

Hands-on Activity 2.2 Building Optimized and Accessible Web Content	
Course Code: CPE025B	Program: BSCPE
Course Title: Software Design 2	Date Performed: 01/19/2026
Section: CPE32S1	Date Submitted: 01/19/2026
Name: Anna Marie Zolina	Instructor: Engr. Neal James Matira
1. Discussion	
Module 5 explains how to build web pages that are both meaningful and user-friendly by using semantic HTML elements such as header, nav, main, section, article, and footer to clearly organize content.	
It also introduces inline semantic elements like strong, em, mark, and abbr, which allow us to express emphasis, highlight key ideas, and define terms in a way that is clearer for readers.	
The module discusses microformats and microdata with Schema.org as methods for adding structured information about people, organizations, or other entities so that search engines can better interpret and present our pages.	
A major part of the module focuses on web accessibility, presenting WCAG principles and levels of conformance, along with practical techniques such as proper headings, alternative text, captions, and keyboard navigation to support users with disabilities.	
It further explains the use of ARIA roles, states, and properties to make interactive components understandable to assistive technologies, ensuring that dynamic interfaces remain accessible.	
Finally, Module 5 emphasizes HTML best practices, including writing valid and well-structured code, separating content from styling, optimizing images, and testing across different browsers and devices to achieve a consistent and professional user experience.	
2. Materials and Equipment	
Cisco Networking Academy - Html Essentials Computer Desktop Visual Studio Code GitHub	
3. Procedure	
<h3>5.7.1 Harbor Light Community Center Website: Adding Accessibility and Structured Data</h3> <p>Scenario</p> <p>The local community center, "Harbor Light Community Center," currently has a basic website that provides information about its services, events, and educational programs. While the website is functional, it lacks semantic structure, accessibility features, and modern web practices that could enhance user experience and accessibility. You, as an aspiring web developer, have volunteered to revamp the website.</p> <p>Your goal is to apply your understanding of semantic markup, accessibility, and HTML best practices to make the website more informative, accessible, and user-friendly for everyone in the community.</p> <p>Instructions</p> <p>Follow the instructions below to create the webpage step by step:</p>	

1. Semantic HTML Implementation

- Convert the first `<div>` that includes the community center's logo and welcome message into a `<header>` element.
- Transform the second `<div>` with textual navigation into a `<nav>` element containing a list (``) of navigation links (`` with `<a>` tags). Assign `href` attributes to these links for in-page navigation.

2. Main Content Structure

- Enclose the content starting from "About Us" to "Join Our Events" in a `<main>` element for the primary content area.
- For each major section ("About Us", "Our Services", "Join Our Events"), replace the `<div>` with a `<section>` element and ensure the use of appropriate headings (`<h2>` instead of `<h1>` for section titles to maintain hierarchy).
- Ensure the event listed in the "Join Our Events" section ("Annual Summer Festival") is enclosed with the `<p>` tag. Separate the name of the event and the time it takes place with a line break. Add importance to the event name using the `` tag.

3. Optimizing Events SEO with Schema.org

- For the event's start date, enclose the date within a `<time>` element, ensuring to use the `datetime` attribute for specifying the machine-readable date format.
- Implement Schema.org's Event microdata in this section for better SEO and structure, wrapping the event details. Start with a `<section>` element attributed with `itemScope` and `itemType="http://schema.org/Event"`. Make sure that the description and start date of the event are marked up with `itemprop="description"` and `itemprop="startDate"`, respectively.

4. Contact Section and Footer

- Convert the last `<div>` into a `<footer>` element.
- Add an actual email link using `info@harborlight.com` and the `mailto` protocol in the "Contact Us" section for direct email communication.
- Add a paragraph at the end of the `<footer>` to include the copyright symbol followed by the year and the organization's name: "© 2050 Harbor Light Community Center".

5. Accessibility Enhancements

- Apply descriptive `alt` attributes to the `logo.jpg` and `community-center.jpg` images ("Harbor Light Community Center Logo" and "Harbor Light Community Center People" respectively).
- Add the `navigation` ARIA role to the navigation for better accessibility.
- For the decorative banner added to the website, ensure it's correctly marked to be ignored by screen readers to enhance accessibility – apply the `aria-hidden="true"` attribute to the `` tag of the decorative banner. Ensure the `alt` attribute is set to an empty string (`alt=""`) to reinforce that this image does not convey essential information.

