

Accessibility Inspection

Literati Bookstore

<http://www.literatibookstore.com/>

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Executive Summary

An analysis was conducted on the Literati website to identify areas of the site where accessibility is limited, while also indicating site elements that strengthen accessibility. The analysis revealed the following challenges for users with a variety of disabilities:

- **Complex interfaces that can confuse users with cognitive impairments.** Haphazard positioning of elements, an over-reliance on collapsible menus, and redundant content contribute to an overly-complex presentation. Visual complexity forces users to spend cognitive resources simply parsing the layout, an unnecessary burden for users with cognitive or memory impairments.
- **Navigation that favors visual renderings over clear, semantically-relevant markup.** Markup that supports proper navigational labeling, both for accessibility and for sound structure, is used only occasionally throughout the site. Reliance on unlabeled image-links, for example, are common, and inconsequential to visually-impaired users.
- **Ambiguous phrasing and a lack of screen reader support in site markup.** Incomplete markup “grammar” often fails to render content accurately on screen readers. For example, a navigation menu that simply reads “menu” only communicates a navigational purpose if the proper coding is included. Markup designed to support users on screen-readers is almost entirely absent.
- **Insufficient use of the semantically-appropriate markup.** Little use is made of the semantic qualities of the most current markup language, HTML5. Problems with heading tags, and an overuse of generic tags further contribute to a vague and disorderly coding structure that renders poorly on screen readers.
- **Tab settings left to browser defaults, which sometimes skip content.** Users who are unable to operate a mouse must rely on their keyboards to access site content. Unintentional tabbing systems bar such users from full access to the site.
- **Reliance on JavaScript for critical content such as navigation menus.** Not all users will have JavaScript turned on, or even available when they view a website. For these users, no global navigation is available.
- **No way for users to adjust text size.** With the body text set as small as it is, users of all visual abilities are likely to need options for enlarging text.
- **Poor color contrast between text links and backgrounds.** Without sufficient contrast, users with visual impairments and older users will have trouble reading text links.

While these issues are among the most pressing accessibility concerns for the Literati website, additional accessibility issues are detailed in the analysis, along with recommended solutions.

Terminology & Conventions Used

This report includes frequent references to internet technologies. Terms not defined below are explained within the recommendations.

HTML – *abbreviation for “Hypertext Markup Language”*

HTML controls the structural elements of a page, such as major sections, headings, and links.

HTML Tag – *the syntactic unit for HTML*

Tags, sometimes called “elements,” indicate specific structural segments of the page. Tags are indicated by angled brackets. A pair of <p></p> tags, for example, tells the browser to render any text between them as a paragraph.

HTML Attribute – *modifiers for HTML tags*

Attributes provide further specifications for tags. For example, an <input> tag creates a variety of form fields, including text boxes, checkboxes, radio buttons, etc. Which of these types of input will be displayed is determined by an attribute called “type.” For example, <input type = “text”> tells the browser to display a textbox input field, rather than a checkbox or radio button.

CSS – *abbreviation for “Cascading Style Sheets”*

These documents control the presentation of structural elements. The style rules in CSS alter the default presentation of structural elements. Examples of presentation characteristics include color, size, font styles, and responsive layouts.

JavaScript – *the programming language that controls web page behaviors*

JavaScript is used to determine elements on a web page that users can interact with. Examples include dialog boxes, collapsible menus, and pop-up messages. JavaScript can also be used to communicate with servers and control their functions.

Screen Reader – *an application that creates an audible rendition of the content on a computer*

Users with visual disabilities rely on these applications as audial interfaces for web pages. Both Macintosh and Windows include screen-reading applications with their operating systems, but the software can also be purchased separately. Some web browsers, such as Chrome, provide screen readers for web pages as extensions.

Aural Style Sheet – *CSS that controls how screen readers render web page content*

The rules in these documents allow developers to position pauses, control pitch, and set reading speed. Developers can also use these rules to determine wording. For example, a number can be vocalized as “three, six, five” or as “three hundred and sixty-five.”

WAI-ARIA – *abbreviation for “Web Accessibility Initiative – Accessible Rich Internet Applications”*

This set of specifications, set up by the World Wide Web Consortium (W3C), provides standard HTML attributes that target accessibility concerns for users with disabilities. These attributes typically provide strong support for users on screen readers.

ARIA Attributes – *attributes specified through WAI-ARIA*

This report references the ARIA attributes deemed relevant to the analysis.

Aria-Label – *ARIA attribute used for labeling visual content*

These attributes support context and meaning.

ARIA Role – *ARIA attribute used to clarify the purpose of an element*

Examples of an element's purpose include "button" or "banner." These attributes support navigation.

ARIA Landmark – *a subset of the ARIA role attribute*

These attributes identify large sections of page content, such as "footer" or "navigation."

Single quotes are used throughout this report to indicate link labels, headings, and page names. Double quotes are used for body text, quoted text, text displayed on images, and HTML markup.

< > brackets are used to indicate HTML tags.

Code examples are surrounded by a black border.

Priority Levels

The problems identified in this report are listed under three priority levels:

High priority: These issues are likely to have the greatest impact on the largest number of users. Problems listed under this heading can prevent users from accessing critical web content and should be resolved as quickly as possible.

