My Notebook
COMS3162_assignment2

PDF Version generated by

Yanxi Chen (yc3841@columbia.edu)

on

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Table of Contents

COMS3162_assignment2

Yanxi Chen (yc3841@columbia.edu) - Feb 10, 2023, 11:34 PM EST

Exploring Automatic Accessibility

According to the result given by WAVE, the whole webpage is has no page region, heading structure, or valid language. Multiple alternative texts, links, and form labels are missing. Besides, the webpage is of low color contrast which is not friendly to user with visual impairment. According to the WAVE Evaluation Tool, the webpage has 12 Errors, 9 contrast Errors, 8 Alerts, and 5 Features.

Output from WAVE

Yanxi Chen (yc3841@columbia.edu) - Feb 11, 2023, 6:26 PM EST
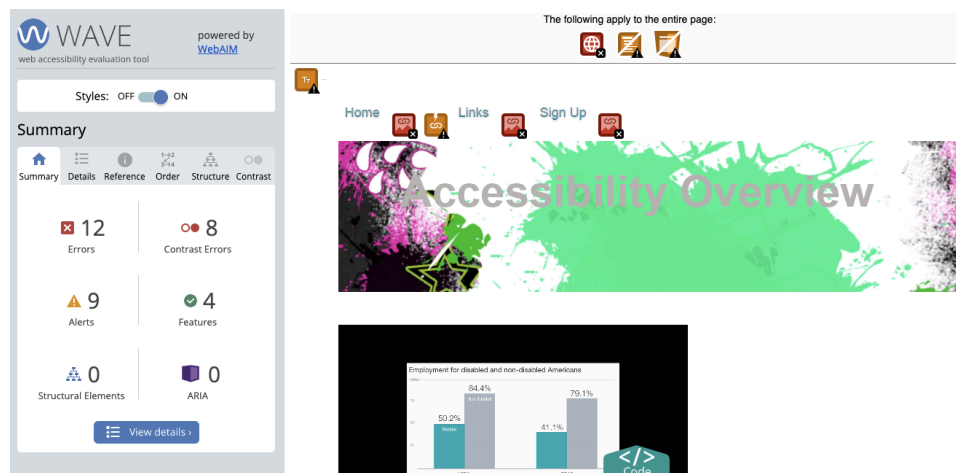
Making the Page Accessible

To-do list:

Problem	Level	Description	Severity	Detected?
Missing alternative text(video)	A	The youtube video on the home page does not have alternative text.	Low	Yes
Linked Image missing alternative text	A	"Home" "Links" "Sign Up" icons do not have alternative text.	Low	Yes
Missing form labels	AA	"Sign Up" part does not have labels for input form.	Middle	Yes
Language missing or invalid	A	The language of the whole web page is not identified.	Middle	Yes
Empty Link	A	Missing link at "Sign Up!" Button. And at XKCD because of missing " in href(fixed in advance)	High	Yes
Contrast Error	AA	Text at "Links" part and "Sign Up" part are lack of color contrast	High	Yes
No heading structures	AA	The page has no headings.	Middle	Yes
No page regions	A	No page regions or ARIA landmarks were found. Make the main content into <main> tag to solve it.	Middle	Yes
Broken same page link	A	A link to another location within the page is present but does not have a corresponding target.	Middle	Yes
Redundant link	A	Adjacent links go to the same URL at Sign Up part.	High	Yes
Tabindex	A	A positive Tabindex value is present.	Low	Yes
Very small text	-	The text "Main content" is hidden in small text in css file by "offscreen"	Very Low	Yes
Multiple Youtube link in the Sign Up part	-	When clicking any form or button in "Sign Up" part, the user goes to the Youtube link instead of being able to enter the information.	High	No
Video Caption	A	The video has no caption for people with hearing impairment.	Hight	No
Audio Description	AA	The video has no Audio Description for people with visual impairment.	High	No
Keyboard Access	A	The video play button and the check box cannot be used with keyboard only.	High	No
Information Conveyed Only via Color	A	Notice the banner is not friendly to color blindness, we need to increase the contrast.	Middle	No
Strange Tab Order	A	The Tab stars from playing the video icon instead of "Home" "Links" "Sign Up"	Middle	No
Form Widgets without Semantics	A	The check box image is not detected as a checkbox but only an image. And cannot been selected by TAB. The nav-bar images are not detected as buttons. And cannot been selected by TAB.	Middle	No