6. Adding Anchor Links for Navigation

- Assign unique IDs to each section (`id="about"`, `id="services"`, `id="events"`, and `id="contact"`) corresponding to the navigation links.
- Add anchor links by updating the `<nav>` links to point to these IDs, enabling smooth scrolling to each section.

7. Replace Deprecated Tag and Introduce CSS

- Locate and remove the deprecated `` tag. In the `<head>` section of your HTML, add an internal stylesheet (`<style>` element). Within this stylesheet, set the font style for the `<body>` element to ensure all text inherits this style, effectively replacing the visual effect previously applied with the `` tag.
- Remove the deprecated `<center>` tag and apply CSS for centering and spacing:
 - Wrap the webpage image logo element in a `<div>` container.
 - In the `<style>` block of the `<head>` section, define a class named `.center-and-space-content`. The class should center the content horizontally within its `<div>` container (use the `text-align: center;` property) and introduce padding for both vertical and horizontal spacing (use the `padding: 10px;` property), enhancing the visual layout.

8. Testing and Review

- Validate the HTML to ensure it meets web standards.
- Test for accessibility, ensuring all content is accessible and navigable.
- Experiment, experiment, experiment!

4. Output

OUTPUT

Harbor Light Community Center

The Harbor Light Community Center has been at the heart of our community for over 30 years, offering a wide range of services and programs designed to support and enrich the lives of our residents.



Our Services

From educational workshops and sports leagues to wellness programs and art classes, our services are tailored to meet the diverse needs of our community members.

About Us

The Harbor Light Community Center has been at the heart of our community for over 30 years, offering a wide range of services and programs designed to support and enrich the lives of our residents.



Our Services

From educational workshops and sports leagues to wellness programs and art classes, our services are tailored to meet the diverse needs of our community members.

Join Our Events

Our community center is a hub of activity, hosting events throughout the year. Don't miss our annual summer festival for fun, food, and festivities for all ages.

Annual Summer Festival: Starts: July 20, 2050
Contact Us
Have questions or want to get involved? Email us!

SOURCE CODE

```

Module 5 > Procedure.html X
Module 5 > Procedure.html > HTML > Body > Font > DivBanner > Img
1  <!DOCTYPE html>
2  <html>
3  |<head>
4  ||<title>Harbor Light Community Center</title>
5  |</head>
6  <body>
7  |<font face="Arial, sans-serif">
8  |<div>
9  ||<center>
10 ||| Welcome to Harbor Light Community Center</center>
11 |</div>
12 |<div>
13 || Home | About | Services | Events | Contact
14 |</div>
15 |<div class="banner">
16 ||
17 |</div>
18 |<div>
19 ||<h1>About Us</h1>
20 ||<p>The Harbor Light Community Center has been at the heart of our community for over 30 years, offering a wide range of services and programs designed to support and enrich the lives of our residents.</p>
21 ||</p>
22 |</div>
23 |<div>
24 ||<h2>Our Services</h2>
25 ||<p>From educational workshops and sports leagues to wellness programs and art classes, our services are tailored to meet the diverse needs of our community members.</p>
26 |</div>
27 |<div>
28 ||<h2>Join Our Events</h2>
29 ||<p>Our community center is a hub of activity, hosting events throughout the year. Don't miss our annual summer festival for fun, food, and festivities for all ages.</p>
30 |</div>
31 Annual Summer Festival:
32 Starts: July 28, 2020
33 |<div>
34 ||<h3>Contact Us</h3>
35 ||<p>Have questions or want to get involved? Email us!</p>
36 |</div>
37 |</font>
38 |</body>
39 |</html>
40

```

Sample Solution

If you're finding the tasks challenging or need some assistance, you can check out the sample solution provided below.

However, we encourage you to try tackling the project independently first. Doing so will help you strengthen your HTML skills and deepen your understanding. Remember, facing obstacles is a natural part of learning. Stay persistent, keep practicing, and you'll see improvement over time. Best of luck!

OUTPUT

The screenshot shows a web browser window with the title bar "Harbor Light Community". The address bar displays the URL "127.0.0.1:5500/Module%205/Sample%20Solution.html". The page content includes:

- Logo:** Harbor Light COMMUNITY CENTER
- Welcome Message:** Welcome to Harbor Light Community Center
- Navigation:** A sidebar on the left contains icons for Home, About, Services, Events, Contact, and Logout. The "About" icon is highlighted.
- About Us Section:**
 - Title:** About Us
 - Description:** The Harbor Light Community Center has been at the heart of our community for over 30 years, offering a wide range of services and programs designed to support and enrich the lives of our residents.
 - Illustration:** Five stylized cartoon characters representing different community members.

