## Context: You are an accessibility expert reviewing HTML for accessibility issues. Analyze the following code in the context of WCAG (Web Content Accessibility Guidelines) 2.2, listing any issues that may violate these guidelines. You will only be analyzing the HTML, ignoring any included or missing styles and scripts.

Code:

```<!DOCTYPE html>

<html lang="tx">

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<title>Your Hospital Name</title>

<style>

body {

margin: 0;

padding: 0;

font-family: Arial, sans-serif;

}

header h1 {

color: #333; /\* Set a darker text color for better contrast \*/

}

header p {

color: #333; /\* Set a darker text color for better contrast with the light background \*/

}

header {

background-image: url('hospital-banner.jpg');

background-size: cover;

color: #fff;

text-align: center;

padding: 80px 0;

}

nav {

background-color: #333;

color: #fff;

padding: 10px;

text-align: center;

}

nav a {

color: #fff;

text-decoration: none;

padding: 10px 20px;

margin: 0 10px;

font-weight: bold;

}

section {

padding: 50px 20px;

}

video {

width: 100%;

height: auto;

}

.container {

max-width: 1200px;

margin: 0 auto;

}

/\* Adjusted button styles for better contrast \*/

button {

background-color: #007BFF;

color: #fff;

padding: 10px 20px;

font-size: 18px; /\* Larger font size for better readability \*/

border: none;

cursor: pointer;

}

/\* Adjusted button styles for better contrast with type="submit" \*/

button[type="submit"] {

background-color: #007BFF;

color: #fff;

padding: 10px 20px;

font-size: 18px; /\* Larger font size for better readability \*/

border: none;

cursor: pointer;

}

/\* Additional style for better contrast on hover or focus \*/

button:hover,

button:focus,

button[type="submit"]:hover,

button[type="submit"]:focus {

background-color: #0056b3; /\* Darker shade on hover or focus for better visual feedback \*/

}

footer {

background-color: #333;

color: #fff;

text-align: center;

padding: 20px 0;

}

</style>

</head>

<body>

<header>

<h1>Your Hospital Name</h1>

<p>Welcome to our state-of-the-art healthcare facility</p>

</header>

<nav>

<a href="#home">Home</a>

<a href="#services">Services</a>

<a href="#departments">Departments</a>

<a href="#contact">Contact</a>

</nav>

<section id="home">

<div id="container">

<h2>Welcome to Our Hospital</h2>

<p>Lorem ipsum dolor sit amet, consectetur adipiscing elit. ...</p>

<button>Learn More

</div>

</section>

<section id="services">

<div id="container">

<h2>Our Services</h2>

<p>Lorem ipsum dolor sit amet, consectetur adipiscing elit. ...</p>

</div>

</section>

<section id="video">

<div class="container">

<h2>Take a Virtual Tour</h2>

<video controls>

<source src="hospital-tour.mp4" type="video/mp4">

Your browser does not support the video tag.

</video>

</div>

</section>

<section id="contact">

<div class="container">

<h2>Contact Us</h2>

<form>

<label for="username">Username:</label><br>

<input type="text" id="username" name="username"><br>

<label for="password"></label><br>

<input type="password" id="pwd" name="pwd">

<input type="radio" id="1" name="fav\_number" value="1">

<input type="radio" id="2" name="fav\_number" value="2">

<label for="2">2</label><br>

<input type="radio" id="3" name="fav\_number" value="3">

<label for="3">3</label>

<input type="checkbox" id="vehicle1" name="vehicle1" value="Bike">

<label for="vehicle1"> I have a bike</label><br>

<input type="checkbox" id="vehicle2" name="vehicle2" value="Car">

<label for="vehicle2"> I have a car</label><br>

<input type="checkbox" id="vehicle3" name="vehicle3" value="Boat">

<label for="vehicle3"> I have a boat</label>

<label for="myfile">Select a file:</label>

<input type="file" id="myfile" name="myfile">

<button type="submit">Submit</button>

</form>

</div>

</section>

<footer>

<p>&copy; 2023 Your Hospital Name. All rights reserved.</p>

</footer>

</body>

</html>

```

Response format:

Snippet with error: …

Location of error: …

WCAG Guideline violated: …

Detection Algorithm: …

Explanation of Error: …

Snippet with error:

```html

<label for="password"></label><br>

<input type="password" id="pwd" name="pwd">

```

Location of error:

In the `<section id="contact">` part of the code, specifically within the form element.

