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نفاذ رقمي للجميع digital access for all

An introduction to ICT Accessibility and Inclusive Design

Unit 7 - Web Accessibility fundamentals

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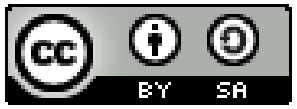
This course entitled “An Introduction to ICT Accessibility and Inclusive Design" was prepared and designed by Mada Center, Qatar.



Competencies

Mada ICT-AID Competency Framework

- D5.1

Objectives

- Introduce the broad scope of web accessibility
- Explore web accessibility barriers and potential solutions
- Explain the essential components of web accessibility
- Introduce principles, standards and checks for web accessibility

Learning Outcomes

→ By the end of this unit, you should be able to:

- Describe the guiding principles of web Accessibility
- Identify major features of HTML Accessibility
- Review the essential components of web Accessibility
- Discuss approaches towards ensuring Web Accessibility

Content

1. Scope of Web accessibility
2. Components, principles and standards of Web Accessibility
3. Towards checking Web Accessibility

1. Scope of Web Accessibility

Learning outcomes (1)

→ By the end of this section, you should be able to:

- Cite some examples of how people with disabilities use the Web
- Recognize challenges of using websites by people with disabilities
- Identify major Accessibility issues in websites
- Define web Accessibility for people with disabilities
- Define key terms in web Accessibility
- Generalize web accessibility for use on devices such as mobile phones, smart TVs, watches, and home appliances

1. Examples of How People with Disabilities Use the Web (1/4)

- **Visual impairments:**

Individuals with visual impairments utilize various assistive technologies to access the web. Screen readers, such as JAWS or NVDA, are software programs that read aloud the content of web pages. They navigate web pages by using keyboard shortcuts or a braille keyboard display. Websites with proper markup, accessible images with alternative text, and clear heading structures enhance the reading experience for screen reader users. Additionally, individuals with low vision often rely on screen magnification software, which enlarges the content on the screen, making it easier to read.

1. Examples of How People with Disabilities Use the Web (2/4)

- **Hearing impairments:**

For people with hearing impairments, accessing multimedia content on the web can be challenging. They heavily rely on captioning or transcripts to understand the audio aspects of videos. Closed captions synchronously display the spoken dialogue, sound effects, and other audio information in text form. Providing accurate captions ensures that individuals with hearing impairments can comprehend the audio content. Transcripts, which are text versions of audio or video content, are also valuable as they provide a written alternative for accessing the material.

1. Examples of How People with Disabilities Use the Web (3/4)

- **Mobility impairments:**

People with mobility impairments may have difficulty using a standard mouse or keyboard. They often rely on alternative input devices or technologies to browse the web. Switches, which are buttons triggered by different actions, allow for simplified control of web interfaces. Individuals can customize these switches to perform tasks like clicking, scrolling, or navigating menus. Another alternative is eye-tracking systems, which track eye movements to replace mouse functions. These technologies enable individuals with mobility impairments to interact with web content independently.

1. Examples of How People with Disabilities Use the Web (4/4)

- **Cognitive impairments:**

Individuals with cognitive impairments often require web content that is presented clearly and in a straightforward manner. Websites with consistent and intuitive layouts, simple language, and minimal distractions greatly assist users with cognitive disabilities. Text-to-speech software, such as ReadSpeaker or NaturalReader, can be utilized by individuals who struggle with reading comprehension. Visual cues, like arrows or animations, can aid in guiding users through web processes step by step. It is crucial to avoid complex navigation structures and provide clear instructions to help individuals with cognitive impairments navigate the web effectively.

2. Challenges of Using Websites by People with Disabilities (1/3)

- **Visual impairments:**

1. Inaccessible image descriptions or missing alternative text, making it difficult for screen reader users to understand the content.
2. Poor color contrast can make it hard for individuals with low vision to read text or distinguish between different elements on a webpage.

- **Hearing impairments:**

1. Lack of captions or transcripts for video content presents a significant challenge for people with hearing impairments, as they rely on textual alternatives to access audio information.
2. Websites with auto playing audio or video can be disruptive and overwhelming for individuals who use assistive technologies.

2. Challenges of Using Websites by People with Disabilities (2/3)

- **Mobility impairments:**

1. Websites with complex navigation structures or those that require precise mouse movements can be challenging for individuals with limited hand mobility.
2. Lack of keyboard accessibility and focus indicators prevent people who cannot use a mouse from navigating or interacting with web content effectively.

