

Designing Accessibility

Make your designs beautiful and accessible to all.

Robert Jolly

 @iamjolly

#AccessU2018

Design and Accessibility

Concepts to consider



A designer solves problems within a set of constraints.

Mike Monteiro - Designer, Author

What is Accessibility?

Web accessibility means that people with disabilities can use the Web.

W3C WAI

Accessibility is...

*making things work for everyone
regardless of their abilities.*

But who, really?

More than **one billion people** on the planet
have a disability.

WHO + World Bank Report on Disability 2011

People have disabilities in the areas of:

- Vision
- Hearing
- Motor (Physical)
- Cognitive

Visual disabilities

- **Blindness**
 - 39 million
- **Low vision**
 - 246 million
- **Color blindness**
 - 8-10% of men
 - Only 0.5% of women

Hearing disabilities

- **Deafness**
- **Hearing Loss**

360 million people worldwide have disabling hearing loss. (WHO, 2015)

- Ages 45 to 54 = 2%
- Ages 55 to 64 = 8.5%
- Ages 65 to 74 = 25%
- Ages 75 and older = 50%

Motor (physical) disabilities

- Arthritis, fibromyalgia, & rheumatism
- Muscular dystrophy
- Amputation and deformity
- Tremors and spasms
- Paralysis / spinal cord injury
- Repetitive stress injury

Cognitive disabilities

- Learning disabilities / Dyslexia
- Autism
- ADHD
- Acquired brain injuries
- Neurodegenerative diseases
- Age-related dementia

Situational disabilities

- Broken mouse
- Fractured wrists
- Using mobile devices
- Sun glare on screens
- Feeling tired or unwell
- Noisy environments