Medium priority: Concerns at this level are likely to disrupt many users' experiences, but the disruptions are less severe and easier to circumvent. If resources permit it, these issues should be addressed after high priority problems are resolved.

Low priority: Low priority issues affect a smaller subset of users, and are generally less disruptive to users' experiences. These problems should still be addressed if time and budget allows it.

Accessibility Guidelines

Simplicity & Clarity

When “form follows function” in an interface, information architecture is both obvious and easily navigated. A clean, simple layout supports accessibility for users with all users.

Practices to Continue

- **Maintaining a consistent layout throughout the site.** The visual continuity of the layout helps users with cognitive impairments, as well as other users, know exactly which site they are on.

Suggested Changes

High Priority:

- **Consolidate content and eliminate redundant elements.** Repeated elements, such as two identical search boxes, clutter most site pages, creating extra visual information for users with cognitive impairments, as well as users on screen readers, to sort through. Purge all redundancies from site pages for a simpler presentation.
- **Reorganize the ‘Advanced Search’ page.** The current interface for this page is unclear, with inconsistency in the types of elements used to display search options and a lack of definition for the different groups of options available. Recommendations for improvement include:
 - **Group related checkbox filter options, and add labels to identify the groups.** The filter options to refine a search query utilize a checkbox and are displayed alongside other form elements throughout this page, leading to an incohesive interface. While these options are currently organized into groups with other similar options, no labels are currently being used to indicate exactly what kind of grouping has been done. Placing all checkbox options in one area on the page and providing labels for each of the groupings will enhance a user’s ability to easily locate and identify these search options.
 - **Remove the ‘Availability’ options from the collapsing/expanding “fieldset” and list these options along with the other options on the page.** By default, the collapsible ‘Availability’ options menu is closed, potentially preventing users from even realizing these options exist. Listing these options on the page along with the other search options will increase their visibility and promote consistency in search option appearance throughout this page.
 - **Remove the collapsing/expanding functionality for the ‘Search For...’ “fieldset.”** This functionality will collapse (or expand if already collapsed) the entire search form on the page, which provides no discernible benefit and only has the potential to confuse users, particularly those with screen readers, who hear irrelevant information about the form’s current state of collapsibility.

- **Provide a text input field with predictive completion for the 'Language' option.** A dropdown menu with an exhaustive list of languages is currently being used for this filter option. Making a selection from this menu with its numerous options may be overwhelming to users, particularly those with cognitive impairments. Replacing this menu with a text input field with predictive completion capabilities would provide a simpler interface and would ease the burden of filling out this field.

Medium Priority:

- **Eliminate the heading and graphical link on the home page for store events.** Information regarding store events is currently being displayed in three areas on the home page: As an item in the global navigation at the top of the page, on the right side of the main content area, and in the main content area itself. As the global navigation item, as well as the right side of the main content area, consistently display information about store events throughout the website, removing the links to event information in the main content area of the home page will help improve the clarity of the home page interface.
- **Limit the filter options for the 'Event Calendar' to month and day.** The 'Event Calendar' can currently be filtered to show events by either month, week, day, or year. This results in an interface that is unnecessarily complicated. Displaying a view of store events for the month by default, and providing an option to see event descriptions by clicking a date in that month, will provide a more streamlined interface and will facilitate use of this feature.
- **Move the social media icon links to the footer area of the interface.** These links are currently located in the header area of the interface, right below the banner image and store information. Conventionally, however, these links are placed near the bottom of the page, in the footer area. Moving these links from the header area to the footer area will follow the established convention for the location of this content and align with user expectations.

Low Priority:

- **Remove the collapsing/expanding functionality of the 'Shopping Cart' heading, and list items currently in the shopping cart on the page instead.** The listing of the items currently in the user's shopping cart are contained within a collapsing/expanding section on the right side of the main content area. A view of cart contents can be toggled by clicking on the 'Shopping Cart' heading. However, keeping this information out of view may be confusing for some users. Keeping this information visible on the page at all times would enable users to quickly ascertain what is in the shopping cart at any given time.
- **Remove the 'Add a Credit Card' link from the 'Saved Cards' page of the 'User Account' section.** There are two links on the 'Saved Cards' page for adding a new credit card to an account that are in very close proximity to each other. This is redundant and simply serves to clutter the interface. Removing the 'Add a Credit Card' link will eliminate this redundancy and simplify the interface.

- **Eliminate the 'Upcoming Events' information on the right side of the 'User Account' section to reduce visual clutter.** The 'User Account' section of the website has a different interface from the rest of the website. However, the 'Upcoming Events' section on the right side of the page is maintained in this interface. Retaining this section on this page is inconsistent, as the majority of the content that is seen on the other pages of the website is not shown here. Removing this section of the page will remove unnecessary aspects of the 'User Account' interface, thereby reducing visual clutter on the page and highlighting the essential page content.
- **Add more white space between the 'List' and 'Add' text links and the first input field label on the 'Add a Payment Profile' page, and align the label for this input field on the left side of the form.** There is currently insufficient white space between the links that manage billing options and the first input field label for this form. This results in the 'Label' label for the first input field being pushed to the right, above the middle part of the input field itself. Adding more white space between the text links for managing billing options and this first input field label will restore alignment of these elements and increase visibility of the label for the first input field.

