting the function on the down-event is essential.Functions that emulate a keyboard or numeric keypad key press are considered essential.</p> <p>This requirement applies to web content that interprets pointer actions (i.e. this does not apply to actions that are required to operate the user agent or assistive technology).</p> <p>Scenario A: You are holding down your left mouse key on a web page to drag an item from column A to column B. But in the middle, you decide to stop. Unfortunately, the item is dragged to an incorrect location even after you release the mouse key outside the drag area</p>	<ul style="list-style-type: none">• Ensure down event alone does not execute any functionality• Ensure Up event reverses or undoes any down event based action• Ensure a mechanism is available to confirm the performed action where down event executes such action

Scenario B: You have long fingers and you are operating your home lighting system via your mobile phone. Accidentally, your finger touches the off switch while adjusting the brightness of the lights. Before you lift your finger, the lights get turned off.

The outcomes of all these two scenarios are accidental but they are caused by only one thing: The down event that activates a functionality or an element.

This success criterion pointer cancellation intends to eliminate such errors by laying down some key guidelines. To summarize them:

Do not use only down event to activate or perform any functionality on a web page

Provide a mechanism that cancels out any accidental activation of elements during down event like when an up event occurs or a confirmation before such action takes place.

Exceptions

This success criterion excepts any essential functionality that requires a down event to execute any such functionality. Examples of such exceptions are keyboard where letters get typed when the users hold down the keys; a piano application where the down event is required to play the instrument.

Who benefits?

People with visual disabilities, cognitive disabilities, motor disabilities who may accidentally activate any controls

People who may not be aware of the context changes would benefit

All the users would benefit when they happen to hit a wrong target.

Principle 2 – Operable - User interface components and navigation must be operable.

CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 2.5 – Input Modalities	https://www.digitala11y.com/understanding-sc-2-5-3-label-in-name/	Make it easier for users to operate functionality through various inputs beyond keyboard.
2.5.3 Label in Name Level A	<p>Success Criterion 2.5.3 Label in Name (Level A): For user interface components with labels that include text or images of text, the name contains the text that is presented visually.</p> <p>A best practice is to have the text of the label at the start of the name.</p> <p>Imagine you are using the voice control feature in iPhone or Windows recognition software to see how they work. When you are trying to activate a link “Sign in” which you visibly see, the speech input software, software is not able to activate the link.</p> <p>You might be wondering why and try to solve the mystery. The answer lies in the code where the visible link text says “Sign in” but the aria-label says “Log in”. Now, let us put ourselves in the shoes of those who use a speech input users and understand how it would be frustrating if the speech input program is not able to activate user interface controls just because the visible label and the accessible name do not match.</p> <p>This success criterion intends to bridge the gap between the visible label and the accessible name so that people with disabilities who use visible label can use the same label programmatically.</p>	<ul style="list-style-type: none">• Ensure the accessible names like aria-label and alt attribute contain the exact match of the visible label• Ensure the visible label text and accessible name text are not interspersed• Ensure the accessible name starts exactly with the visible name.

Who benefits

Speech input users – They can activate the controls without any surprises

Text to Speech users – Converted text label and the visual label are the same that prevents confusion.

Examples

A button's visible label says "Buy now" and the accessible name too says "Buy now" instead of "Shop now".

A link has an image that says "Sign in to access the contents" and the alt attribute also says "Sign in to access the contents" instead of "Log in...".

Principle 2 – Operable - User interface components and navigation must be operable.

CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 2.5 – Input Modalities	https://www.digitala11y.com/understanding-sc-2-5-4-motion-actuation/	Make it easier for users to operate functionality through various inputs beyond keyboard.
2.5.4 Motion Actuation Level A	<p>Success Criterion 2.5.4 Motion Actuation (Level A): Functionality that can be operated by device motion or user motion can also be operated by user interface components and responding to the motion can be disabled to prevent accidental actuation, except when:</p> <p>Supported Interface</p> <p>The motion is used to operate functionality through an accessibility supported interface;</p> <p>Essential</p> <p>The motion is essential for the function and doing so would invalidate the activity.</p> <p>Off late, we have been witnessing motion based gestures or device movement based gestures to operate certain apps or certain functions like these ones:</p> <p>Twist the wrist holding the phone to bring up the camera app</p> <p>Show a thumbs-up in front of the device camera to like a post</p> <p>All these gestures are innovative and sometimes intuitive too. But what about users who mount their devices on a wheel chair? What about people who have tremor in their hands and accidentally perform some gestures that would activate some controls or functions?</p>	<ul style="list-style-type: none">• Provide alternatives where motion actuation is used• Provide confirmation or cancelling mechanism• Allow system settings to deactivate motion detection

	<p>This success criterion aims to address these questions</p> <p>How to solve this problem?</p> <p>Use an alternative and traditional controls that do the same function like a “previous / next” buttons as an alternative to waving the hand to move between the content</p> <p>Provide a cancelling mechanism or a confirmation mechanism like the one that is displayed on iPhones when one shakes to undo typing</p> <p>Use system settings that allow the users to turn off the motion detection.</p> <p>Exceptions</p> <p>Motions implemented by assistive technology or used for accessibility purposes</p> <p>Motions that are initiated by users to perform a function</p> <p>Motions that are essential like in games where other alternatives would invalidate the tasks</p> <p>Movements that are necessary and sensed by beacons and location sensors like walking in a fitness app or changing the direction of the device in a map.</p>	
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Principle 3 – Understandable - Information and user interface components must be presentable to users in ways they can perceive.

CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 3.1 – Readable	https://www.digitala11y.com/understanding-sc-3-1-1-language-of-page/	Make text content readable and understandable.
3.1.1 Language of Page Level A	<ul style="list-style-type: none">• The default human language of each Web page can be programmatically determined. (Level A)• This success criterion requires that each web page of a site has its default human language programmatically defined. This, according to the Internationalization best practices plays a critical role in determining the default text-processing language. Apart from this, this is a key factor for screen readers to switch to the correct reading language, load correct pronunciation rules of language variations. Traditional browsers can render the text correctly and visual browsers can load characters and scripts appropriately. Thus language of page helps people with disabilities understand content in a better way.	<ul style="list-style-type: none">• Ensure each page of your web site has lang attribute• Ensure the language code is correct• Use appropriate language tokens in terms of language variations like lang=en-us” for English in US and lang=”en-uk” for English in Britain.

Principle 3 – Understandable - Information and the operation of the user interface must be understandable.		
CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 3.1 – Readable	https://www.digitala11y.com/understanding-sc-3-1-2-language-of-parts/	Make text content readable and understandable.
3.1.2 Language of Parts Level AA	<p>3.1.2 Language of Parts: The human language of each passage or phrase in the content can be programmatically determined except for proper names, technical terms, words of indeterminate language, and words or phrases that have become part of the vernacular of the immediately surrounding text. (Level AA).</p> <p>This success criterion requires that the contents written in multiple languages on the same web page has the human language defined in a programmatically determinable way. In other words, where the default language of the page is, say English but the page has phrases, sentences, paragraphs or passages from any other language, then the secondary language of such texts must be programmatically determined.</p> <p>Exceptions</p> <p>Any words that are adopted into the default language and that is part of a phrase or immediately surrounding text need not meet this criterion technical terms can be ignored.</p> <p>Benefits</p> <p>Visual browsers would be able to display correct characters for the language of parts and change the reading order for the languages that have right to left reading</p> <p>Braille translating software would be able to provide correct Braille characters and contractions</p> <p>Screen readers would be able to switch to apt pronunciation rules</p> <p>Traditional browsers would be able to process the texts aptly</p> <p>Machine based translation technologies would be able to translate the texts from one language into another when there is a change of language</p> <p>In the modern browsers, when such secondary language texts occur, users would be able to look up the meaning using a dictionary.</p>	<ul style="list-style-type: none"> • Ensure to use appropriate language code (lan="fr") wherever the text is in other language • Ensure appropriate language token is used in the lang attribute (lang="pt-br"). • Beware of the exceptions too.

