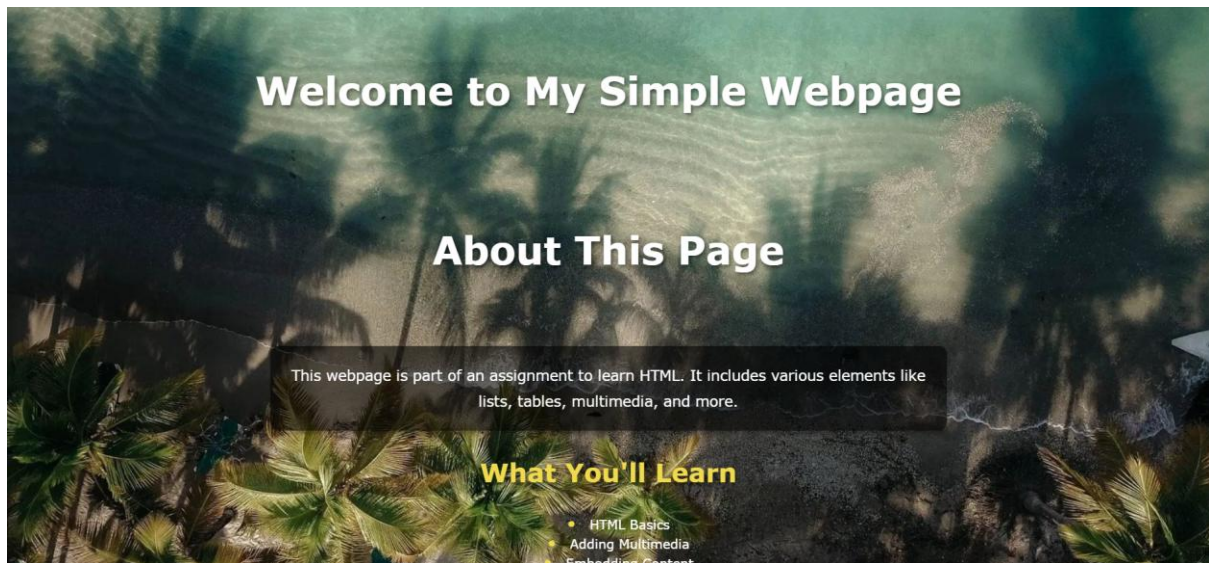**Assignment 1**

Web Application Security Lab

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Task 1: Create a Simple HTML Page

Task 2: Inspect the Source Code of a Website

1. Metadata

- o Identify <meta> tags in the <head> section of the webpage.
- o Explain their purpose. Common examples:
  - ▪ <meta charset="UTF-8">: Specifies the character encoding.
  - ▪ <meta name="viewport" content="width=device-width, initial-scale=1.0">: Ensures the page is responsive.
  - ▪ <meta name="description" content="...">: Provides a brief description of the webpage for search engines.
  - ▪ <meta name="keywords" content="...">: Lists keywords related to the content.
  - ▪ <meta http-equiv="X-UA-Compatible" content="IE=edge">: Ensures compatibility with Internet Explorer.

2. Headings and Semantic Elements

- o Identify the structure of headings (<h1>, <h2>, etc.).
- o Explain how they are organized hierarchically and why this structure is essential for accessibility and SEO.
- o Note semantic elements like <header>, <footer>, <article>, <section>, etc., and their roles.

3. Multimedia

- o Identify multimedia elements like `<audio>`, `<video>`, and `<iframe>`.
- o Example:
  - ▪ `<video>`: Used to embed videos directly on the page.
  - ▪ `<iframe>`: Used to embed external content like YouTube videos or Google Maps.
- o Describe their attributes (e.g., `controls`, `autoplay`, `src`) and how they are used.

4. Security-Relevant Tags

- o Look for:
  - ▪ **Content Security Policy (CSP)** in `<meta>` or HTTP headers: Enhances security by specifying allowed content sources.
  - ▪ **Sandboxed `<iframe>`**: Limits the capabilities of embedded content to prevent malicious activity.
- o Describe how these tags secure the webpage.

