

Kaplan Accessibility Case Studies






Screen Reader Accessibility






Case Study: Quiz Review Page + ChromeVox

Problem: When using a screen reader, the student doesn't know the context of the word they are hearing.

Example: The screen reader will read in the following order:

 Over Time




	Question	Topic	Subtopic	Difficulty	Time Spent	
	Question 1 Swallow studies have patients swallow a barium rich solution while imaging is done ...	Biology	Organ Systems	Medium	00:02	REVIEW
	Question 2 Stimulation of the sympathetic nervous system would produce which of the following ...	Biology	Organ Systems	Experimental*	00:01	REVIEW
	Question 3 Destruction of which endocrine cells would result in a reduction in the degradation ...	Biology	Organ Systems	Medium	00:01	REVIEW

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Question: What can we do to create this reading order in the screen reader?

i.e. "Topic: Biology, Subtopic: Organ Systems,"




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1	2	3	4	5	6
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ARIA LABELS!


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ARIA LABELS!

Let's see an example

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```
<!--Loops through each question in the test-->
<div *ngFor="let question of testForReview">
  <!--Use a tabindex to allow the student access to this div with a keyboard-->
  <div class="test-details__columns content__topic" tabindex="0">
    <!--Use aria-label to tell the screen reader to say
    this word before it reads the question topic-->
    <span aria-label="topic"></span>
    <span>{{ question.topic }}</span>
  </div>
  <div class="test-details__columns content__subtopic" tabindex="0">
    <span aria-label="subtopics"></span>
    <span>{{ question.subTopics }}</span>
  </div>
  <div class="test-details__columns content__difficulty" tabindex="0">
    <span aria-label="difficulty"></span>
    <span> {{ question.difficulty }}</span>
  </div>
</div>
```

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DEMO

Case Study: Quiz Review Page + ChromeVox

Try it yourself!

Fork the Problem: <https://stackblitz.com/edit/accessibility-arialabel-demo>

Solution: <https://stackblitz.com/edit/accessibility-arialabel-demo-solution>



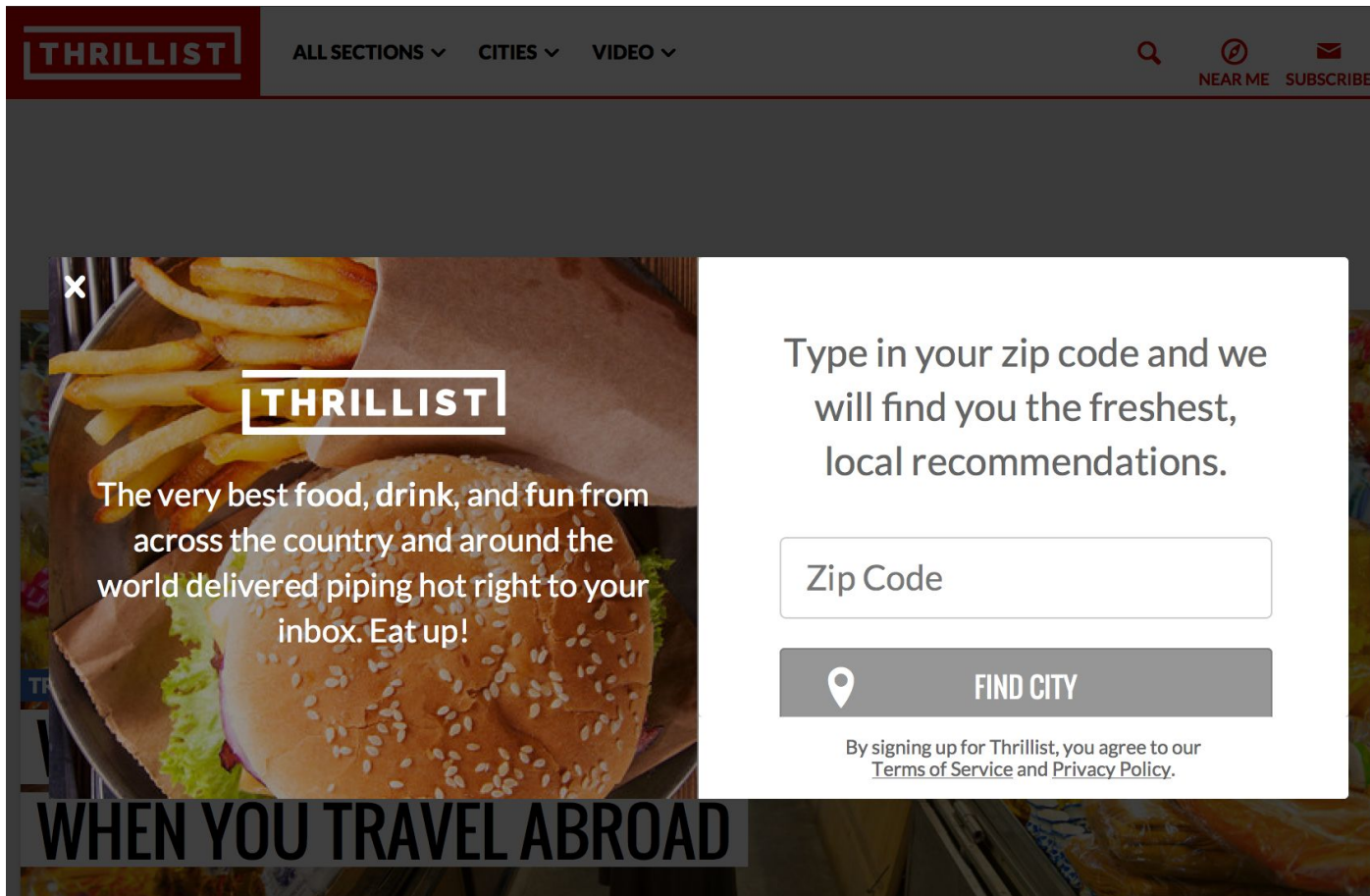
Keyboard Accessibility



Case Study: Higgs Modal + Keyboard Tabbing

Problem: Some users may not have a mouse, or may be using a screen reader to navigate through the website

Example: Some companies will pop an “opt-in” modal when the page loads



The image shows a screenshot of the Thrillist website. At the top, there is a dark navigation bar with the Thrillist logo on the left and navigation links for "ALL SECTIONS", "CITIES", and "VIDEO" in the center. On the right side of the navigation bar, there are icons for search, "NEAR ME", and "SUBSCRIBE". Below the navigation bar, there is a large hero image of a burger and fries. Overlaid on the left side of the hero image is a white modal box with a close button (X) in the top left corner. The modal contains the Thrillist logo, a promotional message, a text input field for a zip code, a "FIND CITY" button with a location pin icon, and a small disclaimer at the bottom.

THRILLIST

ALL SECTIONS ▾ CITIES ▾ VIDEO ▾

NEAR ME SUBSCRIBE

THRILLIST

The very best food, drink, and fun from across the country and around the world delivered piping hot right to your inbox. Eat up!

Zip Code

FIND CITY

By signing up for Thrillist, you agree to our [Terms of Service](#) and [Privacy Policy](#).

WHEN YOU TRAVEL ABROAD

Case Study: Higgs Modal + Keyboard Tabbing

Some “Escape Routes” using a mouse:

- Clicking the X button
- Clicking outside the modal window
- Following the prompt

“Escape Routes” using the keyboard

- ESC key

Can't Escape!!!

THRILLIST

ALL SECTIONS ▾ CITIES ▾ VIDEO ▾

NEAR ME SUBSCRIBE

×

THRILLIST

The very best food, drink, and fun from across the country and around the world delivered piping hot right to your inbox. Eat up!

WHEN YOU TRAVEL ABROAD

Type in your zip code and we will find you the freshest, local recommendations.

Zip Code

FIND CITY

By signing up for Thrillist, you agree to our [Terms of Service](#) and [Privacy Policy](#).

MODAL DEMO

Higgs vs Thrillist

**How do we make a modal
accessible?**

Biggest pain points:

Case Study: Higgs Modal + Keyboard Tabbing

- 1. User should be able to hit the ESC key to exit the modal window.**
- 2. User should NOT be able to tab outside the modal window.**

Case Study: Higgs Modal + Keyboard Tabbing

The keyboard is always listening

We use the HostListener decorator to allow functions to interact with keyboard events.

Each key on the keyboard has a unique id code.

<https://stackblitz.com/edit/keypress-example>

Case Study: Higgs Modal + Keyboard Tabbing

1. User should be able to hit the ESC key to exit the modal window.

