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LAB/WRITTEN ASSIGNMENT NUMBER:

"WEB TECHNOLOGY"

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Introduction to Web Technology

Web technology encompasses the tools and techniques used to create and deliver content over the internet. It revolves around the World Wide Web (WWW), a vast network of interconnected web pages. Key technologies include HTML (Hyper Text Markup Language) for structuring content, CSS (Cascading Style Sheets) for styling, and JavaScript for adding interactivity. These technologies, along with others like HTTP (Hyper Text Transfer Protocol) for communication and databases for data storage, power the websites and web applications we interact with daily.

1. HTML

HTML, the foundation of web development, is a markup language used to structure and present content on web pages. It employs tags, enclosed in angle brackets, to define elements like headings, paragraphs, images, links, and forms. These elements form the building blocks of a webpage, determining how content is displayed and organized.

HTML documents follow a specific structure, beginning with the `<html>` tag, which encompasses the entire document. Within this, the `<head>` tag contains metadata about the page, such as the title, character encoding, and links to stylesheets. The `<body>` tag holds the visible content of the page, including text, images, and interactive elements.

HTML offers a wide range of elements for various purposes. For instance, the `<h1>` to `<h6>` tags are used for headings of different levels, while the `<p>` tag defines paragraphs. Images are inserted using the `<img>` tag, and links are created with the `<a>` tag. Forms, essential for user input, are constructed using elements like `<form>`, `<input>`, `<textarea>`, and `<button>`.

By understanding these core concepts and the extensive array of HTML elements, developers can create well-structured, informative, and engaging web pages.

2. CSS

CSS, or Cascading Style Sheets, is a language used to style and format the visual presentation of HTML documents. It allows developers to control the layout, colors, fonts, and overall appearance of web pages. By separating style from structure, CSS enhances maintainability and enables consistent styling across multiple pages.

CSS rules, composed of selectors and declarations, dictate how elements should be displayed. Selectors target specific HTML elements, while declarations define the styles to be applied, such as font size, color, and spacing. CSS rules are organized into stylesheets, which can be linked to HTML documents using the `<link>` tag in the `<head>` section.

CSS offers various ways to style elements. Inline styles are applied directly to HTML elements using the `style` attribute. Embedded styles are defined within the `<head>`

section of an HTML document using the `<style>` tag. External stylesheets, the most common approach, are linked to HTML documents and can be reused across multiple pages.

CSS provides a rich set of properties for controlling various aspects of layout and appearance. For example, the `font-family`, `font-size`, and `font-weight` properties control typography, while the `color`, `background-color`, and `border` properties affect color and borders. The `margin`, `padding`, and `box-model` properties are used for spacing and layout. By mastering these properties and techniques, developers can create visually appealing and responsive web designs.

3. World Wide Web (WWW)

The World Wide Web, often referred to as the Web, is a vast interconnected system of information and resources accessible through the internet. It revolutionized the way we access and share information, transforming the digital landscape.

At the core of the Web is the concept of hypertext. Hypertext is text that contains links to other text, images, or other resources. These links, known as hyperlinks, allow users to navigate seamlessly between different web pages and documents. By clicking on a hyperlink, a user can instantly access new information or perform specific actions.

To access and interact with the Web, users rely on web browsers. Web browsers are software applications that interpret and display web pages. They understand the languages used to create web pages, such as HTML, CSS, and JavaScript, and render them in a user-friendly format.

The Web is a dynamic and ever-evolving platform. New technologies and standards are constantly being developed to enhance the user experience and expand the capabilities of the Web. From simple text-based pages to complex web applications, the Web continues to shape the way we communicate, learn, and conduct business in the digital age.

4. Browser

A web browser is a software application that allows users to access and interact with content on the World Wide Web. It acts as an intermediary between the user and the internet, enabling them to navigate websites, view web pages, and engage with online content.

When a user enters a website's URL into the browser's address bar and presses Enter, the browser sends a request to the server hosting the website. The server processes the request and sends back the necessary files, typically written in HTML, CSS, and JavaScript.

The browser then interprets these files and renders them on the user's screen. HTML structures the content, CSS styles the appearance, and JavaScript adds interactivity and dynamic features.

In addition to displaying web pages, browsers offer various features to enhance the user experience. These include bookmarks for saving favorite websites, history for tracking browsing activity, tabbed browsing for opening multiple pages simultaneously, and built-in security features to protect user data.