Supporting Visual & Non-Visual Navigation

Navigational paths and layouts should be clear and efficient for users of all visual abilities.

Practices to Continue

- **Providing a skip link.** Enabling users to directly navigate to major page sections greatly facilitates movement throughout the website and reduces the need for users to hear the same page sections being read by the screen reader repeatedly. It should be noted, however, that the skip link used for this site is ignored by some screen readers.
- **Using blue font color to indicate text links.** The color blue has a long history as the color for text links, so users with strong color vision will have no trouble identifying them as such.
- **Using ARIA role attributes in major page elements.** Landmark role attributes are used appropriately in the header, a divisional section identified as the main content, and the footer.

Suggested Changes

High Priority:

- **Trigger drop-down submenus, with a click event rather than a hover event.** Hover menus present significant challenges to users with impaired motor skills, as they require users to maneuver a mouse to not only reach a given target, but also to maintain that target's visibility. Triggering the appearance of drop-down menus with a click ensures the menu is visible, allowing users to focus exclusively on reaching their target.
- **Include local navigation menus for each section of the site.** While drop-down menus are globally available, local navigation menus set to the side or directly below the global menu quickly indicate to users which section they are in and what sort of content is available in it. Create these local menus with HTML, rather than JavaScript, to ensure users on devices without JavaScript, as well as users with physical disabilities, have full access to them.
- **Remove the link to the home page that is embedded in the banner image and include it on the global navigation menu instead.** Few users are familiar with the common practice of embedding a link to the home page in a logo in the top, left corner. Hiding this link in the banner image is even further from users' expectations, particularly those with cognitive impairments. Including 'Home' in the list of menu links will create a clear path to the home page for all users.
- **Use an "aria-label" attribute for the link element to indicate the link's destination.** When viewing a graphic-image link, users with sight interpret the image and link as unified. Users listening on a screen reader, however, hear the image and link elements as two distinct entities, not necessarily related to each other. An ARIA label for the link itself will let users know where the link leads. Implement an aria-label for a link as follows:

```
<p>Explore the various &nbsp;<a href="http://literatibookstore.com/event" aria-label =  
"learn more about our book clubs">book clubs</a>we host.</p>
```

- **Provide at least 44px of space between text links.** On the ‘Staff Picks’ pages, for example, text links with the author’s name are right beneath text links of the book title. Users with motor impairments such as tremors are likely to find this close arrangement impossible to use. The commonly-used accessibility standard for finger targets is 44px.
- **Use an ARIA label for the image element of image links to ensure all screen readers have descriptive text for the image.** A graphic image link is of no use to visually-impaired users. For example, the sidebar link, ‘Click Here for Our Full Events Schedule’ is a graphic image with no labelling of any kind. The screen reader simply vocalizes this element as: ‘navigation link’. Match the visual context of image links by adding an aria-label for the image, as well as the link element.
- **Include ARIA role attributes for tabbed navigation interfaces.** For example, on the ‘User Account’ page in the ‘My Account’ section, the tabs for ‘Create a New Account,’ ‘Log In,’ and ‘Request New Password’ are all separate pages focused on a single subject. A screen reader renders these links as simply links in a navigation list, ignoring the visual context provided by the tabbed arrangement. To replicate this context with ARIA, provide an ARIA “role” attribute of “tablist” for the enclosing tag and provide a role attribute of “tab” for each of the tags in the list.
- **Replace vague text link labels with ones that explain where a link leads.** For example, a text link at the bottom of the ‘Upcoming Events’ section simply read, ‘More.’ As users with screen readers navigate by listening to links, the link’s destination should be relayed in the text itself. Changing this link to ‘More Events’ provides the specific information users need before they click.
- **Underline text links.** Users with blue-orange color blindness will not be able to distinguish the blue text links from unlinked text. Underline these links to ensure these users can identify text links.
- **When a user tries to submit a form with errors, set the focus on the errored field.** The forms on the site are typically short, so a sighted user can easily find an error-marked field. But on a screen reader, a user attempting to submit an errored form must start at the very beginning of the document and navigate all the way to the errored element. Prevent user frustration by immediately positioning the cursor at the first field containing an error.
- **Include ‘Browse Books’ categories on the ‘Books’ page in the ‘Shop’ section.** Categories for books are currently buried in third-level book description pages, and even these don’t all display the full list of available categories. Hiding this comprehensive menu prevents users of every ability from accessing the company’s book inventory. This, in turn, makes book sales through the site unlikely.

