



Accessibility

More Opportunity Than Obligation

Who is Xceptance?

XCEPTANCE

- Founded in **2004** in Jena, Germany
- Headquarters **Jena**, 2nd office **Erfurt**
- Subsidiary Xceptance, Inc., **Cambridge**, MA
- Functional Test, Test Automation, Test Management, Load and Performance Test, Test Support, Training, Consulting
- Internet and Commerce have a 80% project share



- 26 years old
- Bachelor of Science in E-Commerce
- Quality Assurance Engineer at Xceptance for 3.5 years
- My third public presentation but my first conference talk



What is Accessibility?



“Accessibility is the practice of making information, activities, and/or environments sensible, meaningful, and usable **for as many people as possible.**” [1]





Vision



Hearing



Comprehension



Operating

4 Principles of Accessibility

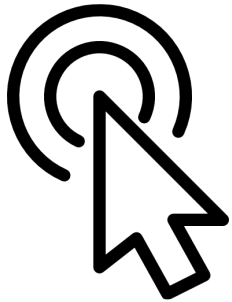
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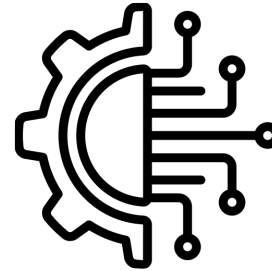
Perceivable



Understandable



Operable



Robust





Recognizability by One Human Sense



Three dessert glasses filled with pistachio tiramisu [2]

Accessibility
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Accessibility





Suchen und finden



[Neu](#) [Marken](#) [Make-up](#) [Pflege & Parfum](#) [Haare](#) [Gesundheit](#) [Ernährung](#) [Baby & Kind](#) [Haushalt](#) [Home & Living](#) [Foto](#) [Tier](#) [Ausverkauf](#)

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L'ORÉAL
PARIS



Dein Look für
glamouröse
Feiertage

→ Zu Produkten von L'Oreal Paris



Contrast - Colors, Font, and Size

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Accessibility

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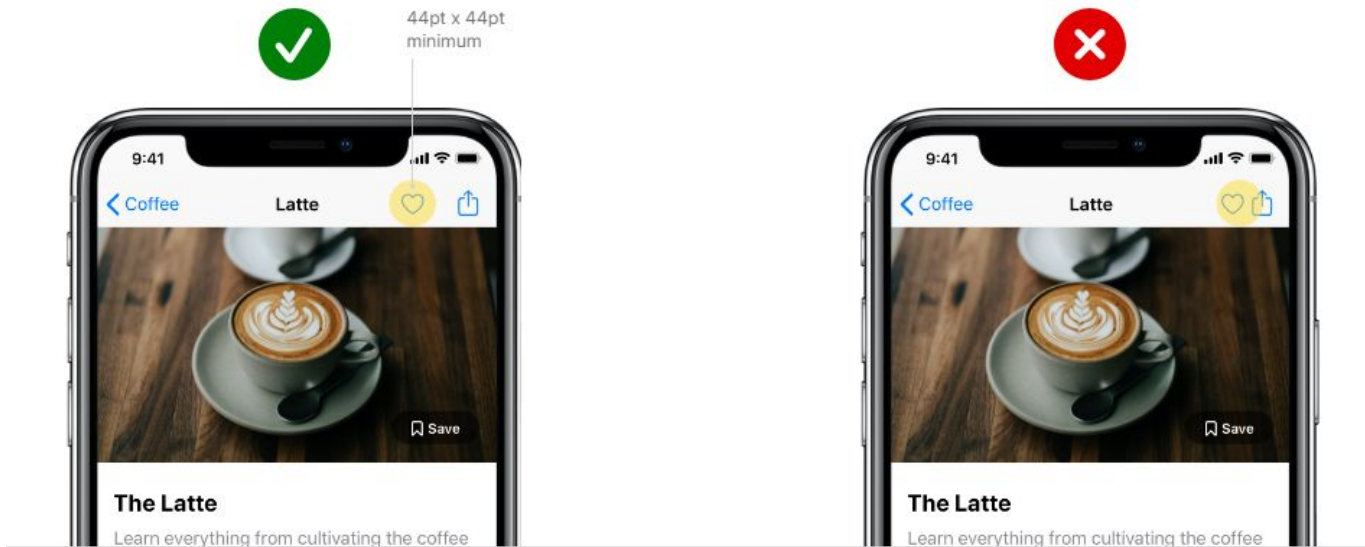
Accessibility