5. Domain Name System

The Domain Name System (DNS) is like the internet's phonebook, translating human-readable domain names into machine-readable IP addresses. This hierarchical system allows users to access websites using easy-to-remember names like "[invalid URL removed]" instead of complex IP addresses.

When you enter a domain name into your web browser, a DNS resolver queries a series of DNS servers to find the corresponding IP address. This process involves a chain of requests, starting from your local DNS server and potentially reaching root name servers. Once the IP address is obtained, your browser can connect to the server hosting the website.

DNS is crucial for the internet's functionality, enabling seamless navigation and communication between devices. It ensures that users can easily find and access the resources they need online.

6. Web Hosting

Web hosting is a service that allows individuals and organizations to make their websites accessible on the internet. It involves storing website files and data on powerful servers, which are computers connected to the internet. When a user types in a website's URL, the server processes the request and delivers the website's content to the user's browser.

There are several types of web hosting, including shared hosting, VPS hosting, dedicated hosting, and cloud hosting. Each type offers different levels of resources and control, catering to various website needs. Web hosting providers typically offer additional services like domain registration, email hosting, and website security.

7. Local Hosting

Local hosting, on the other hand, involves running a web server on your own computer. This allows you to develop and test websites offline without requiring an internet connection. Local hosting environments simulate real-world web server conditions, enabling developers to work on projects independently and make changes without affecting live websites.

Popular local hosting software includes XAMPP, WAMP, and MAMP. These software packages bundle essential components like Apache HTTP Server, MySQL database, and PHP or Python scripting languages, providing a complete development environment. Local hosting is invaluable for web developers, as it allows for rapid prototyping, testing, and debugging.

8. Web Page and Website

A web page is a single document that exists on the World Wide Web. It's like a digital page in a book, displaying content that can be accessed through a web browser. This content can include text, images, videos, and interactive elements. Web pages are created using HTML (Hyper Text Markup Language), which structures the content, and CSS (Cascading Style Sheets), which styles the appearance. JavaScript, a programming language, can be added to create dynamic and interactive features.

A website is a collection of interconnected web pages that share a common domain name. It's like a digital book, containing multiple chapters (web pages) that are linked together. Websites serve various purposes, from providing information and services to selling products or promoting a brand. They can be static, displaying fixed content, or dynamic, updating content based on user interaction or real-time data.

To access a website, users input the domain name (e.g., [invalid URL removed]) into a web browser. The browser then retrieves the necessary files from a web server and displays them on the user's screen.

30 TAGS OF HTML WITH CODES AND OUTPUTS

Codes:

Users > shreyashkar > assignment.html > html

```
<!DOCTYPE html>
<html>
<head>
    <title>Welcome to HTML Learning</title>
</head>

<body>

<header>
        <h1>Welcome to My Simple HTML Page</h1>
</header>

<div>
        <h2>Here are some of the tags I learnt today.</h2>
        <p>This page demonstrates various HTML tags in action. Below are examples of different elements:</p>

        <h3>Text Formatting Examples</h3>
        <p>This is a <strong>strong</strong> text, this is an <em>emphasized</em> text, and this is an <u>underlined</u> text.</p>

        <h3>Image Example</h3>
        <img src ="html.jepg" alt ="This is just a test image." width="300" height="200">
        <h3>Audio and Video Examples</h3>
        <audio controls>
            <source src="Kayi.mp3" type="audio/mp3">
        </audio>
        <br>
        <video width="640" height="360" controls>
            <source src="test.mp4" type="video/mp4">
        </video>
        <h3>Object Example</h3>
        <h3>Table Example</h3>
        <table>
            <tr>
                <th>Name</th>
                <th>Age</th>
                <th>City</th>
            </tr>
            <tr>
                <td>Alice</td>
                <td>30</td>
                <td>New York</td>
            </tr>
```

```
            </tr>
            <tr>
                <td>Bob</td>
                <td>25</td>
                <td>Los Angeles</td>
            </tr>
        </table>

        <h3>Form Example</h3>
        <form \strokec4 action\strokec3 ="#" \strokec4 method\strokec3 ="post">
            <label \strokec4 for\strokec3 ="name">Name:</label><br />
            <input \strokec4 type\strokec3 ="text" \strokec4 id\strokec3 ="name" \strokec4 name\strokec3 ="name" \strokec4 required\strokec3 ><br /><br />
            <label \strokec4 for\strokec3 ="email">Email:</label><br />
            <input \strokec4 type\strokec3 ="email" \strokec4 id\strokec3 ="email" \strokec4 name\strokec3 ="email" \strokec4 required\strokec3 ><br /><br />
            <button \strokec4 type\strokec3 ="submit">Submit</button>
        </form>
        <p>This is a paragraph.
        <br>This is a new line using the break tag.</p>
        <h3>Grocery List:</h3>
        <ul \strokec4 style\strokec3 ="list-style-type:square;">
            <li>Apples</li>
            <li>Bananas</li>
            <li>Carrots</li>
        </ul>
    </div>
    <marquee \strokec4 behavior\strokec3 ="scroll" \strokec4 direction\strokec3 ="left">This is a scrolling marquee text!</marquee>
    <footer>
    Simple HTML Page. All rights reserved.
    </footer>
    <script \strokec4 src\strokec3 ="script.js"></script>

</body>
</html>
```