Principle 3 – Understandable - Information and the operation of the user interface must be understandable.

CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 3.2 – Predictable	https://www.digitala11y.com/understanding-sc-3-2-1-on-focus/	Make Web pages appear and operate in predictable ways.
3.2.1 On Focus Level A	<p>When any component receives focus, it does not initiate a change of context. (Level A)</p> <p>The intent of this success criterion is to make sure that any unwanted actions are not initiated when focus moves on to an element. For example during tab navigation or shift tab navigation if user focus moves on to a link & a modal is triggered this fails this check point. Here user did not initiate this action; it was initiated when user focus moved on to a particular element. If the website is built using HTML & CSS purely, we will not encounter such behavior. This behavior is seen a lot on websites built with fancy scripting where the developers have no knowledge about accessibility. We must also take mouse users into consideration while testing for this checkpoint; while mouse pointer moves onto elements no actions should be initiated.</p> <p>Ensure that:</p> <p>Links don't open new page or new window when focused with mouse or keyboard.</p> <p>Forms don't submit automatically.</p> <p>There are no pop-ups or modal windows opening on pageload or focusing on an element.</p> <p>Focus should not move automatically to another element where it disorients the users.look up the meaning using a dictionary.</p>	<ul style="list-style-type: none">• Ensure that no element changes by receiving focus.• We should avoid both visual & behavioral modifications to page.• A website built using only HTML & CSS will not have on focus by default, one needs to provide this through scripting.• One way to test this check point is to unplug the mouse & navigate the page using the keyboard.

Principle 3 – Understandable - Information and the operation of the user interface must be understandable.

CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 3.2 – Predictable	https://www.digitala11y.com/understanding-sc-3-2-2-on-input/	Make Web pages appear and operate in predictable ways.
3.2.2 On Input Level A	<p>3.2.2 On Input: Changing the setting of any user interface component does not automatically cause a change of context unless the user has been advised of the behavior before using the component. (Level A)</p> <p>This success criterion conveys that change of context should not occur while user is trying to input data. For example, if the user is filling a form & if the page refreshes while selecting an option in <select> element or if the form submits after the user fills in the last form field, it fails this checkpoint. User should be provided with an option to submit the form by providing a submit button or hint/instruction should be provided for all users informing that form will submit once the form fields are filled</p> <p>Exceptions</p> <p>There are some exceptions to this success criterion. Change of content is not change of context. For example if a radio button is selected & if it triggers more form controls it is not change of context. Here content is updating. Activating links, buttons or tab controls doesn't fall into on input category. Here is user is taking deliberate action to trigger these form controls...</p>	<ul style="list-style-type: none">• Make sure that forms don't submit on input of data.• Make sure that focus doesn't move to next form control once a form field is populated with data.• Provide a submit button for all forms.• Make sure that control of how data is populated is in the hands of your users.• If there is a change of context, then provide an instruction that is available for all user groups.

Principle 3 – Understandable - Information and the operation of the user interface must be understandable.

CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 3.2 – Predictable	https://www.digitala11y.com/3-2-3-consistent-navigation/	Make Web pages appear and operate in predictable ways.
3.2.3 Consistent Navigation Level AA	<p>3.2.3 Consistent Navigation: Navigational mechanisms that are repeated on multiple Web pages within a set of Web pages occur in the same relative order each time they are repeated, unless a change is initiated by the user. (Level AA)</p> <p>This success criterion requires that the commonly repeated navigation related user interface elements like skip to main content link, primary secondary navigation links, logo, search element etc must be placed at the same locations where they occur on each page they are repeated. The placement of these user interface components is very important as people with disabilities heavily rely on common components for quick navigation.</p> <p>Users with cognitive & intellectual disabilities, users who use screen magnification technology & text to speech software's must be able to predict the existence of the common components. For example, if a few pages contains, a search element is placed on the top right and in other pages, the search component is not placed in the same location, this will fail this Success Criterion. Sc3.2.3.</p> <p>Providing consistent navigation does restrict content authors or developers from adding secondary navigation or additional components into the layout of the page. For example, a navigational menu might have sub menus that are exposed when the user is on that particular navigational menu. But here the order must not change the order of the navigation menu while the submenus are added in between them. Focus of the keyboard/assistive aid user must go to each menu during navigation.</p>	<ul style="list-style-type: none">• Keep navigational menus in the same location.• Present the navigational menus in the same order on all pages.• Represent all the standard elements like logo, search functionality, and skip links etc. in the same location on all the pages.• Using a standard template will help achieve to pass the success criteria of 3.2.3 consistent navigation.

