

My Notebook  
COMS3162\_assignment2

PDF Version generated by  
Yanxi Chen (yc3841@columbia.edu)  
on  
Feb 11, 2023 @08:31 PM EST

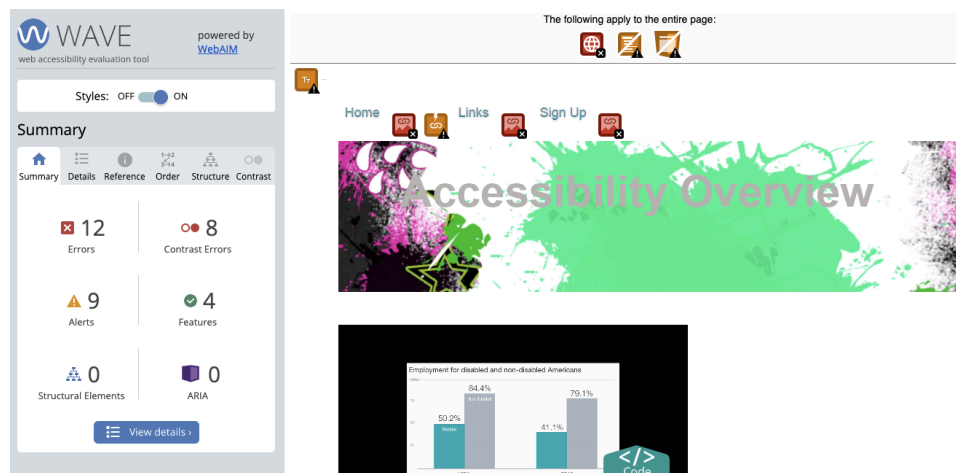
**Table of Contents**

|                            |   |
|----------------------------|---|
| COMS3162_assignment2 ..... | 2 |
|----------------------------|---|



## 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

## 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.  | High     | 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 starts 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 be selected by TAB.<br>The nav-bar images are not detected as buttons. And cannot be selected by TAB. | Middle   | No        |
| Empty form doesn't give alert             | -     | The empty section in form that keep the user from submitting it is not reporting alert.   | High     | 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

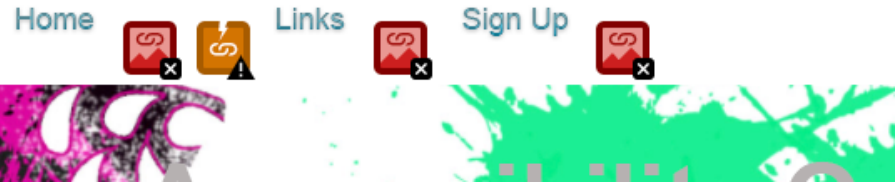
Headings & Landmarks

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>
```



**h1 Accessibility Course**



Heading 1

**h2 Links**

- Accessibility Research at Hamilton
- Disability Services at Hamilton
- XKCD
- A11ycasts Videos

**h2 Sign Up!**

Name:

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>
```

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"></a>
<a href="#links"></a>
<a href="#signup"></a>
```

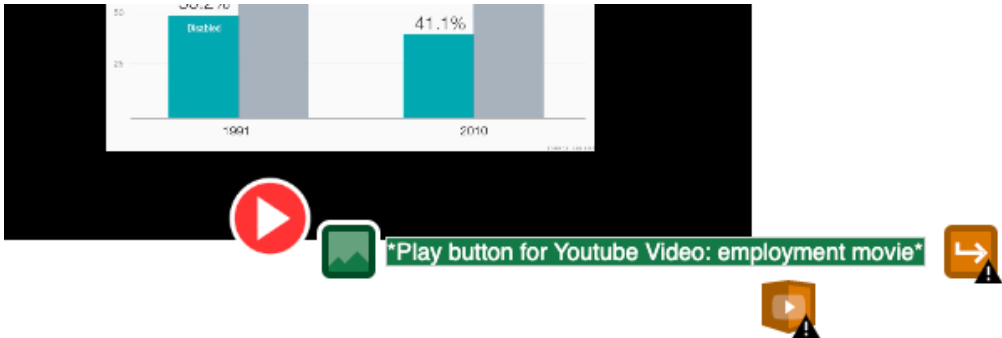


Image alternative text

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