Medium Priority:

- **Create a border to separate the general search from the advanced search.** Currently, a general site search is indicated by placeholder text reading, 'title, author, keyword.' This text floats above an underlined link for the advanced search. These two elements are surrounded by a single border, creating an impression of a single search box. Because the advanced search option matches web conventions (underlining a text link), while the floating placeholder text does not, users are likely to confuse one type of search for the other. Users with cognitive disabilities who click 'Advanced Search' would then be confronted with a long series of complicated filters. A border separating the two search options will help all users find the best search option for their needs.
- **Include a visible label for the search box.** Currently, search boxes are visually indicated only by the placeholder attributes, 'title, author, keyword or ISBN.' A label element is provided, but it is hidden by a CSS style rule. Users with no visual impairments also need labels on form fields, especially users with cognitive impairments who are less likely to recognize the search box without an explicit label.
- **Place search criteria options outside of the search input field.** The site search box contains placeholder text indicating 'title, author, keyword' as the appropriate types of search criteria. When a user begins to type, however, this placeholder text disappears. Place form instructions for any text box next to, but outside the input boxes.
- **Remove or shrink the banner image to provide clear indications of page changes.** The uniform layout of site pages, combined with the large banner image in the middle of the page, ensure that the content above the fold remains the same regardless of what link a user has clicked. For users with memory impairments, a lack of visual cues when a page has changed can create significant confusion. The large banner image also presents an obstacle for users viewing the website with a screen magnifier, as they must scroll past a magnification of this image, making the already large image even larger. Support users' orientation on the site by making room for unique content "above the fold."

Low Priority:

- **Remove 'Our Blog' from the global navigation menu and replace it with a feature link labeled, 'Our Blog Site.'** Links on the global menu are assumed to lead to areas on the site itself. However, the blog is an external site, and once off the bookstore site, users may have trouble returning. Visually distinguishing the link as a feature, and including the word "site" in the label, will help users of all cognitive abilities retain navigational control.
- **Place text links at the end of sentences and at the end of blocks of text.** Some screen readers do not distinguish links in the flow of text from links in a or list. In these cases, the reader will stop at the end of a block of text and wait for the user to arrow forward before continuing. When text links are embedded in text, these screen readers will stop mid-sentence at a text link and provide no indication that there is anything else to read. Position text links at the end of text so users are not cut off from text content.

- **Remove content concerning 'Literati Cultura' book subscriptions from the 'Book Clubs' section, and include it in a local navigation menu in the 'Shop' section instead.** Including subscriptions under the heading of 'Clubs' is confusing because there is no hierarchical relationship between the two concepts. A user with cognitive impairments would face even more difficulties parsing this tenuous association. Ensure navigation to subscriptions is accessible for all users by grouping it with gift cards and other marketing approaches in the 'Books' section.

Proper Text Markup & Phrasing

As languages, both HTML and English have semantic and syntactic structures. And in both languages, proper grammar, articulate word (or tag) choices, and succinct phrasing, all support a clear, user-friendly experience.

Practices to Continue

- **Using the <abbr> tag with the title attribute for the ‘Qty’ (quantity) column of the ‘Shopping Cart’ page.** This tag allows abbreviations to be defined, which provides context to users on screen readers. Further recommendations concerning the <abbr> tag are detailed in the ‘Suggested Changes’ section below.

Suggested Changes

High Priority:

- **Use ARIA role attributes to describe the purpose of structural elements.** Without the benefit of visual cues like size hierarchy, font styling, and position, ARIA roles provide critical navigational information for users on screen readers. While a few site elements currently use the role attribute, more should be included. Examples of roles to use include “menu” for drop-down menus and form menus; “images” with tags; “heading” for <h1>, <h2>, and <h3> tags; “checkbox” for checkboxes; and “radio” for radio buttons on forms.
- **Use ARIA landmark attributes on all page sections to provide a semantic context for the page’s structure.** While a few landmark attributes are currently in place, such as “contentinfo” in the footer, all page sections should include landmark attributes. Landmark attributes should be implemented as follows:
 - role = “banner” – only one per page, for the site-oriented section at the top of the page
 - role = “search” – for search boxes
 - role = “navigation” – for groups or lists of navigation links
 - role = “main” – only one per page, for the main content section of the page
 - role = “complementary” – for sections that complement the main content
 - role = “form” – for sections containing form input elements
 - role = “application” – for any software components where keyboard commands are handled by an application other than the browser

- **Place landmark attributes in generic elements surrounding semantically-meaningful ones.** Because of the current level of screen-reader support, landmark attributes should not be used on tags that already have a specific meaning, such as . Instead, wrap these elements in non-specific container tags, such as <div> and , and use the landmark attributes on those. An example follows:

```
<div role = "navigation">
  <ul>
    <li>Home</li>
    <li>Books</li>
    <li>Events</li>
  </ul>
</div>
```

- **Use aria “describedby” attribute for form element instructions.** For example, on the ‘Log In’ form under ‘User Account’, the instruction “Enter your Literati Bookstore username” is placed beneath the textbox the instructions are referencing. For a sighted user, this is a good practice, but users with screen readers will hear “textbox” before they hear the textbox instructions, enabling user error. The ARIA “describedby” attribute is typically used to associate input instructions with form elements. To implement this attribute, add an “id” attribute to the text <input> element with any instructions needed. Then use that “id” value as the value for the “describedby” attribute. An example follows:

```
<input aria-describedby = "instructions" type = "text" />
<p id = "instructions">Enter your Literati Bookstore username.</p>
```

- **Use “aria-required” attribute for required form elements.** Screen readers vocalize the word “star” to render the asterisk currently in use on required form elements. The “aria-required” attribute alerts screen readers to a required field more accurately. Implement this attribute as follows:

```
<input aria-required = "true" aria-describedby = "instructions" type = "text" />
<p id = "instructions">Enter your Literati Bookstore username.</p>
```

- **On forms with required fields, include text explaining that the asterisk means “required.”** For example, on the ‘Add Credit Card’ form under ‘Billing’ in the ‘My Account’ section, asterisks indicating required fields are never defined as such. Users with cognitive impairments may not recognize asterisks as a commonly-used symbol for required fields. Support users of all cognitive abilities by adding an explanation of the asterisk at the top of forms with required fields.