The Harbor Light Community Center has been at the heart of our community for over 30 years, offering a wide range of services and programs designed to support and enrich the lives of our residents.



Our Services

From educational workshops and sports leagues to wellness programs and art classes, our services are tailored to meet the diverse needs of our community members.

Join Our Events

Our community center is a hub of activity, hosting events throughout the year. Don't miss our annual summer festival for fun, food, and festivities for all ages.

Annual Summer Festival:
Starts: July 20, 2050

Contact Us

Have questions or want to get involved? Email us at info@harborlight.com.

© 2050 Harbor Light Community Center

SOURCE CODE

```

o Procedure.html  o Sample Solution.html X
Module 5 > o Sample Solution.html > o HTML > o body
1  <!DOCTYPE html>
2  <html lang="en">
3      <head>
4          <meta charset="UTF-8">
5          <title>Harbor Light Community Center</title>
6          <style>
7              body {
8                  font-family: Arial, sans-serif;
9              }
10             .center-and-space-content {
11                 text-align: center; /* Centers inline or inline-block content within the div */
12                 padding: 10px; /* Adds padding around the content inside the div */
13             }
14         </style>
15     </head>
16     <body>
17         <header>
18             <div class="center-and-space-content">
19                 
20                 <p>Welcome to Harbor Light Community Center!</p>
21             </div>
22         </header>
23
24         <nav role="navigation">
25             <ul>
26                 <li><a href="#about">About</a></li>
27                 <li><a href="#services">Services</a></li>
28                 <li><a href="#events">Events</a></li>
29                 <li><a href="#contact">Contact</a></li>
30             </ul>
31         </nav>
32
33         <!-- Decorative banner marked to be ignored by screen readers -->
34         <div class="banner">
35             
36         </div>
37
38         <main>
39             <section id="about">
40                 <h2>About Us</h2>
41                 <p>The Harbor Light Community Center has been at the heart of our community for over 30 years, offering a wide range of services and programs designed to support and enrich the lives of our residents.</p>
42                 
43             </section>
44
45             <section id="services" itemscope itemtype="http://schema.org/Service">
46                 <h2>Our Services</h2>
47                 <p>From educational workshops and sports leagues to wellness programs and art classes, our services are tailored to meet the diverse needs of our community members.</p>
48             </section>
49
50             <section id="events" itemscope itemtype="http://schema.org/Event">
51                 <h2>Our Events</h2>
52                 <p><strong>Our community center is a hub of activity, hosting events throughout the year. Don't miss our annual summer festival for fun, food, and festivities for all ages.</strong></p>
53                 <p><strong>Annual Summer Festival:</strong> <strong>Starts: July 20, 2050</strong></p>
54             </section>
55         </main>
56
57         <footer>
58             <h2 id="contact">Contact Us</h2>
59             <p>Have questions or want to get involved? Email us at <a href="mailto:info@harborlight.com">info@harborlight.com</a>.</p>
60             <p>&copy; 2050 Harbor Light Community Center</p>
61         </footer>
62     </body>
63 </html>

```

5. Supplementary Activity

OUTPUT (Show the old non-optimized website from the Procedures.)

The screenshot shows a web browser window with the title bar "Harbor Light Community". The address bar displays the URL "127.0.0.1:5500/Module%205/Procedure.html". The page content includes:

- Header:** "Harbor Light COMMUNITY CENTER" with a lighthouse logo, and "Welcome to Harbor Light Community Center".
- Navigation:** "Home | About | Services | Events | Contact".
- Section:** "About Us".
- Text:** "The Harbor Light Community Center has been at the heart of our community for over 30 years, offering a wide range of services and programs designed to support and enrich the lives of our residents."
- Image:** A cartoon illustration of five diverse people (two men, three women) standing together.
- Section:** "Our Services".
- Text:** "From educational workshops and sports leagues to wellness programs and art classes, our services are tailored to meet the diverse needs of our community members."
- Section:** "About Us".
- Text:** "The Harbor Light Community Center has been at the heart of our community for over 30 years, offering a wide range of services and programs designed to support and enrich the lives of our residents."
- Image:** A cartoon illustration of five diverse people (two men, three women) standing together.
- Section:** "Our Services".
- Text:** "From educational workshops and sports leagues to wellness programs and art classes, our services are tailored to meet the diverse needs of our community members."
- Section:** "Join Our Events".
- Text:** "Our community center is a hub of activity, hosting events throughout the year. Don't miss our annual summer festival for fun, food, and festivities for all ages."
- Text:** "Annual Summer Festival: Starts: July 20, 2050
Contact Us
Have questions or want to get involved? Email us!"

