2018

WEB ACCESSIBILITY

Deep Dive Training

IT | HUE

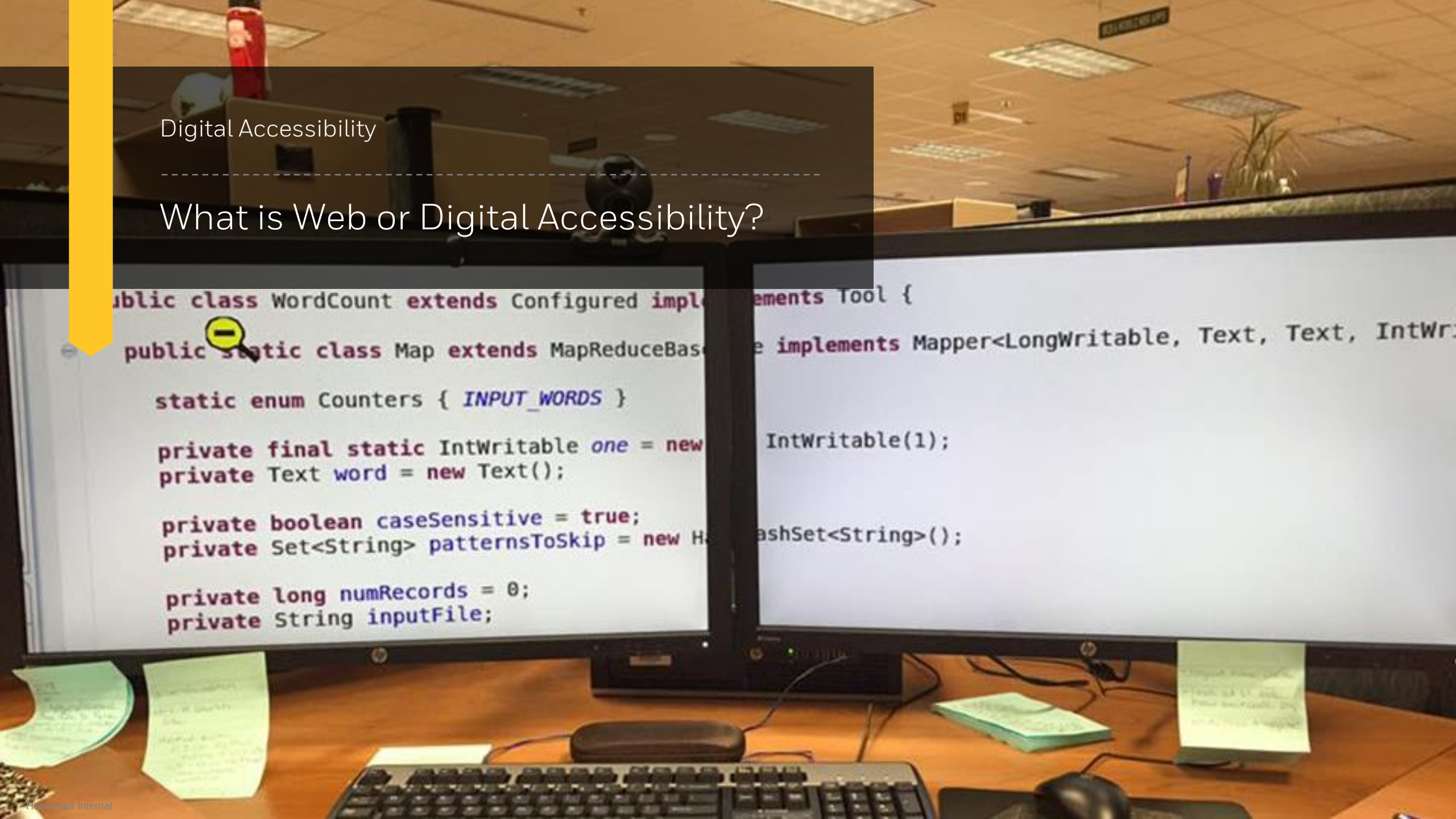
Honeywell

THE POWER OF CONNECTED

Agenda

- What is Digital Accessibility
- Business Case for Accessibility
- Accessibility by Design
- P.O.U.R. out Your Best Design
- P.O.U.R. out Your Best Design
- Tools and Resources

Honeywell



What is Web Accessibility?

What - An inclusive practice of making websites and content usable and accessible by individuals of all abilities and disabilities, providing equal access to information and functionality.

How - The World Wide Web Consortium (W3C) established the Web Content Accessibility Guidelines (WCAG) 2.0 as standards for making web content more accessible for individuals with disabilities

Why – We are legally mandated to provide accessible content in all markets when Honeywell operates. There are also some possible GDPR concerns to be addressed.