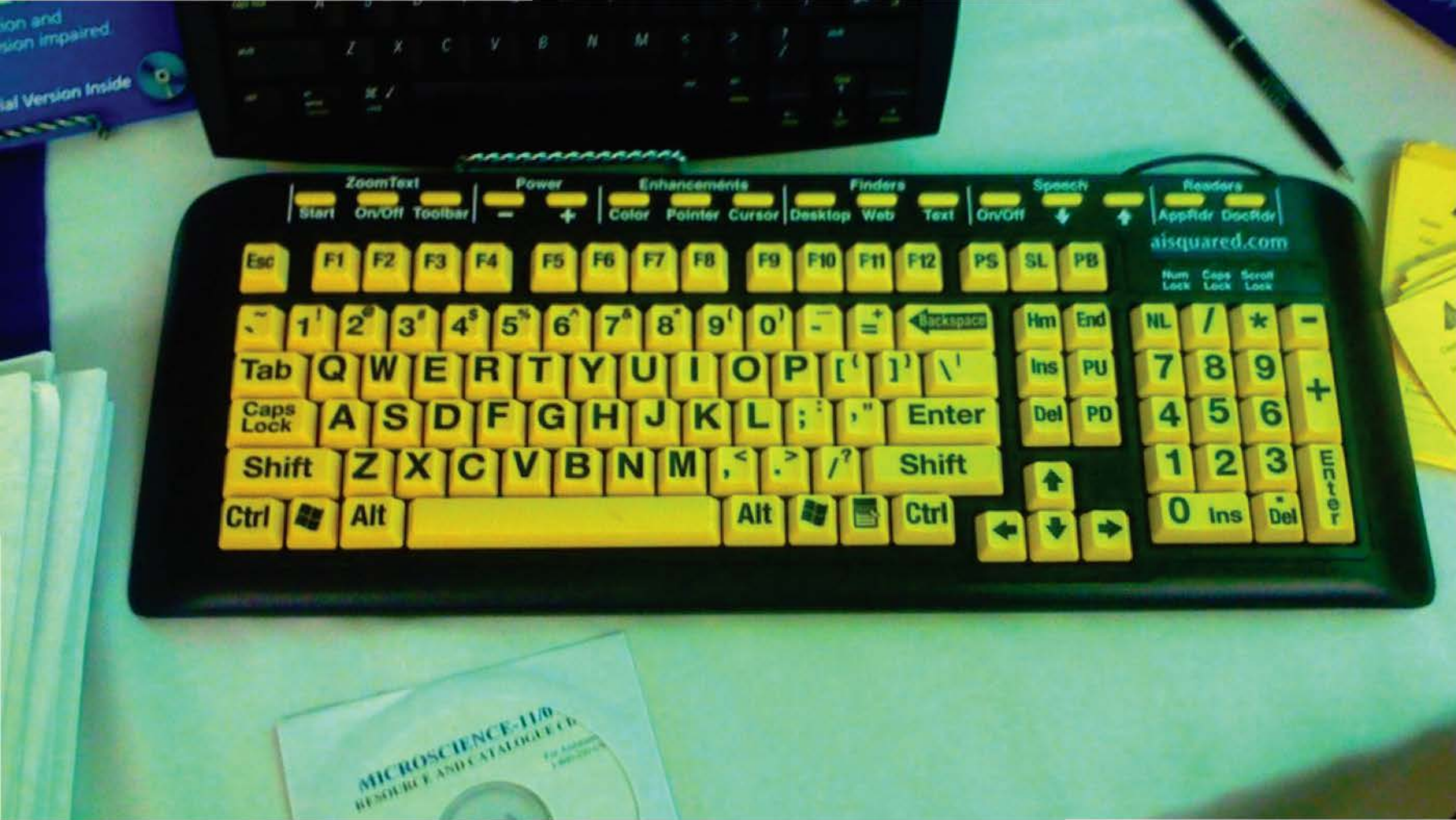
Learning difficulties **Hearing** **Vestibular disorders**
Acquired brain injuries Photoepileptic seizures
Noise-induced hearing loss Anomalous trichromacy **Getting older**
Situational disabilities Muscle slowness Dyscalculia
Achromatopsia Dysgraphia Photosensitive epilepsy Stroke Tritanomally
Illiteracy **Visual impairments** Loss of fine muscle control **Poor hearing**
Parkinson's disease Cataracts Chemo brain Cerebral palsy
Glaucoma Protanopia **Cognitive** Lazy-Eyes **Blindness**
Cystic fibrosis Amputation Deuteranomaly Muscular dystrophy Vertigo
Astigmatism Dichromacy Directionally challenged
Gamer's thumb Neurodegenerative diseases **Deafness** Language barriers
Tritanopia **Dementia** Age-related macular degeneration
Tremors Developmental disabilities **Dyslexia** Post-concussion syndrome
Color blindness Sleep deprivation Protanomaly **Attention deficit disorder**
Multiple sclerosis Deuteranopia **Hard of hearing** Monochromacy
Autism **Motor** Diabetic retinopathy **Difficulty concentrating**
Visual Reading disorders **Low vision** Aphasia

Some tools people use

Our audiences are more diverse than we realize.



