

Accessibility Requirements in Software Systems

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Accessibility Awareness RE Students 2024

**The survey will take 8
minutes of your time**



Introduction

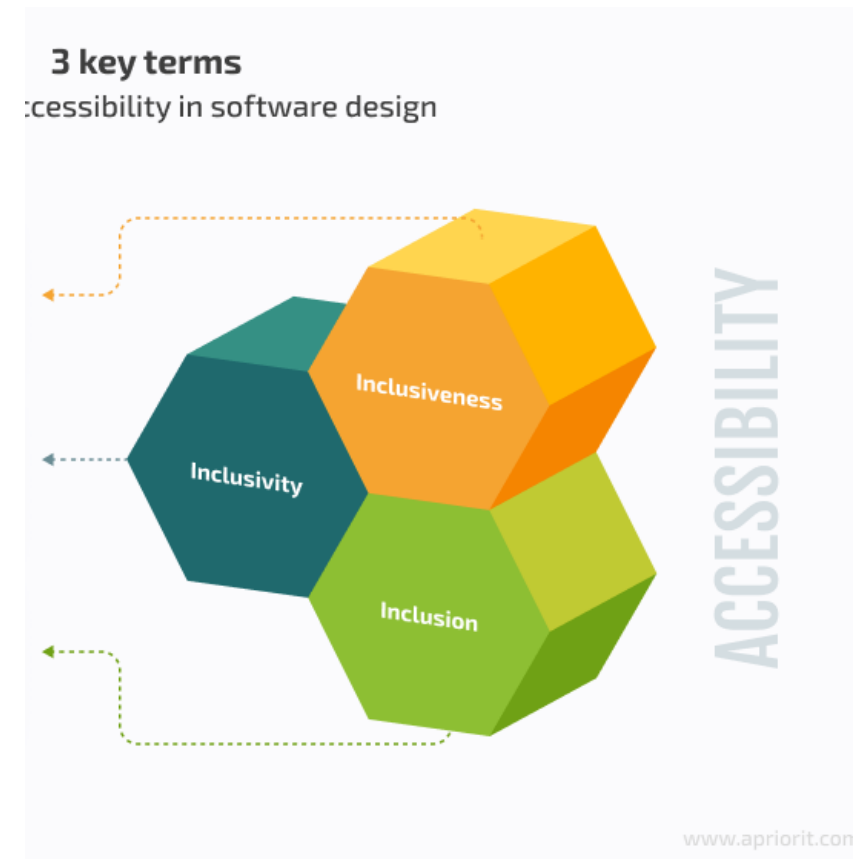
- **Accessibility in software design and development** is the practice of creating software products, applications, and digital services that can be used by people with diverse abilities and disabilities.
- Accessibility requirements ensure that all users, including those with physical, sensory, cognitive, or neurological impairments, are considered to aid the design and development of solutions that are inclusive of all people with diverse abilities and disabilities

Accessibility Requirements

- Accessibility requirements ensure inclusivity for users with disabilities, enhancing usability and user experience.
 - Address specific needs of diverse users, comply with accessibility standards, and improve digital equality.
- The **Web Accessibility Directive** (EU Directive 2016/2102) has been in force since December 22, 2016
 - It focuses mainly on websites and apps of public sector bodies, obliging them to comply with accessibility requirements.
- The **European Accessibility Act** (EU Directive 2019/882) will be in force starting on June 28, 2025.
 - This directive covers a wide range of digital products and services also in the private sector.

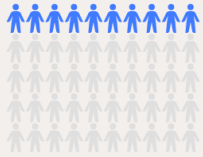
Accessibility in Software Design

- **Inclusive Design:** Designing software that considers a broad range of users from the outset, ensuring that different user needs are met without requiring modifications.
- **Assistive Technology Compatibility:** Ensuring compatibility with tools like screen readers, magnifiers, voice recognition software, and alternative input devices used by people with disabilities.
- **Keyboard Navigation:** Allowing users to navigate and interact with the software entirely through a keyboard, catering to those who may not use a mouse.
- **Color Contrast and Text Resizing:** Using sufficient contrast between text and background, and enabling users to resize text, to accommodate users with visual impairments.
- **Closed Captions and Transcripts:** Providing captions and transcripts for audio and video content, making multimedia accessible to those who are deaf or hard of hearing.