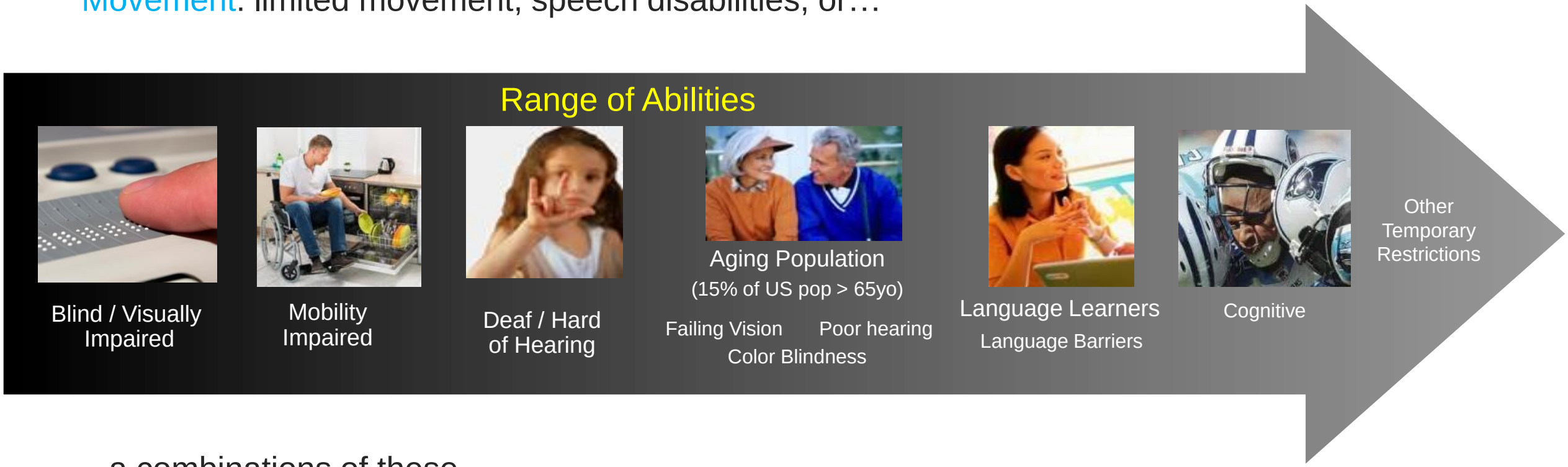
Types of Disabilities

Vision: Blindness, low vision, color blindness, photosensitivity,

Auditory: deafness and hearing loss

Cognitive: learning disabilities, concussions, temporary cognitive limitations

Movement: limited movement, speech disabilities, or…



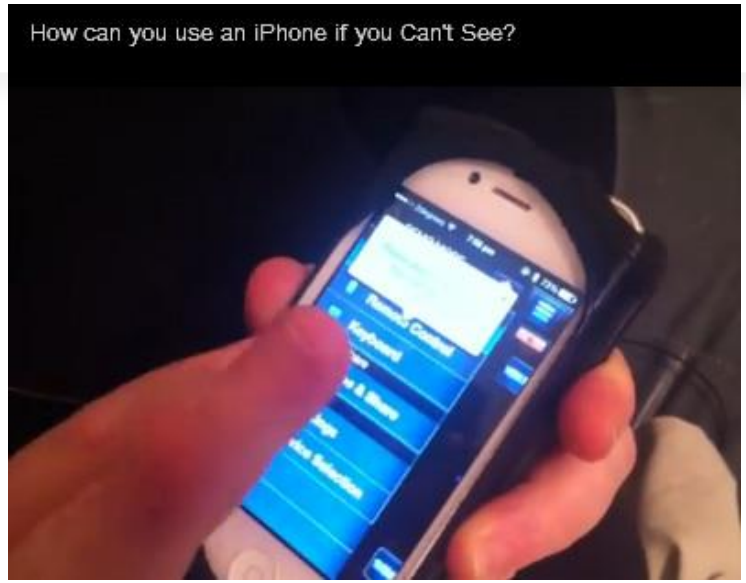
...a combinations of these.

What is Web Accessibility?

Examples of web accessibility issues:

- An individual who cannot see a graphic needs the text alternative so it can be read aloud by a screen-reader.

- An individual who cannot hear an audio or video file needs the text alternative displayed so that s/he can read it.



The first captioned TV program (1973): "Julia Child's French Chef"

But the automated technology has issues…

Devices In Use : Refreshable braille display

Devices In Use: Braille Watch

Applications : Screen Readers

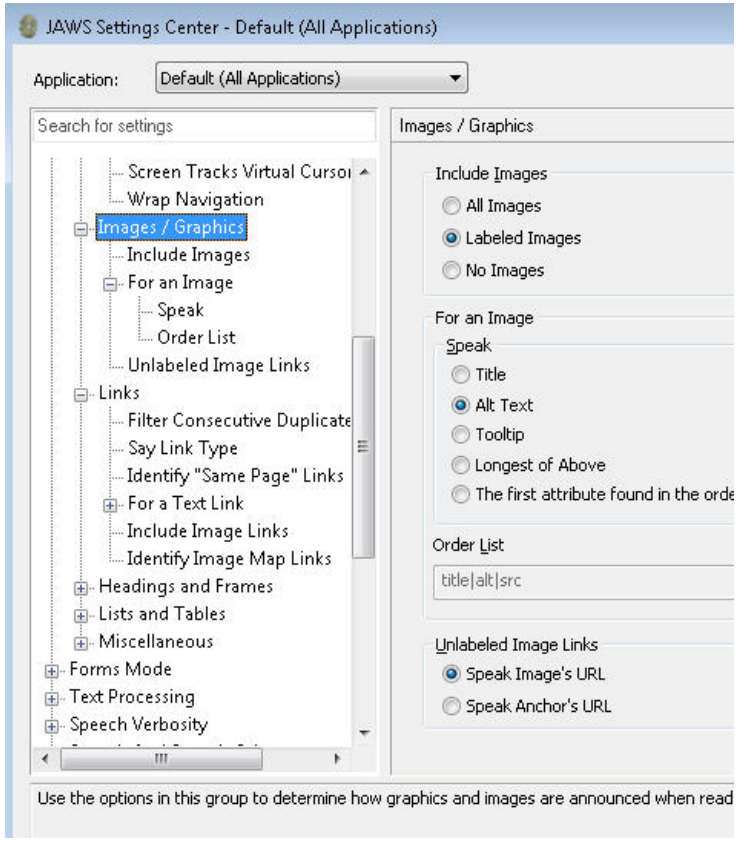
NV Access

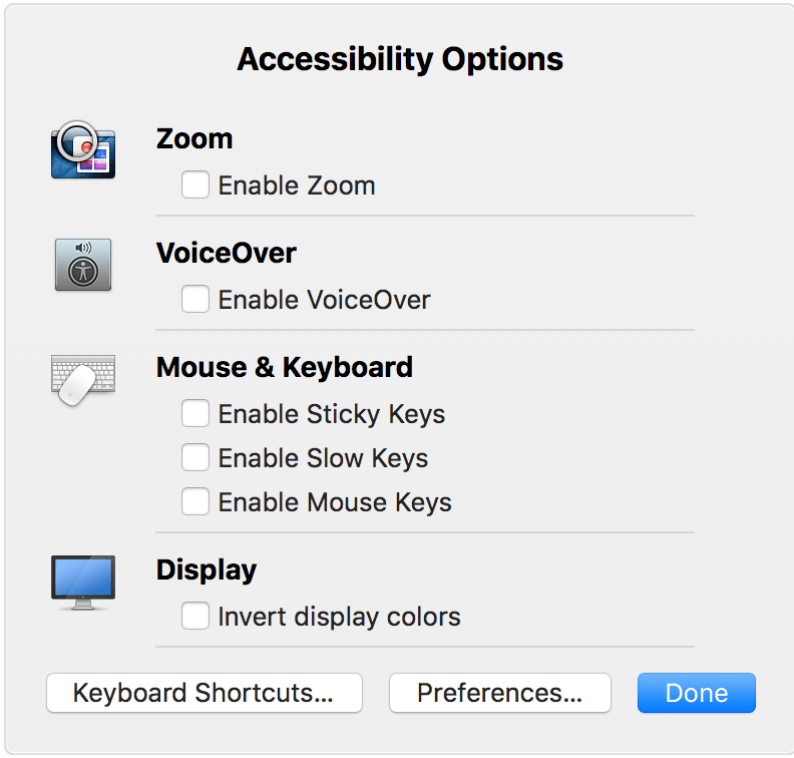
Empowering lives through non-visual access to technology