2. Challenges of Using Websites by People with Disabilities (3/3)

- **Cognitive impairments:**

1. Websites with cluttered layouts, inconsistent design, or complex language can be overwhelming for individuals with cognitive impairments, making it hard for them to understand and engage with the content.
2. Processes that require complex decision-making, such as multi-step forms or intricate navigation, can be confusing and overwhelming.

3. Major Accessibility Issues in Websites (1/5)

- **Insufficient alternative text for images:**
  - Images without descriptive alternative text make it impossible for individuals with visual impairments who rely on screen readers to understand the content. It is crucial to provide accurate and meaningful alternative text for every image on a website.
- **Poor color contrast:**
  - Low color contrast between text and background makes it difficult for individuals with visual impairments or color blindness to read or discern the content. Websites should ensure a sufficient contrast ratio to improve readability and accessibility.

3. Major Accessibility Issues in Websites (2/5)

- **Insufficient heading structure:**
  - Properly structured headings help users navigate through a webpage using assistive technologies like screen readers. Websites that lack or misuse heading tags prevent users from understanding the page hierarchy and finding relevant content easily.
- **Inadequate link descriptions:**
  - Links with generic text like "click here" or "read more" make it difficult for users with screen readers to understand the link's purpose. Descriptive link text should be used to convey the destination or target of the link.

3. Major Accessibility Issues in Websites (3/5)

- **Lack of skip navigation option:**
  - Websites without a "skip to main content" link or skip navigation option force users to navigate through repetitive content, causing frustration for users who rely on assistive technologies. Including a skip navigation link allows users to bypass repetitive elements and go directly to the main content.
- **Inaccessible forms and inputs:**
  - Complex forms or inputs without proper associated labels or clear instructions can create barriers for users with mobility or cognitive impairments.
  - Users relying on screen readers might struggle to understand the purpose of form fields without proper labels.

3. Major Accessibility Issues in Websites (4/5)

- **Inaccessible PDF or document formats:**
  - PDFs and other document formats often pose accessibility challenges, as they may lack proper structure, alternative text, or other accessibility features.
- **Lack of Keyboard Focus Indicators:**
  - If there are no clear visual indicators showing which element currently has keyboard focus, users may struggle to determine their location on the page or understand how to interact with the content.
- **Unpredictable or excessive animations:**
  - Excessive blinking, flashing, or moving content can trigger migraines, seizures, or distract users with cognitive impairments

3. Major Accessibility Issues in Websites (5/5)

- **Inaccessible error messages:**
  - Unclear or lacking error messages affect users with disabilities trying to understand issues in form submissions.
- **Inaccessible CAPTCHAs:**
  - CAPTCHAs that rely only on visual identification can pose significant challenges for individuals with visual impairments or color blindness, making it nearly impossible for them to solve.

4. Web Accessibility (1/2)

Web accessibility refers to the design and development of websites, tools, and technologies in a manner that enables individuals with disabilities to utilize them.

- **Key principles and considerations for web accessibility include:**

1. **Perceivable:** Web content and user interface elements should be presented in a way that users with disabilities can perceive.
2. **Operable:** Users should be able to interact with and navigate the website using a variety of devices and input methods, including keyboards and assistive technologies.

4. Web Accessibility (2/2)

2. **Understandable:** Information and the operation of the user interface must be clear and straightforward.
3. **Robust:** Web content must be developed to work well with current and future technologies.

5. Key Terms in Web Accessibility Include (1/7):

- **Disability:**

"A physical, mental, cognitive, or developmental condition that impairs, interferes with, or limits a person's ability to engage in certain tasks or actions or participate in typical daily activities and interactions."

- **Accessibility:**

"Accessibility is the degree to which a product, device, service, or environment is available to as many people as possible. It can be viewed as the "ability to access" and benefit from some system or entity. The concept often focuses on people with disabilities or special needs."

5. Key Terms in Web Accessibility Include (2/7):

- **Assistive technologies:**

"Technologies (software or hardware) that increase, maintain, or improve the functional capabilities of individuals with disabilities when interacting with computers or computer-based systems."

- **Screen readers:**

"Software programs that allow blind users or users with visual impairments to read the text that is displayed on the computer screen with a speech synthesizer or braille display."