- **Use <label> tags for all single form controls.** Label tags are rarely used for form fields on the site, forcing users with screen readers to glean context from a field's proximity to text elements. If there is no text close by, such as for the 'Search Box,' the screen reader provides no information at all. For users with physical disabilities, clicking on a <label> tag automatically directs the focus to the form element it labels. Ensure all form elements are clearly indicated as such by using <label> tags. To implement the label tag, include a "for" attribute that links the label with an 'id' attribute in the input field itself. An example follows:

```
<label for = "city">City</label>
<input type = "text" id = "city" name = "address" />
```

Alternatively, surround the <input> tag with the <label> tag, as follows:

```
<label>City<input type = "text" /></label>
```

- **When using the <label> tag, always include a 'for' attribute.** If a form label lacks a "for" attribute, users on screen readers must rely on document sequence to infer any association between a label and the form field it describes. An example of this problem can be seen in the 'Shopping Cart' table where the total purchase price is described as follows: "<label>Total:</label>." The text "Total" could refer to the total number of items, a subtotal, a subtotal with shipping, etc. The "for" attribute links this label to the proper field, alleviating users on screen readers of extra cognitive strain.
- **Use "aria-labelledby" attribute for multiple fields using a single label.** When a single form control uses a single label, the <label> tag is the best choice as it establishes semantic structure in the document while maintaining any functionality assigned to it. When groups of fields use a single label, however, the "aria-labelledby" attribute is a better choice. This attribute tells a screen reader to associate each field in the group with a single label. Implement this attribute as follows:

```
<input type = "text" name = "cityaddress" aria-labelledby = "addresslabel">
<input type = "text" name = "stateaddress" aria-labellleby = "addresslabel">
```

Medium Priority:

- **Avoid unusual punctuation that some screen readers may not be programmed to parse.** For example, on the 'Advanced Search' page, a collapsible menu link is labeled, 'Search For...'. Some screen readers will read this as, 'search for ellipses.' Semicolons, colons, and apostrophes cause a similar problem. Whenever possible, limit punctuation to commas and periods.

- **Include <abbr> tags when using abbreviations in text.** On the 'Wish List Settings' page, the options on the month selector for wish-list-item expirations are all abbreviations. Screen readers then render this list as "Jan," "Feb," "Mar," "Apr," etc. Ensure users on screen readers hear the month fully articulated by enclosing any abbreviated text with inline <abbr> tags and including a "title" attribute. An example follow:

```
<th><abbr title = "Sunday">Sun</th>
```

- **On drop-down menus, include a default option value that indicates an action such as, 'Select a Date.'** Several drop-down menus on the site, such as 'Publication Date Within...' on the 'Advanced Search' page, present a blank option for the default. While a screen reader will indicate what sort of control a user is on, setting an instructive default option alerts users to the purpose of the control. Do not present one of the actual options in the menu as a default unless it is very likely to be chosen. An example would be the 'United States' for a 'Country' selector.
- **Ensure all text is written at an 8th-grade reading level.** While it may seem counterintuitive for a book store to support lower literacy standards, it is a necessary measure for maintaining global accessibility. Users with cognitive impairments or lower educational levels are likely to abandon pages with content that's too challenging to comprehend.

Low Priority:

- **Avoid homonyms in labels to support clarity for users on screen readers.** For example, in the 'Shop' section, item description pages use the word "by" before an author's name. This could be misinterpreted as "buy" when a user hears it on a screen reader. Re-label this to something more descriptive, such as 'Author,' to avoid confusion.
- **On the 'User Account' page, replace the button label 'Email New Password' with 'Request New Password.'** The labels on the submit buttons for the 'Create New Account' and 'Log In' forms match the headings of the tabs they are on. However, the submit button for the 'Request New Password' form is labeled 'Email New Password.' Re-labeling this to 'Request New Password' will reiterate the purpose of this form as well as match the pattern for labelling used on the other tabs for this section. Between the label and the input field, include text to alert users that the new password will be sent via email.
- **Use simple wording in instructions.** For example, instructions and explanations for terminology used on book description pages spans four lines. Condense all of this information into, "If we don't have the book you're looking for, we'll ship it to you in 1-5 business days." Complex wording burdens users with cognitive impairments. Phrase all instructions as succinctly as possible.

Proper Structural Markup

Proper use of both HTML and CSS ensures a seamless rendering of content through screen readers, as well as a clearer and more robust site.

Practices to Continue

- **Implementation of “lang” attribute.** Specifying the language of the HTML document enables assistive technologies to properly interpret the content on the page in accordance with the nuances of a particular language.
- **Use of <fieldset> and <legend> elements for ‘Add a Payment Profile’ page.** The <fieldset> element groups related elements and their respective labels together within a web form and adds a border around these related elements, while the <legend> element adds a caption for the <fieldset> element. This is the proper implementation of these elements, which provides semantic information regarding these page elements.