Mac accessibility shortcuts

Accessibility shortcuts help you control your Mac with a keyboard or assistive device. You can also ask Siri to help with some accessibility features.

Keyboard and Siri	Full Keyboard Access	Menu navigation	Mouse Keys



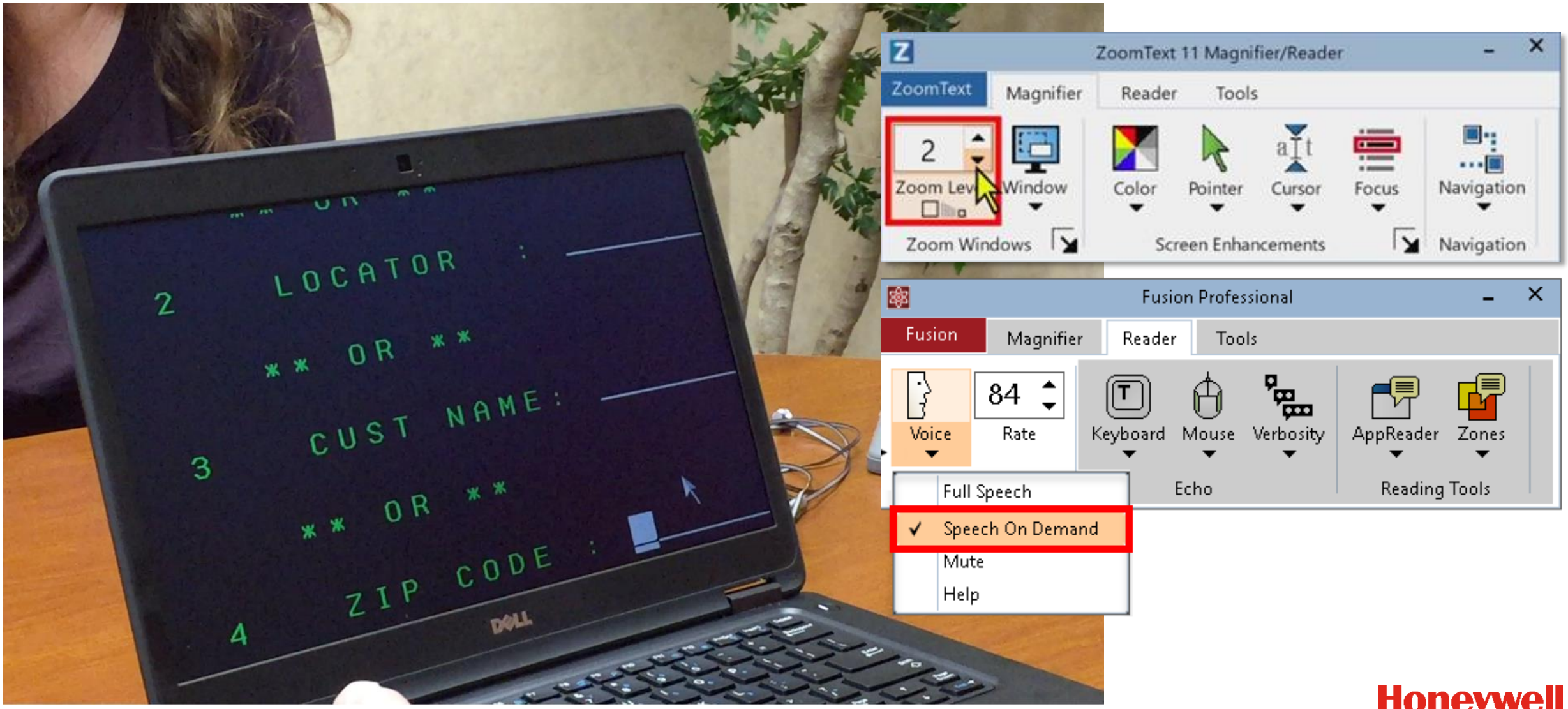


Video: NVDA Overview