Accessibility

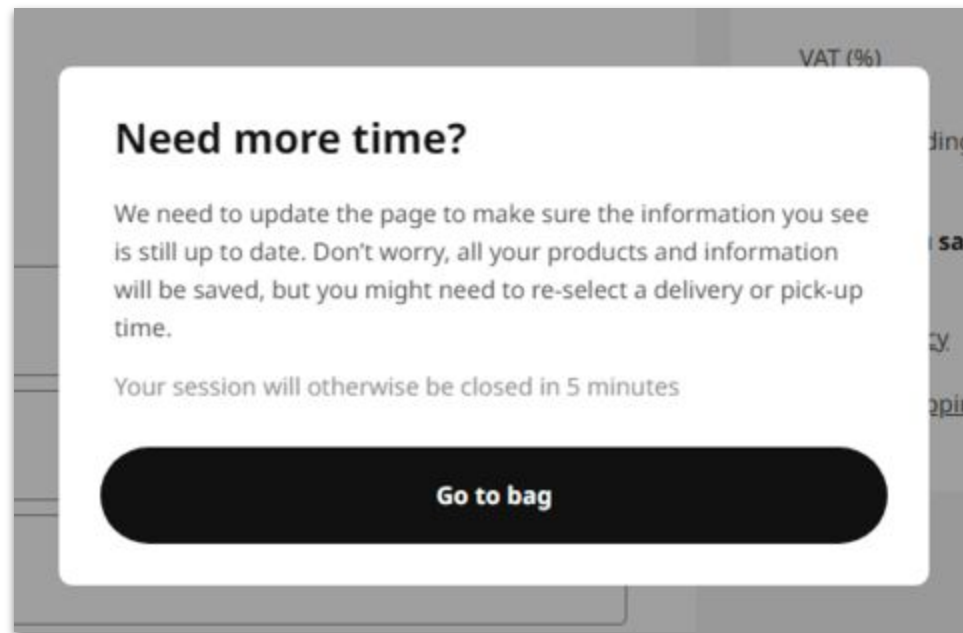




User Interface and Navigation should be **easily usable**.



UI Design Dos and Don'ts for Hit Targets by Apple [3]



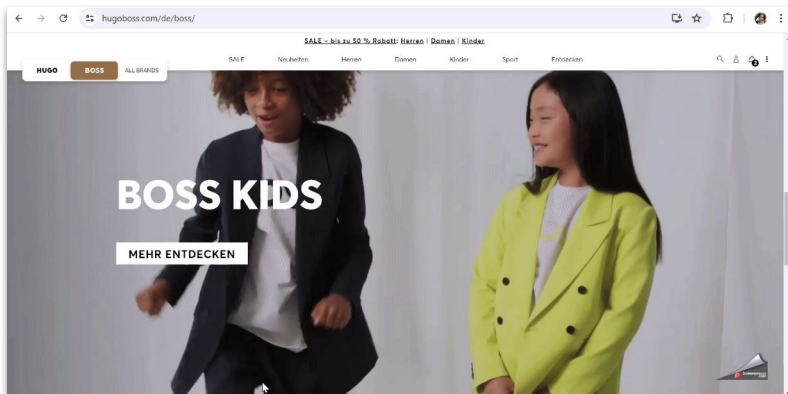
Ikea Inactivity Warning in Checkout

Cognitive Restrictions

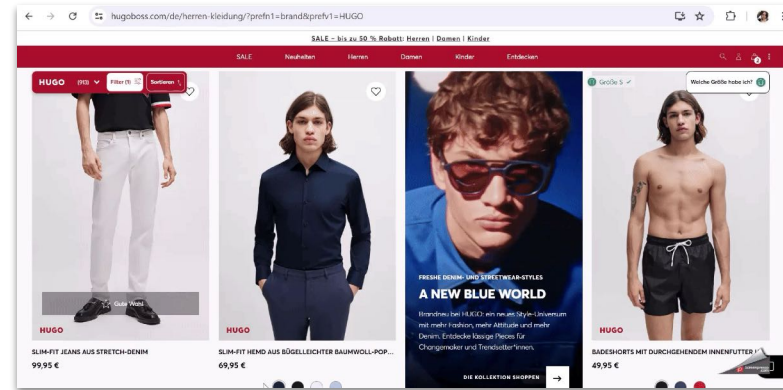
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- Ability to stop Video/Movements and Audio