Language

The website doesn't have an identified or settled language. Hence we set the language of the page as below:

```
<html lang="en">
```

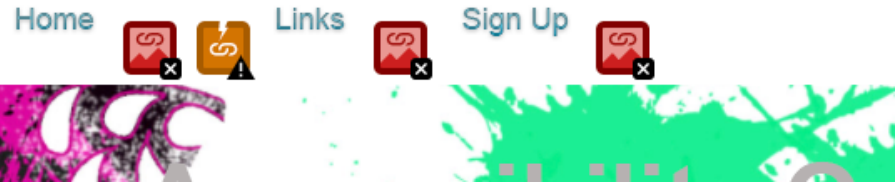The following apply to the entire page:

Language set to English

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Headings & Landmarks

The web page contains no headings h1~h6. Hence, I add two headings h1 and h2 to add some structure as below:

```
<div class="container"><h1>Accessibility Course &#128126;/h1></div>
<div id="links" class="heading2"><h2>Links</h2></div>
<div id="signup" class="heading2"><h2>Sign Up!</h2></div>
```


Heading 1

Heading 2

No page region and small text of "Main content" is fixed by deleting the "main text" and use <main> tag instead:

```
<main>
...
</main>
```

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Alternative Text for Images

The image "Home", "Links", and "Sign Up" do not have alternative text to describe them. Hence, I add the alternative text as below:

```
<a href="#home"><img src="pics/home.png" alt="Go to Home Button"></a>
<a href="#links"><img src="pics/links.png" alt="Go to Links Section Button"></a>
<a href="#signup"><img src="pics/signup.png" alt="Go to Sign Up Section Button"></a>
```
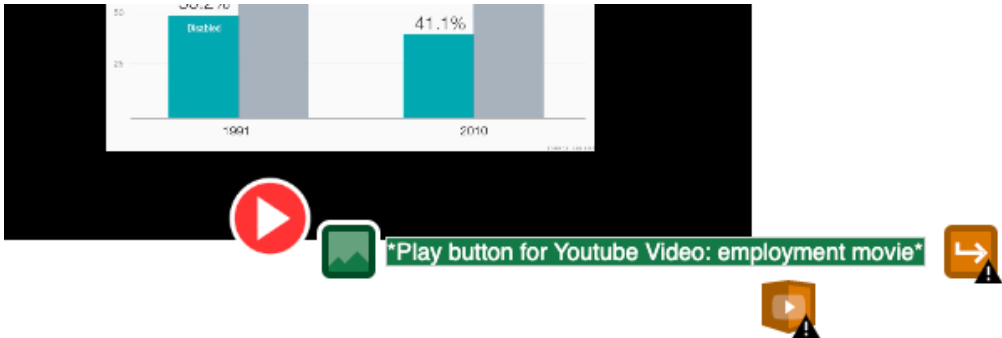
Image alternative text

Similarly, the play video icon in the page does not have an alternative text. I did:

```
<img width="50px" height="50px" src="pics/play.png" alt="Play button for Youtube Video: employment movie">
```

Play button alternative text

Form Labels

There is no label linked with the input section. Hence, we need to add label with for attribute same as input id for each input. Shown as below:

```
Instead of:
```

```
<span id="name">Name:</span>
<input name="fn" type="text" size="10" id="fn">
<input name="mi" type="text" size="1" id="mi">.
<input name="ln" type="text" size="10" id="ln"><br>
...
```

```
Do:
```

```
  <label for="fn">First Name:</label>
  <input name="firstName" type="text" size="10" id="fn">
  <label for="mi">Middle Name:</label>
  <input name="middleName" type="text" size="10" id="mi">
  <label for="ln">Last Name:</label>
  <input name="lastName" type="text" size="10" id="ln">
...
<label for="em">Email:</label> <input id="em" name="email" type="text" size="20">
...
  <label for="comment">Comments:</label>
  <br>
  <textarea id = "comment" rows="5" cols="40"></textarea>
```

Form Label Result

Yanxi Chen (yc3841@columbia.edu) - Feb 11, 2023, 5:28 PM EST
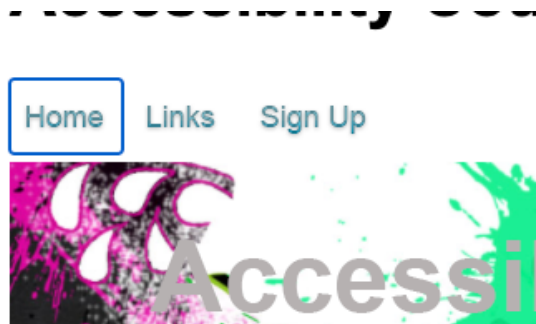
Form Widgets without Semantics

The check box under "Would you like to receive occassional emails with offers from us?" is not detected as a check box and not been able to be selected by TAB.

