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# Accessible Web Techniques

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**Information Architecture and Web Usability WS 2021 Group 1**

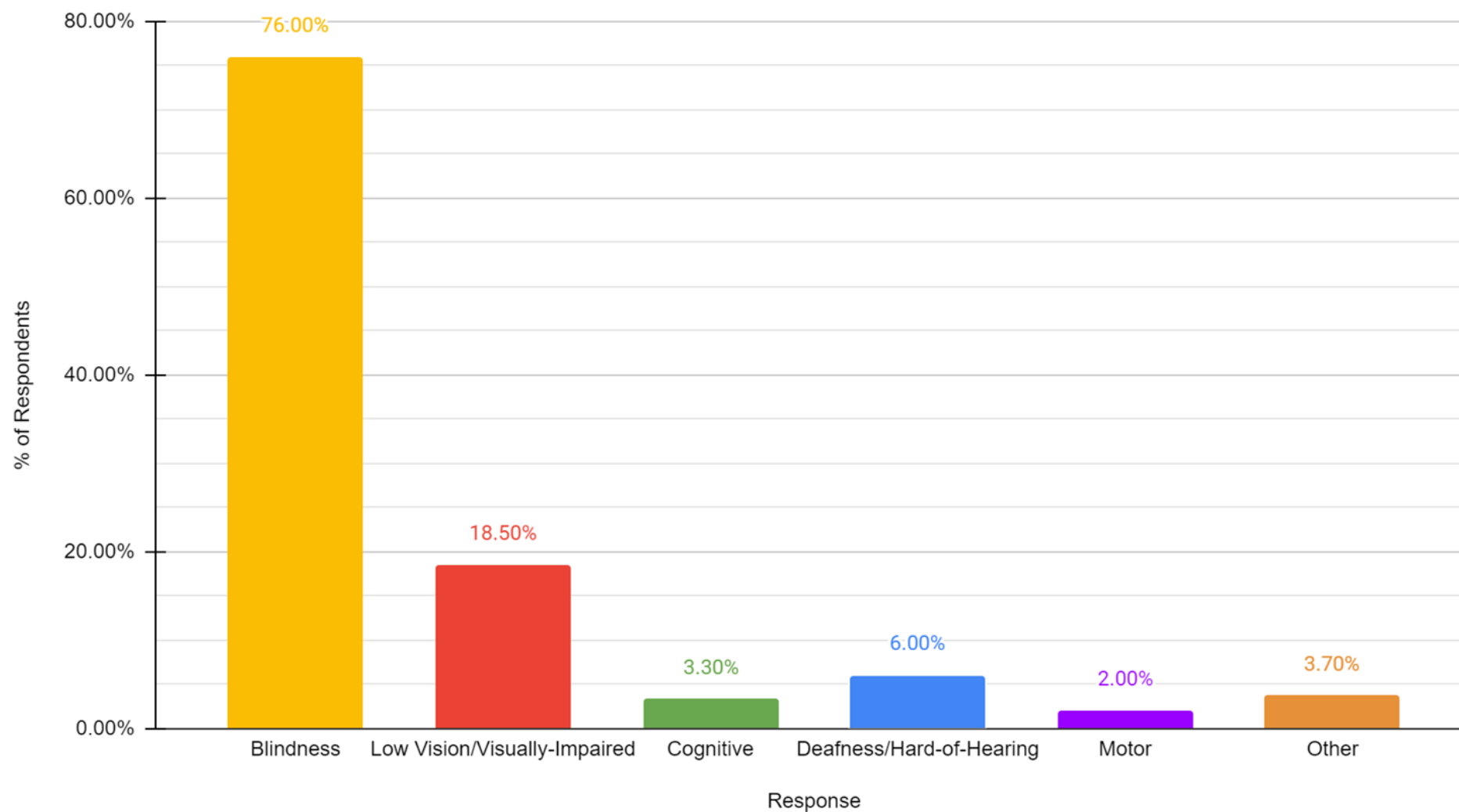
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# What is Web Accessibility?

