WCAG 2.0
Perceivability

Giorgio Brajnik

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La struttura

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Rif. http://www.michaelgaigg.com/blog/tag/wcag-20/

Guideline 1: Text Alternatives

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

All non-text content that is presented to the user has a text alternative that serves the equivalent purpose, except for the situations listed below. (Level A)

- **Controls, Input**: If non-text content is a control or accepts user input, then it has a name that describes its purpose. (Refer to Guideline 4.1 for additional requirements for controls and content that accepts user input.)
- **Time-Based Media**: If non-text content is time-based media, then text alternatives at least provide descriptive identification of the non-text content. (Refer to Guideline 1.2 for additional requirements for media.)
- **Test**: If non-text content is a test or exercise that would be invalid if presented in text, then text alternatives at least provide descriptive identification of the non-text content.
- **Sensory**: If non-text content is primarily intended to create a specific sensory experience, then text alternatives at least provide descriptive identification of the non-text content.
- **CAPTCHA**: If the purpose of non-text content is to confirm that content is being accessed by a person rather than a computer, then text alternatives that identify and describe the purpose of the non-text content are provided, and alternative forms of CAPTCHA using output modes for different types of sensory perception are provided to accommodate different disabilities.
- **Decoration**, **Formatting**, **Invisible**: If non-text content is pure decoration, is used only for visual formatting, or is not presented to users, then it is implemented in a way that it can be ignored by assistive technology.

CAPTCHA

Dice CAPTCHA

CAPTCHA

"Completely Automated Public Turing test to Tell Computers and Humans Apart"

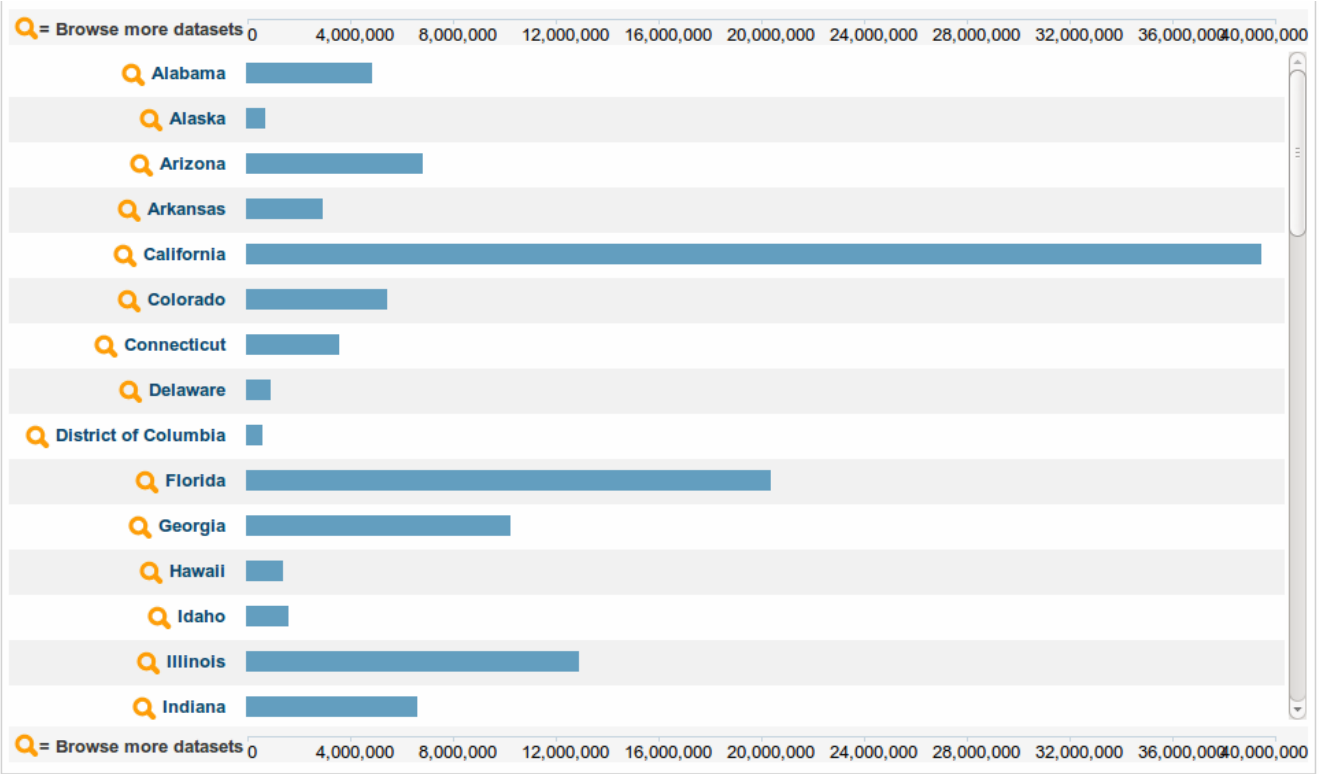
- fornire più modalità alternative
- comunque qualcuno ne verrà escluso
  - fornire possibilità di contattare qualcuno