5. Key Terms in Web Accessibility Include (3/7):

- **Form controls:**

"Objects that users interact with, such as drop-downs, checkboxes, and text fields. Form controls must be properly labeled so that users understand the purpose of the control. "

- **Form validation:**

"Feedback that lets a user know if they filled out a form with the necessary information and in the correct way."

- **Label:**

"A visible or hidden descriptive name given to checkboxes, drop-down menus, controls, dialogs, and other website features so the user can understand their purpose. A label is presented to all users while the name may only be exposed by assistive technology."

5. Key Terms in Web Accessibility Include (4/7):

- **Visual Focus:**

"Where the user's focus is on a Web page; generally represented by a dashed box that appears around items on the page and associated with tabbing."

- **Text alternative:**

"Text that is programmatically associated with non-text content such as charts or images so that the non-text content can be described by a screen reader. Not used for images that are purely decorative and have no meaning."

- **WAVE:**

"One of several web accessibility evaluation tools which are software programs or online services that help you determine if web content meets accessibility guidelines."

5. Key Terms in Web Accessibility Include (5/7):

- **Landmark:**

"Identifies sections of a page so users, especially those using assistive technology, can know where they are on a web page. This helps them better navigate and skip over blocks of content."

- **Heading:**

"Helps organize content on a web page. Also used by browsers, plug-ins, and assistive technologies to navigate Web pages."

- **Functionality:**

"All actions a user may initiate on a website including navigating, searching for information, making a reservation, making a purchase, and accessing services."

5. Key Terms in Web Accessibility Include (6/7):

- **CAPTCHA:**

"Security technique that requires a user to input a distorted set of characters from an image to access a web page or function."

- **Button:**

"An element that links to website pages, sections, external links, form submission or other content."

- **Blocks of text:**

"More than one sentence of text, for example a paragraph, which also helps to organize content on a web page."

5. Key Terms in Web Accessibility Include (7/7):

- **Language of parts:**

"A WCAG Success Criterion which ensures that the language in different sections of a website is identified so that different types of assistive technologies can pronounce them correctly and know, for example, if they should be reading from L to R or R to L."

- **Navigation order:**

"The order in which a user navigates through a website using a keyboard."

- **WAI-Accessible Rich Internet Applications Suite (ARIA):**

"A suite of web standards that define how to make web content and applications more accessible to people with disabilities. It especially helps with dynamic content and advanced user interface controls developed with HTML, JavaScript, and related technologies."

6. Web Accessibility Across Devices (1/3)

Web accessibility can be generalized and applied to various digital devices, including mobile phones, smart TVs, watches, and home appliances. Here are some key aspects that should be considered for ensuring web accessibility on these devices:

- **Responsive Design:** Devices have different screen sizes and resolutions, so websites must be designed responsively to adapt and provide an optimized user experience across a range of devices.
- **Text Size and Font:** Users should have the ability to adjust the size and style of the text to accommodate various visual impairments. Providing options for font customization can enhance readability.

6. Web Accessibility Across Devices (2/3)

- **Color Contrast:** Ensuring appropriate color contrast is essential to make content readable for individuals with visual impairments. Text and background colors should have sufficient contrast levels.
- **Navigation and Menus:** Clear and intuitive navigation menus should be provided, allowing users to easily locate and access different sections of a website or application. Hierarchical structures, logical grouping, and keyboard accessible navigation are important considerations.
- **Keyboard Accessibility:** Users with mobility impairments may rely on keyboard navigation instead of touch gestures. Websites and applications should be operable using a keyboard alone, with clear focus indicators and logical tab navigation order.

6. Web Accessibility Across Devices (3/3)

- **Captions and Transcripts:** For multimedia content such as videos, including closed captions and transcripts makes the content accessible to users who are deaf or hard of hearing.
- **Audio Control:** Users should have the ability to control audio elements (e.g., volume control, pause/play) and adjust captions, especially when using devices like smart TVs or home appliances.
- **Device and Browser Compatibility:** Consideration should be given to optimizing web accessibility across different devices, browsers, and assistive technologies. Compatibility testing is crucial to ensure consistent access.

Quizzes (1)

1. List some major accessibility issues typically encountered in websites?
2. How do people with disabilities use the Web, and can you provide some specific examples?

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Thank you

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