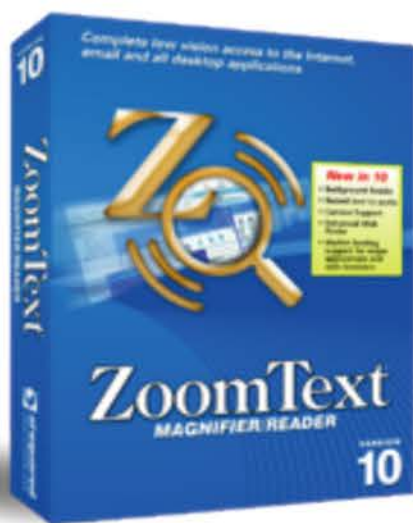


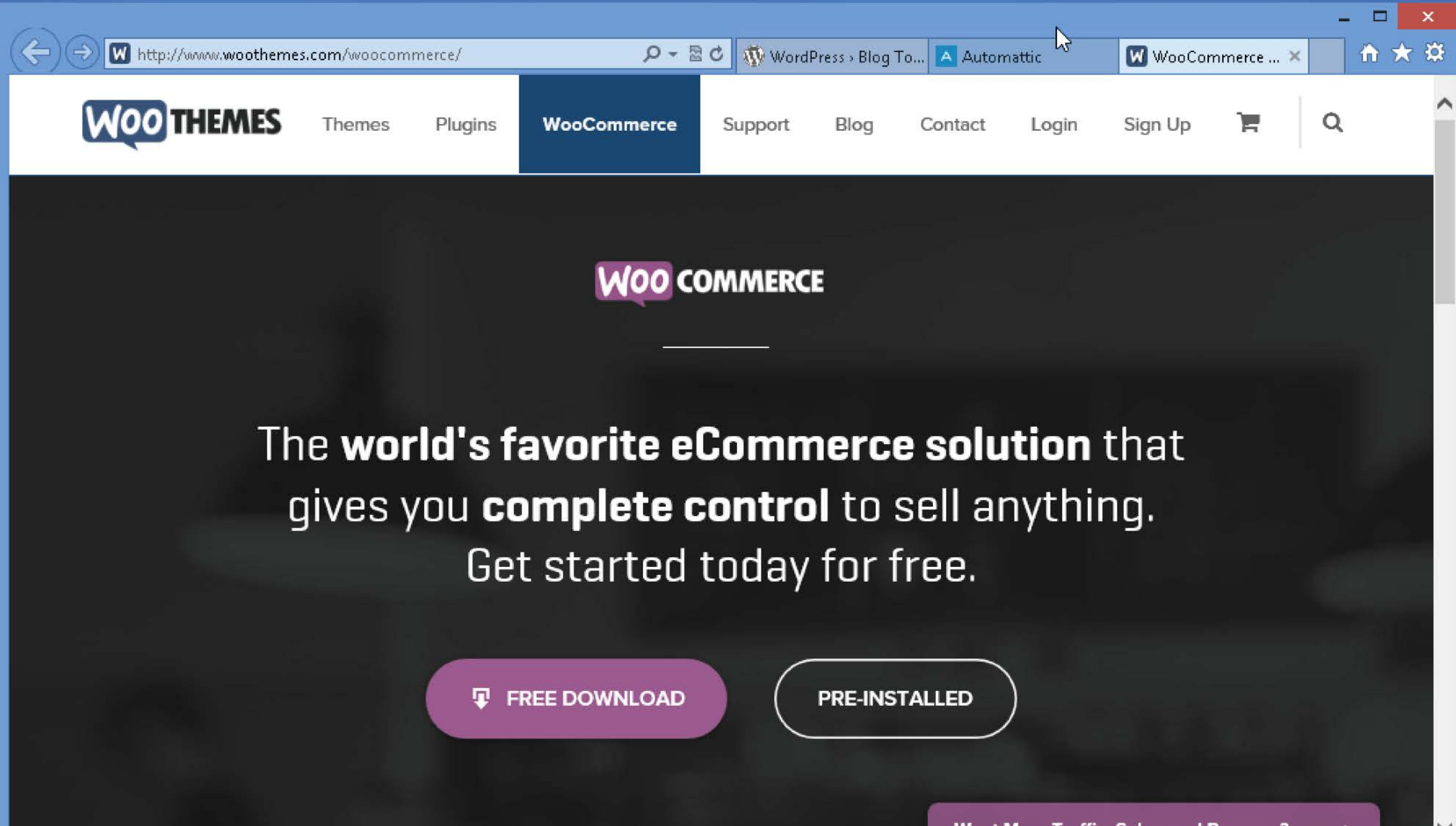


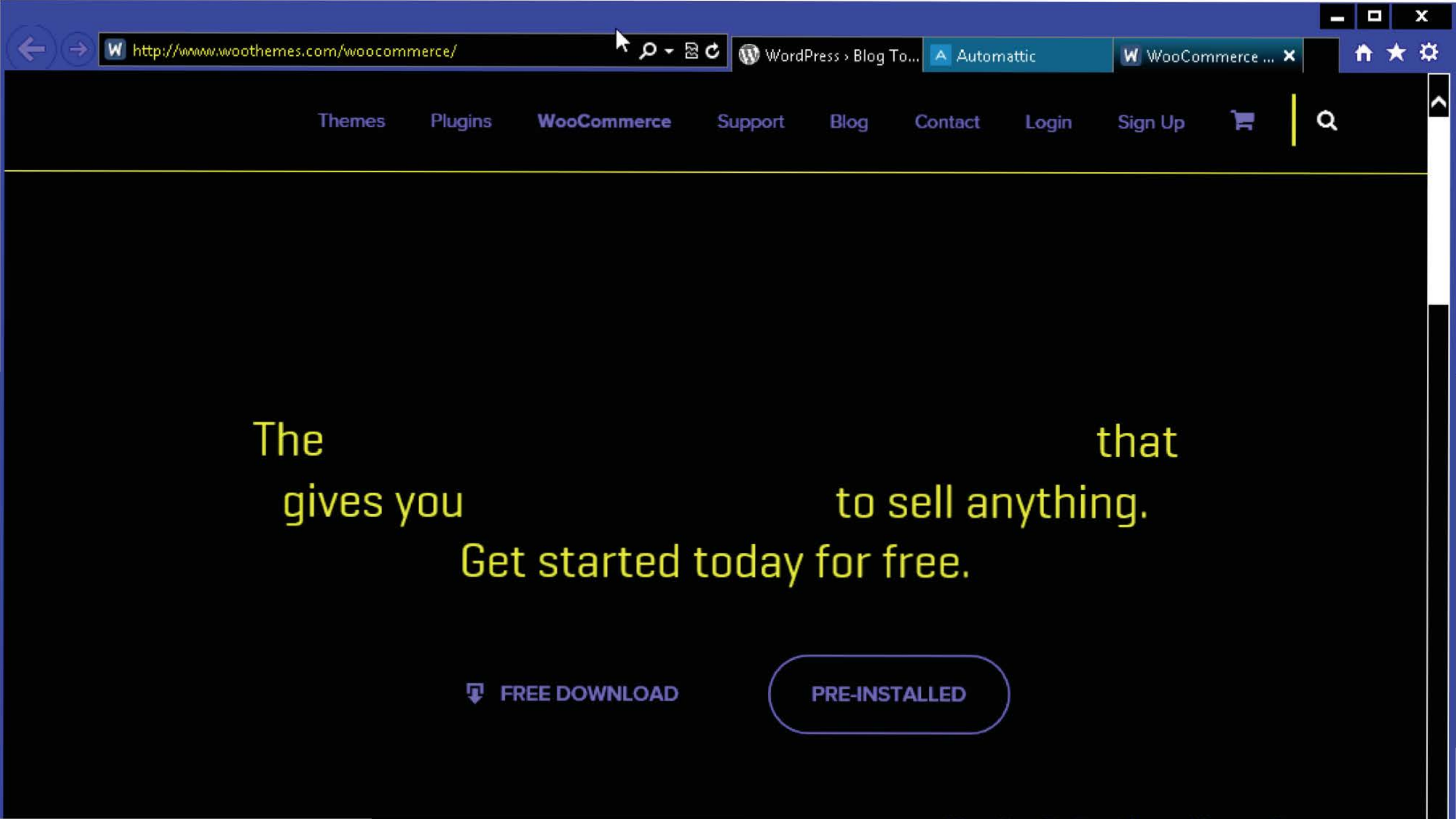












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PRE-INSTALLED

Accessibility Principles

Perceivable

Operable

Understandable

Robust

Perceivable

Ensure people can see/read/hear what you've designed.

Operable

Ensure people can use what you've designed, with ease.

Understandable

Design interfaces that are consistent and reduce confusion.

Robust

Use design that is flexible for a variety of devices and contexts.

Design Process

Let's map that out, together.

Accessibility Design Tasks

Let's go!