```

```



Play button alternative text

## Form Labels

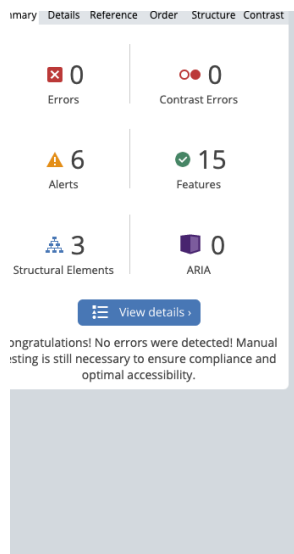
There is no label linked with the input section. Hence, we need to add label with for attribute same as input id for each input. Shown as below:

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>
```



The screenshot shows a web form titled 'Sign Up!'. It includes input fields for 'First Name', 'Middle Name', and 'Last Name', followed by an 'Email' field. Below these is a checkbox labeled 'Would you like to receive occasional emails with offers from us?'. A 'Sign Up!' button is at the bottom. A small 'h2' icon is visible in the top left corner of the form area.

Form Label Result

## Form Widgets without Semantics

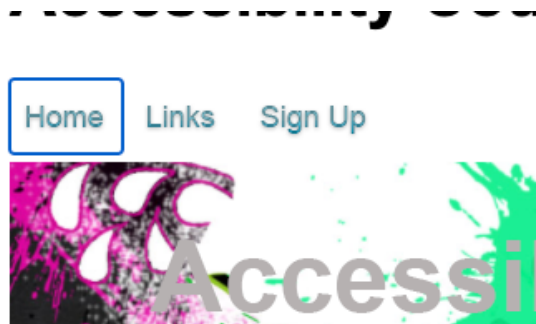
The check box under "Would you like to receive occasional emails with offers from us?" is not detected as a check box and not been able to be selected by TAB.

Hence, I added tabindex as follow:

```
<div id="receivespambutton" tabindex="0">  
    
</div>
```

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

```
<a href="#home">  
    
</a>  
<a href="#links">  
    
</a>  
<a href="#signup">  
    
</a>
```



TAB enabled 1

Email:

Would you like to receive occasional emails with offers from us?

☒

Comments:

TAB enabled 2

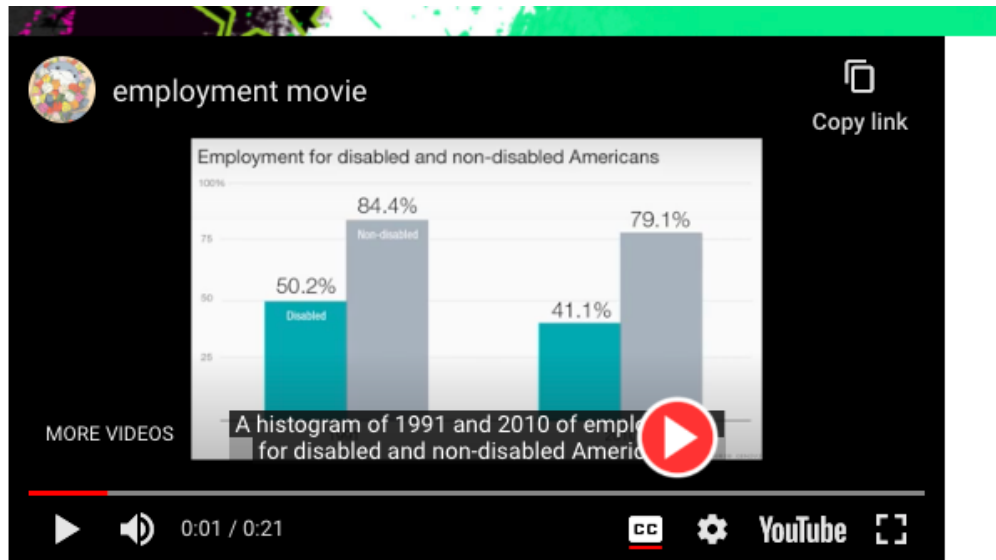


## Video Captions

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.