Accessibility

Why it Matters for Your Website



15%

It is estimated that over 1 billion roughly 15% of the world's population, experience some form of disability. A more accessible website helps you reach a larger audience by connecting with people with disabilities.

Most Countries Have Web Accessibility Laws

Nearly every country in the world, including many states and provinces, have laws regarding web accessibility. Organizations found in violation of these laws can face lawsuits and heavy fines. Taking an active approach to addressing web accessibility can greatly minimize your legal risk and help you achieve compliance.



Inaccessible



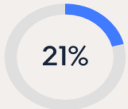
90% of websites are inaccessible to people with disabilities who rely on assistive technology

Federal



92% of the most popular federal websites fail to meet basic standards for accessibility

Spending



21% of lawsuits are against companies who received web accessibility lawsuits in the past



Enhance your brand by providing your employees and customers with a clear, well integrated accessibility commitment supporting diversity and inclusion efforts.

Dive innovation by integrating accessibility and removing architectural, digital, and social barriers that can get in the way of innovation.

Gather Accessibility Requirements

- **Review Accessibility Standards:** Refer to guidelines like Web Content Accessibility Guidelines (WCAG) and in US Guidance on Web Accessibility (ADA).
- **Engage Stakeholders and Users:** Include feedback from users with disabilities.
- **Conduct Accessibility Audits:** Assess current accessibility gaps in existing software systems, products and services.
- **Document Requirements:** Identify both functional and non-functional needs based on findings.

Incorporating Accessibility in Scrum Product Backlog

- **Define Accessibility User Stories:** Describe the specific needs of users with disabilities.
 - *Example:* "As a visually impaired user, I need screen reader support to navigate the application."
- **Prioritize Accessibility Items:** Ensure essential accessibility tasks are included in sprint planning.
- **Set Acceptance Criteria:** Define measurable outcomes (e.g., "All buttons have descriptive labels for screen readers").

Examples in Product Backlog

Backlog Items:

- *Screen Reader Compatibility*: Ensure all text and images are labeled and readable.
- *Color Contrast Standards*: Verify contrast between text and background meets WCAG guidelines.
- *Keyboard-Only Navigation*: Confirm that all features can be accessed without a mouse.

Sample Sprint Task:

- "Complete screen reader support for navigation and core features."
- **Acceptance Criteria**: "All UI elements, buttons, and links are screen reader accessible."

Backlog Item	Description	Priority	Owner
Screen Reader Support for Navigation	Ensure all UI elements (e.g., buttons, menus, icons) are compatible with screen readers, providing clear, descriptive labels for easy navigation.	High	Accessibility Lead
Closed Captioning Customization	Allow users to customize closed captioning options (font size, color, background) for better readability and visibility.	High	UX Designer
Audio Descriptions for Video Content	Add audio descriptions for visually impaired users, providing narration of visual elements during playback.	Medium	Content Accessibility
Keyboard Navigation Accessibility	Enable users to navigate the Netflix app using keyboard-only navigation, ensuring all interactive elements are accessible via keyboard.	High	Frontend Developer
High Contrast Mode	Provide a high contrast mode option for users with visual impairments to enhance visibility of content and UI elements.	Medium	UX Designer
Error Notifications for Accessibility	Ensure all error messages and notifications are accessible to screen readers, alerting users to any issues or updates in real-time.	Medium	Accessibility Tester

Tools and Resources for Accessibility in Agile

Accessibility Testing Tools:

- **Screen Readers:** JAWS (Jobs Access With Speech) and NVDA (NonVisual Desktop Access)
- **Color Contrast Checkers:** WCAG Contrast Checker.
- **Automation Tools:** Axe, WAVE.

Guidelines and Resources: Web Content Accessibility Guidelines (WCAG).

- Accessibility standards (e.g., Section 508 for the U.S.).
- Online resources (W3C, A11Y Project).
- **Integrating Tools in Agile:** Use accessibility tools during the development cycle.
 - Run accessibility checks as part of the CI/CD pipeline.

Examples of Accessibility Requirements

- **Screen Reader Compatibility:** Ensure all interactive elements are accessible by screen readers.
- **Keyboard Navigation:** Users can navigate all areas with a keyboard.
- **Text Resizing:** Allow users to resize text up to 200% without loss of content or functionality.
- **Audio/Video Captioning:** Provide closed captions on multimedia content.