```
// Use the HostListener to decorate handleKeyboardEvent, which listens to the keyboard
@HostListener('window:keydown', ['$event'])
handleKeyboardEvent(event: KeyboardEvent) {

    const keypress = event.keyCode;

    // 27 is the keyboard value for ESC key
    if (keypress === 27 && this.isModalShown === true) {
        this.hideModal();
    }
}
```

Case Study: Higgs Modal + Keyboard Tabbing

2. User should NOT be able to tab outside the modal window.

```
// when tab key is pressed
if (keypress === 9 && this.isModalShown === true) {

  if (this.ancestorContains(event.srcElement, 'higgs-modal-dialog')) {
    // if TRUE, focus on the element
    this.tabFocus();
    return;
  } else {
    // if FALSE, prevent it from tabbing and focus on the next
    // element inside higgs-modal-dialog
    event.preventDefault();
    document.getElementById('higgs-modal-dialog').focus();
  }
}
```

Case Study: Higgs Modal + Keyboard Tabbing

2. User should NOT be able to tab outside the modal window.

```
// this will compare if the focused element (node) is inside  
// the parent element (ancestorId). for example, if an h2 or button  
// is inside of the div 'higgs-modal-dialog', it will return TRUE.  
ancestorContains(node, ancestorId) {  
  while (node != null) {  
  
    // we assign the parent element to the NODE variable  
    node = node.parentNode;  
  
    // checks to see if element's parent node contains  
    // 'higgs-modal-dialog'  
    if (node.id === ancestorId) {  
      return true;  
    }  
  }  
  return false;  
}
```