Experiment 1

Title

Use developer tools to modify a website, and build a web page using basic HTML tags.

Aim

To understand how websites are structured using developer tools, and to build a simple static website using basic HTML tags like headings, lists, tables, forms, images, and links.

Software

Code Editor (VSCode/Notepad++)
Web Browser (Firefox/Chrome)

Theory

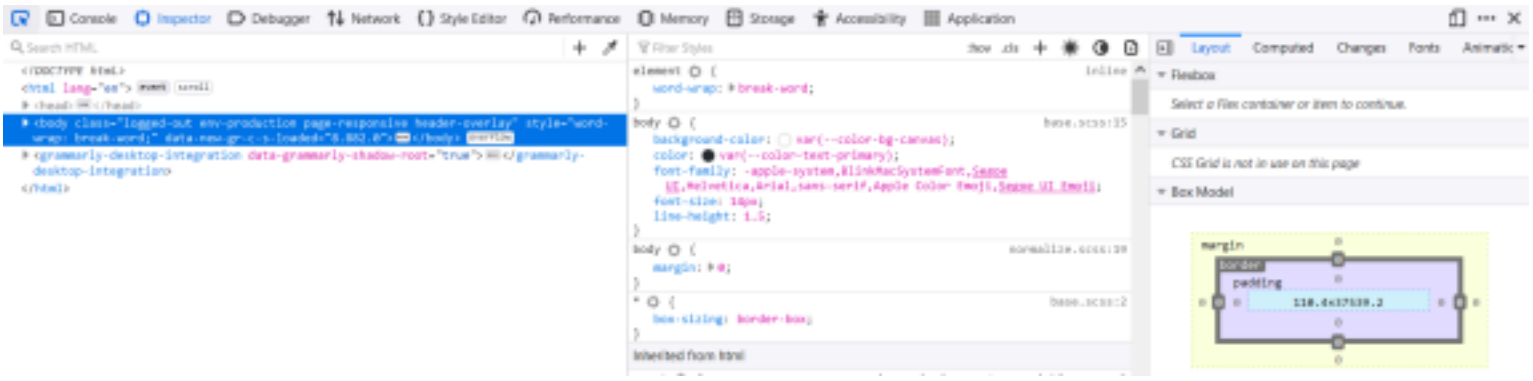
Developer Tools are a set of web authoring and debugging tools built directly into modern web browsers (like Chrome, Firefox, and Edge). They allow you to look "under the hood" of any website to see the code that is rendering the page.

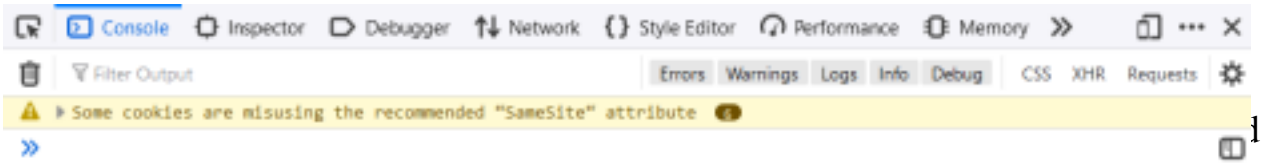
Opening dev tools:

- Right-click any element on a webpage and select Inspect.
- Keyboard Shortcut: F12 or Ctrl+Shift+I (Windows/Linux) / Cmd+Option+I (Mac).

Key Panels:

Elements (Inspector): This is the most critical tab for HTML. It shows the live HTML structure of the page. You can edit text, delete elements, or modify CSS styles in real-time to test changes.