Suggested Changes

High Priority:

- **Utilize HTML elements appropriately.** When implemented properly, HTML markup can provide semantic information regarding page content and structure, which assists users in navigation of the website and interpreting page content and structure. However, when these are misapplied, users can have a very frustrating experience on the website. Recommendations to rectify this situation include the following:
 - **Ensure each page has a top-level heading that is descriptive.** While most of the pages on the website do include a top-level heading within <h1> tags, some pages do not have one at all, such as the ‘Events Calendar’ page, which causes difficulties for users with screen readers who rely on page headings to navigate through the website. In addition, some pages have unclear heading text, such as ‘Claire’ instead of ‘Claire’s Picks’ under the ‘Staff Picks’ section, which does not provide adequate information to users. Including a top-level heading within <h1> tags on every page will orient users as to their location on the website and will provide the ability to navigate the website by using page headings.
 - **Use heading tags for headings only.** Screen readers assume any heading tag, such as <h1>, <h2>, etc., should be read as a heading. The ‘Gift Cards’ link on the ‘Home’ page is set inside an <h3> tag. The screen reader responds by reading the link’s url as if it were a content heading. Use heading tags, and all other semantically-meaningful tags, for their intended purposes. This ensures proper rendering on both visual and aural platforms.

- **Use heading tags instead of generic markup when appropriate.** The ‘Event Requests’ page denotes page sections with boldface text within paragraph tags. However, as these lines of text are actually serving as section headings on the page, using heading tags instead would be most appropriate and would provide semantic information regarding page structure.
- **Use heading tags appropriately, progressing from the highest-level heading to lower levels.** For instance, on the ‘Feminist Book Club’ page, an <h3> element is used for the event date and time while the <h2> element is used later on the page for the book title. This breaks the logical ordering of heading tags and does not provide appropriate page hierarchy. Ensure heading tags are used properly, with tags progressing from <h1> to <h2> to <h3> and down to <h6> in order to provide the correct page hierarchy.
- **Use the <dl> tag for description lists only, with <dt> tags used to define terms and names and <dd> tags used to describe these terms and names.** The ‘View’ tab on the ‘User Account’ page utilizes <dl> tags in conjunction with <dt> and <dd> tags for the “Orders” and “Member For” sections of this page. However, this content does not qualify as a definition list. Use headings and paragraph tags to structure this content instead in order to give it the appropriate context within the document.
- **Remove hidden <h2> tags with text, “You are here.”** Most pages on the site include the following before the <h1> tag:

```
<h2 class = "element-invisible">You are here</h2>.
```

While it is possible that at some point this hidden tag was used in an implementation of breadcrumbs, there are currently no breadcrumbs on the site. Users on screen readers simply hear, “You are here” with no context.

- **Replace <h2> tags used for hidden content with <div> or tags.**
When content must be hidden, use generic tags so screen readers don’t misinterpret them.
- **Use paragraph tags for text content.** On the item listing pages under the ‘Shop’ section, body text is structured using <div> tags alone. However, this markup does not convey any information regarding this content. Utilizing the appropriate HTML elements for text, such as paragraph tags, would structure this content in a more meaningful way.
- **Use CSS to control page layout instead of tables.** The “Shopping Cart” section on the right side of the website currently utilizes an HTML table for the layout of the total number of items and the total price of items in the shopping cart. Using the table element to control page layout is a misuse of this element, as it is intended only to display tabular data. Using CSS rules, such as floats, instead of structural elements to dictate the presentation of page content will conform to the acceptable usage of these languages.

- **Fully implement HTML5 section elements.** Currently, HTML5 elements are used intermittently, but not always correctly. For example, <article> is used without any <main> tag around it. HTML5 elements are designed to create more meaningful document structures, which is a key component of accessibility for users on screen readers. HTML5 elements should be used as follows:
 - <main> – for the main content area
 - <header> – for heading tags, such as <h1>, <h2>, etc., and any other heading content
 - <footer> – for the footer section
 - <section> – for a section of content
 - <article> – for an article within a section
 - <aside> – for content in a sidebar
 - <details> – for any additional details that can either be viewed or hidden, such as a collapsible FAQ list
 - <summary> – defines headings for <details> content
 - <dialog> – for dialog boxes or windows
 - <figure> – for containing illustrations, diagrams, or photo
 - <figcaption> – used inside <figure> for the images contained in <figure>
 - <nav> – for navigation links
 - <menuitem> – for items on a popup menu
 - <time> – for dates and times, as would be used in events schedules, for example

Medium Priority:

- **Use HTML Unicode to display symbols for the Advanced Search box.** The 'Advanced Search' text link under the search box on the right side of the page is currently housed as a list item in an unordered list. This appears to be for the sole purpose of adding a bullet point to the beginning of this link. However, this is a misuse of the unordered list element, as this element is to be used for a list in the HTML. Using Unicode to render a bullet point instead would avoid using structural elements for presentation and will ensure appropriate separation of structure and presentation in the interface.