 Hence, I added tabindex as follow:

```
<div id="receivespambutton" tabindex="0">
    <img src="pics/checked.png" alt="checkbox for Would you like to receive occassional emails with offers from us?">
</div>
```

The images in nav-bar is not detected as buttons as well. Hence:

```
<a href="#home">
    <img src="pics/home.png" alt="Go to Home Button" tabindex="0">
</a>
<a href="#links">
    <img src="pics/links.png" alt="Go to Links Section Button" tabindex="0">
</a>
<a href="#signup">
    <img src="pics/signup.png" alt="Go to Sign Up Section Button"tabindex="0">
</a>
```


TAB enabled 1

TAB enabled 2

Video Captions

To make caption for video, I uploaded the video onto Youtube, type in captions, and use embedding as follow:

```
<iframe width="560" height="315" src="https://www.youtube.com/embed/AflAGH_vQrs" title="YouTube
video player" frameborder="0" allow="accelerometer; autoplay; clipboard-write; encrypted-media;
gyroscope; picture-in-picture; web-share" allowfullscreen></iframe>
```

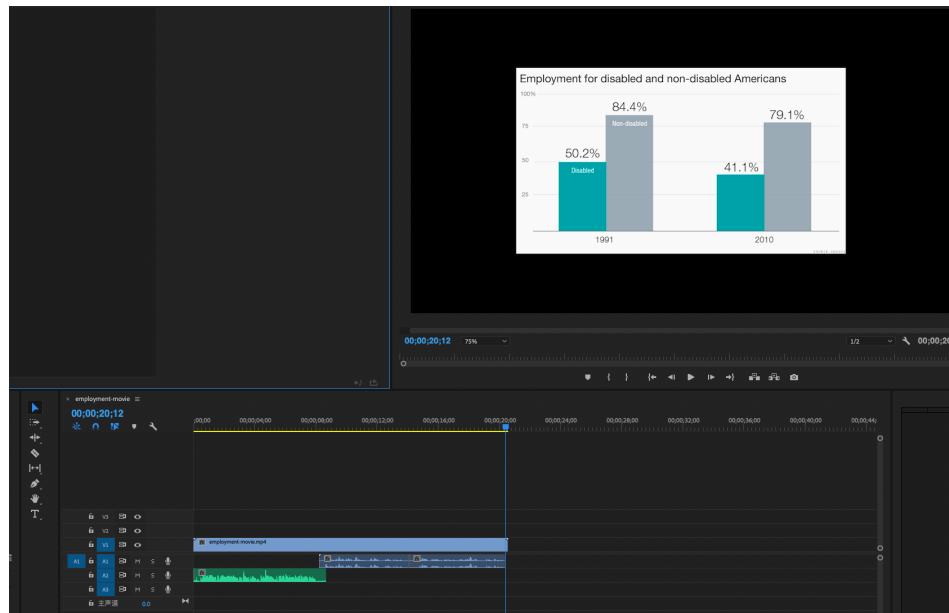Since we have the Youtube player, the original play the video icon is removed in the final result.