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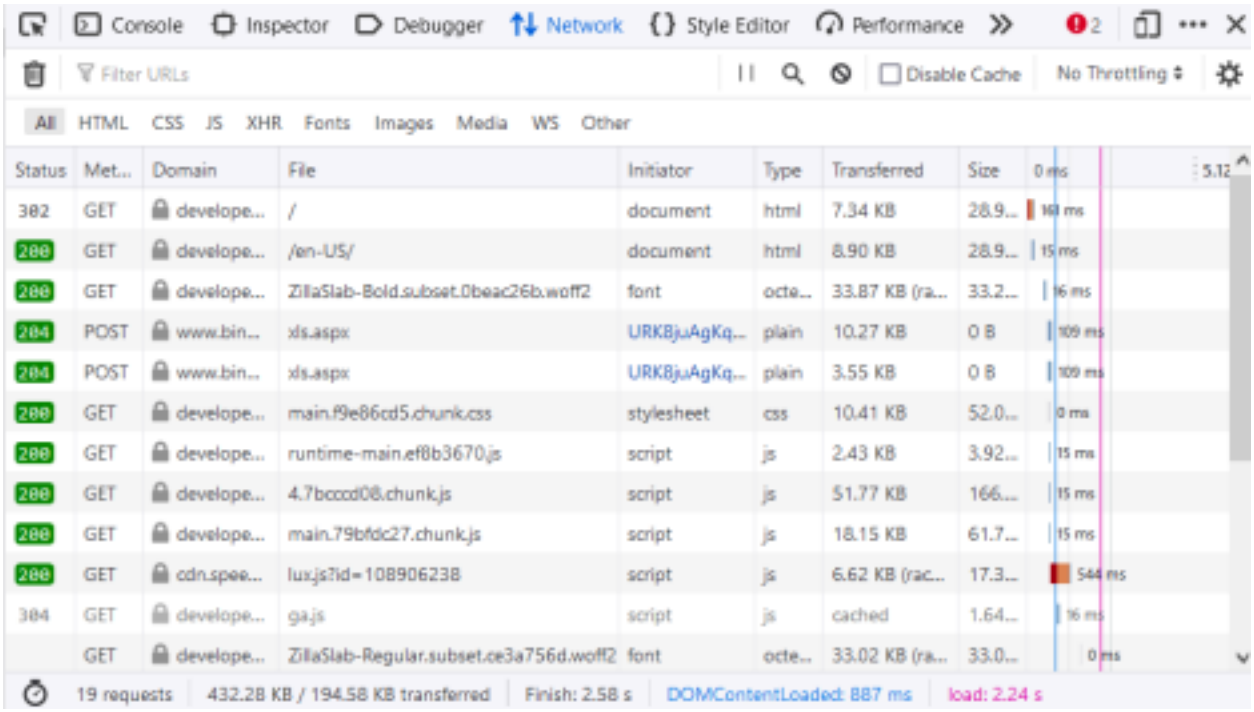
Network: Shows all the files (images, scripts, CSS) being loaded by the page and how long they take to load.



When a browser loads a web page, it translates the HTML text file into a structure called the **DOM (Document Object Model)**.

- *Tree Structure:* The DOM is organized like an upside-down tree. The top is the "Root," and elements branch out from there.
- *Nodes:* Every part of the document (the element itself, the text inside it, and its attributes) is a "node" in this tree.
- *Parent/Child/Sibling:*
  - *Parent:* An element that contains other elements (e.g., a <ul> list is the parent).
  - *Child:* An element inside another (e.g., an <li> list item is the child).
  - *Sibling:* Elements that share the same parent.

The DOM allows programming languages like JavaScript to easily find, change,

add, or delete HTML elements dynamically.

HTML (HyperText Markup Language) uses "tags" to tell the browser how to display content. A standard element looks like this:

<tagname>Content goes here</tagname>

Here are the most common categories of tags:

1. Basic Document structure

Tag	**Description**
<!DOCTYPE html>	Tells the browser this is an HTML5 document.
<html>	The root element of the page.
<head>	Contains metadata (info about the page) like the titleand CSS links.
<title>	Sets the title shown in the browser tab.
<body>	Contains all the visible content (text, images, links, etc.).

2. Text formatting: Tags used to structure and style text.

Tag	**Description**
<h1> to <h6>	Headings. <h1> is the most important, <h6> is the least.
<p>	Defines a paragraph.
 	Inserts a single line break (no closing tag).
<hr>	Defines a thematic change (horizontal rule/line).
	Defines important text (displays as bold).
	Defines emphasized text (displays as italic).

<b>	Bold text (without semantic importance).

<i>	Italic text (without semantic importance).
<mark>	Highlights text (usually yellow background).
<small>	Makes text smaller.

3. Links and Images

Tag	**Description**	**Important Attributes**
<a>	Defines a hyperlink.	href="URL" (destination)
<img>	Embeds an image.	src="path" (image source), alt="text" (text if image fails), width, height

4. Lists

Tag	**Description**
	Unordered List (Bullet points)
	Ordered List (Numbered: 1, 2, 3...)
	List Item. Goes inside or

5. Tables

Tag	**Description**
<table>	The container for the table.
<tr>	Table Row. Start a new row.
<th>	Table Header. A header cell (bold & centered by default).
<td>	Table Data. A standard cell containing data.
<thead>	Groups the header content.
<tbody>	Groups the body content.