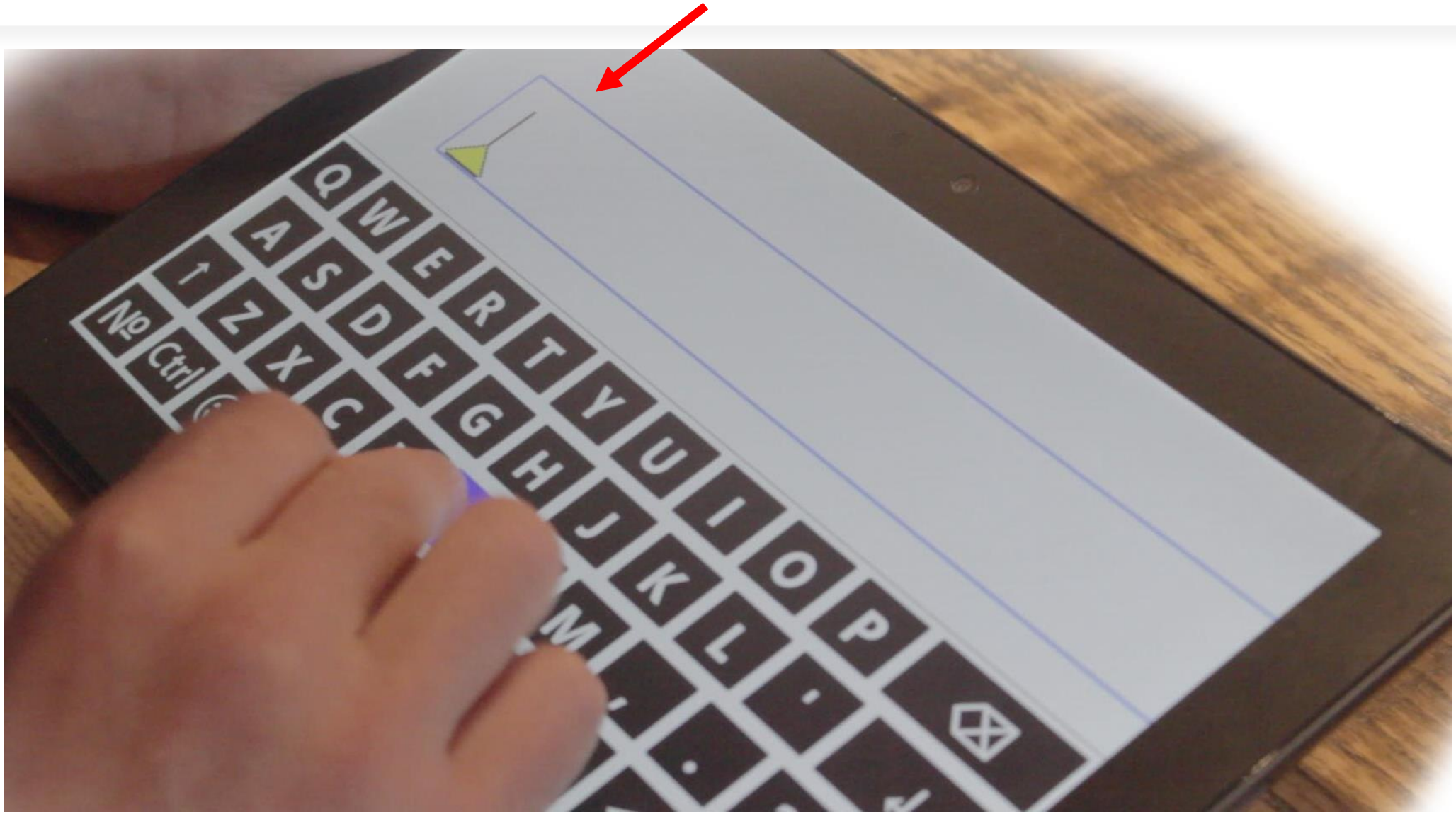
https://youtu.be/Ks7AwV_uxO0

Honeywell

Applications : ZoomText



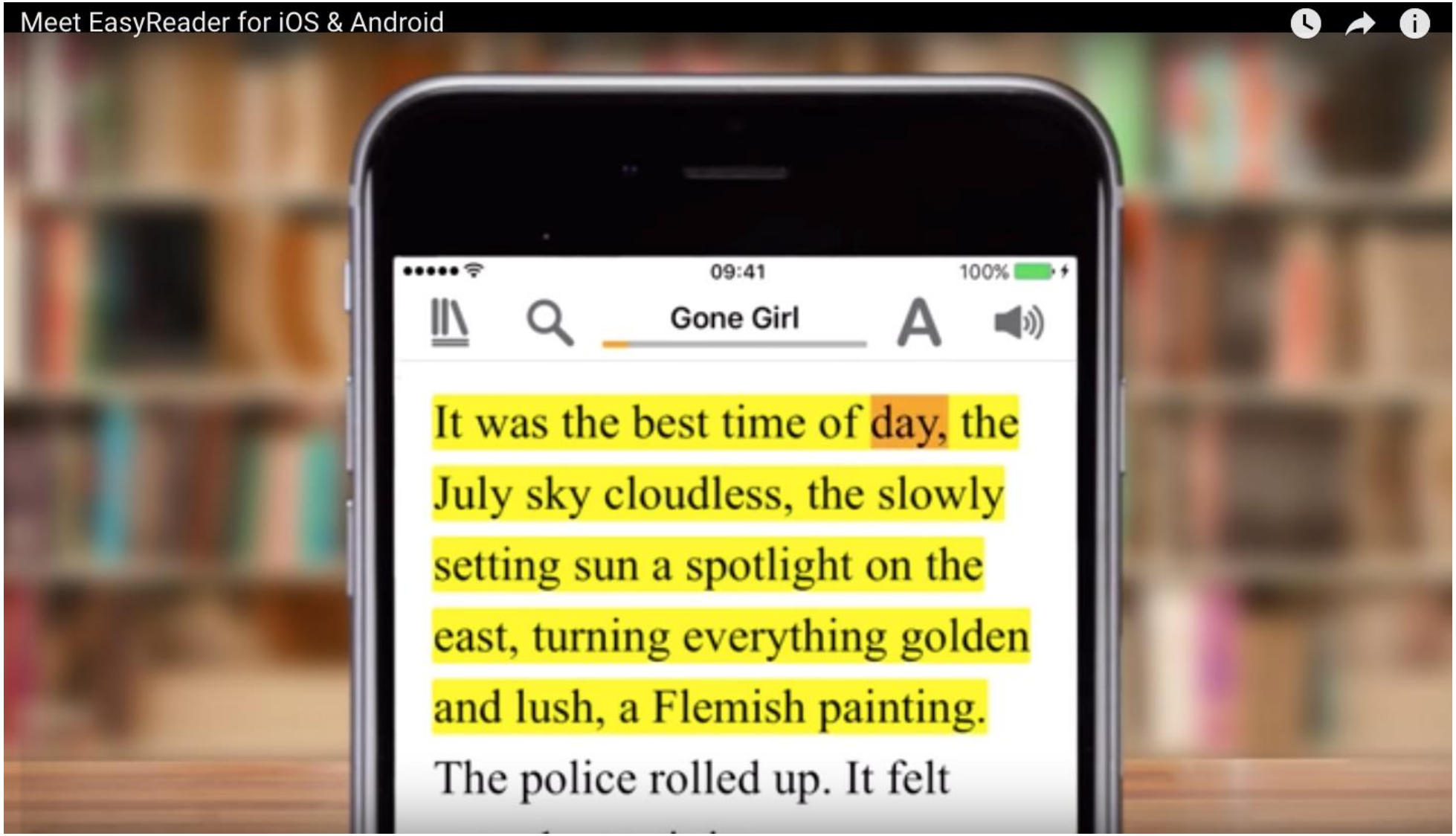
Applications : ZoomText



Honeywell

Applications : EasyReader

Applications : EasyReader



Applications : Color Blind API

Are There Standards?