Esempi di non-text content

- immagini varie
- immagini cliccabili

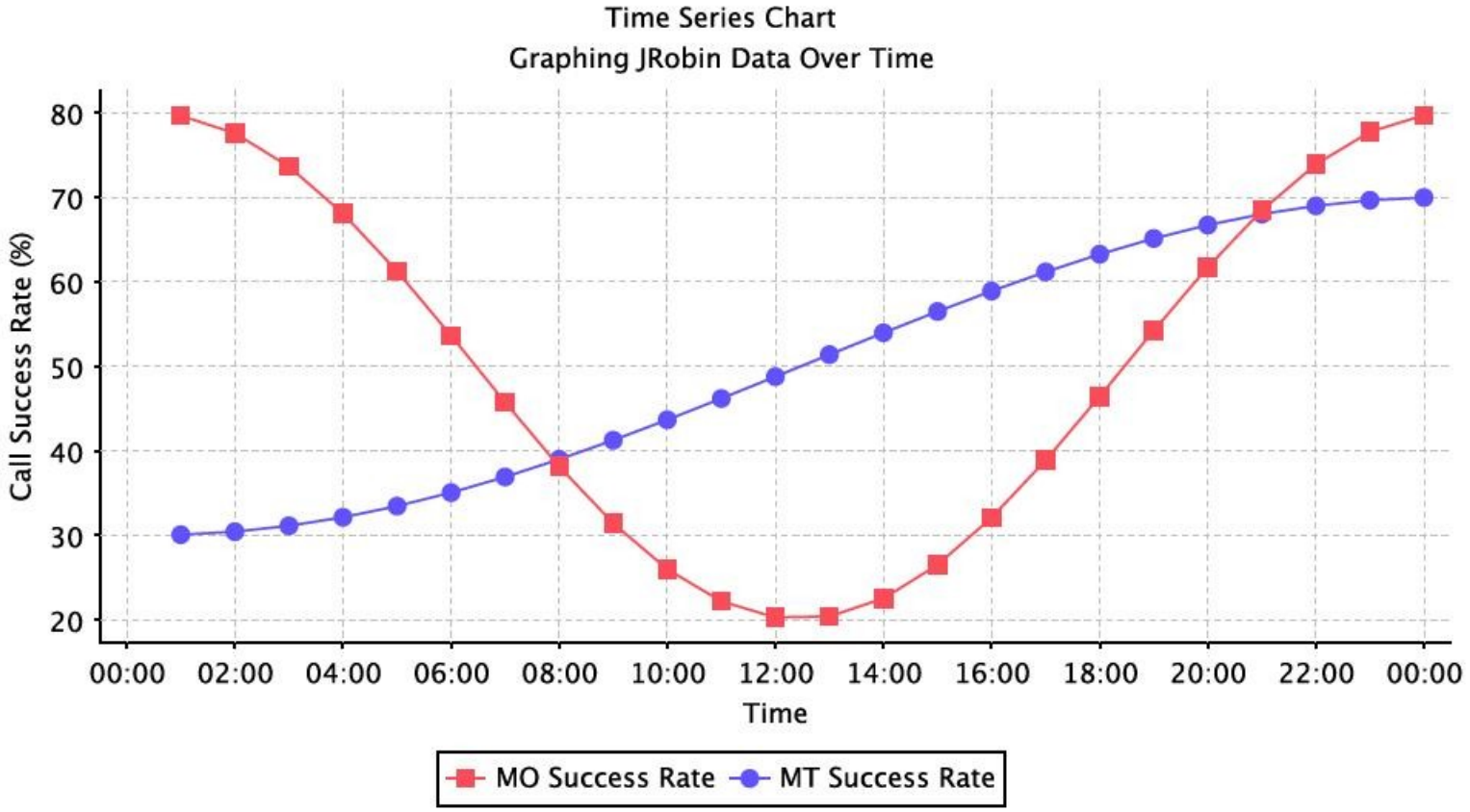
Esempi di non-text content

- diagrammi



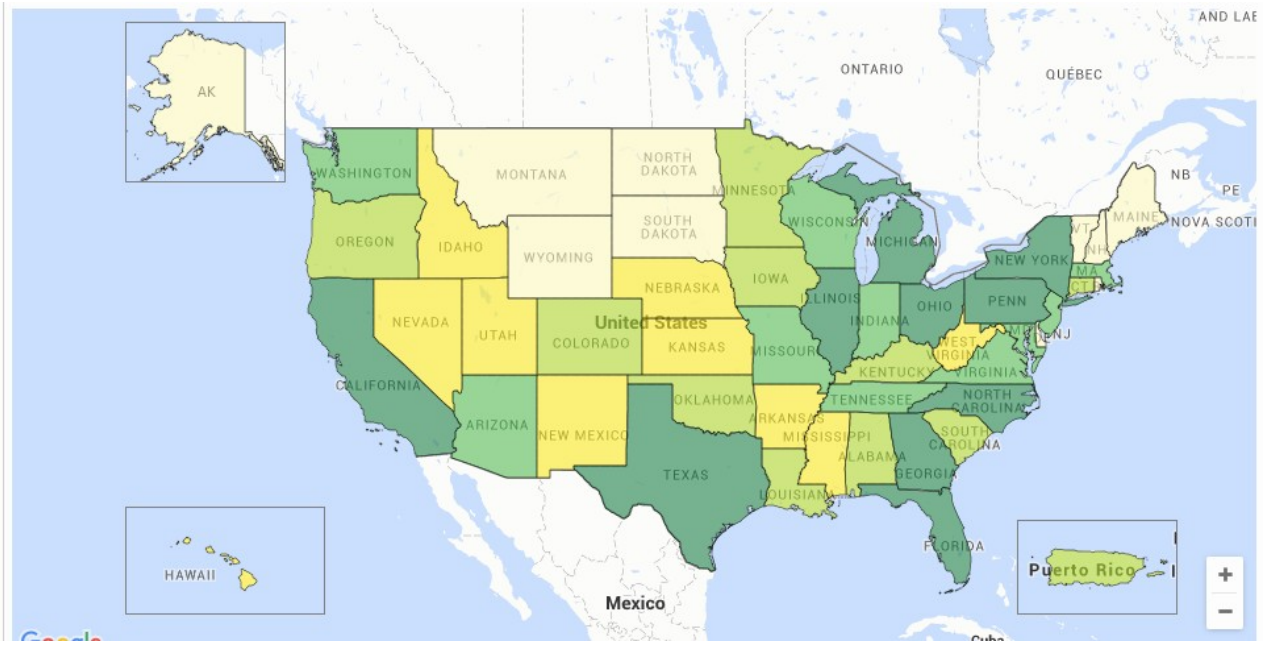
Esempi di non-text content

- diagrammi



Esempi di non-text content

- mappe



Esempi di non-text content

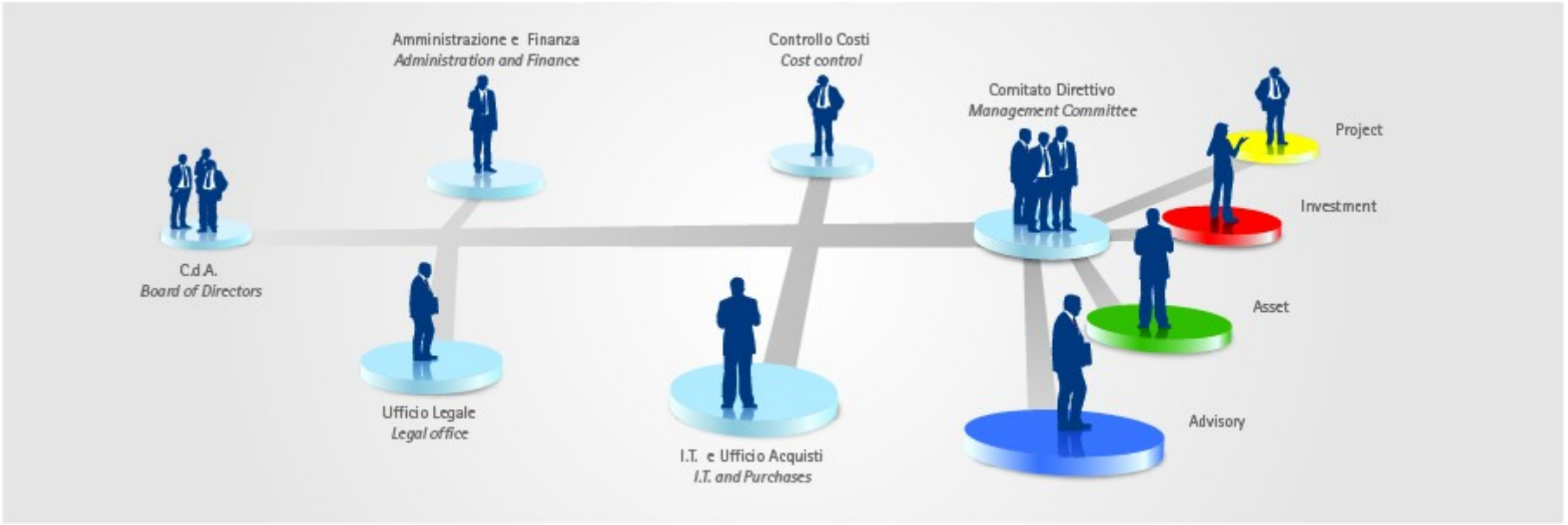
- podcast

Esempi di non-text content

- webcam

Esempi di non-text content

- organigramma



Che descrizioni fornire

- vedi il “**Tape Recording Manual**” della NBA

  https://www.w3.org/2000/08/nba-manual/Overview.html
- vedi webaim.org
  - http://webaim.org/techniques/alttext/

Come fornire le descrizioni

- caso per IMG

  https://www.w3.org/TR/2015/NOTE-WCAG20-TECHS-20150226/H37
- caso di testo e immagine cliccabili insieme

  https://www.w3.org/TR/2015/NOTE-WCAG20-TECHS-20150226/H2.html
- caso di una alternativa per tante immagini

  https://www.w3.org/TR/2015/NOTE-WCAG20-TECHS-20150226/G196
- caso di uso di OBJECT

  https://www.w3.org/TR/2015/NOTE-WCAG20-TECHS-20150226/H53

Come fornire le descrizioni

- caso di idiomi particolari
  - emoticons

    <abbr title="fright">=8-0</abbr>
  - leetspeak

    <abbr title=”accessibility”>4cc3551b1l17y </abbr>

Come fornire le descrizioni

- caso di labels

  aria-label

  https://www.w3.org/TR/2015/NOTE-WCAG20-TECHS-20150226/ARIA6

```
<div role="region" aria-label="weather portlet">
...
</div>
```

```
<div role="math" aria-label="6 divided by 4 equals 1.5">
  <math xmlns="http://www.w3.org/1998/Math/MathML">
    <mfrac>
      <mn>6</mn>
      <mn>4</mn>
    </mfrac>
    <mo>=</mo>
    <mn>1.5</mn>
  </math>
</div>
```

Come fornire le descrizioni

- caso di labels

  aria-labelled-by

  https://www.w3.org/TR/2015/NOTE-WCAG20-TECHS-20150226/ARIA10

```
<div role="img" aria-labelledby="star_id">
<img src="fullstar.png" alt=""/>
<img src="fullstar.png" alt=""/>
<img src="fullstar.png" alt=""/>
<img src="fullstar.png" alt=""/>
<img src="emptystar.png" alt=""/>
</div>

<div id="star_id">4 of 5</div>
```

Come fornire le descrizioni

- esempio per OBJECT

