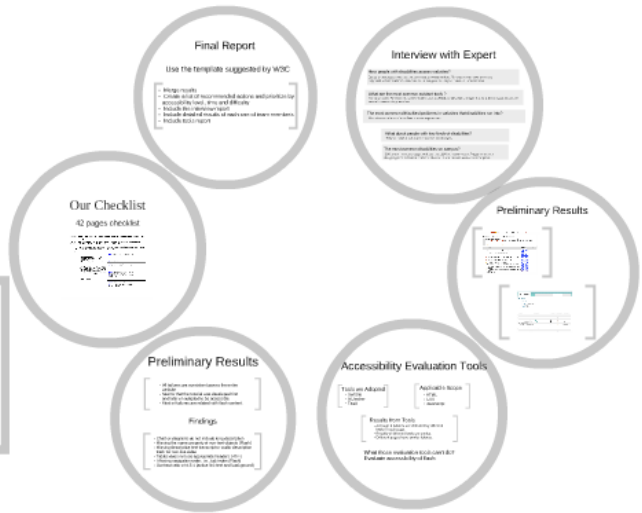
Project 4:
Accessibility of a Library Tutorial

Our Results



Time Line

Project 4: Accessibility of a Library Tutorial

Tiago Proenca, Jung-Yin Lai and Yubo Kou

Epilogue

“For people without disabilities,
technology makes things convenient,
For people with disabilities, it makes things possible.”

Judith Heumann
U.S. Department of Education's Assistant Secretary

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WCAG2.0

Principles

- perceivable
- operable
- understandable
- robust.

Success Criteria

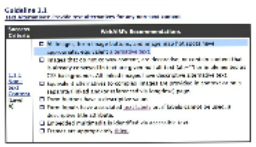
For each guideline, testable success criteria are provided to allow WCAG 2.0 to be used where requirements and conformance testing are necessary. In order to meet the needs of different groups and situations, three levels of conformance are defined: A (lowest), AA, and AAA (highest).

Guidelines

Under the principles there are 12 guidelines that provide the basic goals to make content more accessible to users with different disabilities.

Techniques

For each of the guidelines and success criteria there are a wide variety of techniques available (all techniques are informative).



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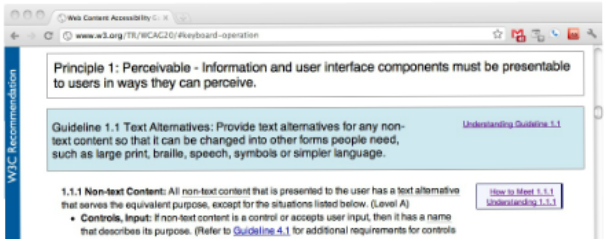

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Techniques

For each of the guidelines and success criteria there are a wide variety of techniques available (all techniques are informative).

W3C Recommendation

Principle 1: Perceivable - Information and user interface components must be presentable to users in ways they can perceive.

Guideline 1.1 Text Alternatives: Provide text alternatives for any non-text content so that it can be changed into other forms people need, such as large print, braille, speech, symbols or simpler language.

Understanding Guideline 1.1

1.1.1 Non-text Content: All non-text content that is presented to the user has a text alternative that serves the equivalent purpose, except for the situations listed below. (Level A)

How to Meet 1.1.1
Understanding 1.1.1

- **Controls, Input:** If non-text content is a control or accepts user input, then it has a name that describes its purpose. (Refer to Guideline 4.1 for additional requirements for controls and content that accepts user input.)
- **Time-Based Media:** If non-text content is time-based media, then text alternatives at least provide descriptive identification of the non-text content. (Refer to Guideline 1.2 for additional requirements for media.)
- **Test:** If non-text content is a test or exercise that would be invalid if presented in text, then text alternatives at least provide descriptive identification of the non-text content.
- **Sensory:** If non-text content is primarily intended to create a specific sensory experience, then text alternatives at least provide descriptive identification of the non-text content.
- **CAPTCHA:** If the purpose of non-text content is to confirm that content is being accessed by a person rather than a computer, then text alternatives that identify and describe the purpose of the non-text content are provided, and alternative forms of CAPTCHA using output modes for different types of sensory perception are provided to accommodate different disabilities.
- **Decoration, Formatting, Invisible:** If non-text content is pure decoration, is used only for visual formatting, or is not presented to users, then it is implemented in a way that it can be ignored by assistive technology.