- Making websites more *accessible* for people with disabilities.
- Encompassing *all* disability types:
  - Motoric
  - Hearing
  - Visual
  - Cognitive
- Every part of the site should be available by keyboard.
- Screen readers should be able to find a text for every element.

## Disability Types ( % of Respondents )

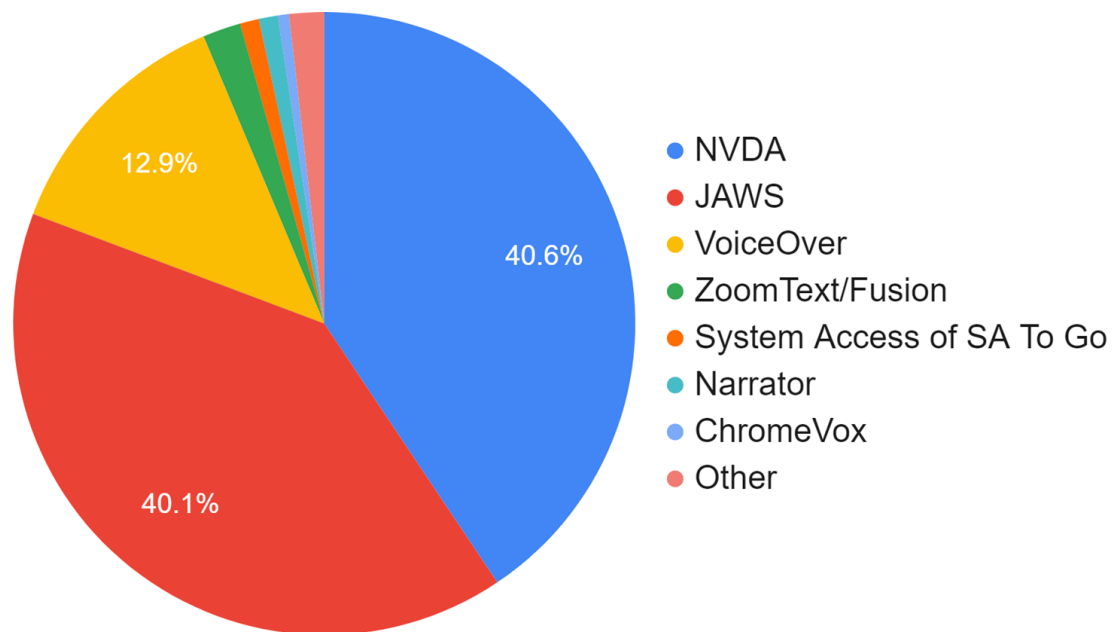


# Screen Readers

NVDA - Open-Source, Windows

JAWS - “expensive, but good”, Windows

VoiceOver - “good, but only for reading”, iOS and macOS



Which of the following is your primary desktop/laptop screen reader?

Screen Reader	# of Respondents	% of Respondents
NVDA	493	40.6%
JAWS	487	40.1%
VoiceOver	157	12.9%
ZoomText/Fusion	24	2.0%
System Access of SA To Go	12	1.0%
Narrator	12	1.0%
ChromeVox	7	0.6%
Other	22	1.8%

# tugraz.at Screen Reader Demo

<https://youtu.be/BsGjCsQwrR8>

# Guidelines and Legal Requirements

- Implement guidelines and standards:
  - [WCAG 2.1](#)
  - [WAI-ARIA Authoring Practices 1.1](#)
- Inform yourself about legal requirements:
  - [Web Zugänglichkeitsgesetz \(Austria\)](#)
  - [EU-2016/2102](#)