  https://www.w3.org/TR/2015/NOTE-WCAG20-TECHS-20150226/H37

- nel caso di video-only o audio-only
  - descrivere la presenza del video con un titolo

  https://www.w3.org/TR/2015/NOTE-WCAG20-TECHS-20150226/G68

Come fornire descrizioni

- nel caso una “short description” non basti

  aria-describedby

  https://www.w3.org/TR/2015/NOTE-WCAG20-TECHS-20150226/ARIA15

```
<img src="ladymacbeth.jpg" alt="Lady MacBeth" aria-describedby="p1">
<p id="p1">This painting dates back to 1730 and is oil on canvas. It was created by
Jean-Guy Millome, and represents ...</p>
```

  longdesc

Example Code:

```
<p><img src="chart.gif" alt="a complex chart" longdesc="chartdesc.html"/></p>
```

```
<img longdesc="thispage.html#desc" alt="Line graph of the number of subscribers" src="http://www.com
<div id="desc">
<h3>Long Description: Line graph of the number of subscribers</h3>
<!-- Full Description of Graph -->
<p>Long description ends.</p>
<div>
```

Come fornire descrizioni

- caso di INPUT e LABEL

  https://www.w3.org/TR/2015/NOTE-WCAG20-TECHS-20150226/H44

Example Code:

```
<label for="firstname">First name:</label>
<input type="text" name="firstname" id="firstname" />
```

Guideline 1.2

Time-based Media: Provide alternatives for time-based media.

Time-based media

- media type
  - audio-only
  - video-ony
  - audio-video
  - AV combined with interaction
    - eg. a text transcript that sais "for more information, click now"
- live or prerecorded
- synchronized media

  audio or video synchronized with another format for presenting information and/or with time-based interactive components, unless the media is a media alternative for text that is clearly labeled as such

Synchronized media

- An audio file on a web page **is not synchronized** media, and nor is a video file that doesn’t have audio.
- But if you play these together and the timing of one depends on the other in order to understand the content, then these are **synchronized media**.
- Similarly, if you had an audio file and a synchronized sequence of images that appears at the same time, that would constitute **synchronized media**.