Guideline 1.1

Text Alternatives: Provide text alternatives for any non-text content

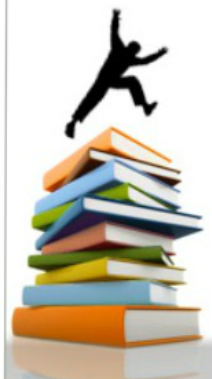
Success Criteria	WebAIM's Recommendations
1.1.1 Non-text Content (Level A)	☐ All images, form image buttons, and image map hot spots have appropriate, equivalent alternative text. ☐ Images that do not convey content, are decorative, or contain content that is already conveyed in text are given null alt text (alt="") or implemented as CSS backgrounds. All linked images have descriptive alternative text. ☐ Equivalent alternatives to complex images are provided in context or on a separate (linked and/or referenced via longdesc) page. ☐ Form buttons have a descriptive value. ☐ Form inputs have associated text labels or, if labels cannot be used, a descriptive title attribute. ☐ Embedded multimedia is identified via accessible text. ☐ Frames are appropriately titled.

UC Libraries Research Tutorial

UC LIBRARIES
UNIVERSITY of CALIFORNIA

BEGIN RESEARCH | KNOWLEDGE CYCLE | FIND BOOKS | FIND ARTICLES | BASIC SEARCH | ADVANCED SEARCH

1 of 17



BEGIN RESEARCH

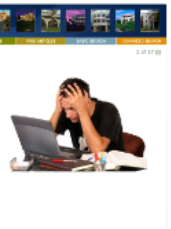
- Assignment
- Topic
- Keywords
- Resources
- Quiz

"Where Do I Start?"

Do you have an assignment to write a research paper but you're not sure where to start? Take a deep breath and begin by carefully reading the assignment requirements. This will help you understand the work you need to do.

First, let's think about what we mean when we say "research."

search Tutorial



Goals

1. Conformance

Which part of the tutorial already meet the accessibility standards and which part not.

2. Checklist

Use recommend techniques as checklist to verify the guideline rules

3. Users affected

Identify which users are most likely to be affected by the accessibility issues.

4. Suggested Actions

What changes should be implemented to ensure level AA conformance

5. Priority

Prioritize these changes based on time cost, benefits.

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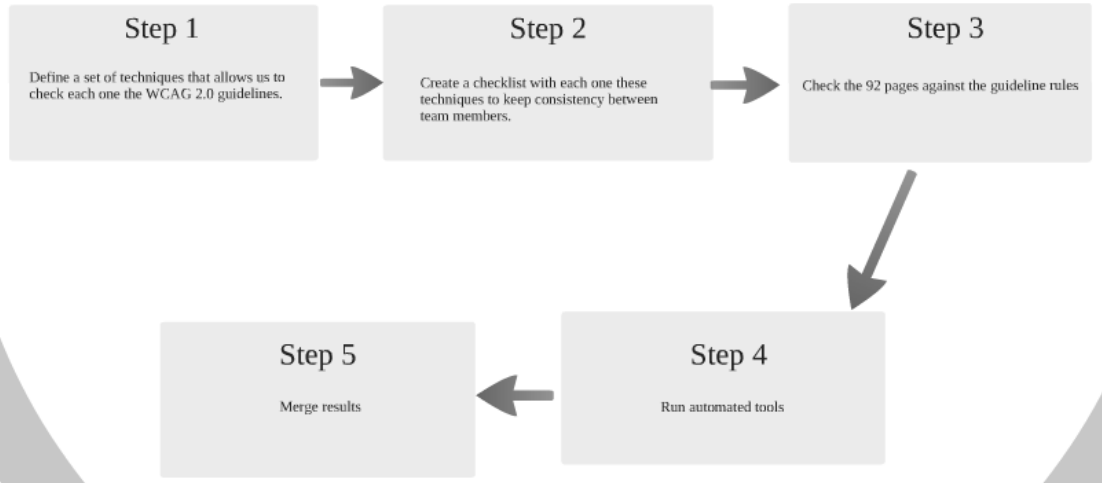
Methods and Evaluation

Heuristic Evaluation



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Heuristic Evaluation

Step 2

Step 1

Define a set of techniques that allows us to check each one the WCAG 2.0 guidelines.