5. CORS (Cross-Origin Resource Sharing)

- o Check the HTTP headers for `Access-Control-Allow-Origin`.
- o Explain how it allows or restricts resource sharing between domains.

## 6. SRI (Subresource Integrity)

- o Look for `integrity` attributes in `<script>` or `<link>` tags.
- o Example:
  - ▪ `<script src="...cdn.js" integrity="sha384-..."></script>`: Ensures the file hasn't been tampered with.

```html
<!DOCTYPE html>
<html lang="en"> (scroll)
▼ <head> == $0
    <!-- Character encoding for displaying special characters -->
    <meta charset="UTF-8">
    <!-- Ensures the webpage is responsive on different screen sizes -->
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <!-- Short description of the webpage for search engines -->
    <meta name="description" content="A simple webpage to demonstrate basic HTML structure.">
    <!-- Title of the webpage (displayed on the browser tab) -->
    <title>My Simple Webpage</title>
    <link rel="stylesheet" href="styles.css">
  </head>
  ▼ <body>
    <!-- Main heading for the webpage -->
```

Task 3: Summary of Observations

- **Structure Analysis**:
    - Proper use of `<title>`, `<meta>`, and `<link>` in `<head>`.
    - `<header>`, `<footer>`, `<section>` used for semantic clarity.
    - Proper nesting of tags.
- **CSS Usage**:
    - External CSS applied successfully.
    - Text color and background styles are consistent.
    - Lists and tables are well-styled.
- **Suggestions for Improvement**:
    - Add more accessibility features, like `aria-label` for navigation.
    - Include `lang="en"` in the `<html>` tag for better accessibility.