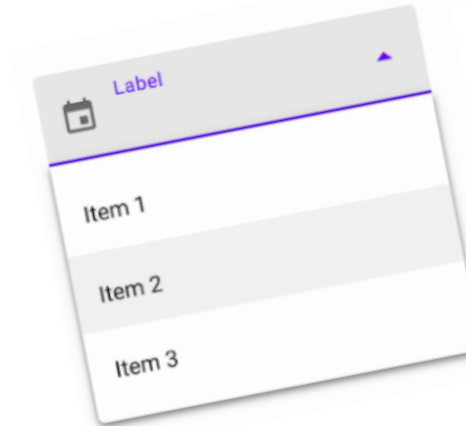
# Necessary Fundamentals

- Add a lang="..." to the html, blockquote and other elements and use :lang(...) CSS' pseudo-class.
- Do *not* use fixed width or height on web elements! It mostly messes with higher zoom levels.
- Use the “viewport” meta tag to set the initial scale of the site to 1 and the width to the device width. Do *not* set restrictions on the user’s zoom level!
- Set “font-size” to 100% instead of a fixed px value and use relative units on padding and margin as well.

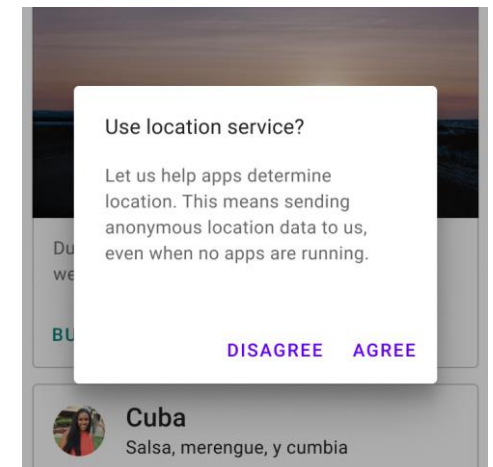
# Accessible Components

- Accordions
- Alerts
- Breadcrumbs
- Buttons
- Checkboxes
- Dialogs (Modals)
- Grids (Layout Containers)
- Links
- Listboxes
- Menus

- Tables
- Tabs
- Toolbars
- Banners
- Forms
- Searchbars



There are quite a lot...





# Buttons

## HTML:

```
<button aria-pressed="true">  
  Button1  
</button>
```

## JavaScript:

```
function init () {  
  var actionButton = document.getElementById('action');  
  actionButton.addEventListener('click', activateActionButton);  
  actionButton.addEventListener('keyup', actionButtonKeyupHandler);  
}  
function actionButtonKeyupHandler (event) {  
  if (event.keyCode === 32) {  
    event.preventDefault();  
    activateActionButton();  
  }  
}  
function activateActionButton () {  
  window.print();  
}
```

# Links

## HTML:

```
<span tabindex="0"  
  role="link"  
  onclick="goToLink(event, 'https://courses.isds.tugraz.at/iaweb/')"  
  onkeydown="goToLink(event, 'https://courses.isds.tugraz.at/iaweb/')">  
  Information Architecture and Web Usability  
</span>
```

**<a> element can also be used,  
but needs an aria-label.**

## JavaScript:

```
function goToLink (event, url) {  
  var type = event.type;  
  if ((type === 'click') || (type === 'keydown' && event.keyCode === 13) ) {  
    window.location.href = url;  
    event.preventDefault();  
    event.stopPropagation();  
  }  
}
```

# Menus and Menu Items

## HTML:

```
<nav class="navbar navbar-inverse navbar-fixed-top">
  <div class="container-fluid">
    <div class="navbar-header">
      <a class="navbar-brand" href="#">Accessible Web Components</a>
    </div>
    <ul class="nav navbar-nav">
      <li class="active"><a href="#button">Button</a></li>
      <li><a href="#breadcrumb">Breadcrumb</a></li>
      <li><a href="#link">Link</a></li>
      <li><a href="#listbox">Listbox</a></li>
      <li><a href="#table">Table</a></li>
    </ul>
  </div>
</nav>
```