- U.S. Web Design Standards

standards.usa.gov

Are There Standards? YES – Section 508 vs WCAG 2.0

Section 508 of the Americans with Disabilities Act (ADA)

The legislation referred to as "Section 508" is actually an amendment to the Workforce Rehabilitation Act of 1973. The amendment was signed into law by President Clinton on August 7, 1998.

- Offer Text Equivalents
- Present Synchronized Multimedia
- Remain Independent of Color
- Stay Independent of Style Sheets
- Provide Redundant Links for Server-Side Maps
- Use Client-Side Image Maps
- Label Row and Column Headers
- Use the Headers Attribute in Complex Tables
- Supply Frame Titles (attributes and elements)
- Reduce Flicker
- Offer a Text-only Alternative (LAST RESORT)
- Write Accessible Scripts(m) Specify Accessible Applets and Plug-ins
- Design Accessible Forms
- Offer Skip Navigation
- Alert Users to Timed Responses

Are There Standards? Section 508 vs WCAG 2.0

WCAG 2.0

The Web Content Accessibility Guidelines (WCAG) details can be grouped into 4 main sections (in greater detail from §508), with 3 levels of Conformance.

Sect 1: Perceivable

Web content is made available to the senses - sight, hearing, and/or touch

Sect 2: Operable

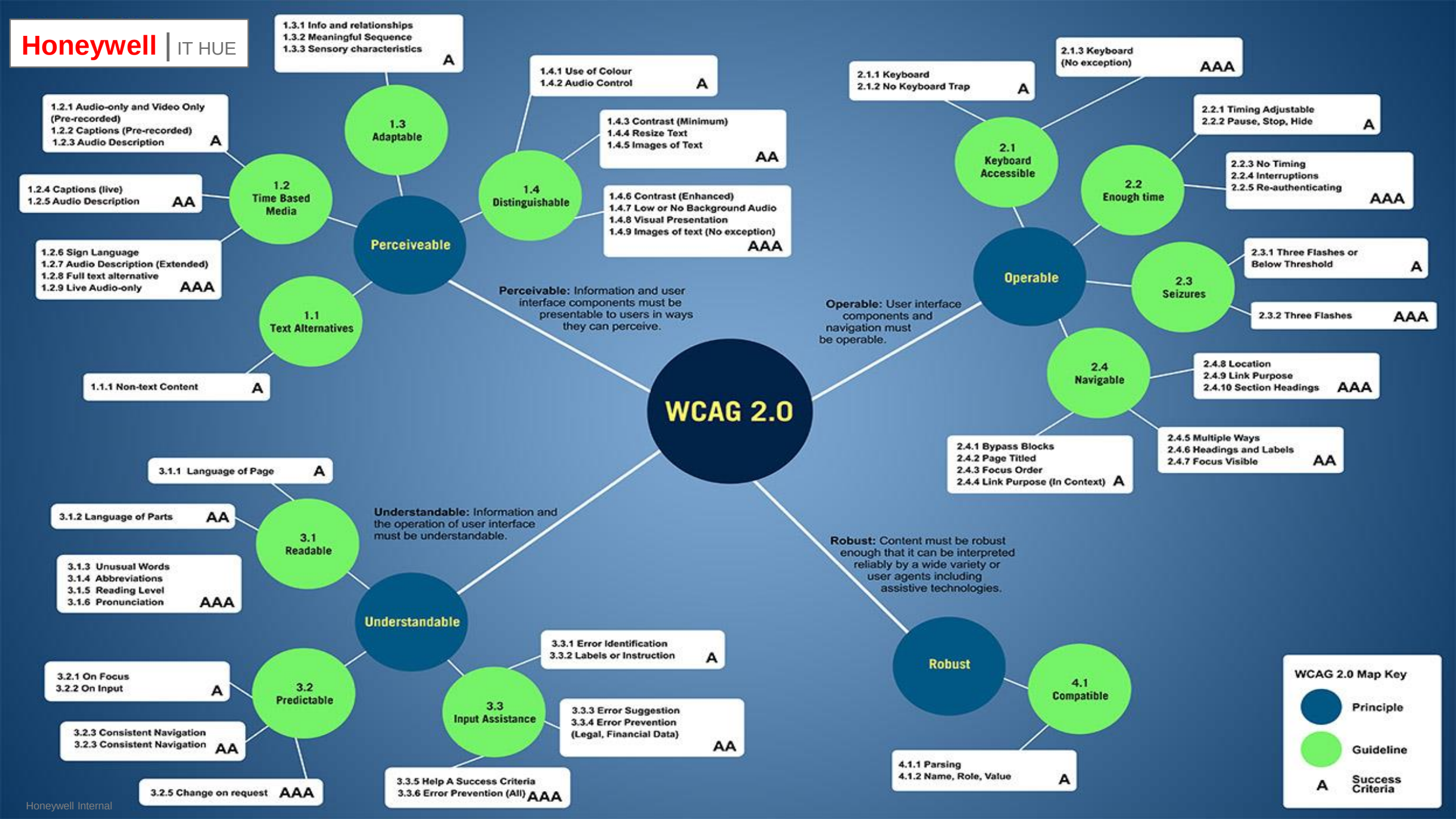
Interface forms, controls, and navigation are operable

Sect 3: Understandable

Content and interface are understandable

Sect 4: Robust

Content can be used reliably by a wide variety of user agents, including assistive technologies



Digital Accessibility

Business Drivers for Accessibility

Why is Web Accessibility Important?

Legal and Business drivers…

The Department of Justice (DOJ) has clarified that the accessibility of goods and services offered via the Internet **is** covered by Title III of the Americans with Disabilities Act (ADA) despite the lack of an explicit statement.

Additionally, accessibility is the “right thing to do” from a branding POV – its about showing respect for our customers as individuals.

So in addition to the legal mandate, we can extend our market reach by ensuring all potential customers can research, shop, and purchase our products and services through all digital channels.