6. Forms

Tag	Description
<form>	Container for the form.
<input>	The most versatile form element. Depends on type attribute.
<label>	Defines a label for an input element (improves accessibility).
<textarea>	A multi-line text input field.
<button>	A clickable button.

Common <input> Types:

- type="text": Single-line text box.
- type="radio": Select ONE option from a group.
- type="checkbox": Select ZERO or MORE options.
- type="submit": A button to submit the form data.

7. Common attributes

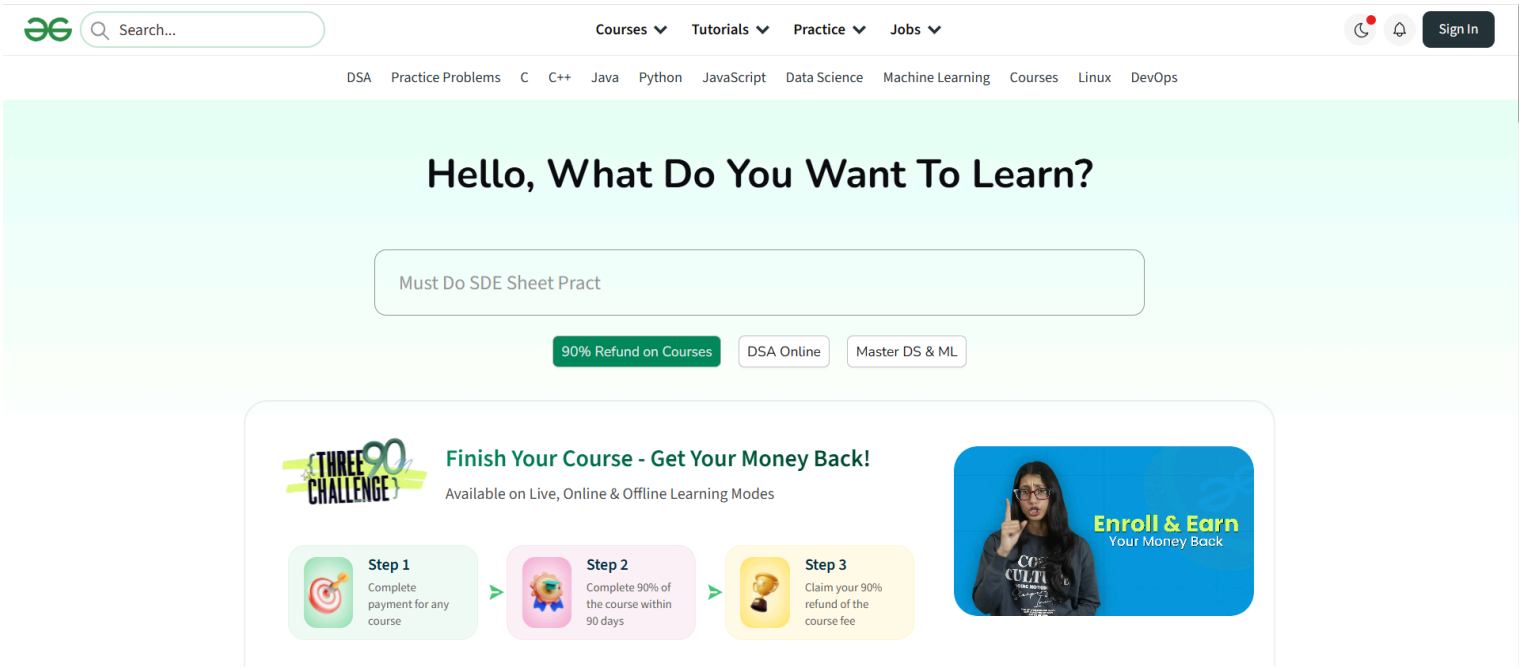
Attributes provide extra information about elements. They always go in the **opening tag**.

- **class**: Specifies one or more class names (used by CSS and JavaScript).
- **id**: Specifies a unique id for an element.
- **style**: Used to add inline CSS styles (e.g., style="color:red;"). ● **lang**: Declares the language of the page (e.g., <html lang="en">). ● **title**: Adds a tooltip when you hover over the elements.