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.

Audio transcripts

- per prerecorded audio-only
- come farli
  - via servizi appositi (1$/minuto)
  - via sw per il riconoscimento del parlato
  - da soli (~3x la lunghezza)
- descrivere
  - i dialoghi
  - il cambio di turno
  - suoni di sottofondo (es applausi)

Audio descriptions

- **captions**

  synchronized visual and/or text alternative for both speech and non-speech audio information needed to understand the media content.

  Captions are similar to dialogue-only **subtitles** except captions convey not only the content of spoken dialogue, but also equivalents for non-dialogue audio information needed to understand the program content, including sound effects, music, laughter, speaker identification and location.

- **closed** captions: can be turned on/off
- **open** captions: visual equivalent images of text that cannot be turned off

Audio transcripts

- uso di track in html5
  - https://www.w3.org/TR/2015/NOTE-WCAG20-TECHS-20150226/H96

```
<video poster="myvideo.png" controls>
       <source src="myvideo.mp4" srclang="en" type="video/mp4">
       <track src="myvideo_en.vtt" kind="descriptions" srclang="en" label="English">
 </video>
```

```
<video poster="myvideo.png" controls>
      <source src="myvideo.mp4" srclang="en" type="video/mp4">
      <source src="myvideo.webm" srclang="fr" type="video/webm">
      <track src="myvideo_en.vtt" kind="descriptions" srclang="en" label="English">
      <track src="myvideo_fr.vtt" kind="descriptions" srclang="fr" label="French">
 </video>
```

- il track element

https://www.w3.org/html/wg/drafts/html/master/semantics.html#the-track-element

Audio transcripts

- Web Video Text Tracks
  - https://w3c.github.io/webvtt/

```
WEBVTT

00:11.000 --> 00:13.000
<v Roger Bingham>We are in New York City

00:13.000 --> 00:16.000
<v Roger Bingham>We're actually at the Lucern Hotel, just down the street

00:16.000 --> 00:18.000
<v Roger Bingham>from the American Museum of Natural History
```

- Timed Text Markup Language
  - https://www.w3.org/TR/ttaf1-dfxp/

```
<body region="subtitleArea">
  <div>
    <p xml:id="subtitle1" begin="0.76s" end="3.45s">
      It seems a paradox, does it not,
    </p>
    <p xml:id="subtitle2" begin="5.0s" end="10.0s">
      that the image formed on<br/>
      the Retina should be inverted?
    </p>
```

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)

- enable people who are deaf or hard of hearing to watch synchronized media presentations

Captioning

- Captioning is the key to opening up a world of information for persons with hearing loss or literacy needs.
- Captioning is the process of converting the audio content of a television broadcast, webcast, film, video, CD-ROM, DVD, live event, or other production into text and displaying the text on a screen or monitor.
- Captions not only display words as the textual equivalent of spoken dialogue or narration, but they also include speaker identification, sound effects, and music description.

Captioning

It is important that captions are

- synchronized and appear at approximately the same time as the audio is delivered
- equivalent and equal in content to that of the audio, including speaker identification and sound effects
- accessible and readily available to those who need or want them.

http://www.captioningkey.org/

Captioning

Quality features

- accurate
- consistent in style
- complete and clear
- readable (enough time, not obscured, not obscuring, synchronized)
- equal (meaning and intention is preserved)

http://www.captioningkey.org/

Come fornirle

- track element

```
<video poster="myvideo.png" controls>
       <source src="myvideo.mp4" srclang="en" type="video/mp4">
       <track src="myvideo_en.vtt" kind="captions" srclang="en" label="English">
 </video>
```

```
<video poster="myvideo.png" controls>
     <source src="myvideo.mp4" srclang="en" type="video/mp4">
     <source src="myvideo.webm" srclang="fr" type="video/webm">
     <track src="myvideo_en.vtt" kind="captions" srclang="en" label="English">
     <track src="myvideo_fr.ttml" kind="captions" srclang="fr" label="French">
</video>
```

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)

- to provide people who are blind or visually impaired access to the visual information in a synchronized media presentation
  - audio description of the video content, or
  - all of the information in the synchronized media (both visual and auditory) in text form

Synchronized audio description

- usare SMIL

  https://www.w3.org/TR/2015/NOTE-WCAG20-TECHS-20150226/SM7

Example 1: SMIL 2.0 audio description sample for RealMedia player

Example Code:

```
<smil xmlns="http://www.w3.org/2001/SMIL20/Language">
  <head>
    <layout>
      <root-layout backgroundColor="black" height="266" width="320"/>
      <region id="video" backgroundColor="black" top="26" left="0"
      height="144" width="320"/>
    </layout>
  </head>
  <body>
    <par>
      <video src="salesdemo.mpg" region="video" title="Sales Demo"
      alt="Sales Demo"/>
      <audio src="salesdemo_ad.mp3" begin="33.71s" title="audio description"
      alt="Sales Demo Audio Description"/>
    </par>
  </body>
</smil>
```

1.2.4 Captions (Live)

Captions are provided for all live audio content in synchronized media. (Level AA)

- The intent of this Success Criterion is to enable people who are deaf or hard of hearing to watch real-time presentations
- This success criterion was intended to apply to **broadcast** of synchronized media