Homepage [4]

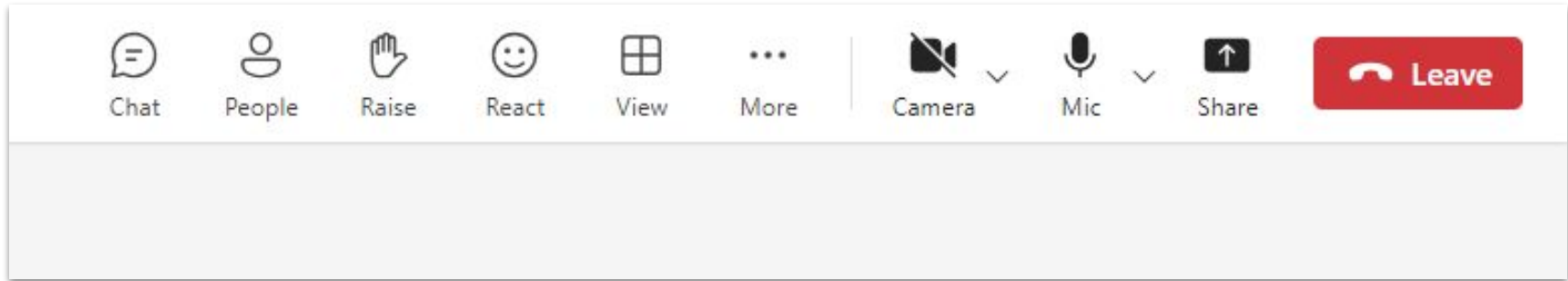


PLP [5]





Usage of clear and **simple language** & **predictable** and coherent **interfaces**



Visible Controls for “Teams” Meeting setup

[< Sign In](#)

×

Create an Account

Create an account to access your Ulta Beauty Rewards™, Favorites and more.

First name

Last name

Email address

test

⚠ Enter a valid email address

Password

••••

🔑

Password must:

✗ Be at least 8 characters in length.

✗ Contain an uppercase letter.

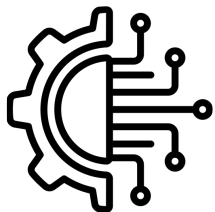
✓ Contain a lowercase letter.

✗ Contain a digit (0-9).

✓ Not include spaces.

✗ Contain a special character.

Ulta Beauty - Registration [6]



Websites/Applications **work across** platforms, browsers, and devices with assistive **technologies**.



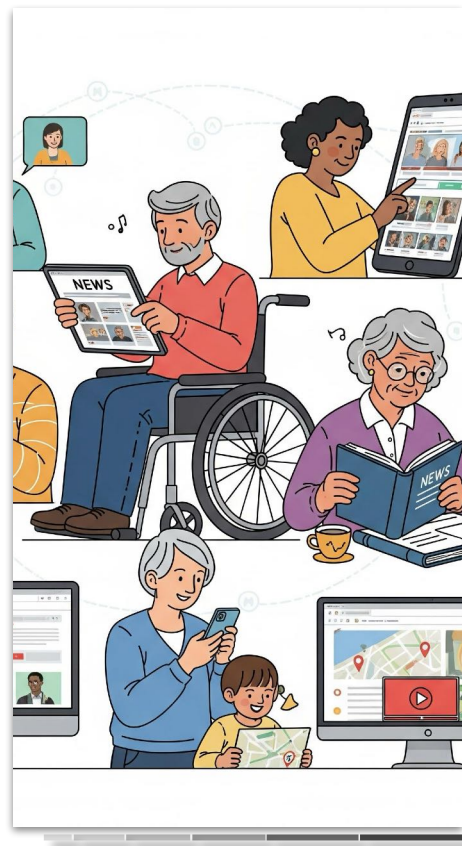
Different Device Types [7]

What has to be done?