Providing Content & Context

Sighted users typically register the context created by visual cues subconsciously. Gestalt principles of perception such as enclosing groups in borders or presenting similar items in a similar way, are meaningless to users with limited vision. Ensuring this visual content is rendered in alternative ways is critical to full accessibility.

Suggested Changes

High Priority:

- **Use an “alt” attribute for the image element of image links to guarantee alternative text descriptions are available for all users.** Unlike an ARIA label, an “alt” attribute will deliver textual information to users of all visual abilities in the event of broken image links or network failures. For example, on the ‘Shop’ landing page, all book links are embedded in images with no “alt” attributes or any other labelling. On a screen reader, a user does not even hear the book title, only a recitation of the jpeg’s file path. If these links are broken, or if a user is on a screen reader, they will not only be barred from purchasing books on this page but on all other inventory pages as well, since there is no local navigation within the section.
- **Include “alt” attributes on all tags.** Just as linked images should have “alt” attributes, so should unlinked images. Images that convey important information, such as infographics, need an “alt” attribute to convey content. Information about tone and atmosphere is conveyed in aesthetic images, and this should be shared as well. The photograph used for the banner image on the site, for example, has an “alt” attribute but no value. Include a short description of this evocative photograph of the storefront by using an “alt” attribute with the image’s tag. For lengthy descriptions of images, use the “longdesc” attribute with a link to the text associated with it.
- **Use aural style sheets to specify how content such as store location and contact information should be spoken.** When certain content is read by a screen reader, it can be pronounced incorrectly. For example, the zip code “48104” is read as “forty-eight thousand one-hundred and four” by some screen readers. Using aural style sheets to specify how this information should be spoken would provide the appropriate interpretation of this content.
- **Use accessible PDF documents.** On the ‘Event Requests’ page, there are links to forms related to store events that are in PDF format. However, these documents have not been tagged appropriately and are therefore completely inaccessible to users with screen readers. Ensure PDF documents are created as tagged PDFs in order to make this content available to all users.

Medium Priority:

- **Place help text above the input field.** Currently, any help text provided for input fields is listed below the input fields. Listing this information above the input field will provide users, particularly those with screen readers, with the necessary information needed to fill out a field before the input field itself is reached.
- **Position asterisks indicating required input fields after input labels.** The newsletter sign-up form on the 'Home' page includes asterisks at the beginning of required input field labels. However, this is contrary to how required fields are denoted throughout the rest of the website, where the asterisk is listed after the label. Placing the asterisks after the labels for the newsletter sign-up form will ensure a consistent appearance for forms throughout the entire website.
- **Use descriptive text for hidden explanatory text for page elements.** On the 'User Account' page, there is tabbed navigation for 'Create New Account,' 'Log In,' and 'Request New Password,' and these tabs are described to users with screen readers as "Primary Tabs," which is included in the markup but is hidden to sighted users. However, this description is vague and does not adequately describe the nature of these elements. Providing a more detailed description such as "Tabbed Navigation" would maximize the benefit of this markup to users hearing this description read by a screen reader.

Low Priority:

- **Re-label book club page headings in order to clarify meaning.** The dates for the next meetings of the 'Literati Book Club' and the 'Feminist Book Club' are listed at the top of these pages. However, the meaning of these dates is unclear, as there is no information provided other than a calendar date. Adding the words "Next Club Meeting" prior to these dates would provide information necessary to clarify the meaning of this text.
- **Provide descriptive names for image file names.** While using the alt attribute is the most effective way to provide text context for images, using descriptive file names can also provide information about images that can be communicated by screen readers, as these devices can read image file names when information is not provided through other means.
- **Ensure labels are used for calendar dates, times, and price information.** When read by a screen reader, dates and prices can seem out of place. Providing labels such as 'Date,' 'Time,' and 'Price' will ensure these pieces of information are read in the appropriate context.

Device Independence

Users may be accessing a site on devices that address specific disabilities. In some cases, for example, a mouse may not be available. Creating sites that can be used on a variety of devices strongly supports accessibility.

Practices to Continue

- **Links and buttons are touch-screen accessible.** Mobile touch-screen interfaces are currently supported.

Suggested Changes

High Priority:

- **Create a tabbed index on all pages to support users who cannot use a mouse.** The “tabindex” attribute allows developers to override the default tabbing order for a browser and tailor its sequence for users restricted to keyboards (both sighted and non-sighted). For example, the default sequence for tabbing currently places a second search box after a feature link labeled, ‘Read Our Blog,’ a link also included on the global navigation menu. A faster tabbing sequence could be achieved by purging these redundant elements from the tab sequence. Note that designated tab indexes are given sequential preference over default ones. Any implementation should be tested to avoid conflicts with browser default settings. An example of the tabindex is as follows:

```
<ul>
  <li><a href = "/services/" tabindex = "1"></a></li>
  <li><a href = "/products/" tabindex = "2"></a></li>
  <li><a href = "/contact/" tabindex = "3"></a></li>
</ul>
```

- **Include ‘tabindex = “0”’ for elements that usually don’t receive tab focus.** Tabs such as <div>, , <p>, and an <a> with no “href” attribute do not automatically receive keyboard focus. By giving those elements a tabindex of ‘0,’ users restricted to keyboards will be guaranteed access to those segments and any functionality they contain.
- **Order tabindex values by ‘10’ to accommodate future scaling.** As changes to the site are made, separating current tabs by ten positions will allow developers to insert new page elements without upsetting the logical tab order. For example, if a tabindex value for an tag is set at “3” and the next one is set at “4,” there is no room to add an additional between them if the need arises. But if the first tag is set to “30” and the proceeding tag is set to “40,” developers can insert tags at values between “31” and “39.”