usando SMIL

https://www.w3.org/TR/2015/NOTE-WCAG20-TECHS-20150226/SM12

1.2.5 Audio Description (Prerecorded)

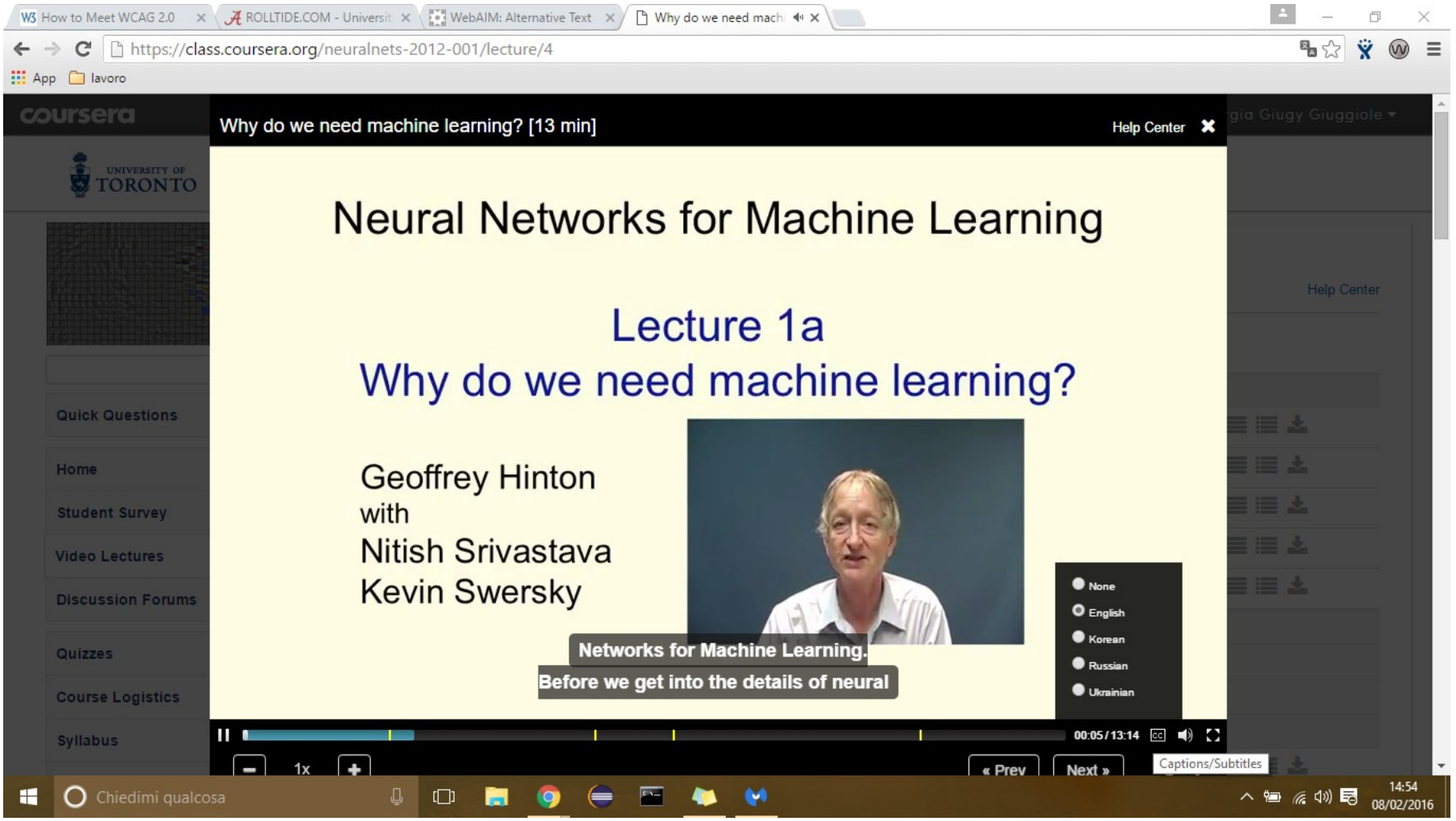
Audio description is provided for all prerecorded video content in synchronized media. (Level AA)

- The intent of this Success Criterion is to provide people who are blind or visually impaired access to the visual information in a synchronized media presentation

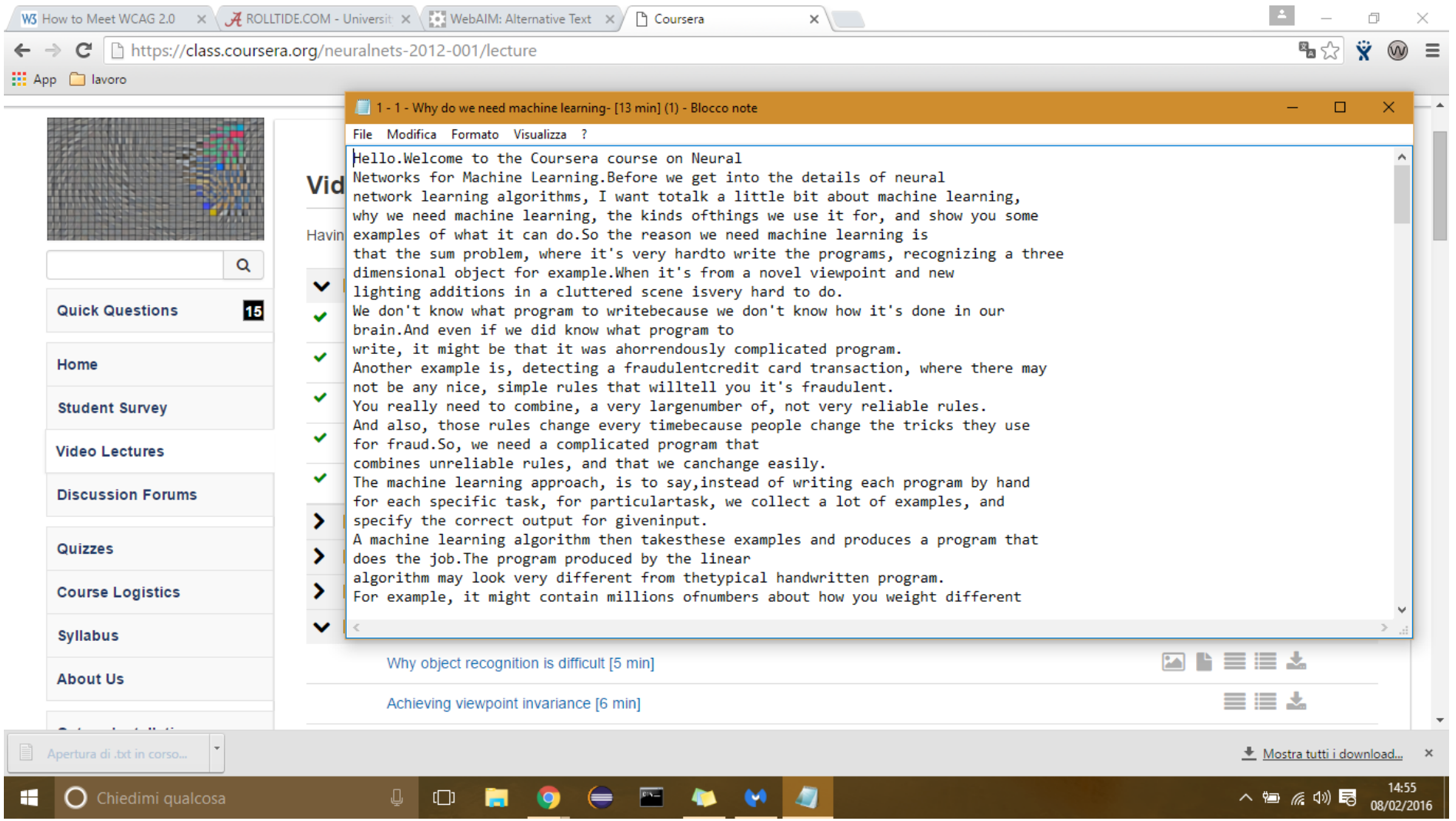
G78: Providing a second, user-selectable, audio track that includes audio descriptions