WCAG - Web Content Accessibility Guidelines **XCEPTANCE**

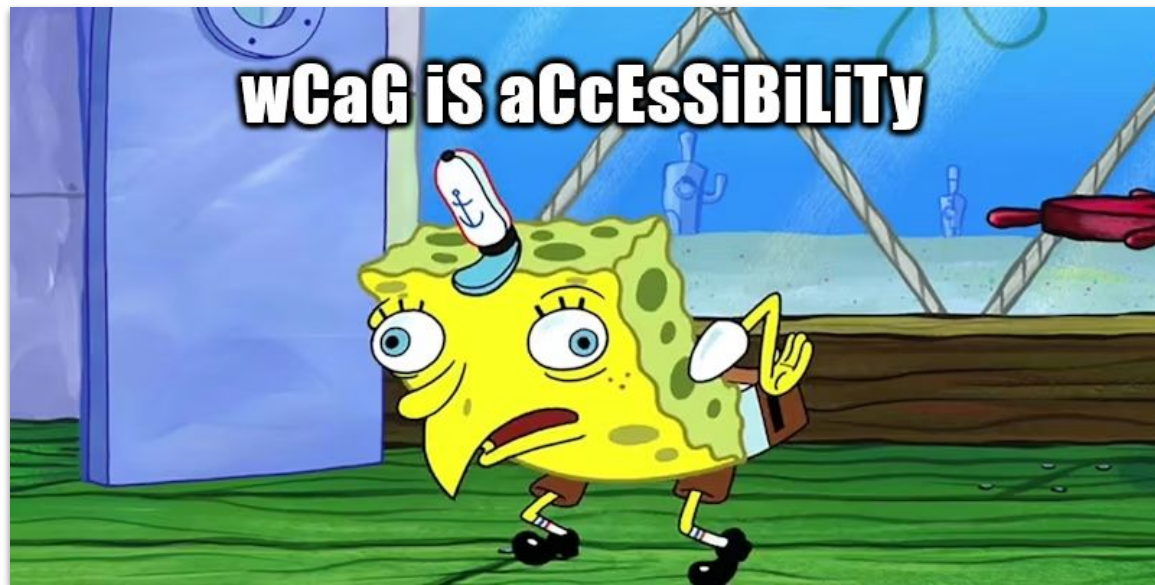
- WCAG provides international accessibility **standards**
- Published by the Web Accessibility Initiative (**WAI**)
- Offers **recommendations** for accessible web content
- Facilitates a **more inclusive** online experience



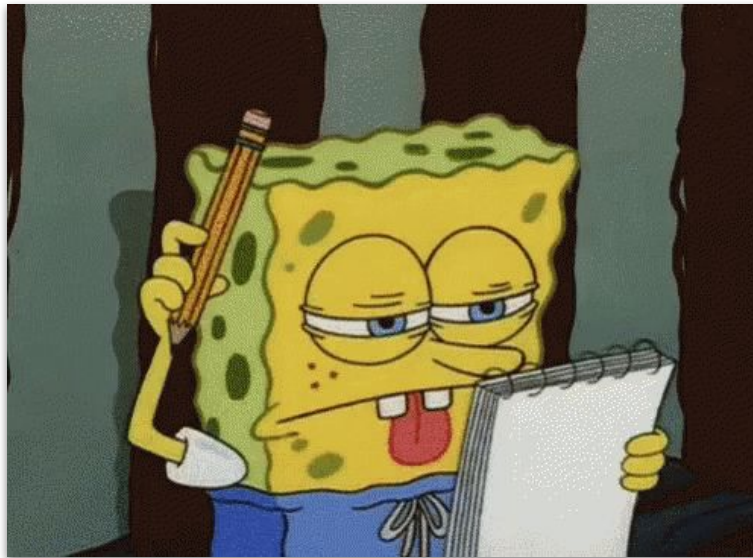
WCAG - Web Content Accessibility Guidelines