WCAG Guideline violated:

\*\*2.4.6 Headings and Sections (H57)\*\*

Detection Algorithm:

The algorithm checks for proper usage of `for` attribute in `<label>` elements to ensure they are correctly associated with their corresponding input elements. It also verifies that the `id` attributes of the input elements match the `for` attributes of the labels.

Explanation of Error:

The `<label>` element for the password input field (`<input type="password" id="pwd" name="pwd">`) lacks a `for` attribute. This means that users navigating through the page using assistive technologies might not be able to identify this label as belonging to the password input field, potentially causing confusion or difficulty in filling out the form.

To fix this issue, add a `for` attribute to the `<label>` element that matches the `id` of the password input field:

```html

<label for="pwd">Password:</label><br>

<input type="password" id="pwd" name="pwd">

```

Citations:

## Are there any more issues? List all that you find.

Based on the provided code and the WCAG 2.2 AA guidelines, here are additional issues identified:

1. \*\*Issue with Language Attribute\*\*

- Snippet with error:

```html

<!DOCTYPE html>

<html lang="tx">

```

- Location of error: At the beginning of the document, right after the opening `<html>` tag.

- WCAG Guideline violated: \*\*3.1.1 Language of Page (A)\*\*.

- Detection Algorithm: Checks for the presence and correctness of the `lang` attribute in the `<html>` tag.

- Explanation of Error: The `lang` attribute specifies the language of the content within the `<html>` tag. The value "tx" seems to be incorrect or incomplete. Typically, language codes follow the ISO 639-1 standard (e.g., "en" for English). An incorrect or missing `lang` attribute can cause screen readers to misinterpret the content, affecting accessibility.

- To fix this issue, ensure the `lang` attribute accurately reflects the primary language of the page. For example, if the content is primarily in English, the correct tag would be `<html lang="en">`.

2. \*\*Missing Alt Text for Video\*\*

- Snippet with error:

```html

<video controls>

<source src="hospital-tour.mp4" type="video/mp4">

Your browser does not support the video tag.

</video>

```

- Location of error: Within the `<section id="video">` part of the code, specifically where the `<video>` element is defined.

- WCAG Guideline violated: \*\*1.1.1 Non-text Content (A)\*\*.

- Detection Algorithm: Looks for the presence of `alt` attribute in `<img>`, `<video>`, and `<audio>` tags.

- Explanation of Error: The `<video>` element lacks an `alt` attribute providing a textual description of its content. This omission makes the video inaccessible to users who rely on screen readers, as they cannot understand the content of the video without this description.

- To fix this issue, add an `alt` attribute to the `<video>` tag with a descriptive text. For example:

```html

<video controls alt="Virtual tour of our hospital facilities">

<source src="hospital-tour.mp4" type="video/mp4">

Your browser does not support the video tag.

</video>

```

These corrections address specific WCAG 2.2 AA guidelines violations in the provided HTML code, enhancing the overall accessibility of the webpage.

Citations:

[1] https://adabook.medium.com/wcag-2-2-aa-guide-checklist-for-2021-web-accessibility-66c6fdaea034

[2] https://www.levelaccess.com/blog/wcag-2-2-aa-summary-and-checklist-for-website-owners/

[3] https://www.wuhcag.com/wcag-checklist/

[4] https://www.w3.org/TR/WCAG22/

[5] https://www.digitala11y.com/wcag-checklist/

[6] https://webaim.org/standards/wcag/checklist

[7] https://wcag.com/blog/wcag-2-2-aa-summary-and-checklist-for-website-owners/

[8] https://adasitecompliance.com/wcag-2-2-checklist/

[9] https://www.boia.org/wcag-2.2aa-checklist

[10] https://media.dequeuniversity.com/en/docs/web-accessibility-checklist-wcag-2.2.pdf

## Are there any more issues? List all that you find.

Upon further review of the provided HTML code against the WCAG 2.2 guidelines, additional accessibility concerns were identified:

1. \*\*Contrast Issues\*\*

- Snippet with error:

```css

header h1 {

color: #333; /\* Set a darker text color for better contrast \*/

}

header p {

color: #333; /\* Set a darker text color for better contrast with the light background \*/

}

```

- Location of error: Within the `<style>` section of the `<head>` tag.