https://www.w3.org/TR/2015/NOTE-WCAG20-TECHS-20150226/G78

Esempio: Coursera



Esempio: Coursera



1.3 Adaptable

Create content that can be presented in different ways (for example simpler layout) without losing information or structure.

- If all of the information is available in a form that can be determined by software, then it can be presented to users in different ways (visually, audibly, tactilely etc.).
- The Success Criteria under this guideline all seek to ensure that different types of information that are often encoded in presentation are also available so that they can be presented in other modalities.

1.3.1 Info and Relationships

Information, structure, and relationships conveyed through presentation can be programmatically determined or are available in text. (Level A)

- The intent of this Success Criterion is to ensure that information and relationships that are implied by visual or auditory formatting are preserved when the presentation format changes.
- For example, the presentation format changes when the content is read by a screen reader or when a user style sheet is substituted for the style sheet provided by the author.

1.3.1 Info and Relationships

- uso di Heading H1-H6
  - in ordine
- uso di UL/LI, OL/LI, DL/DT/DD
- uso di CSS invece di <font>
-
 → <p>
- <b> →
- <i> →

Tabelle dati

- quelle per cui si possono identificare **entità** e **attributi**
- uso di TH per intestazioni, TD per i dati
- uso di scope=row, scope=col per associare un TH a un set di TD
- uso di id e headers per associare un TD a un set di TH

Tabelle dati: H51

Example Code:

```
<table>
 <tr>
   <td> </td>
   <th>Monday</th>
   <th>Tuesday</th>
   <th>Wednesday</th>
   <th>Thursday</th>
   <th>Friday</th>
 </tr>
 <tr>
   <th>8:00-9:00</th>
   <td>Meet with Sam</td>
   <td> </td>
   <td> </td>
   <td> </td>
   <td> </td>
 </tr>
 <tr>
   <th>9:00-10:00</th>
   <td> </td>
   <td> </td>
   <td>Doctor Williams</td>
   <td>Sam again</td>
   <td>Leave for San Antonio</td>
 </tr>
</table>
```

Tabelle dati: H63

Example Code:

```
<table border="1">
 <caption>Contact Information</caption>
 <tr>
   <td></td>
   <th scope="col">Name</th>
   <th scope="col">Phone#</th>
   <th scope="col">Fax#</th>
   <th scope="col">City</th>
 </tr><tr>
   <td>1.</td>
   <th scope="row">Joel Garner</th>
   <td>412-212-5421</td>
   <td>412-212-5400</td>
   <td>Pittsburgh</td>
 </tr><tr>
   <td>2.</td>
   <th scope="row">Clive Lloyd</th>
   <td>410-306-1420</td>
   <td>410-306-5400</td>
   <td>Baltimore</td>
 </tr><tr>
   <td>3.</td>
   <th scope="row">Gordon Greenidge</th>
   <td>281-564-6720</td>
   <td>281-511-6600</td>
   <td>Houston</td>
 </tr>
</table>
```

Tabelle dati: H43

Example Code:

```
<table>
   <tr>
     <th rowspan="2" id="h">Homework</th>
     <th colspan="3" id="e">Exams</th>
     <th colspan="3" id="p">Projects</th>
   </tr>
   <tr>
     <th id="e1" headers="e">1</th>
     <th id="e2" headers="e">2</th>
     <th id="ef" headers="e">Final</th>
     <th id="p1" headers="p">1</th>
     <th id="p2" headers="p">2</th>
     <th id="pf" headers="p">Final</th>
   </tr>
   <tr>
    <td headers="h">15%</td>
    <td headers="e e1">15%</td>
    <td headers="e e2">15%</td>
    <td headers="e ef">20%</td>
    <td headers="p p1">10%</td>
    <td headers="p p2">10%</td>
    <td headers="p pf">15%</td>
   </tr>
  </table>
```

Tabelle dati: H39

Example Code:

```
<table>
<caption>Schedule for the week of March 6</caption>
...</table>
```

Form: H44

- LABEL/@FOR → INPUT/@ID

Example Code:

```
<label for="firstname">First name:</label>
<input type="text" name="firstname" id="firstname" />
```

Example Code:

```
 <h1>Donut Selection</h1>

<p>Choose the type of donut(s) you would like then select
   the "purchase donuts" button.</p>

<form action="http://example.com/donut" method="post">
<p>
  <input type="radio" name="flavor" id="choc" value="chocolate" />
    <label for="choc">Chocolate</label><br/>
  <input type="radio" name="flavor" id="cream" value="cream"/>
    <label for="cream">Cream Filled</label><br/>
  <input type="radio" name="flavor" id="honey" value="honey"/>
    <label for="honey">Honey Glazed</label><br/>
  <input type="submit" value="Purchase Donuts"/>
</p>
</form>
```

Form: H44

- riguarda:
  - input type="text"
  - input type="checkbox"
  - input type="radio"
  - input type="file"
  - input type="password"
  - textarea
  - select
- NON riguarda:
  - Submit and Reset buttons (input type="submit" or input type="reset")
  - Image buttons (input type="image")
  - Hidden input fields (input type="hidden")
  - Script buttons (button elements or <input type="button">)