Step 2

Create a checklist with each one these techniques to keep consistency between team members.

Step 3

Check the 92 pages against the guideline rules

Step 4

Run automated tools

Step 5

Merge results

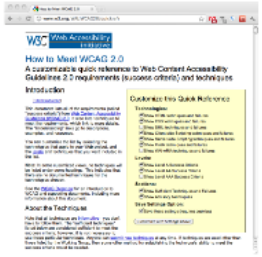
Evaluation Techniques

We found three checklist with different set of techniques that have been widely used to check the WCAG 2.0 guidelines.

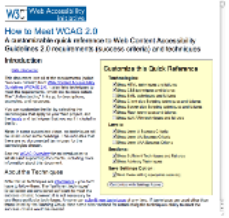
WebAIM

OFCOM - Swiss Confederation

W3C customizable quick reference



Our Choice



Sufficient techniques - W3C

- Considered sufficient to meet the success criteria;
- Customizable to meet different technologies (HTML, CSS, Javascript and Flash)
- Fine-grain level of detail

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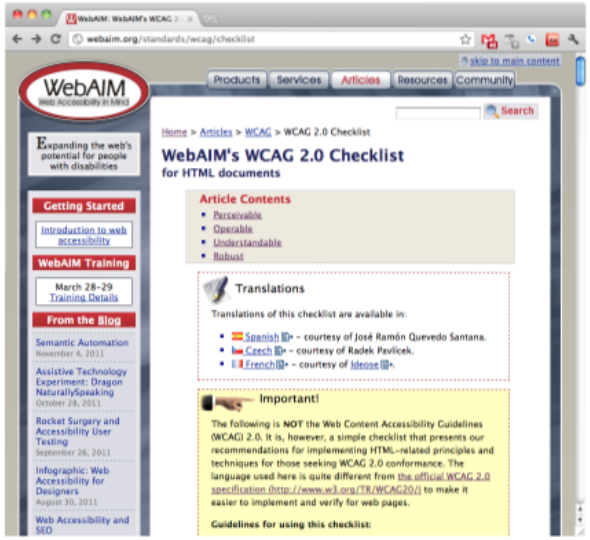

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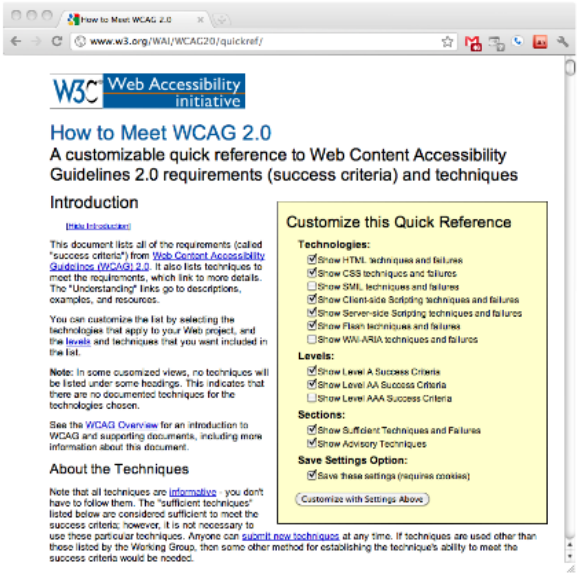

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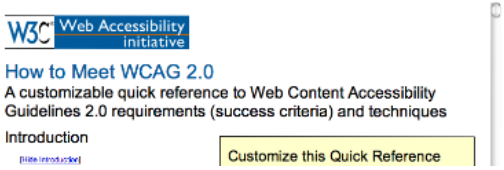


Sufficient techniques - W3C

a) W3C technologies: (X)HTML ____ , CSS ____ .

b) Non-W3C technologies: JavaScript: No ____ , Yes ____ ; PDF No ____ , Yes ____ .