# Breadcrumbs

## HTML:

```
<nav aria-label="Breadcrumb" class="breadcrumb">
  <ol>
    <li>
      <a href="https://courses.isds.tugraz.at/iaweb/">
        Information Architecture and Web Usability
      </a>
    </li>
    <li>
      <a href="https://courses.isds.tugraz.at/iaweb/exercises/">
        Exercises
      </a>
    </li>
    <li>
      <a href="https://courses.isds.tugraz.at/iaweb/exercises/ex2-survey.html" aria-current="page">
        Survey
      </a>
    </li>
  </ol>
</nav>
```

# Breadcrumbs

## CSS:

```
nav.breadcrumb {  
  padding: 0.8em 1em;  
  border: 1px solid hsl(0, 0%, 90%);  
  border-radius: 4px;  
  background: hsl(300, 14%, 97%);  
}
```

```
nav.breadcrumb ol {  
  margin: 0;  
  padding-left: 0;  
  list-style: none;  
}
```

```
nav.breadcrumb li {  
  display: inline;  
}
```

```
nav.breadcrumb li + li::before {  
  display: inline-block;  
  margin: 0 0.25em;  
  transform: rotate(15deg);  
  border-right: 0.1em solid currentColor;  
  height: 0.8em;  
  content: " ";  
}
```

```
nav.breadcrumb [aria-current="page"] {  
  color: #000;  
  font-weight: 700;  
  text-decoration: none;  
}
```

# Checkboxes

## HTML:

```
<section aria-labelledby="id-group-label">
  <div role="group" aria-labelledby="id-group-label">
    <ul class="checkboxes">
      <li>
        <div role="checkbox"
          aria-checked="false"
          tabindex="0">
          Lettuce
        </div>
      </li>
      <li>
        <div role="checkbox"
          aria-checked="true"
          tabindex="0">
          Tomato
        </div>
      </li>
    </ul>
  </div>
</section>
```

## JavaScript:

```
window.onload = function () {

  var checkboxes = document.querySelectorAll("[role='checkbox']");

  for (var i = 0; i < checkboxes.length; i++) {
    var cb = new Checkbox(checkboxes[i]);
    cb.init();
  }

};
```

# Forms

```
<form>  
  <input type="text" aria-label="Write a new todo item" placeholder="E.g. Adopt an owl">  
  <button type="submit">Add</button>  
</form>
```

## Fieldsets

**<fieldset> instead of <input>  
recommended for forms**

```
<fieldset>  
  <legend>Notify by email</legend>  
  <input type="radio" id="notify-on" name="notify" value="on" checked>  
  <label for="notify-on">on</label>  
  <input type="radio" id="notify-off" name="notify" value="off">  
  <label for="notify-off">off</label>  
</fieldset>
```

# Accessible Components Screen Reader Demo

<https://youtu.be/WCRBnLjznj4>



# Sources

- <https://www.w3.org/WAI/fundamentals/accessibility-intro/#what>
- <https://www.w3.org/TR/WCAG21/>
- [https://www.ag.bka.gv.at/at.gv.bka.wiki-bka/index.php/BARRIEREFREI:Richtlinie\\_\(EU\)\\_2016/2102\\_und\\_Web-Zug%C3%A4nglichkeits-Gesetz\\_Umsetzung](https://www.ag.bka.gv.at/at.gv.bka.wiki-bka/index.php/BARRIEREFREI:Richtlinie_(EU)_2016/2102_und_Web-Zug%C3%A4nglichkeits-Gesetz_Umsetzung)
- <https://webaim.org/projects/screenreadersurvey8/>
- <https://www.smashingmagazine.com/2021/03/complete-guide-accessible-front-end-components/>
- <https://web.dev/building-a-media-scroller-component/>

# Tools

- <https://siteimprove.com/en/website-accessibility-checker/>
- <https://www.webaccessibility.com/>
- <https://wave.webaim.org/>