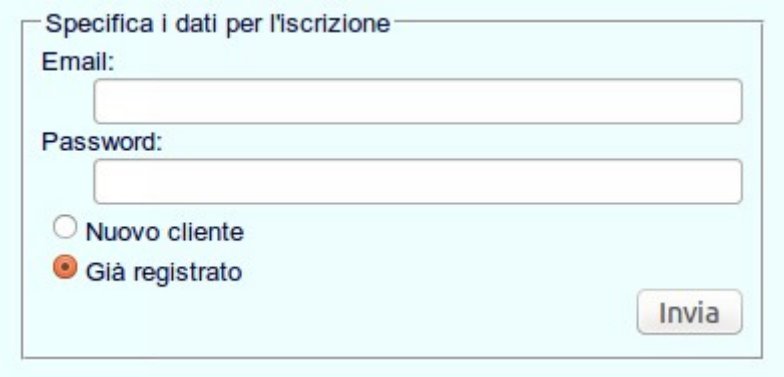
Form: H65

- uso di TITLE
  - nei casi in cui un campo abbia 2+ etichette


```
<tr>
  <td></td>
  <th>Capofamiglia</th>
  <th>Coniuge</th>
</tr>
<tr>
  <th>Imponibile</th>
  <td><input name="text2" type="text" title="imponibile capofamiglia" size="20" />
  </td>
  <td><input name="text2" type="text" title="imponibile coniuge" size="20" />
  </td>
</tr>
<tr>
  <th>Deduzione</th>
  <td><input name="text2" type="text" title="deduzione capofamiglia" size="20" />
  </td>
  <td><input name="text2" type="text" title="deduzione coniuge" size="20" />
  </td>
</tr>
```

Form: H71

- uso di FIELDSET/LEGEND
  - per raggruppare i controlli




```
<form>
  <fieldset style="width: 27em">
    <legend>Specifica i dati per l'iscrizione</legend>
    <label for="em13" style="float:left">Email:</label>
    <input id="em13" type="text" name="email2" size="30" style="float:right"></input>
    <br></br>
    <label for="pa13" style="clear:both;float:left">Password:</label>
    <input id="pa13" type="password" name="pass" size="30" style="float:right"></input>
    <br></br>
  ▶ <div style="clear:both;float:left"></div>
  ▶ <div style="clear:both;float:right"></div>
  </fieldset>
</form>
```

Navigation: H97

- uso di <nav> per raggruppare comandi di un menu

```
<nav aria-label="Site menu">
  <ul>
          <li>...a list of links site navigation link here ...</li>
  </ul>
</nav>
...
<article>
  <nav aria-label="Related links">
        ...a list of related links here ...
  </nav>
</article>
```

ARIA landmarks: ARIA11

- sono dei valori di “role”
  - **banner**: A region that contains the prime heading or internal title of a page.
  - **complementary**: Any section of the document that supports the main content, yet is separate and meaningful on its own.
  - **contentinfo**: A region that contains information about the parent document such as copyrights and links to privacy statements.
  - **form**: A region of the document that represents a collection of form-associated elements, some of which can represent editable values that can be submitted to a server for processing.
  - **main**: Main content in a document. In almost all cases a page will have only one role="main".
  - **navigation**: A collection of links suitable for use when navigating the document or related documents.
  - **search**: The search tool of a Web document.
  - **application**: A region declared as a web application, as opposed to a web document.

ARIA headings: ARIA12

- role=”heading” e aria-level=”1”
  - nei casi in cui H1-H6 non si possono usare

```
...
<h5>Fruit Trees</h5>
...
<h6>Apples</h6>
<p>Apples grow on trees in areas known as orchards...</p>
...
<div role="heading" aria-level="7">Jonagold/div>
<p>Jonagold is a cross between the Golden Delicious and Jonathan varieties...</p>
```

ARIA region: ARIA20

- da usare in aggiunta ai ruoli landmark già esistenti
  - solo quando serve

```
<div role="region" aria-labelledby="pollhead">
<h3 id="pollhead">This week's Poll</h3>
<form method="post" action="#">
  <fieldset>
    <legend>Do you believe the tax code needs to be overhauled?</legend>
    <input type="radio" id="r1" name="poll" />
    <label for="r1">No, it's fine the way it is</label>
    <input type="radio" id="r2" name="poll" />
    <label for="r2">Yes, the wealthy need to pay more</label>
    <input type="radio" id="r3" name="poll" />
    <label for="r3">Yes, we need to close corporate loopholes</label>
    <input type="radio" id="r4" name="poll" />
    <label for="r4">Changes should be made across the board</label>
  </fieldset>
</form>
<a href="results.php">See Poll Results</a>
</div>
```

ARIA landmarks: ARIA11

```
<div id="header" role="banner">A banner image and introductory title</div>
<div id="sitelookup" role="search">....</div>
<div id="nav" role="navigation">...a list of links here ... </div>
<div id="content" role="main"> ... Ottawa is the capital of Canada ...</div>
<div id="rightsideadvert" role="complementary">....an advertisement here...</div>
<div id="footer" role="contentinfo">(c)The Freedom Company, 123 Freedom Way, Helpville, USA</div>
```

```
<div id="leftnav" role="navigaton" aria-label="Primary">
<ul><li>...a list of links here ...</li></ul> </div>
<div id="rightnav" role="navigation" aria-label="Secondary">
<ul><li>...a list of links here ...</li> </ul></div>
```

```
<form role="search">
<label for="s6">search</label><input id="s6" type="text" size="20">
...
</form>
```

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)

- Content that does not meet this Success Criterion may confuse or disorient users when assistive technology reads the content in the wrong order, or when alternate style sheets or other formatting changes are applied.
- Providing a particular linear order is only required where it affects meaning.
- There may be more than one order that is "correct".
- Only one correct order needs to be provided.

Text direction

- dir=ltr o dir=rtl

Example Code:

```
<p>The title says "<span lang="he"
dir="rtl">W3C ,פעילות הבינאום</span>" in Hebrew.</p>
```

Letter spacing

Example Code:

```
h2 {    letter-spacing: 1em; }
```

Example Code:

```
<h2>Museum</h2>
```

Example Code:

```
M u s e u m
```

DOM order: C27

- Making the DOM order match the visual order
  - When the source order matches the visual order, everyone will read the content and interact with it in the same (correct) order.

1.3.3 Sensory Characteristics

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)

- button to the right
- round button
- big button
- vertical button

Guideline 1.4

Make it easier for users to see and hear content including separating foreground from background.