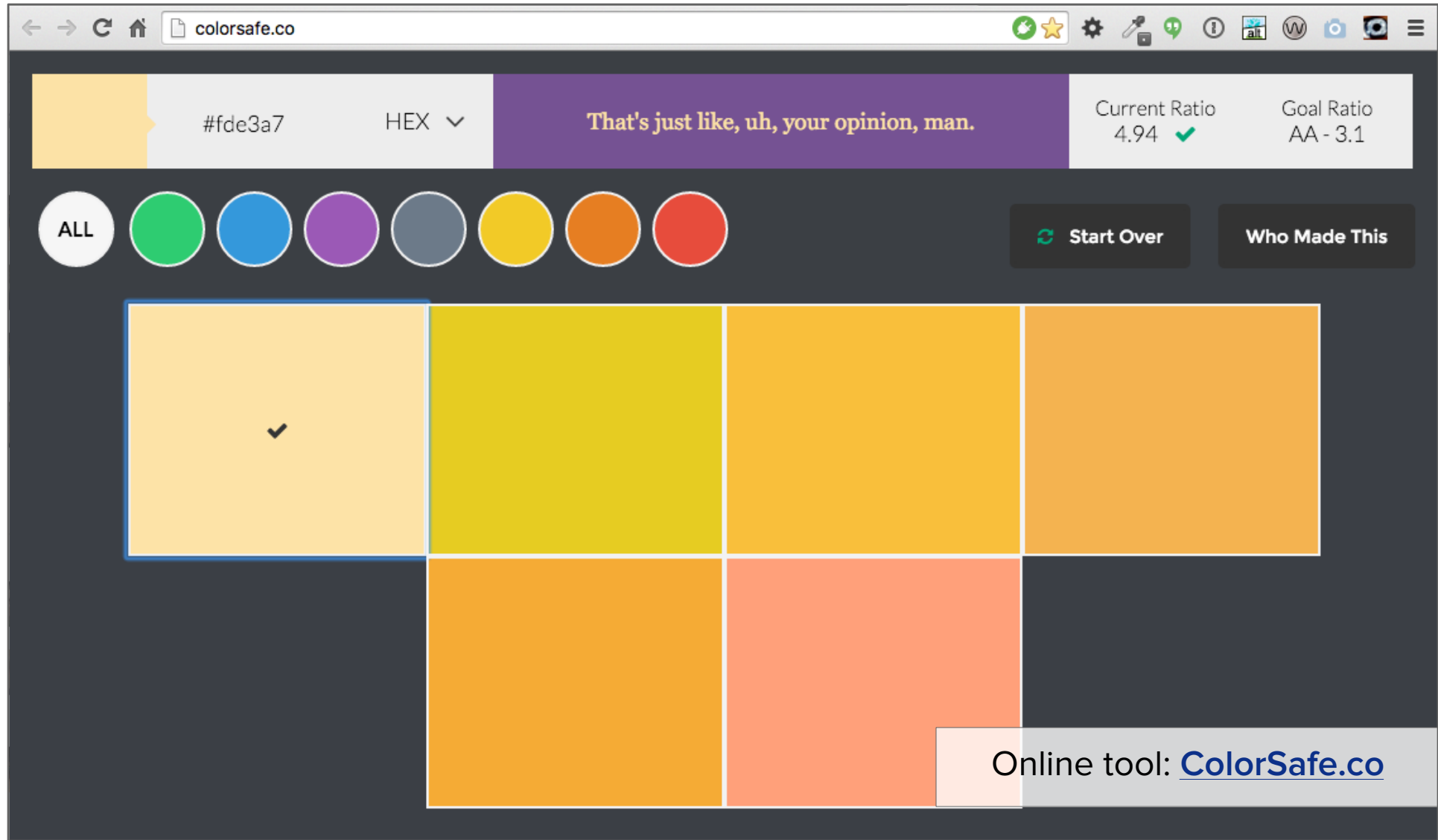
Contrast and color

Which of these is easier to read?

SPLISH

SPLASH

Starting design with an accessible color palette



The screenshot shows the ColorSafe.co website interface. At the top, the browser address bar displays 'colorsafe.co'. The main header features a color palette with a yellow square on the left, followed by a grey box containing the hex code '#fde3a7' and a dropdown menu set to 'HEX'. To the right of this is a purple box with the text 'That's just like, uh, your opinion, man.' Further right, the 'Current Ratio' is shown as 4.94 with a green checkmark, and the 'Goal Ratio' is AA - 3.1. Below the header, there is a row of seven colored circles: a white circle labeled 'ALL', followed by green, blue, purple, grey, yellow, orange, and red. To the right of these circles are two buttons: 'Start Over' and 'Who Made This'. The main content area displays a grid of six color swatches. The first swatch in the top row is a light yellow color with a small black checkmark inside it. The other swatches are various shades of yellow, orange, and red. At the bottom right, there is a grey box with the text 'Online tool: ColorSafe.co'.

colorsafe.co

#fde3a7 HEX

That's just like, uh, your opinion, man.