United States Population: ~313.8M
United States Disabled: 12%
U.S. disabled consumer population:

- **73% are heads of households; 58% own homes**
- 48% are principal shoppers controlling over $220B in discretionary income

4 Business Drivers for Accessibility

Driver #1: Reduce Legal Risk

- Comply with multiple laws, both in the US and internationally
- Potential costs from complaints, litigation costs, damages, injunctions
- High transaction volumes and visibility increase legal risk
- Costs to settle class action lawsuits typically top **$10M**
- Precedents in multiple industries

Driver #2: Avoid Revenue Loss

- Private orgs selling into public sector must provide accessible solutions
  - Section 1557 ACA, Section 508, ADA Title II, State level initiatives in U.S. require a11y.
- Some U.S. regulatory agencies require accessibility as part of market access
  - Communications and Video Products – FCC
  - Healthcare – HHS
  - Air Travel – DOT and FAA

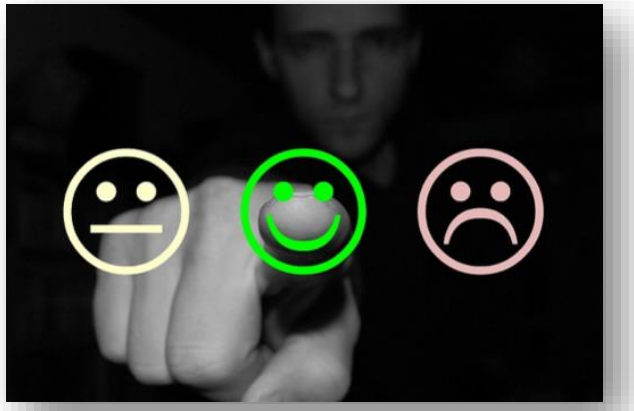
4 Business Drivers for Accessibility

Driver #3: Balance Cost with Efficiency

- Central accessibility programs can be cheaper than chaotic/ad hoc activities
- Share the cost of common infrastructure across teams
  - Examples: tools, recordkeeping, training
- Apply organization wide learning
- More efficient paths to common solutions across product/service lines

Driver #4: Customer Satisfaction / Delight

- Meet or exceed growing customer expectation for accessible products and services
- Grow positive brand image / sentiments
- Capture market share at time when more companies are offering accessible products and services
- Differentiate/innovate with accessibility, show business value



Digital Accessibility

Keys to Designing for Accessibility

User-centered Design Approach

Creating Solutions That Are…

More Intuitive
Easier To Use
More Productive
More Desirable
More Efficient

Improving…

User Experience
Customer Experience
Brand Experience
Customer Loyalty

Tangible Business Outcomes…

Differentiated Offerings
Faster Growth
Higher Margins
Expanded Market Share
Premium Pricing
Value Creation

KEY #1: Understand Usability

NIELSEN'S 10 HEURISTICS

1. Visibility of system status
2. Match between system and real world
3. User control and freedom
4. Error prevention
5. Help users recognize, diagnose, and recover from errors
6. Consistency and standards
7. Recognition over recall
8. Flexibility and efficiency of use
9. Aesthetic and minimalist design
10. Help and documentation

KEY #2: Understand Your Users

- 15-20% of people have a disability
- Everyone is disabled at some point in their lives.

Accessibility / UX Personas

Anja : Web developer / software engineer

- 33 years old

- Anja progressively lost her sight after a car accident where she suffered a severe head trauma. As a blind user, she no longer uses a mouse and has no need for a monitor. She now relies exclusively on a keyboard and screen reader software to work, and browse the web.

- As a software engineer, she lives and breathes web technologies. But there's only so much she can do when information is provided through undescribed graphics, web interfaces lack semantic code, or content is not conveyed to her screen reader.

KEY #3: Work With Your Team

Product Manager

Researcher

Designer

Content Creator

Developer

QA

KEY #4: Understand the Tricky Parts

- Forms
- Tables
- Custom Controls
- Dynamic Content

- TEST, TEST, TEST!!!!

Tricky Parts : Custom Controls: What Are They?

First name

```
1  <label>First name</label>
2  <input type="text" name="fname" class=
   "av-text" id="fname">
```

First name

```
1  <p>First name</p>
2  <div id="input" contenteditable></div>
```

Anything that doesn't use standard HTML control elements.