Embed Youtube Video

Yanxi Chen (yc3841@columbia.edu) - Feb 11, 2023, 5:08 PM EST
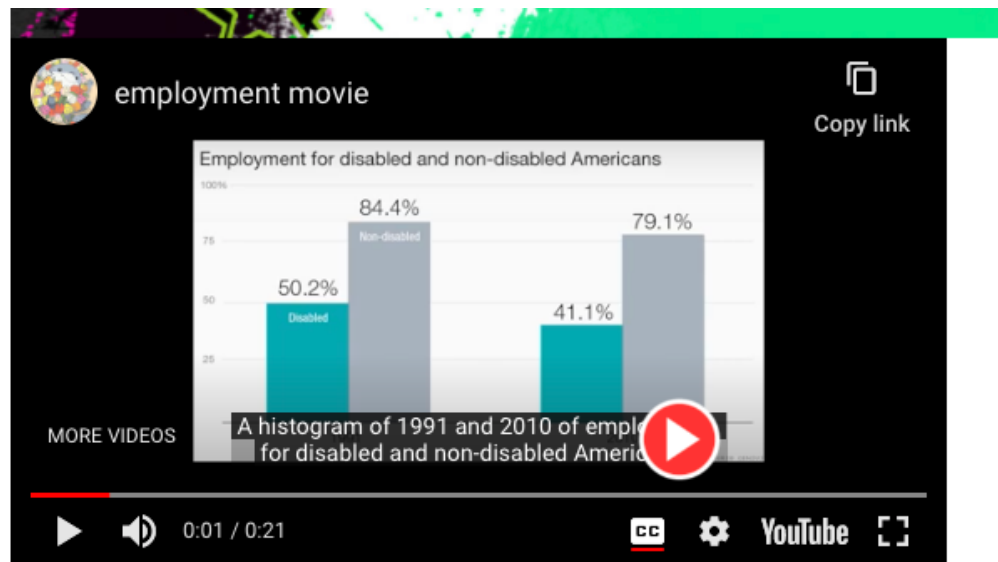
Audio Descriptions

I used Adobe Premiere to add a audio recording of description for the video:

A histogram of 1991 and 2010 of employment

for disabled and non-disabled Americans.

Adding audio using Pr

Keyboard Access

The video playing button is taken place by the Youtube player instead, but I still put it here for reference.

(The video playing button is unable to work by checking using Enter, Hence I added the following code in js file:

```
$("#videoplayer").keypress(function(e){
  if(e.which == 13) {
    if ($($("#videoplayer").children()[0]).attr("src") == "pics/play.png") {
      $($("#videoplayer").children()[0]).attr("src", "pics/pause.jpg");
      $("#thevideo")[0].play();
    } else {
      $($("#videoplayer").children()[0]).attr("src", "pics/play.png");
      $("#thevideo")[0].pause();
    }
  }
});)
```

and the checkbox in Sign Up section doesn't support Enter key, hence:

```
$("#receivespambutton").keypress(function(e) {
  if(e.which == 13){
    if($($("#receivespambutton").children()[0]).attr("src")=="pics/unchecked.png") {
      $($("#receivespambutton").children()[0]).attr("src","pics/checked.png");
      $("#spamyn").val("y");
    } else {
      $($("#receivespambutton").children()[0]).attr("src","pics/unchecked.png");
      $("#spamyn").val("n");
    }
  }
});
```

These functions allows switch with "Enter" key.

Yanxi Chen (yc3841@columbia.edu) - Feb 11, 2023, 6:22 PM EST

Information Conveyed Only via Color

Putting the banner into the Photoshop, I noticed that in black and white mode, it is so hard to identify the title. In other word, the picture is not friendly for color-blind people.

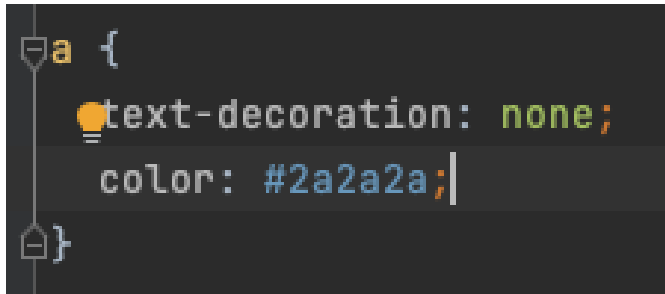Banner not friendly to Color-blind

We modified it in Photoshop:

Colored

Black-and-white result

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Contrast

The color for text in <a> is set to grey which makes the text to have low color contrast with the background. To fix it, I simply modified the color as below:

| Code | Result |

Yanxi Chen (yc3841@columbia.edu) - Feb 11, 2023, 4:24 PM EST

Tab Order & Visible Focus:

When tabing through the page, the video playing icon is selected first, which is not reasonable. We correct this simply by making the tab index to one:

```
<div id="videoplayer" tabindex="0">
```

Yanxi Chen (yc3841@columbia.edu) - Feb 11, 2023, 5:41 PM EST

MISC Accessibility Issues

1. The bottom "Sign Up" section seems to have a bug since wherever I clicked this section, it jumps to a video link. The bug is shown below:

As we can see the bracket is not closed. Hence we do this:

```
<img src="pics/dot.png" alt="dot"> <a href="https://www.youtube.com/watch?v=HtTyRajRuyY">A11ycasts Videos</a><br>
```

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Final Result