b) Other non-W3C technologies: _____

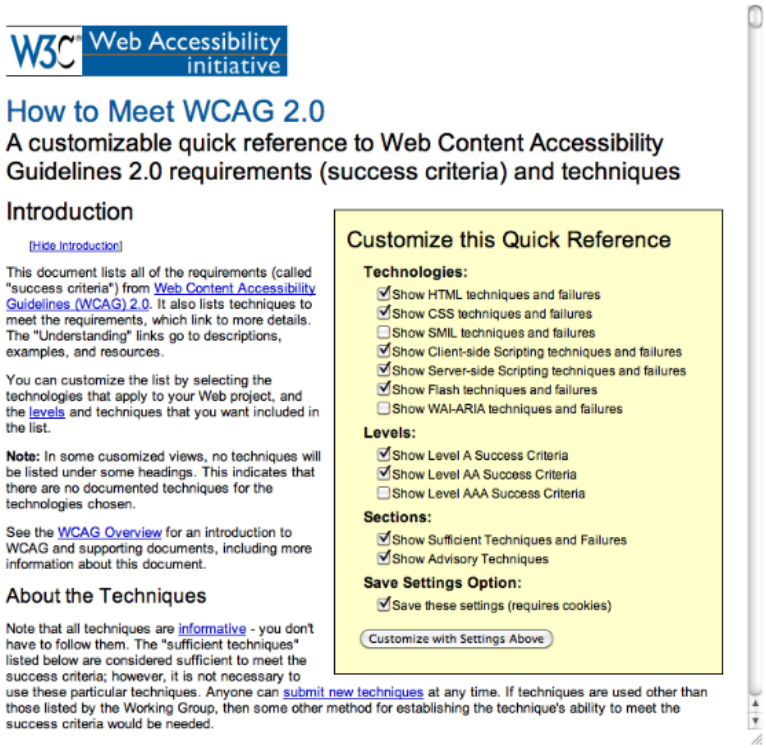
About the Techniques

Save these settings (requires cookies)

Customize with Settings Above

Note that all techniques are informative - you don't have to follow them. The "sufficient techniques" listed below are considered sufficient to meet the success criteria; however, it is not necessary to use these particular techniques. Anyone can submit new techniques at any time. If techniques are used other than those listed by the Working Group, then some other method for establishing the technique's ability to meet the success criteria would be needed.

Our Choice



W3C Web Accessibility initiative

How to Meet WCAG 2.0

A customizable quick reference to Web Content Accessibility Guidelines 2.0 requirements (success criteria) and techniques

Introduction

[Hide Introduction]

This document lists all of the requirements (called "success criteria") from Web Content Accessibility Guidelines (WCAG) 2.0. It also lists techniques to meet the requirements, which link to more details. The "Understanding" links go to descriptions, examples, and resources.

You can customize the list by selecting the technologies that apply to your Web project, and the levels and techniques that you want included in the list.

Note: In some cusomized views, no techniques will be listed under some headings. This indicates that there are no documented techniques for the technologies chosen.

See the WCAG Overview for an introduction to WCAG and supporting documents, including more information about this document.

Customize this Quick Reference

Technologies:

- ☑ Show HTML techniques and failures
- ☑ Show CSS techniques and failures
- ☐ Show SMIL techniques and failures
- ☑ Show Client-side Scripting techniques and failures
- ☑ Show Server-side Scripting techniques and failures
- ☑ Show Flash techniques and failures
- ☐ Show WAI-ARIA techniques and failures

Levels:

- ☑ Show Level A Success Criteria
- ☑ Show Level AA Success Criteria
- ☐ Show Level AAA Success Criteria

Sections:

- ☑ Show Sufficient Techniques and Failures
- ☑ Show Advisory Techniques

Save Settings Option:

- ☑ Save these settings (requires cookies)

Customize with Settings Above

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Our Results

Final Report

Use the template suggested by W3C

- Merge results
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- Include the interview report
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Interview with Expert

How people with disabilities access websites?

Basically they access websites the same way as everyone does. For people who have low vision, they need screen reader or speech output to navigate, but they will have similar experience.

What are the most common assistant tools ?

Mainly software. For example, screen reader, such as JAWS, window eyes. Dragon Naturally Speaking could capture people's speech pretty accurate.

The most common difficulties/problems in websites that disabilities run into?

Most problems are with flash. Java is a challenge as well.

What about people with two kinds of disabilities?

They will have to use a combination of technologies.

The most common disabilities on campus?

60% are self mental or cognitive disabilities, 30% with lower vision. Programmers with designing for blind people kind of mindset will make the web accessible for anyone.