Honeywell

Tricky Parts : Testing Keyboard Accessibility

Facets of Keyboard Accessibility

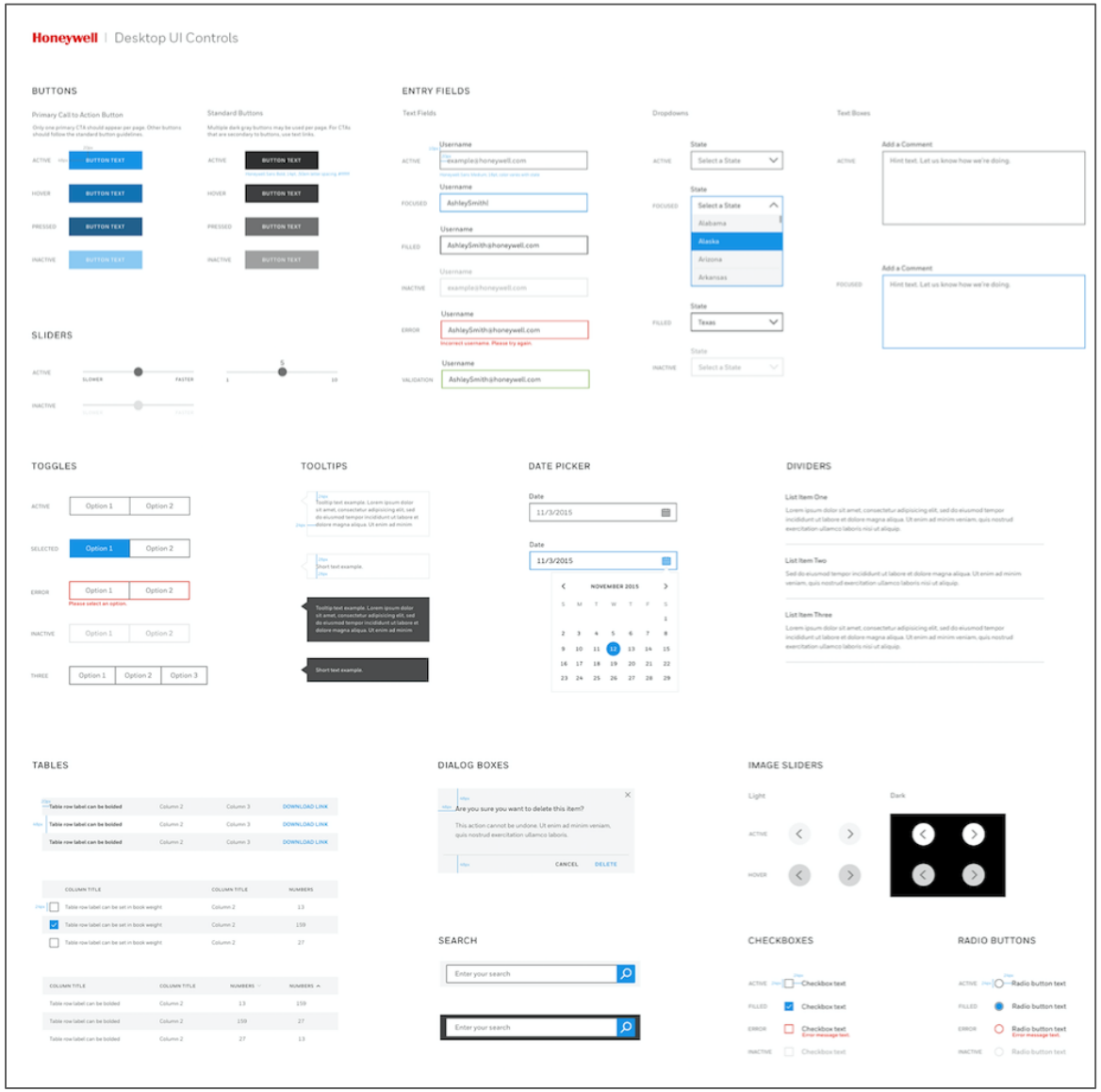
- Tab Order
- Focus management for in-page updates
- Visual focus indication
- Keystrokes to select or activate

Testing for Keyboard Access

- Tab and Shift+Tab
- Arrow or Space to select
- Enter or Space to activate
- Visual focus indication on all tabbable elements
- Logical focus location at all times

KEY #5: Use the HUE DLS Pattern Library

- Colors
- Typography
- Forms
- Tables
- Notifications
- Icons
- Content guidelines



Honeywell

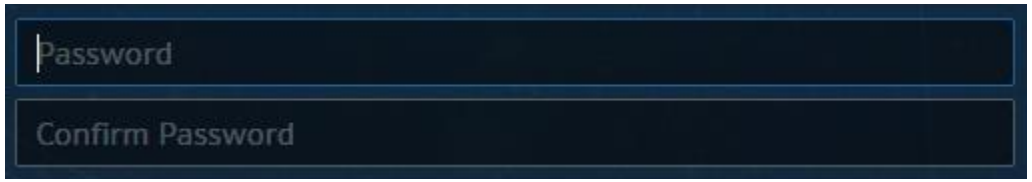
Forms

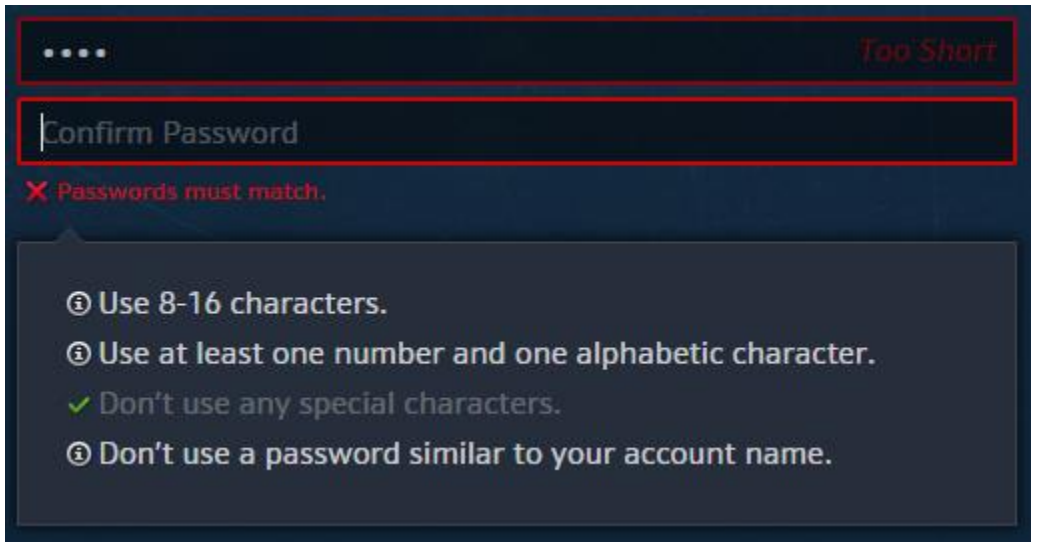
Labels or instructions should be included whenever user input is required, and should be positioned near the elements they reference… Does it even look like a form?

First name

First name

First name is a required field.





Email *

Your answer

Feedback

Your answer

Digital Accessibility

P.O.U.R. Out Your Best Design

P.O.U.R. out Your Best Design

- Perceivable: Web content is made available to the senses - sight, hearing, and/or touch
  - Provide alternatives for time-based media
- Operable: Interface forms, controls, and navigation are operable with keyboard or mouse
  - Keyboard accessible
- Understandable: User-friendly, easy to comprehend.
  - Input Assistance
- Robust: Content works across browsers, assistive technologies, mobile devices, old devices/browsers, etc. Follows standards.
  - Name, Role, Value
  - a visual example of ARIA code currently in use on a Pru page

Perceivable: Web Video & Closed Captioning

Operable: On Focus/Input

Guideline 2.4.7 Level AA

- Users with motor impairments who rely on the keyboard to navigate need a clear visual focus indicator.