- WCAG Guideline violated: \*\*1.4.3 Contrast (Minimum) (AA)\*\*.

- Detection Algorithm: Checks for sufficient contrast between text and background colors to ensure readability.

- Explanation of Error: The color values (#333 for text and presumably a lighter color for the background) may not meet the minimum contrast ratio required by WCAG 2.2 for normal text (4.5:1) and large text (3:1). This could make the text difficult to read for people with low vision or color blindness.

- To fix this issue, ensure that the contrast ratio between the text color and the background color meets the minimum requirements. Tools like the WebAIM Color Contrast Checker can help determine if the chosen colors pass the WCAG contrast ratio standards.

2. \*\*Lack of Keyboard Navigability\*\*

- Snippet with error:

```html

<nav>

<a href="#home">Home</a>

<a href="#services">Services</a>

<a href="#departments">Departments</a>

<a href="#contact">Contact</a>

</nav>

```

- Location of error: Within the `<nav>` element, which contains anchor (`<a>`) elements.

- WCAG Guideline violated: \*\*2.1.1 Keyboard (A)\*\*.

- Detection Algorithm: Ensures that all functionality can be accessed via a keyboard interface.

- Explanation of Error: While the navigation links themselves are accessible via keyboard, the lack of a visible skip link or direct access method to the main content from the navigation bar could pose challenges for users relying solely on keyboards or assistive technologies.

- To fix this issue, consider adding a skip link at the beginning of the page that allows users to jump directly to the main content area, bypassing the navigation menu. For example:

```html

<a href="#main-content" class="skip-link">Skip to main content</a>

```

Ensure that the `#main-content` ID exists in your HTML structure to serve as the destination for the skip link.

3. \*\*Form Label Association\*\*

- Snippet with error:

```html

<label for="username">Username:</label><br>

<input type="text" id="username" name="username"><br>

```

- Location of error: Within the `<section id="contact">` part of the code, specifically within the form element.

- WCAG Guideline violated: \*\*3.3.2 Labels or Instructions (A)\*\*.

- Detection Algorithm: Verifies that all form inputs are properly labeled.

- Explanation of Error: The `<label>` element for the username input field is correctly associated with the input through the `for` attribute matching the `id`. However, the label text "Username:" is generic and does not clearly indicate the purpose of the input field, which could confuse users.

- To fix this issue, ensure that the label text accurately describes the expected input. For example:

```html

<label for="username">Enter your username:</label><br>

<input type="text" id="username" name="username">

```

These additional findings highlight areas where the HTML code could be improved to better align with WCAG 2.2 guidelines, enhancing the overall accessibility of the webpage.

Citations:

[1] https://www.w3.org/WAI/test-evaluate/tools/list/

[2] https://www.w3.org/TR/WCAG22/

[3] https://accessibilityinsights.io/docs/web/getstarted/assessment/

[4] https://www.audioeye.com/post/free-accessibility-testing-tools/

[5] https://www.digitala11y.com/accessibility-plug-ins-ie-chrome-firefox-browsers/

[6] https://media.dequeuniversity.com/en/docs/web-accessibility-checklist-wcag-2.2.pdf

[7] https://www.audioeye.com/post/whats-new-with-wcag-2-2/

[8] https://rapidforms.co/blog/22-web-accessibility-testing-tools-for-forms-2024/

[9] https://www.lambdatest.com/blog/accessibility-testing-tools/

[10] https://adasitecompliance.com/top-10-things-know-about-wcag-22/