Our Checklist

42 pages checklist

Preliminary Results

Evaluation Techniques

Preliminary Results

- All failures are consistent across the entire website
- Seems that the tutorial was developed first and later on adapted to be accessible
- Most of failures are related with flash content.

Findings

- Chart or diagrams do not include long description
- Missing the name property of non-text objects (Flash)
- Missing descriptive text transcript or audio description track for non-live video
- Tables does not use appropriate headers (<th>)
- Missing navigation order, i.e., tab-index (Flash)
- Contrast ratio of 4.5:1 (active link text and background)

Accessibility Evaluation Tools

Tools we Adopted
- SortSite
- AChecker
- Taw3

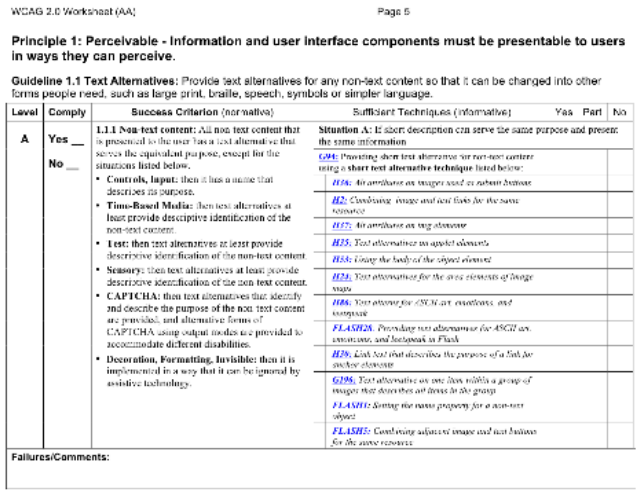
Applicable Scope
- HTML
- CSS
- JavaScript

Results from Tools
- Average 6 failures are detected by different tools in each page.
- Results of different tools are similar.
- Different pages have similar failures.

What those evaluation tools can't do?
Evaluate accessibility of flash

Our Checklist

42 pages checklist



WCAG 2.0 Worksheet (AA) Page 5

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Guideline 1.1 Text Alternatives: Provide text alternatives for any non-text content so that it can be changed into other forms people need, such as large print, braille, speech, symbols or simpler language.

Level	Comply	Success Criterion (normative)	Sufficient Techniques (informative)	Yes	Part	No
A	Yes __ No __	**1.1.1 Non-text content:** All non-text content that is presented to the user has a text alternative that serves the equivalent purpose, except for the situations listed below. • **Controls, Input:** then it has a name that describes its purpose. • **Time-Based Media:** then text alternatives at least provide descriptive identification of the non-text content. • **Test:** then text alternatives at least provide descriptive identification of the non-text content. • **Sensory:** then text alternatives at least provide descriptive identification of the non-text content. • **CAPTCHA:** then text alternatives that identify and describe the purpose of the non-text content are provided, and alternative forms of CAPTCHA using output modes are provided to accommodate different disabilities. • **Decoration, Formatting, Invisible:** then it is implemented in a way that it can be ignored by assistive technology.	**Situation A:** If short description can serve the same purpose and present the same information *G94: Providing short text alternative for non-text content* using a **short text alternative technique** listed below: *H36: Alt attribute on images used as submit buttons* *H2: Combining image and text links for the same resource* *H17: Alt attribute on img element* *H35: Text alternatives on applet elements* *H53: Using the body of the object element* *H24: Text alternatives for the area elements of image maps* *H86: Text equivalents for ASCII art, emoticons, and leetspeak* *FLASH28: Providing text alternatives for ASCII art, emoticons, and leetspeak in Flash* *H30: Link text that describes the purpose of a link for anchor elements* *G196: Text alternative on one item within a group of images that describes all items in the group* *FLASH1: Setting the name property for a non-text object* *FLASH5: Combining adjacent image and text buttons for the same resource*			
Failures/Comments:						