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Principles	Guidelines	Level A	Level AA	Level AAA
1. Perceivable	1.1 Text Alternatives	1.1.1		
	1.2 Time-Based Media	1.2.1 - 1.2.3	1.2.4 - 1.2.5	1.2.6 - 1.2.9
	1.3 Adaptable	1.3.1 - 1.3.3		
	1.4 Distinguishable	1.4.1 - 1.4.2	1.4.3 - 1.4.5	1.4.6 - 1.4.9
2. Operable	2.1 Keyboard Accessible	2.1.1 - 2.1.2		2.1.3
	2.2 Enough Time	2.2.1 - 2.2.2		2.2.3 - 2.2.5
	2.3 Seizures	2.3.1		2.3.2
	2.4 Navigable	2.4.1 - 2.4.4	2.4.5 - 2.4.7	2.4.8 - 2.4.10
3. Understandable	3.1 Readable	3.1.1	3.1.2	3.1.3 - 3.1.6
	3.2 Predictable	3.2.1 - 3.2.2	3.2.3 - 3.2.4	3.2.5
	3.3 Input Assistance	3.3.1 - 3.3.2	3.3.3 - 3.3.4	3.3.5 - 3.3.6
4. Robust	4.1 Compatible	4.1.1 - 4.1.2		



Nope. Nope, it is NOT.



And how do I achieve Accessibility?



Accessibility - More than WCAG



Persona Spectrum

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	Permanent Disability	Temporary Disability	Situational Disability
Touch	One arm	Arm injury	New parent
See	Blind	Cataract	Distracted driver
Hear	Deaf	Ear infection	Bartender
Speak	Non-verbal	Laryngitis	Heavy accent

Accessibility Spectrum

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Visual explanation of the accessibility spectrum [8]

Innovation	Is used by ...
Curb cuts on sidewalks	Wheelchairs
Electric toothbrushes	People with limited grip or coordination
Assistive technology	Sensory perception disabilities or mobility impairments
Velcro	Disability care settings
Audio Books	Blind people
Subtitles and captions	Deaf and hard of hearing people