OUTPUT(Show the new optimized website from the Procedures.)

Original Website (Top):

Improved Website (Bottom):

Answer the following:

**In 3-5 sentences, explain why is the improved/optimized website better?
(Cite specific points/differences between the original and Improved websites)**

The improved/optimized website is better for several reasons. First, it has a cleaner format where the images and text are properly placed, using CSS in the `<style>` section instead of old tags like `` and `<center>` for appearance. Second, the improved code uses proper semantic tags such as `<header>` before `<main>`, which clearly separates the top part of the page from the main content. Third, there is a correct use of `<nav>`, where items like "About," "Services," and "Events" are real links that can be clicked to jump to each section. Fourth, `<section>` is used to group related content, matching the navigation items, and the "Contact Us" part is placed in a `<footer>`, showing it is the final information on the page. In conclusion, the improved website is better because it is more readable, easier to maintain and debug if there will be error, and the use of clear tags for each part makes the structure easier to understand.

6. Conclusion

- In conclusion, I have learned the importance of properly using tags and attributes when creating a website in HTML. Using the right semantic tags makes the structure of the page clearer and easier to understand. It also makes it much easier to find and fix errors, such as incorrect image placement or broken links, because each part of the page has a clear role and location in the code. In addition, applying concepts like accessibility, ARIA, and structured data helps ensure that the website is usable for more people and is better recognized by search engines.

7. Assessment Rubric

Lab Activity Rubric							
Criteria	Ratings						Pts
⌚ SO 7 PI 1 Student Outcome 7.1 Acquire and apply new knowledge from outside sources. threshold: 4.8 pts	6 pts Excellent Educational interests and pursuits exist and flourish outside classroom requirements.knowledge and/or experiences are pursued independently and applies knowledge learned into practice	5 pts Good Educational interests and pursuits exist and flourish outside classroom requirements.knowledge and/or experiences are pursued independently	4 pts Satisfactory Look beyond classroom requirements, showing interest in pursuing knowledge independently	3 pts Unsatisfactory Begins to look beyond classroom requirements, showing interest in pursuing knowledge independently	2 pts Poor Relies on classroom instruction only	1 pts Very Poor No initiative or interest in acquiring new knowledge	6 pts
⌚ SO 7 PI 2 Student Outcome 7.2 Learn independently threshold: 4.8 pts	6 pts Excellent Completes an assigned task independently and practices continuous improvement	5 pts Good Completes an assigned task without supervision or guidance	4 pts Satisfactory Requires minimal guidance to complete an assigned task	3 pts Unsatisfactory Requires detailed or step-by-step instructions to complete a task	2 pts Poor Shows little interest to complete a task independently	1 pts Very Poor No interest to complete a task independently	6 pts
⌚ SO 7 PI 3 Student Outcome 7.3 Critical thinking in the broadest context of technological change threshold: 4.8 pts	6 pts Excellent Synthesizes and integrates information from a variety of sources; formulates a clear and precise perspective; draws appropriate conclusions	5 pts Good Evaluate information from a variety of sources; formulates a clear and precise perspective.	4 pts Satisfactory Analyze information from a variety of sources; formulates a clear and precise perspective.	3 pts Unsatisfactory Apply the gathered information to formulate the problem	2 pts Poor Gather and summarized the information from a variety of sources but failed to formulate the problem	1 pts Very Poor Gather information from a variety of sources	6 pts
⌚ SO 7 PI 4 Student Outcome 7.4 Creativity and adaptability to new and emerging technologies threshold: 4.8 pts	6 pts Excellent Ideas are combined in original and creative ways in line with the new and emerging technology trends to solve a problem or address an issue.	5 pts Good Ideas are creative and adapt the new knowledge to solve a problem or address an issue	4 pts Satisfactory Ideas are creative in solving a problem, or address an issue	3 pts Unsatisfactory Shows some creative ways to solve the problem	2 pts Poor Shows initiative and attempt to develop creative ideas to solve the problem	1 pts Very Poor Ideas are copied or restated from the sources consulted	6 pts