    - Optimize CSS by combining repetitive rules.
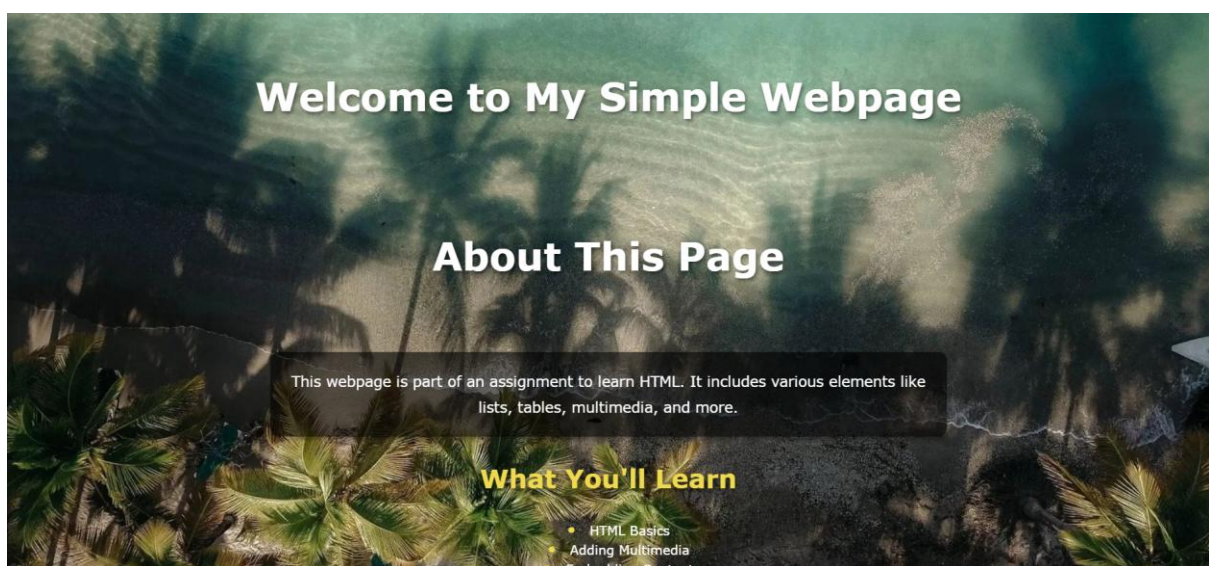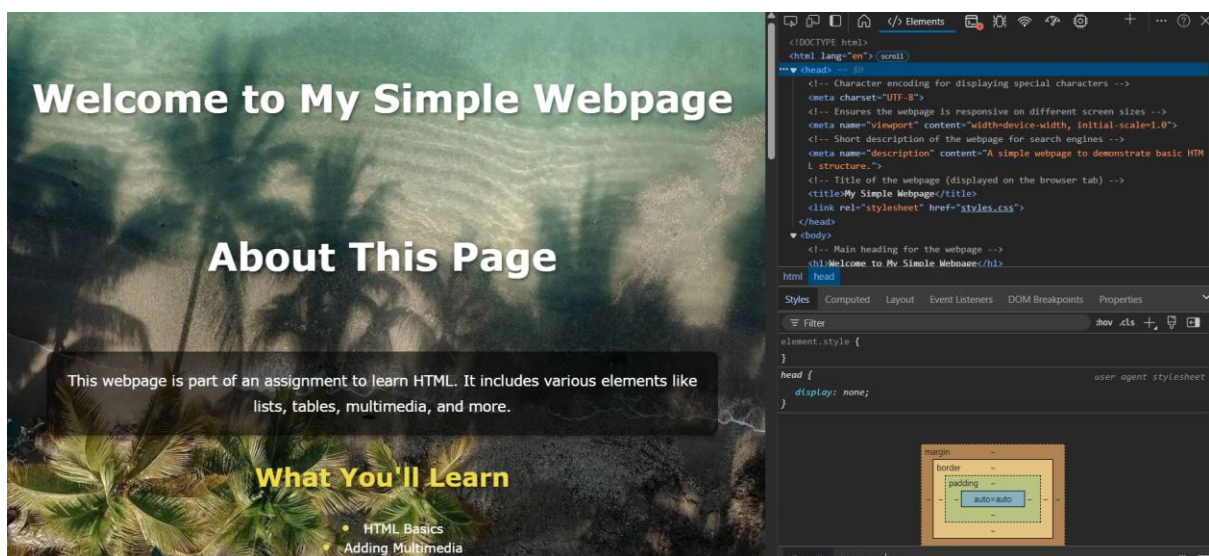
Task 4: Apply Styles Using CSS

```css
body {
    background-image: url('xzy.jpg'); /* Replace with your image file path or URL */
    background-size: cover; /* Ensure the image covers the entire background */
    background-position: center center; /* Center the image */
    background-attachment: fixed; /* Fix the background image while scrolling */
    font-family: 'Verdana', sans-serif;
    color: ■#fff; /* White text for contrast */
    margin: 0;
    padding: 0;
    height: 100vh; /* Full viewport height */
    text-align: center;  /* Centers inline elements like <audio> horizontally */
    /*display: flex;
    /*justify-content: center;  /* Centers horizontally */
    align-items: center;      /* Centers vertically */
}

audio {
    margin: 20px; /* Optional: Adds some margin around the audio player */
}




/* Style the main heading */
h1 {
    color: ■#fff; /* White text color */
    text-align: center;
    padding: 50px 20px;
    font-size: 3em; /* Larger font size */
    text-shadow: 2px 2px 5px □rgba(0, 0, 0, 0.5); /* Add shadow for text readability */
}
h2 {
    color: ■#fff; /* White text color */
    text-align: center;
    padding: 50px 20px;
    font-size: 3em; /* Larger font size */
    text-shadow: 2px 2px 5px □rgba(0, 0, 0, 0.5); /* Add shadow for text readability */
}

/* Style the page content */
p {
    font-size: 18px;
    line-height: 1.8;
    text-align: center;
```