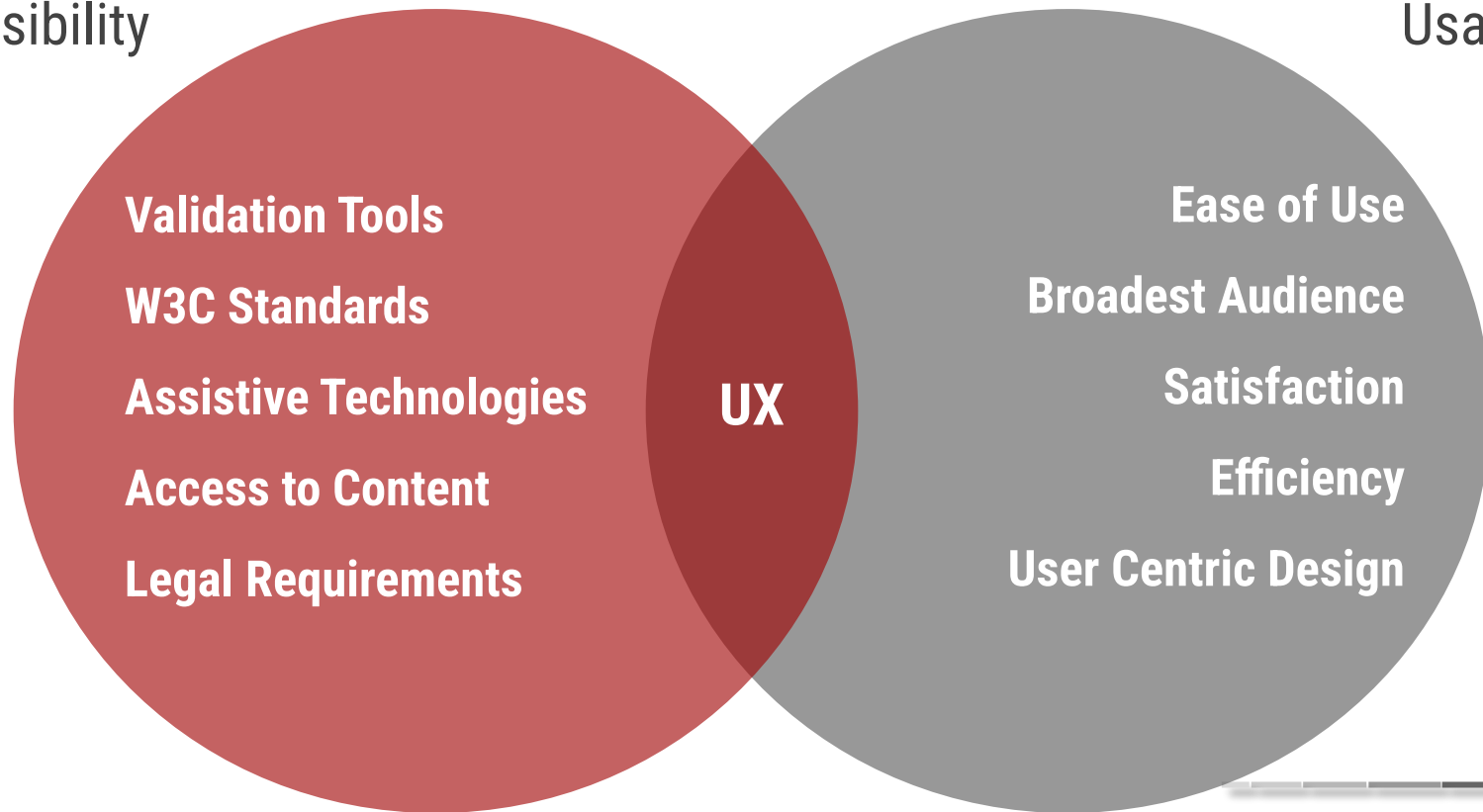


Accessibility meets Usability

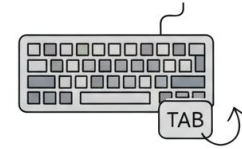
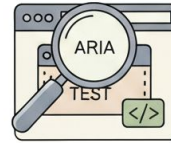
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Accessibility

Usability



Tools & Concepts



Overview and Explanations

- W3C - Web Accessibility Initiative (WAI)
- Quick Reference + Patterns

The screenshot shows the 'How to Meet WCAG (Quick Reference)' page from the W3C Web Accessibility Initiative. The page is titled 'A customizable quick reference to Web Content Accessibility Guidelines (WCAG) 2 requirements (success criteria) and techniques.' It features a sidebar on the left with filters for 'WCAG Version' (set to WCAG 2.2), 'Tags' (including Developing, Interaction Design, Content Creation, and Visual Design), and 'Levels' (Level A, Level AA, and Level AAA). The main content area is titled 'Principle 1 - Perceivable' and contains two guidelines: 'Guideline 1.1 - Text Alternatives' and 'Guideline 1.2 - Time-based Media'. Each guideline includes a brief description and a link to 'Show techniques and failures for 1.1.1' or '1.2.1'. The page also includes a 'Selected Filters' section at the top and a 'Share' button.

The screenshot shows the 'Patterns' page from the W3C Web Accessibility Initiative. The page is titled 'Patterns' and features a 'Read This First' section with a cartoon illustration of a woman. The text states: 'No ARIA is better than Bad ARIA. Before using any ARIA, [read this to understand why](#).' Below this is a 'Filter Patterns' section with a search bar. The main content area displays six patterns in a grid: 'Accordion (Sections With Show/Hide Functionality)', 'Alert', 'Alert and Message Dialogs', 'Breadcrumb', 'Button', and 'Carousel (Slide Show or Image Rotator)'. Each pattern includes a small icon, a title, and a brief description of the pattern.

- **Roles**

- Defines Type of User Interface Element
 - i.e.: role="checkbox"

- **States**

- Changeable with and without User Interaction
 - i.e.: aria-checked="true"