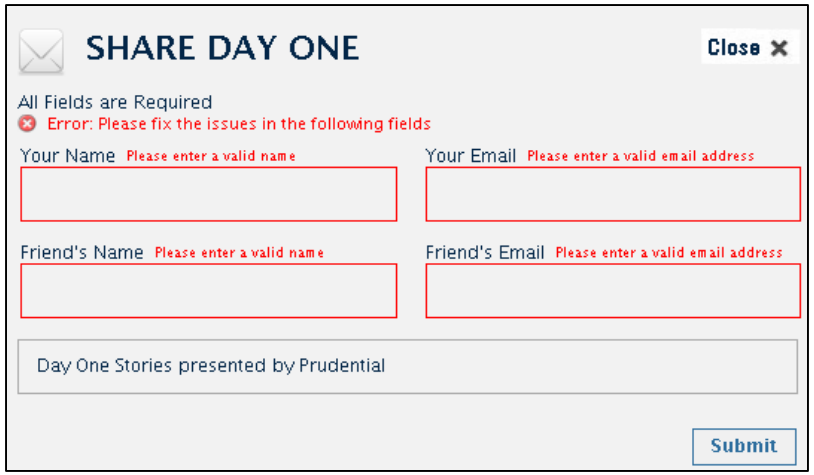
Guidelines 3.2.1, 3.2.2 Level A

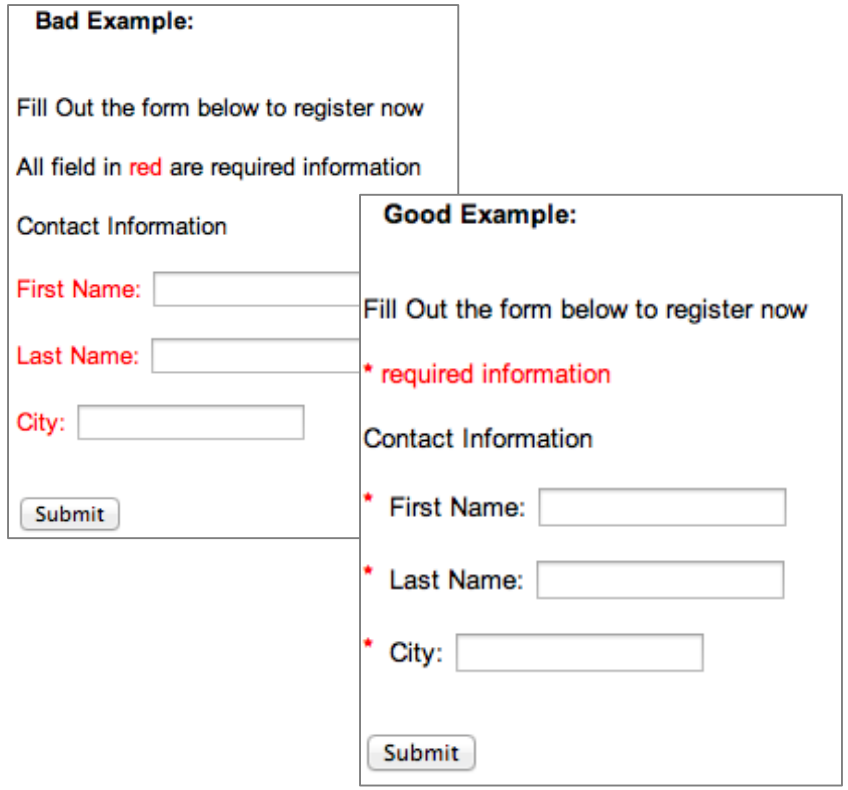
- Because it can be disorienting, changes of context should not occur when shifting focus or choosing from a selection, but rather when the user takes a specific action to do so.

Understandable: Errors

Guideline 3.3.1 Level A

- If an input error is detected, the error should be identified and described to the user in a text form.





Robust: Compatible – Name, Role, Value

Guideline 4.1.2 Level A

- Maximize compatibility with current and future user agents, including assistive technologies.

Name, Role, Value: example of ARIA code currently in use on a Prudential page

```
109                 <span data-src="/img/logo-prudential.png" data-alt="Prudential: Bring Your
110             <![endif]-->
111             <!-- Fallback content for non-JS browsers. -->
112             <noscript>
113                 <img src="/img/logo-prudential.png" alt="Prudential: Bring Your Challenges"
114             </noscript>
115         </span>
116     </a>
117 </div> <!-- /branding -->
118 <!-- Disclaimer -->
119 <div class="masthead-disclaimer">
120     <p>Prudential Day One Funds are offered as insurance company separate accounts availabl
121 </div>
122 <!-- Main navigation -->
123 <nav class="mainnav" role="navigation" aria-label="primary">
124     <ul class="cf">
125         <li><a href="/about/index.html" target="_self"><span class="center">About the <span
126             <ul class="mobile-dropdown inactive">
127                 <li><a href="/about/planning-for-retirement.html" target="_self">Planning f
128                     <ul class="mobile-dropdown-second-level inactive">
129                         <li><span class="visuallyhidden">Selected</span></li>
130                     </ul>
131                 </li>
132                 <li><a href="/about/day-one-funds.html" target="_self">Day One Funds<span c
133                     <ul class="mobile-dropdown-second-level inactive">
134                         <li><a href="/about/day-one-funds-glidepath.html" target="_self">Day
135                         <li><a href="/about/fund-details.html" target="_self">Fund Details</
```


Honeywell

Honeywell | IT

THE POWER OF CONNECTED

For More Information, Please visit below link :

https://in.honeywell.com/BusinessFunction/IT/ITHUEPortal/Contents/Home.html

Digital Accessibility

Appendix : Tools and Resources

Free Accessibility Tools

- Screen Reader
  - NVDA (NVDAccess.com)
- Simulation Tools
  - No Coffee visual simulator: https://chrome.google.com/webstore/detail/nocoffee/
- Scanning tools are free:
  - WAVE (http://wave.webaim.org/extension/)
  - FAE (https://fae.disability.illinois.edu/)
  - CynthiaSays (http://www.cynthiasays.com)
  - Vamola (http://www.validatore.it/vamola_validator/checker/index.php)
    - Its an Italian website but the results are in english
- Color contrast checkers:
    - http://contrast-finder.tanaguru.com
    - http://gmazzocato.altervista.org/colorwheel/wheel.php

Web Accessibility

NoCoffee

Plugin for Chrome