Current Ratio 4.94 ✓

Goal Ratio AA - 3.1

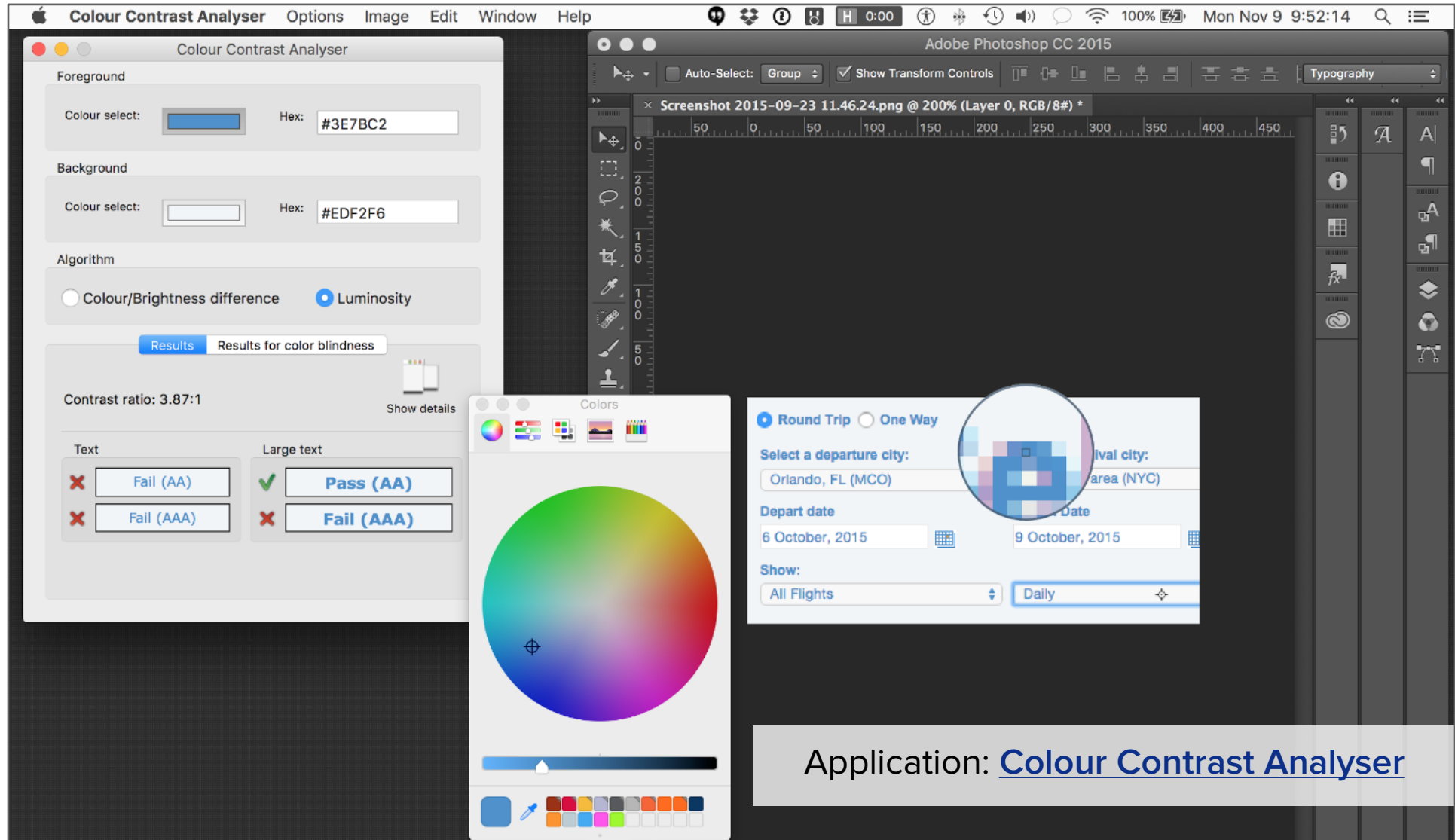
ALL

Start Over

Who Made This

Online tool: ColorSafe.co

Checking for color contrast during design



Design in browser? We got that!

and surroundings by webcam

Tagged in [Webcam](#)

What's the contrast ratio for "Webcam" in light blue?