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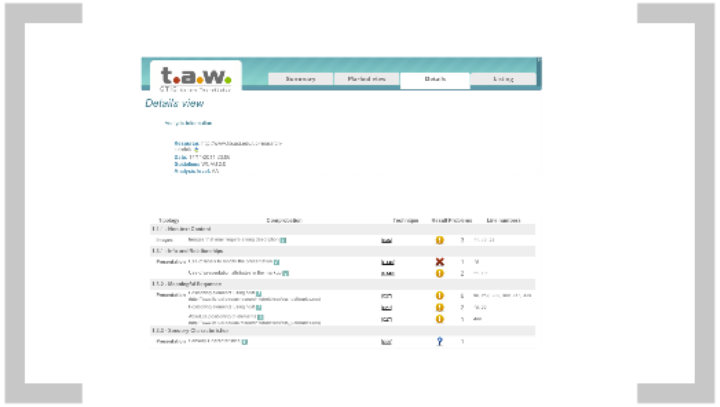

y Evaluation Tools

Accessibility  6 pages with accessibility problems ⊗ worse than average

This tab shows accessibility issues, indicating problems for disabled users.

	WCAG1	WCAG2	Section 508
A	✓	●	●
AA	◔	◔	
AAA	◐	◐	

Key

- ● Priority A - disabled users will find it impossible to use some pages
- ◔ Priority AA - disabled users will find it difficult to use some pages
- ◐ Priority AAA - disabled users will find it somewhat difficult to use some pages

Priority	URL / Description	Guideline (All)	Line
●	Each A tag must contain text or an IMG with an ALT tag.	WCAG1 AA 13.1 WCAG2 A 2.4.4	
●	Provide a way to skip repetitive navigation links.	Section 508 (o) WCAG1 AAA 13.6 WCAG2 A 2.4.1	
●	Some pages have the same title, so the title cannot be used to distinguish pages.	WCAG2 A F25	
●	Use the LANG attribute to identify the language of the page.	WCAG1 AAA 4.3 WCAG2 A 3.1.1	
◔	Avoid deprecated features of W3C technologies.	WCAG1 AA 11.2	
◔	Avoid specifying a new window as the target of a link with target="_blank".	WCAG1 AA 10.1 WCAG2 AAA F22	
◔	Headings must be nested correctly. For example, H2 must appear after H1, H3 after H2 etc.	WCAG1 AA 3.5 WCAG2 AAA 2.4.10	
◔	Provide information about the general layout of a site using a site map or table of contents.	WCAG1 AA 13.3 WCAG2 AA 2.4.5	
	8 issues on 6 pages		

Resource: http://www.lib.uci.edu/uc-research-tutorial/
Date: 14/11/2011 23:06
Guidelines WCAG 2.0
Analysis level: AA

Tipology	Comprobation	Technique	Result	Problems	Line numbers
1.1.1 - Non-text Content					
Images	Images that may require a long description	[H45]	!	3	*11, 13, 23*
1.3.1 - Info and Relationships					
Presentation	Use of labels to modify the presentation	[G140]	✗	1	*15*
	Use of presentation attributes in the markup	[G140]	!	2	*11, 13*
1.3.2 - Meaningful Sequence					
Presentation	Positioning elements using float (http://www.lib.uci.edu/uc-research-tutorial/css/css_uclibraries.css)	[C27]	!	6	*90, 259, 265, 308, 415, 439*
	Positioning elements using float	[C27]	!	2	*18, 22*
	Absolute positioning of elements (http://www.lib.uci.edu/uc-research-tutorial/css/css_uclibraries.css)	[C27]	!	1	*408*
1.3.3 - Sensory Characteristics					
Presentation	Sensory Characteristics	[G96]	?	1	

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Time Line

Week 4

• Read Guidelines	all
• Research for Evaluation techniques	all
• Create Checklist template	Tiago

Week 5

• Check the website against the guideline rules to ensure level AA conformance	all
• Meet with Robert	Jungyin/Yubo
• Search for WCAG 2.0 evaluation tools	Yubo/Tiago

Week 6

• Check the website against the guideline rules to ensure level AA conformance	all
• Meet with Matt	all
• Run evaluation tools	Yubo/Tiago
• Transcript of Robert interview	Jungyin

Week 7

• Create slides template	Jungyin
• Content of slides	all
• Analyse the results generated from tools and group member's inspection	all
• Merge the results in only one document	all
• Create a list of recommended actions and prioritize by accessibility level, time and difficulty	all

Week 8

• Identify users affected by the accessibility issues	all
• Prepare the final version of the deliverable document	Tiago

Week 9

• Review deliverable document	all
• Meet with Matt	all
• Perform possible changes	all

Week 10

• Deliver the final report	all

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