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)

- If the information is conveyed through color differences in an image (or other non-text format), the color may not be seen by users with color deficiencies.
  - Users with partial sight often experience limited color vision.
  - Some older users may not be able to see color well.
  - Users who have color-blindness benefit when information conveyed by color is available in other visual ways.
  - People using text-only, limited color, or monochrome displays may be unable to access color-dependent information.
  - Users who have problems distinguishing between colors can look or listen for text cues.
  - People using Braille displays or other tactile interfaces can detect text cues by touch.

Color and information: G14

Ensuring that information conveyed by color differences is also available in text

- The objective of this technique is to ensure that when color differences are used to convey information, such as required form fields, the information conveyed by the color differences are also conveyed explicitly in text.

Text cues: G205

- Including a text cue for colored form control labels
  - The objective of this technique is to combine color and text or character cues to convey information. Most users can quickly scan the content to locate information conveyed by using color differences. Users who cannot see color can look or listen for text cues; people using Braille displays or other tactile interfaces can detect text cues by touch.
  - The text cue must be included as part of the programmatically determinable name for the control.

Text cues: G205

Example Code:

```
<label for="lastname" class="required">Last name (required): </label>
<input id="lastname" type="text" size="25" value=""/>
<style type="text/css">
  .required {
    color:red;
  }
</style>
```

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)

  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

1.4.2 Audio Control

- Playing audio automatically when landing on a page may affect a screen reader user's ability to find the mechanism to stop it because they navigate by listening and automatically started sounds might interfere with that navigation.
- Therefore, we **discourage** the practice of automatically starting sounds (especially if they last more than 3 seconds), and **encourage** that the sound be started by an action initiated by the user after they reach the page, rather than requiring that the sound be stopped by an action of the user after they land on the page.

1.4.3 Contrast (Minimum)

- The visual presentation of text and images of text has a contrast ratio of at least 4.5:1, except for the following: (Level AA)
  - Large Text: Large-scale text and images of large-scale text have a contrast ratio of at least 3:1;
  - Incidental: 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.
  - Logotypes: Text that is part of a logo or brand name has no minimum contrast requirement.

Color contrast

- l'occhio umano è 10x più sensibile a differenze di luminosità piuttosto che a tonalità di colore
  - prima enfatizzare le differenze in scale monocromatiche
  - e poi aggiungere tonalità di colore

Color contrast analyzer

Juicy Studio: Colour Contrast Analyser

Summary of Failures

	Failures
Luminosity Contrast Ratio	84
Difference in Brightness	88
Difference in Colour	96

Colour Contrast Results (all tests)

Element	Parent Nodes	Sample Colour	Background	Luminosity Contrast Ratio	Difference in Brightness	Difference in Colour
INPUT-text	• HTML • BODY.home • DIV#sticky-header • DIV#sticky-header-wrap • DIV#sticky-search • FORM#cse-search-box • DIV • DIV#form-text-field	Sample #3c3c3c	#ffffff	11.03:1 (pass at level AAA)	195 (pass)	585 (pass)
INPUT-submit	• HTML • BODY.home • DIV#sticky-header • DIV#sticky-header-wrap • DIV#sticky-search • FORM#cse-search-box • DIV • DIV#form-submit-bt	Sample #4c4c4c	#000000	2.45:1 (fail)	76 (fail)	228 (fail)
OPTION	• HTML	Sample #2a2a2a	#e5e3e1	11.21:1 (pass at	185 (pass)	555 (pass)

1.4.4 Resize text

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)

- The intent of this Success Criterion is to ensure that visually rendered text, including text-based controls can be scaled successfully so that it can be read directly by people with **mild visual disabilities**, without requiring the use of assistive technology such as a screen magnifier. Users may benefit from scaling all content on the Web page, but text is most critical.

1.4.4 Resize text: examples

- A user with vision impairments increases the text size on a Web page in a browser from 1 em to 1.2 ems. While the user could not read the text at the smaller size, she can read the larger text. All the information on the page is still displayed when the larger font is used for the text.
- A Web page contains a control for changing the scale of the page. Selecting different settings changes the layout of the page to use the best design for that scale.
- A user uses a zoom function in his user agent to change the scale of the content. All the content scales uniformly, and the user agent provides scroll bars, if necessary.

C28: Specifying the size of text containers using em units

- uso di em
- di %
- di font-size:medium|xx-small|x-small|small|large|x-large|xx-large|smaller|larger;

Example Code:

```
#nav_menu { width: 20em; height: 100em }

#nav_list { font-size: 100%; }
```

G146: Using liquid layout

```
#wrapper {
  <strong>width: 85%;</strong>
}
#mainNav {
  <strong>width: 23%;</strong>
  float: left;
}
#content {
  <strong>width: 75%;</strong>
  float: right;
}
```

G178: Providing controls on the Web page that allow users to incrementally change the size of all text on the page up to 200 percent

- The purpose of this technique is to provide a mechanism on the Web page to incrementally increase the size of text.
- Many people with low vision do not use magnifying software, and they may not be familiar with their browser's text size adjustments.

G179: Ensuring that there is no loss of content or functionality when the text resizes and text containers do not change their width

- Some user agents support changing the size of text without changing other dimensions of the text container.
- Loss of content or functionality can occur when the text overflows the space that was allocated for it. However, the layout properties may provide a way to continue to display the content effectively.
- The block sizes may be defined wide enough that the text does not overflow when resized by 200%. Text may wrap when it no longer fits within the block, and the block may be tall enough that all the text continues to fit in the block. The block may provide scrollbars when the resized text no longer fits.

1.4.5 Images of Text

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)

- Customizable: The image of text can be visually customized to the user's requirements;
- Essential: A particular presentation of text is essential to the information being conveyed. (eg. logotype, a page on fonts)

1.4.5 Images of Text

- Styled Headings
  - Rather than using bitmap images to present headings in a specific font and size, an author uses CSS to achieve the same result.
- Dynamically Generated Images
  - A Web page uses server-side scripting to present text as an an image. The page includes controls that allow the user to adjust the font size and foreground and background colors of the generated image.
- A logo containing text
  - A Web site contains the organization's logo in the top left corner of each Web page. The logo contains logotype (text as part, or all, of the logo). The visual presentation of the text is essential to the identity of the logo and is included as a gif image which does not allow the text characteristics to be changed. The image has a text alternative.