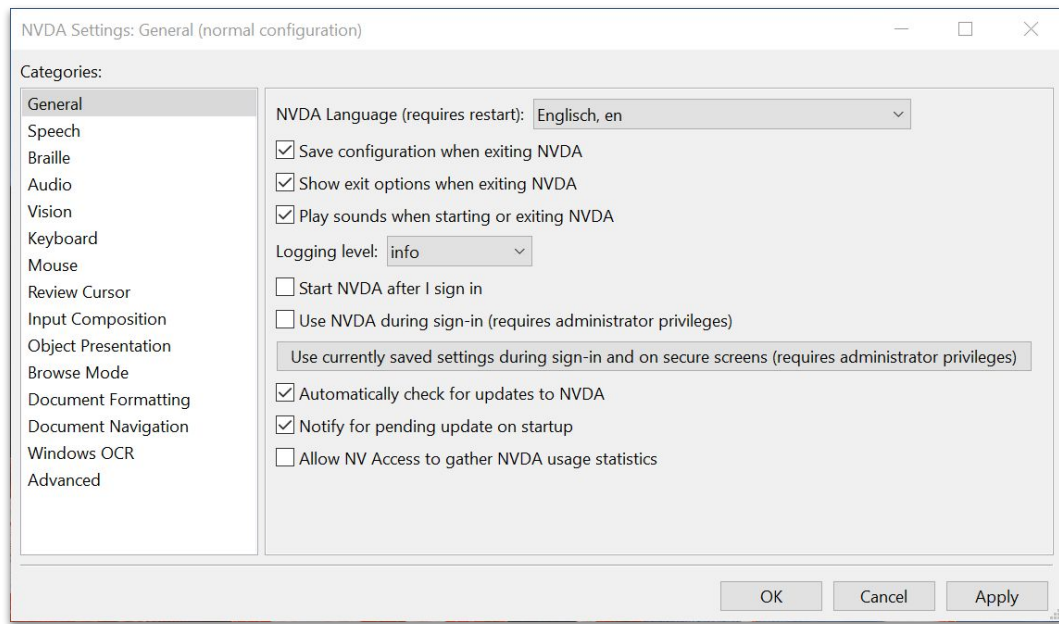


Remember me

- **Properties**

- Rarely Change
 - i.e.: aria-labelledby="chk1-label"

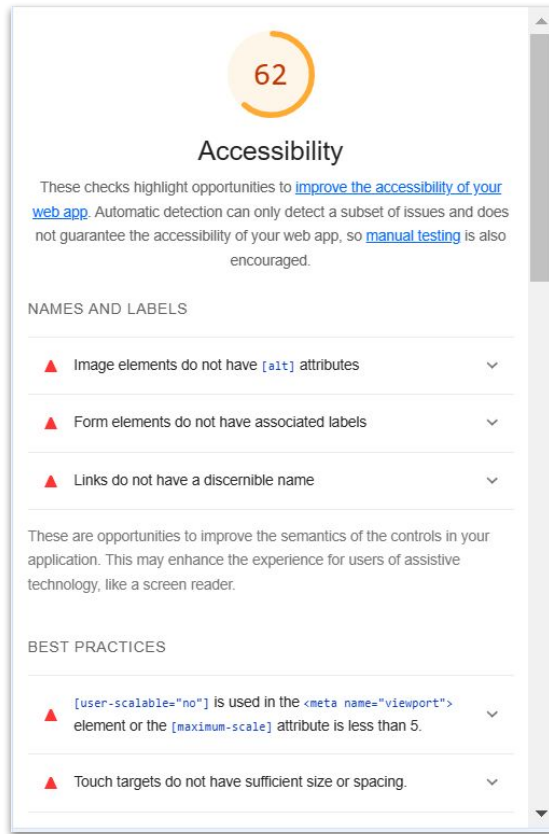
- External - NVDA
- Screen Reader
- Native Application



Developer Tools and Browser Extensions

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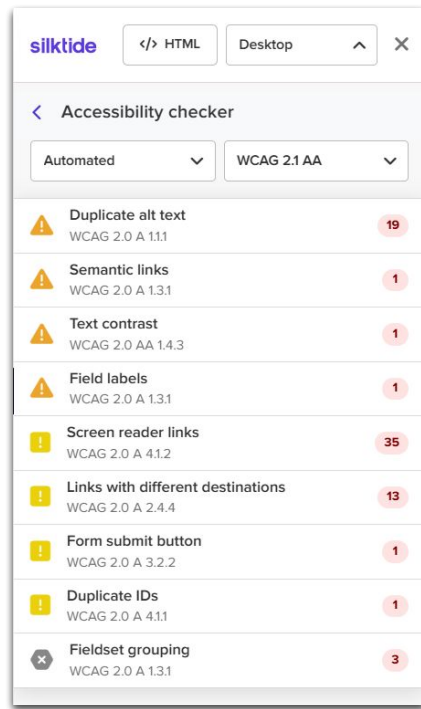
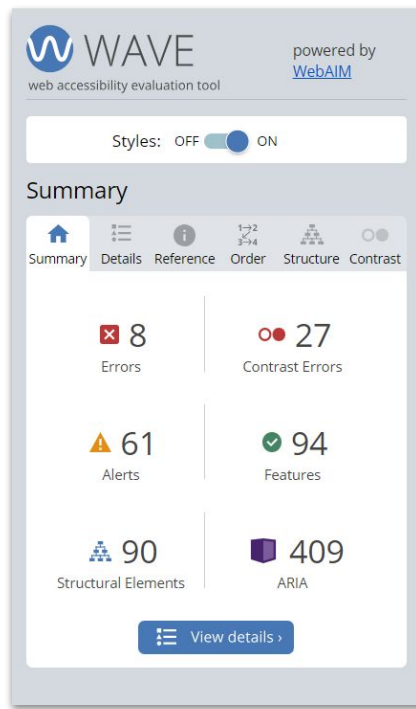
- Developer Tools
- Score System
- Google Lighthouse
- Integrated Features