Principle 3 – Understandable - Information and the operation of the user interface must be understandable.

CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 3.2 – Predictable	https://www.digitala11y.com/3-2-4-consistent-identification/	Make Web pages appear and operate in predictable ways.
3.2.4 Consistent Identification Level AA	<p>Components that have the same functionality within a set of Web pages are identified consistently. (Level AA)</p> <p>The guideline requires that functional components (elements) that appear repeatedly in a set of web pages must have the same name/label. This helps Assistive aid users who heavily rely on these functional elements for quick navigation & understanding the purpose of a particular widget.</p> <p>For example, if the “search button ” is labelled as either “find or go” in a web page while it is being labelled as “search” on all other pages, then it fails this checkpoint. This checkpoint applies to non-text content, icons and images that appear repeatedly & serve as labels too. In these cases, the alternative text for such labels must be consistent.</p> <p>Besides being useful to assistive aid users, providing consistent visual non-textual labels for the repeated components reduces the cognitive load of users with cognitive disabilities who learn the repetitive functions of such components. For them, relearning every time when introducing new labels or alternative texts would be difficult.</p>	<ul style="list-style-type: none">• Icons & images that are used repeatedly and provide the same function must be provided with same alternative text.• Elements with same function are named & labelled consistently.• Use icons/images that are consistent. For example print, twitter, Facebook etc.• Images will have different meaning in different context, so will need different alternative text depending on the context.

Principle 3 – Understandable - Information and the operation of the user interface must be understandable.

CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 3.3 – Input Assistance	https://www.digitala11y.com/understanding-sc-3-3-1-error-identification/	Help users avoid and correct mistakes.
3.3.1 Error Identification Level A	<p>3.3.1 Error Identification: If an input error is automatically detected, the item that is in error is identified and the error is described to the user in text. (Level A)</p> <p>Web is built with multiple components. One of the components to collect the data from the users is forms. When the data entered into these forms don't meet the requirements of the website the user must be provided with clear way to identify where the error is & should be guided to fix it accordingly. This success criterion states that errors must be presented in text. That doesn't mean we cannot use other methods of alerting the users that forms failed validation. We can use images, symbols, color in addition to text errors.</p> <p>The errors presented to the user should be as specific as possible so that users can take necessary action to fix it. A generic error that "this field is required" will not cut out for a lot of disabled users. If a form control needs a specific format, then it needs to be provided as an instruction to the user before the form is filled or it also can be mentioned in the error message when it fails validation.</p> <p>Per the definition in WCAG 2.0, an "input error" is information provided by the user that is not accepted. This includes:</p> <p>Information that is required by the web page but omitted by the user, or</p> <p>Information that is provided by the user but that falls outside the required data format or allowed values.</p>	<ul style="list-style-type: none">• Make sure that errors are in text.• Don't just use color or visual cues to point out form errors.• Use aria-describedby to bind the form control with the error programmatically.• Don't disable the submit button! Some websites disable the submit button & will only enable it if the form is filled appropriately. This is bad practice.• Provide necessary instructions & be as specific as possible with the errors so that users can take necessary action.• Make sure that errors are distinguished from the regular text on the web page.

Principle 3 – Understandable - Information and the operation of the user interface must be understandable.

CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 3.3 – Input Assistance	https://www.digitala11y.com/understanding-sc-3-3-2-labels-or-instructions/	Help users avoid and correct mistakes.
3.3.2 Labels or Instructions Level A	<p>3.3.2 Labels or Instructions (Level A): Labels or instructions are provided when content requires user input.</p> <p>The intention of this success criterion is to provide labels or instructions to form fields and controls which require user input. While the criterion asks for labels or instructions, it is important for the designers and content authors to decide which best suits the design and identify the form controls with their purpose.</p> <p>Our best experience says, just like a medicine bottle that requires a label for its identification, every form field or control requires a visible and persistent label at all times. Secondly, the instructions can be context sensitive, can include specific data format like a character combination of a password field or date format for a date field. While giving instructions, content authors must ensure that information is not overwhelming and thus do not clutter the page or even the memory of the users.</p> <p>Providing labels or instructions must not be confused with the following:</p> <p>Accessible names – They are not visible labels and they are dealt with separately in SC 4.1.2 Descriptive labels – if the labels are not descriptive, they are dealt with in SC 2.4.6</p> <p>Users who benefit People who benefit out of clear, persistent, visible labels and/or instructions are: Users with cognitive disabilities All users in common.</p>	<ul style="list-style-type: none">• Always provide visible labels to every form fields and controls• Provide instructions where the form fields require specific data or format• Ensure the labels identify the fields clearly• Do programmatically associate the labels with their respective fields• Provide group level labels and associate them with the group of form fields where the user input is required in more than one field like phone number or credit card number; also ensure to provide individual labels through title attribute in such scenarios.

Principle 3 – Understandable - Information and the operation of the user interface must be understandable.

CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 3.3 – Input Assistance	https://www.digitala11y.com/understanding-sc-3-3-3-error-suggestion/	Help users avoid and correct mistakes.
3.3.3 Error Suggestion Level AA	<p>3.3.3 Error Suggestion: If an input error is automatically detected and suggestions for correction are known, then the suggestions are provided to the user, unless it would jeopardize the security or purpose of the content. (Level AA)</p> <p>While SC 3.3.1 Error Identification talks about providing the errors in text format the SC 3.3.3 Error Suggestion is a little different & easy to follow. The intention of this success criterion is to help users identify the errors & provide them with right hints if the form validation fails. For example if an email address is left blank or entered incorrectly, the error message “invalid email address” is not sufficient. In this instance, the error message is not providing enough information to the user to fix the error & provide the right data to pass through the form validation. The right error would be “invalid email address, enter example@yourdomain.com”. In this example, users are aware of what pattern to enter in specific form fields that need a specific data pattern. The error suggestion also applies to the fields that are required to pass the form validation. Here letting the users know the specific field is required along with right hint of how to enter that data will enable them to complete the form submission.</p> <p>Users who benefit this checkpoint are:</p> <p>Visually impaired: screen reader users or low vision users rely on hints & errors to get through long form submissions</p> <p>Cognitive users: if right set of errors are provided it reduces the cognitive load on the users</p> <p>Motor Disable users: when an error is identified & focus is moved to that form control & if the error is properly explained it reduces the number of keystrokes that a motor disable user has to go through</p>	<ul style="list-style-type: none">• Provide descriptive errors• Provide visible hints that will enable the users to avoid errors during form submissions• Associate the errors with form controls using aria-describedby• Move the focus to the form control that has the error once validation failed, this reduces the number of key strokes• Mark the required fields with asterisk visually & programmatically with aria-required.

Principle 3 – Understandable - Information and the operation of the user interface must be understandable.

CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 3.3 – Input Assistance	https://www.digitala11y.com/understanding-sc-3-3-4-error-prevention-legal-financial-data/	Help users avoid and correct mistakes.
3.3.4 Error Prevention (Legal, Financial, Data) Level AA	<p>3.3.4 Error Prevention (Legal, Financial, Data): For Web pages that cause legal commitments or financial transactions for the user to occur, that modify or delete user-controllable data in data storage systems, or that submit user test responses, at least one of the following is true: (Level AA)</p> <p>Reversible: Submissions are reversible.</p> <p>Checked: Data entered by the user is checked for input errors and the user is provided an opportunity to correct them.</p> <p>Confirmed: A mechanism is available for reviewing, confirming, and correcting.</p> <p>Users make mistakes while inputting data into forms & as discussed before in 3.3.1 Error Identification & 3.3.3 Error Suggestion help us reduce the incorrect submission of data. But when we are dealing with data related to legal, financial or while sharing sensitive information users need to be provided with an option to verify the data & rectify if there are any mistakes. This is because most of the time once the data is submitted it cannot be retrieved immediately & user might have to get in touch with service provider to rectify it. In case of financial transactions once a transaction takes place there is no way to revert it.</p> <p>For example, if a flight ticket is purchased for a wrong date, there is a chance to rectify it but it comes with a cost where airlines charge a heavy fee to change the date of journey.</p>	<ul style="list-style-type: none">• Make sure proper hints are provided to fill the data in the forms• Provide a review information screen where user provided information is populated• Provide a checkbox where user can confirm that they have reviewed all the information and they are ready to submit; enable the submit button only when user checks the checkbox• Provide confirmation screen or dialogue when users delete any data.

To avoid errors like these, users need to be provided with review information screen where all the information provided by the user is populated & user need to review & confirm the transaction before moving ahead.

Users who Benefit

Users with Cognitive disabilities who can forget too quickly or in utter confusion that arises out of distraction can enter wrong data

Users who use screen readers and who have low vision can accidentally delete data due to confusion or in a hurry to submit the form quickly or delete wrong data due to some misunderstanding of the procedure

Principle 4 – Robust - Content must be robust enough that it can be interpreted by a wide variety of user agents, including assistive technologies.

CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 4.1 – Compatible	https://www.digitala11y.com/understanding-sc-4-1-1-parsing/	Maximize compatibility with current and future user agents, including assistive technologies.
4.1.1 Parsing Level A	<p>4.1.1 Parsing: In content implemented using markup languages, elements have complete start and end tags, elements are nested according to their specifications, elements do not contain duplicate attributes, and any IDs are unique, except where the specifications allow these features. (Level A)</p> <p>Parsing is all about writing a clean code “HTML, CSS OR JavaScript” in a manner that is understood by browsers & assistive technologies. Browsers & assistive technologies rely on the code in DOM & render the necessary information to the users. If the code is not written according to standards it can break the user experience of the application & assistive technology users will have a lot of problems to deal with.</p> <p>There are four components to check to pass this SC:Elements have complete start and end tags: Make sure your HTML has start tags <> & end tags where ever applicable. When end tags are missed the semantic information of the element that is marked-up will spill over to the next element. This affects assistive technology users who rely on semantic information to browse the application.</p> <p>Elements are nested according to their specifications: HTML has certain standards & they apply very strongly here. You cannot have div tag inside a span & li tag inside a div without having ul or ol tags. Some of these bugs will show-up during automation testing & HTML validation. While all assistive technologies might not be affected, it is certainly a best practice to avoid these kinds of errors.</p> <p>Elements do not contain duplicate attributes: Duplicate attribute means providing the same attribute more than once to the same element. For example providing alt text twice for the img tag or using a title attribute to a form control twice. While these attributes might not affect assistive technologies, it certainly fails HTML validation</p>	<ul style="list-style-type: none">• Use unique ids• Nest elements according to their specification• Avoid duplicate attributes• Make sure that HTML has both start & end tags.

	<p>Any IDs are unique: During development process developers need to make sure that any id provided for any element on the page is unique, if the id is not unique & given more than once to different elements it tends to fail automation. Duplicate id's also affect assistive technologies as they tend to retrieve information that is associated with the first id. Once the duplicate id is provided assistive technologies will not provide correct information even if other WAI-ARIA attributes are correct. For example if first name & last name are provided with same id "id=username" screen readers tend to read both fields as first name once the association takes place. Duplicate id's can be found through automation tools.</p>	
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Principle 4 – Robust - Content must be robust enough that it can be interpreted by a wide variety of user agents, including assistive technologies.

CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 4.1 – Compatible	https://www.digitala11y.com/understanding-sc-4-1-3-status-messages/	Maximize compatibility with current and future user agents, including assistive technologies.
4.1.2 Name, Role, Value Level A	<ul style="list-style-type: none">• For all user interface components (including but not limited to: form elements, links and components generated by scripts), the name and role can be programmatically determined; states, properties, and values that can be set by the user can be programmatically set; and notification of changes to these items is available to user agents, including assistive technologies.• Note: This success criterion is primarily for Web authors who develop or script their own user interface components. For example, standard HTML controls already meet this success criterion when used according to specification• The intent of this success criterion is to make sure that assistive technologies receive the necessary semantic information from all the interactive elements present on the page. Each element has an accessible name, role, value, state and property which are conveyed to assistive technologies. In turn, this information enables people with disabilities to interact with these elements.• Native HTML elements, if coded according to standards, will have all the necessary name, role, value and state by default. But there are so many custom component widgets like tabs, tree, grids etc. that need to be constructed from ground up and when need to be made accessible we rely on WAI-ARIA. These custom components need to be provided with a name, role, value, state & property manually using WAI-ARIA attributes. For example, if a div or span needs to be constructed into a button, we can use role=button. But that doesn't provide accessible name or keyboard operability. So we use aria-label to provide name and tabindex=0 to provide keyboard operability. At the same time we also need to provide the click handlers using JavaScript to this button so that users can use enter or spacebar key to activate the button.	<p>Use native HTML elements wherever possible</p> <p>USE WAI-ARIA attributes while constructing custom component widgets</p> <p>Make sure custom widgets are keyboard operable using spacebar or enter keys</p> <p>Provide tabindex=0 for custom widgets so that they receive tab focus</p> <p>Make it a practice to read ARIA specifications to understand the implications and the consequences of ARIA roles, states and properties before using them</p>

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| | <ul style="list-style-type: none">• Doesn't That look like lot of work? if one uses the native HTML button, element all these features are provided by default and no extra code is required. Only when some feature that cannot be coded using HTML use scripting languages to build the widget and use WAI-ARIA to provide the necessary name, role, value, state and properties. | |
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Principle 4 – Robust - Information and user interface components must be presentable to users in ways they can perceive.

CHECK-POINT	SUMMARY	POINTS TO PONDER
Guideline 4.1 – Compatible	https://www.digitala11y.com/understanding-sc-4-1-3-status-messages/	Maximize compatibility with current and future user agents, including assistive technologies.
4.1.3 Status Messages Level AA	<ul style="list-style-type: none">• In content implemented using markup languages, status messages can be programmatically determined through role or properties such that they can be presented to the user by assistive technologies without receiving focus.• The modern web pages are so dynamic that many a times the results of user interactions are more visual. Error messages, success messages that do not receive keyboard focus very often go unnoticed by the assistive technology (screen reader) users. More often than not, users are left wondering what is happening on the pages or whether they successfully performed tasks. This success criterion intends to bridge that gap by asking the authors that such status messages be programmatically determined so that screen readers or other assistive technologies detect such messages automatically and provide feedback either by announcing the messages or by any other means that the users prefer.• What are status messages? <p>Success toasts, form errors, cart updates, interstitial loading indicators, dynamically updating number of search results are some examples of status messages. Note that the focus does not shift to such messages, but visual users are aware of them. Also, any modification of status messages, off-screen messages like delete confirmation can be considered as status messages.</p>	<ul style="list-style-type: none">• Ensure all success toasts and error messages are announced by screen reader• Do not fill the pages with live regions. Decide which is an important update and qualifies a status message intelligently• Ensure focusable messages are not considered as status messages.