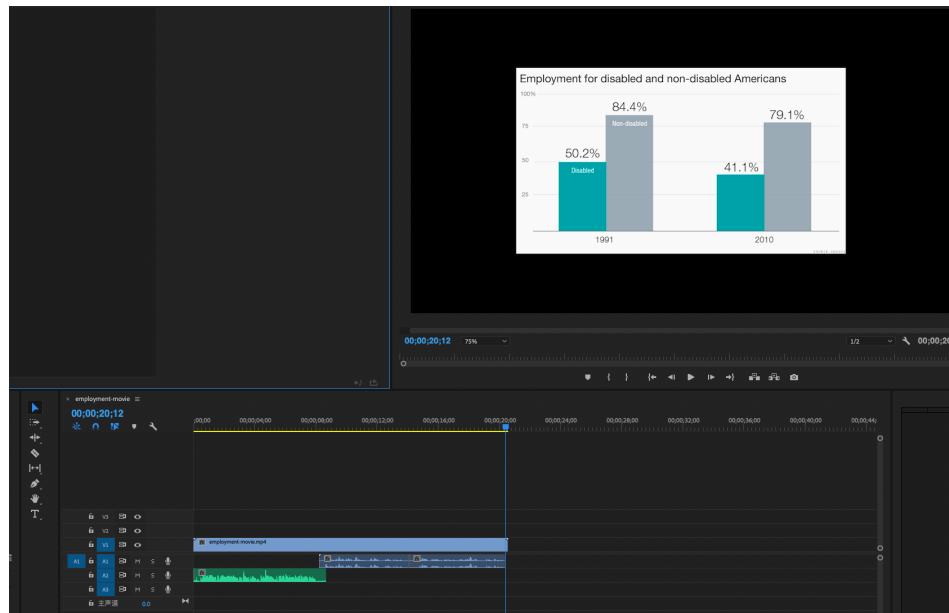
Embed Youtube Video

## Audio Descriptions

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

A histogram of 1991 and 2010 of employment&nbsp;

for disabled and non-disabled Americans.&nbsp;



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.

## 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

## 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:

```
{  
  text-decoration: none;  
  color: #2a2a2a;  
}
```

Code



### Links

- Accessibility Research at Hamilton
- Disability Services at Hamilton
- XKCD
- A11ycasts Videos

### Sign Up!

Name:

Email:

Would you like to receive occasional emails with offers from us?



Comments:

Result

## Tab Order & Visible Focus:

When tabbing 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">
```

## No Alert for empty form

The sign up form is not giving alert when we live the block empty, Hence we add:

```
// Form validation
$("#signupbutton").click(function() {
  if($("#fn").val()=="" || $("#mi").val()=="" || $("#ln").val()=="") {
    $("#name").addClass("error");
    if($("#fn").val()==""){
      alert("First Name is Empty!");
    }
    else if($("#mi").val()==""){
      alert("Middle Name is Empty!");
    }
    else if($("#ln").val()==""){
      alert("Last Name is Empty!");
    }
    return;
  } else {
    $("#name").removeClass("error");
  }
  if($("#em").val()=="") {
    $("#email").addClass("error");
    alert("Email is Empty!");
    return;
  } else {
    $("#name").removeClass("error");
  }
  alert("Thank you! Please watch your email for our exciting newsletter and offers!");
});
```

## 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:

```
 <a href="https://www.youtube.com/watch?v=HtTyRajRuyY">A11ycasts Videos<
```

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

```
&nbsp;<a href="https://www.youtube.com/watch?v=HtTyRajRuyY">A11ycasts Videos</a><br>
```

Final Result

WAVE

powered by

WebAIM

web accessibility evaluation tool

Styles: OFF ON

Details

Summary

Details

Reference

Order

Structure

Contrast

2 Alerts

2 X YouTube video

14 Features

5 X Alternative text

3 X Linked image with alternative text

5 X Form label

1 X Language

5 Structural Elements

1 X Heading level 1

2 X Heading level 2

1 X inline frame

1 X Main content

4 ARIA

4 X ARIA tabIndex

The following apply to the entire page:

tabindex=0

tabindex=0

h1 Accessibility Course

Home

tabindex=0

Go to Home Button

tabindex=0

Go to Links Section Button

Sign Up

tabindex=0

Go to Sign Up Section Button

Accessibility Overview

employment movie

Copy link

Watch on YouTube

h2 Links

Accessibility Research at Hamilton

Disability Services at Hamilton

XKCD

A11ycasts Videos

h2 Sign Up!

First Name: Middle Name: Last Name:

Email:

Would you like to receive occasional emails with offers from us?

checkbox for Would you like to receive occasional emails with offers from us?

tabindex=0

Comments:

Sign Up!