Developer Tools and Browser Extensions

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- Browser Extension - WAVE Tool & Silktide
- Overall Guideline Checkers
- Contrast Checkers



Contrast Checkers

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- WebAIM - Contrast Checker

Foreground
Hex Value
#FF0000
Color Picker
Alpha
1
Lightness

Background
Hex Value
#363636
Color Picker
Lightness

Contrast Ratio
3.02:1

Normal Text

WCAG AA: **Fail**

WCAG AAA: **Fail**

The five boxing wizards jump quickly.

Large Text

WCAG AA: **Pass**

WCAG AAA: **Fail**

The five boxing wizards jump quickly.

Graphical Objects and User Interface Components

WCAG AA: **Pass**

Text Input

Foreground
Hex Value
#0B713F
Color Picker
Alpha
1
Lightness

Background
Hex Value
#FFFFFF
Color Picker
Lightness

Contrast Ratio
6.09:1

Normal Text

WCAG AA: **Pass**

WCAG AAA: **Fail**

The five boxing wizards jump quickly.

Large Text

WCAG AA: **Pass**

WCAG AAA: **Pass**

The five boxing wizards jump quickly.

Graphical Objects and User Interface Components

WCAG AA: **Pass**

Text Input

Contrast Ratio of at least **4.5:1** for **normal text** and **3:1** for **large text**

Add-Ons

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Toolbars

UserWay - Level Access

The screenshot shows the Zwilling website with a 'SUMMER SAVINGS EVENT' banner. The UserWay accessibility toolbar is open on the right side of the screen. The toolbar includes the following options:

- Contrast +
- Highlight Links
- Bigger Text
- Text Spacing
- Pause Animations
- Hide Images
- Df Dyslexia Friendly (highlighted with a red border)
- Cursor
- Tooltips
- Line Height

At the bottom of the toolbar, there is a 'Report a Problem' link and a 'Manage' button. The UserWay logo is also visible at the bottom right.

The website content includes the Zwilling logo, navigation links (BRANDS, PRODUCTS, SALE, SERVICES), and a 'SHOP NOW' button. Below the banner, there are images of various kitchen products: KNIVES, COOKWARE, and ELEC.

- Talkback or VoiceOver
- Braille keyboards
- Eye Tracking
- Voice control
- Additional Bluetooth devices



Braille Bluetooth Device [9]

Vianova Urlaub

Live Example

- Problems found on **Vianova Urlaub**:
 - Navigation is **incomplete and inconsistent**
 - **Focus** is **missing** or unclear on multiple Buttons and Fields
 - **Content** is
 - visually challenging
 - cannot be stopped
 - cannot be reached
 - Lighthouse Report shows **Score** of **over 90**

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E-mail: contact@xceptance.com



- [1] <https://www.seewritehear.com/learn/what-is-accessibility/>
- [2] <https://dishes-delicious.de/2479/cremiger-pistazien-tiramisu/>
- [3] <https://developer.apple.com/design/tips/>
- [4] <https://www.hugoboss.com/de/boss>
- [5] <https://www.hugoboss.com/de/herren-kleidung/?prefn1=brand&prefv1=HUGO>
- [6] <https://www.ulta.com/>
- [7] <https://www.envigo.co.in/blog/social-media-marketing/responsive-web-design-how-to-design-for-multiple-devices>
- [8] <https://preceptor.substack.com/p/core-aspects-of-accessibility>