Graceful Degradation

Most users lack the resources and/or knowledge to keep up with the rapidly-changing world of web technology. Maintaining alternative routes to access content ensures users with outdated devices or applications can still use the site.

Suggested Changes

High Priority:

- **Implement the <noscript> tags to display alternative content to users with JavaScript disabled.** The <noscript> tag has not been implemented on the website. This tag is used to insert alternative content to be seen by users who have JavaScript disabled or who otherwise cannot display JavaScript content. Displaying content using the <noscript> tags will ensure content can be seen by these users.
- **Replace hover menus in the global navigation with text links and use local navigation text links from these main category pages to link to sub-navigation pages.** The global navigation menu consists of hover menus that list sub-navigation items in a cascading list. When JavaScript is turned off, the cascading list items are not visible but still need to be tabbed through in order to navigate through these lists. Replacing these hover menus with text links that lead to the global navigation pages and using local navigation text links to link to sub-navigation pages would ensure all users are able to navigate through these sections.

Medium Priority:

- **Replace the collapsible shopping-cart view with a button link to the cart.** The shopping cart is globally available throughout the site, but only if a user has JavaScript available. A button link ensures all users can access this critical site component.

Allowing User Control

Control over the interface is crucial for disabled users. Any interface elements out of their control may completely prevent them from accessing site content.

Suggested Changes

High Priority:

- **Provide controls to adjust text size.** The font throughout the website is quite small, which can pose a challenge to users reading website content, particularly those with low vision. When viewed with a screen magnifier, this text can often break up, making it even more difficult for users to read page content. Adding controls to the website to adjust text size would enable users to display this content at the optimal size in order to be read comfortably.
- **Allow users to purchase more items than they anticipated on their wish lists.** Currently, when a user tries to purchase more items off of a wish list than was originally stipulated in the wish list, the system responds with an error. Respect users' sensibilities while supporting sales by permitting users to purchase as many books as they desire from a wish list, and then offering users an option to include a different shipping address for the additional books.

Medium Priority:

- **Alert the user when a link leads to an external website.** On the 'Feminist Book Club' page, there is a link to RSVP for an event which leads to an external website; however, the user is not informed of this before clicking the link. This may be disorienting to users, who may decide against signing up for the event due to not trusting the external website. Notifying users that the link leads to an external website will enable them to make the decision about whether or not they want to leave the current website.

Respecting the User

When users sense a site is manipulating them, trapping them, or simply neglecting their need for logic and common sense, they are likely to respond poorly to the company as a whole. All usability recommendations ultimately pertain to a fundamental respect for users.

Suggested Changes

High Priority:

- **Reduce the size of large images displayed on pages or omit them altogether.** Very large images, such as the one found on the 'Gift Card' page, which measures 2448 pixels by 2448 pixels, demand inordinate time and data resources. Reducing the size of these images or removing them altogether will minimize both the time and the data resources it takes for these pages to load.
- **Increase the color contrast between text links and backgrounds.** According to testing conducted at juicystudio.com, the color used for text links (#00A9FF) does not provide enough contrast with various background colors used throughout the site. These background colors include the white background (#FFFFFF) used for main layout pages, which yields a color contrast ratio of 2.59:1, and the the gray background (#E4E4E4) used on the shopping cart page, which yields a ratio of 2.03:1. Choose text link and background colors that will achieve a luminosity ratio of 4.5:1.
- **Display a message alerting users to further instructions after a new website account is created.** After an account for the website is created, the user is referred back to a previously viewed page without any notification regarding the next steps in the account creation process. It is only when the user navigates back to the 'User Account' page that a message appears with instructions on what to do next. Giving the user feedback on whether an account has been created and what to do next would eliminate confusion and ensure a smooth process in creating an account.

Medium Priority:

- **On the 'Events Calendar' page, position the 'Prev/Next' buttons under the date heading.** Currently, this controller is overlapping the heading, potentially confusing users with cognitive or memory impairments. Position this control below the header to ensure the heading renders properly.
- **On navigation menus, refer to 'Literati Cultura' as 'Book Subscriptions.'** On a screen reader, the repeated iterations of 'Literati Cultura' are difficult to make sense of. The abstraction, alliteration, and Latin used in these labels pose significant challenges to users with cognitive impairments. 'Book Subscriptions' communicates the content in a more direct and accessible way.

Low Priority:

- **Include a message under 'My Order History' in the 'My Account' section, even if no orders have been made.** Currently, no message is provided on this page if no orders have ever been placed. This empty page can be confusing to users who typically expect some sort of content or acknowledgement, particularly on an accounts page. Include a message such as, 'No orders have been placed' to assure users that no errors have occurred.