Output:

File /Users/shreyashkar/assignment.html

Welcome to My Simple HTML Page

Here are some of the tags I learnt today.

This page demonstrates various HTML tags in action. Below are examples of different elements:

Text Formatting Examples

This is a **strong** text, this is an *emphasized* text, and this is an underlined text.

Image Example

 This is just a test image.

Audio and Video Examples

0:00 / 0:00

Table Example

Name	Age	City
Alice	30	New York
Bob	25	Los Angeles

Form Example

Name:

Email:

Submit

This is a paragraph.
This is a new line using the break tag.

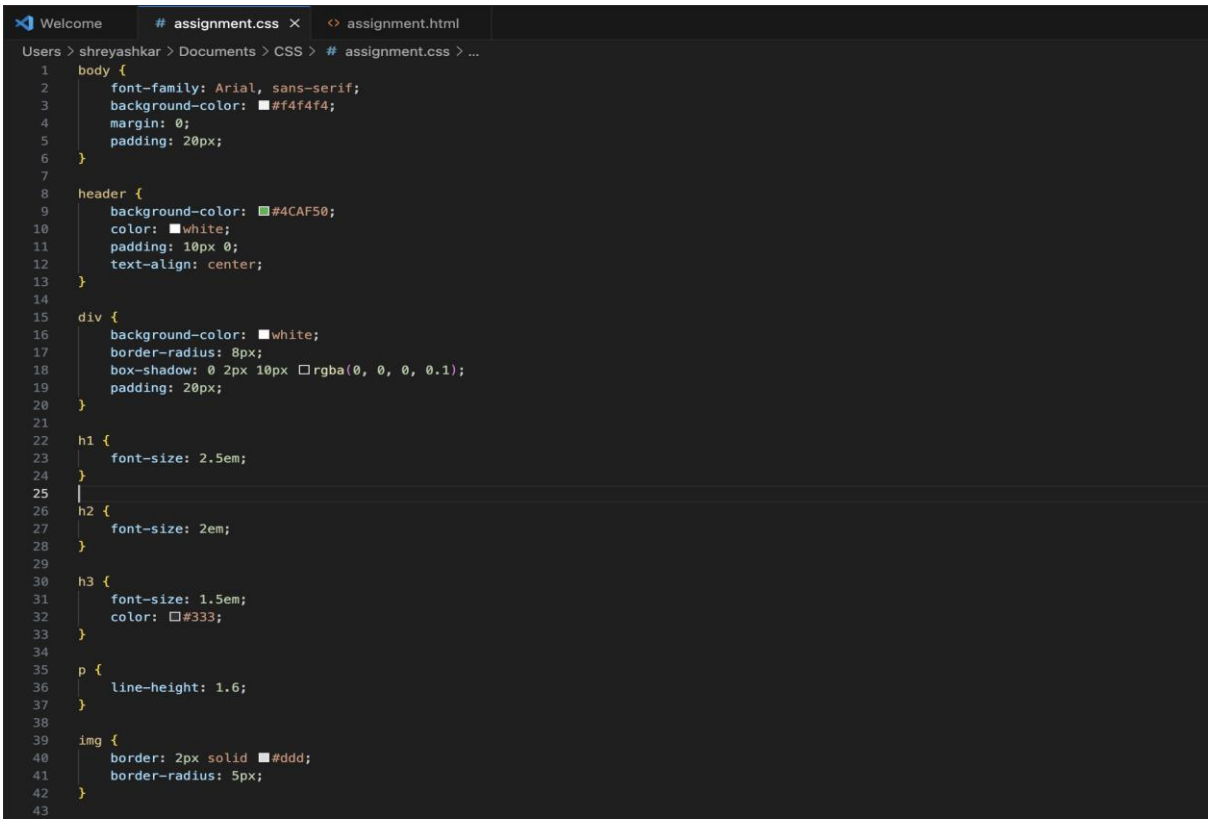
Grocery List:

- Apples
- Bananas
- Carrots

This is a scrolling marquee text!

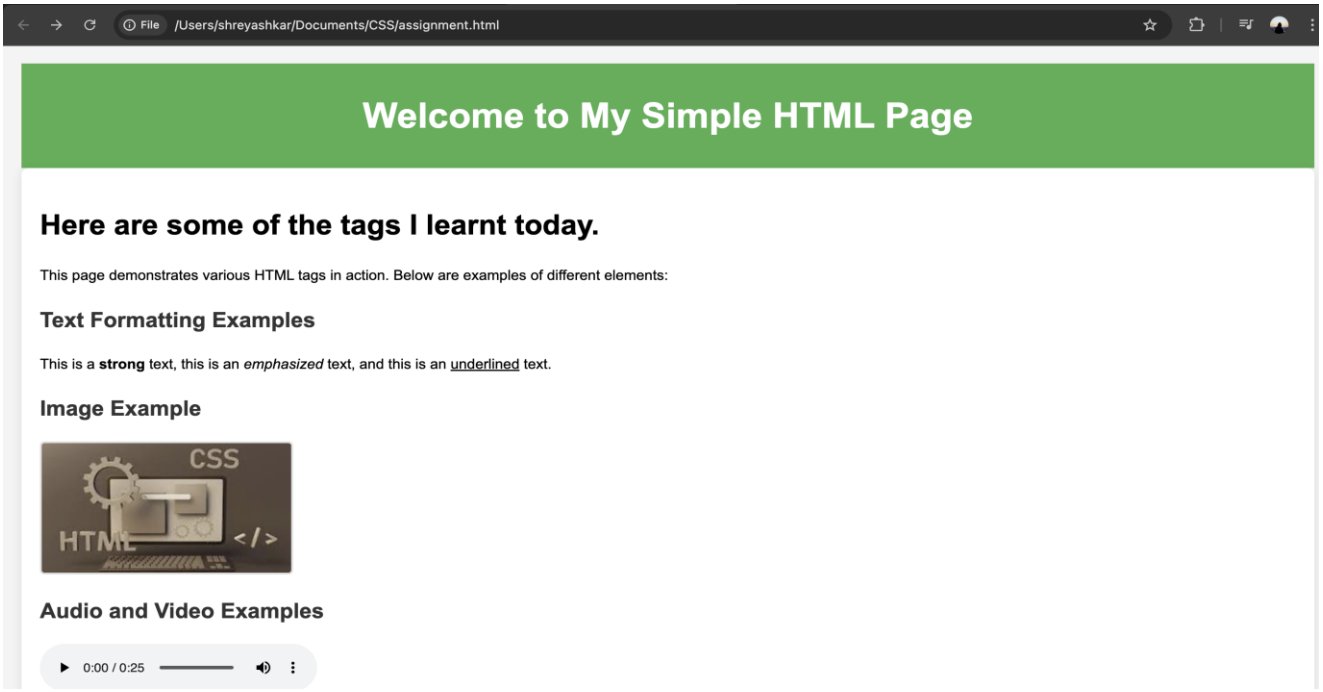
30 TAGS OF CSS WITH CODES AND OUTPUTS

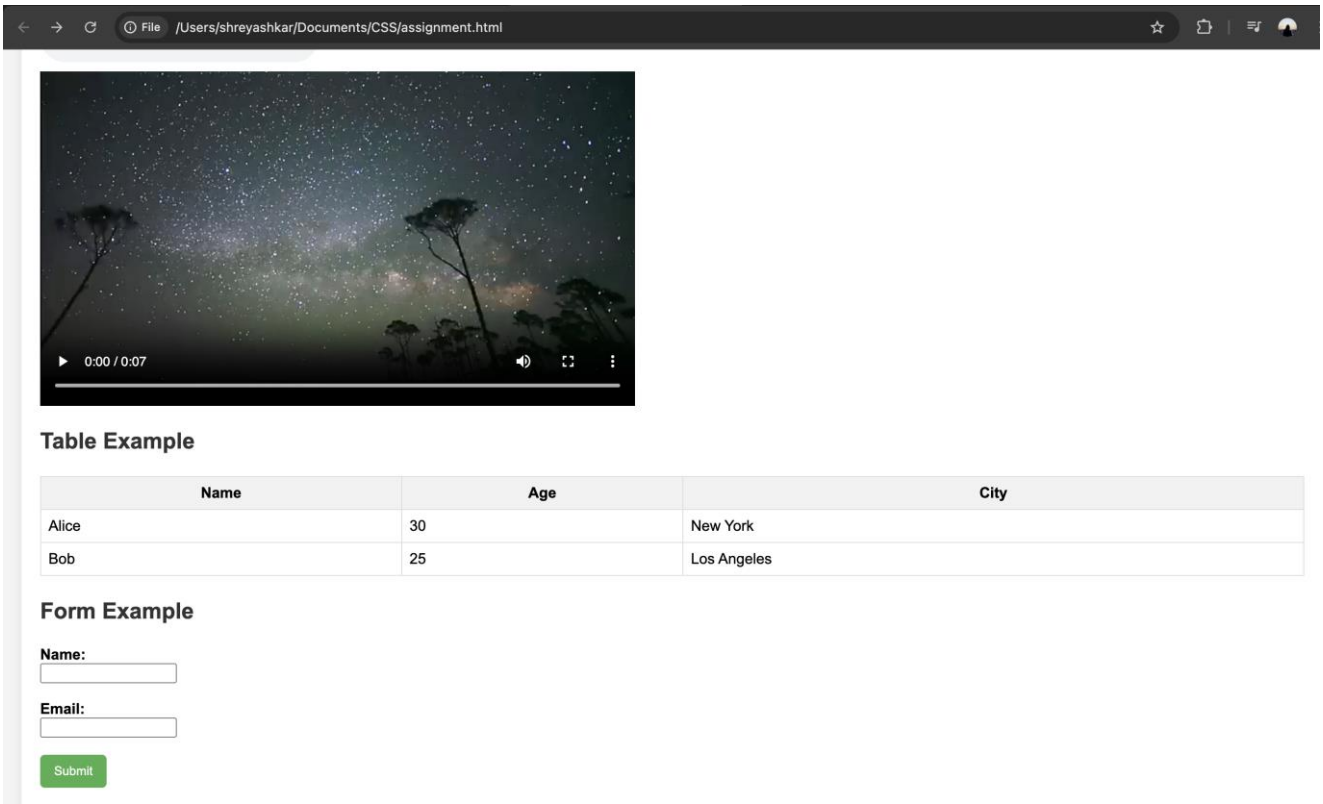
Codes:



```css
audio, video {
    display: block;
    margin-top: 10px;
}

table {
    width: 100%;
    border-collapse: collapse;
}

th, td {
    border: 1px solid #ddd;
    padding: 8px;
}

th {
    background-color: #f2f2f2;
}

form {
    margin-top: 20px;
}

label {
    font-weight: bold;
}

input[type="text"], input[type="email"] {
    width: calc(100% - 22px);
    padding: 10px;
    margin-top: 5px;
}

button {
    background-color: #4CAF50;
    color: white;
    padding: 10px 15px;
    border: none;
    border-radius: 5px;
    cursor: pointer;
}

button:hover {
    background-color: #45a049;
}

ul {
    padding-left: 20px;
}

marquee {
    color: #4CAF50;
}

footer {
    text-align: center;
    margin-top: 20px;
}
```

Outputs:





This is a paragraph.
This is a new line using the break tag.

Grocery List:

- Apples
- Bananas
- Carrots

This is a scrolling marquee text!

Conclusion

By the completion of this virtual lab report, I came to know about various tags and how they can be used to create and design a website. I also learnt about different web technologies and how they work in real life. I am very grateful to my teacher who helped me through this course.