Brewed in Helsinki

Elements Network Sources Timeline Profiles Resources Audits Console HTTP Everywhere

```
nas-post=tnumonait nentry category=facts-stats-and-info tag=webcam" style="position: absolute; left: 309px; top: 573px;">
  ><header class="entry-header">...</header>
  ><div class="entry-content">
    ><h2 class="entry-title">...</h2>
    ><a href="http://finland.fi/facts-stats-and-info/webcam/" rel="bookmark" class="excerpt-link">...</a>
    ><div class="entry-footer">
      ><div class="tags-links">
        ><span class="tags-label">Tagged in</span>
        ><span class="tags-list">
          ><a href="http://finland.fi/tag/webcam/" rel="tag">Webcam</a>
        </span>
      </div>
    </div>
  </div>
</div>
```

Styles Computed Event Listeners Accessibility Properties

Color

⚠ Contrast ratio: 1.76

AA level (4.50): #00848a/#ffffff

AAA level (7.04): #006368/#ffffff

Focus

visibility: visible

Text

Webcam

content: Webcam

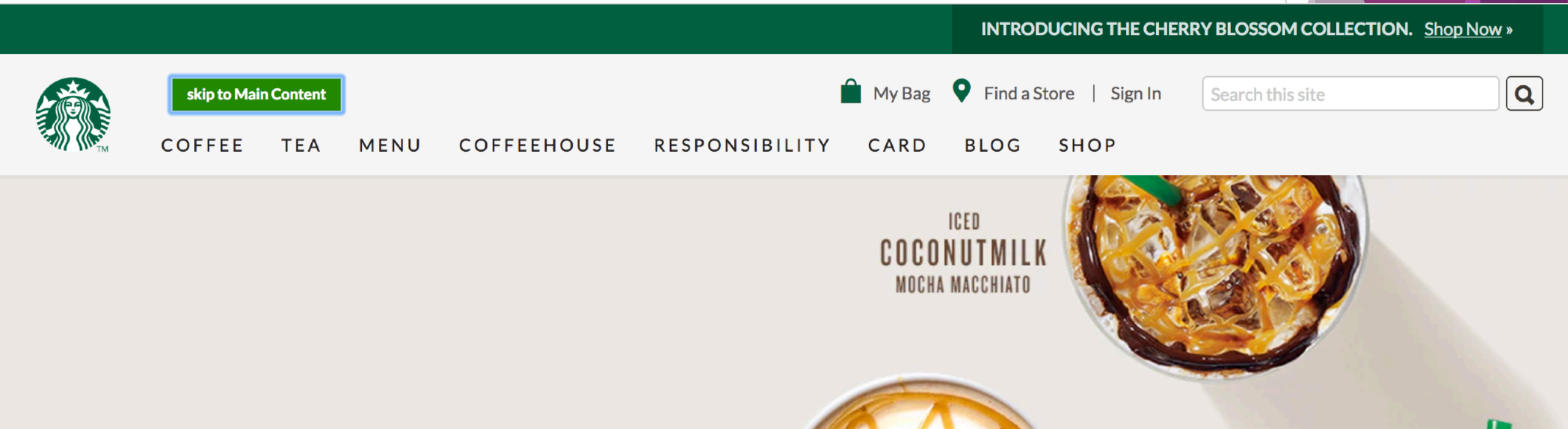
Tool: [Chrome Accessibility Developer Tools](#)

ID and interactions

- Ensure **focus outlines** are designed
- **On/Off states** are clear
- No “mystery meat” buttons/nav!

Navigation

- Design skip links



Forms, Errors, and Messaging

- Labels and required inputs
- Error summaries
- On-screen notices

Headings and Spacing

- Design all the headings!
- Proximity



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LOS ANGELES CA

BOOK

LOS CABOS MEXICO

BOOK

PALM SPRINGS CA

BOOK

PORTLAND OR

BOOK

SAN DIEGO CA

BOOK

SAN FRANCISCO CA

BOOK

SEATTLE WA

BOOK

MAUI HI

BOOK

Flexibility

- Mobile first?
- Responsive web design?
- Content choreography

Image alternatives

- Alt text
- Decoration vs content vs function
- Captions and transcripts

Moving content

- SVG animation
- Parallax effects
- Videos

Step through some examples

Explore patterns to consider (in the browser)

THANK YOU!



Knowbility