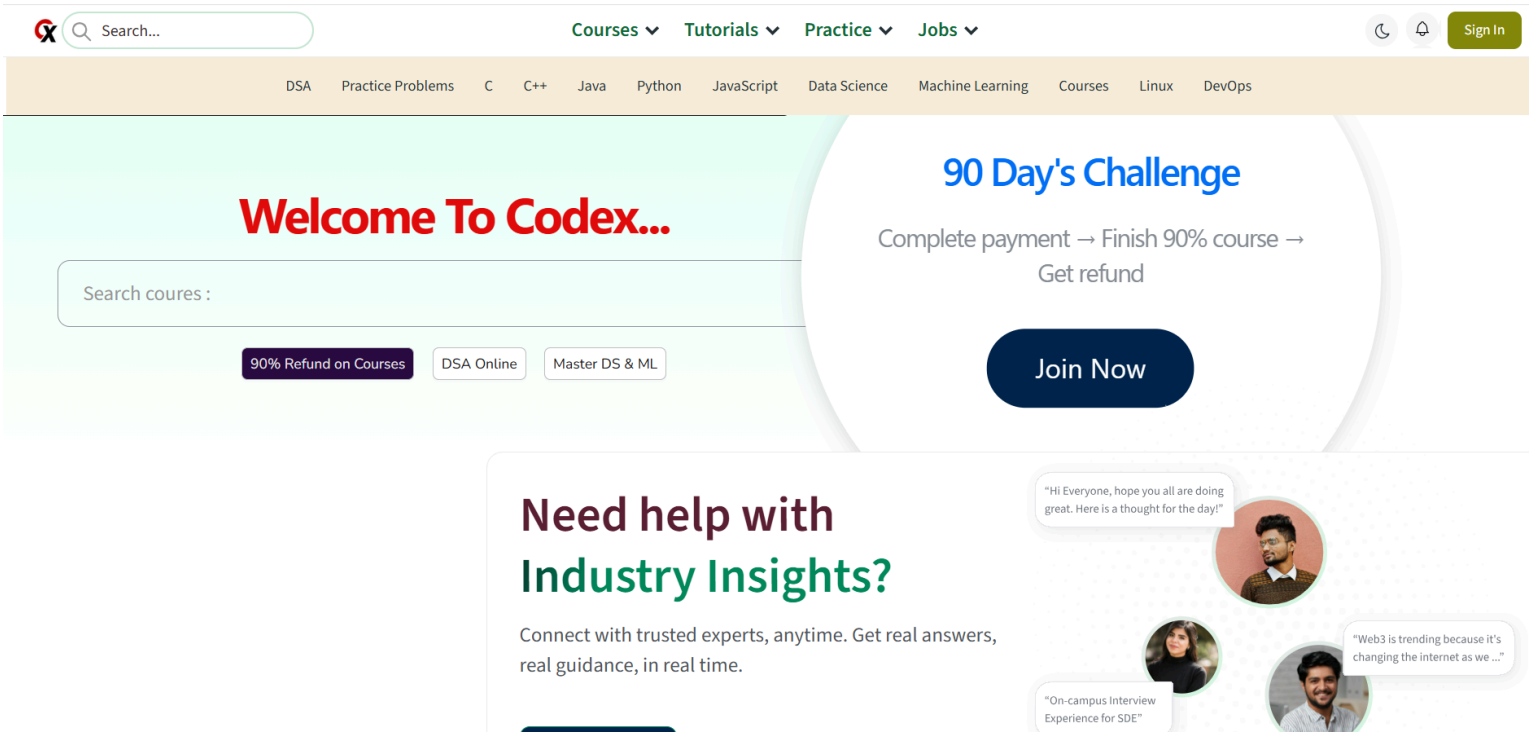
Tasks

1. Delete the logo of a website and replace it with another image using the Inspector. Try to modify the website as much as possible. Include the before/ after screenshots of the website in your submission.

Before -



After -



2. Create an HTML file and start building a simple website containing

paragraphs, lists, forms, and tables. Design it in such a way that it can be used for your personal website

```
<!DOCTYPE html>
<html>
<head>
    <title>My Portfolio</title>
</head>
<body>
    <h1>My Personal Portfolio</h1>
    <h2>About Me</h2>
    <p>Hello! My name is Sneha Pillai. I am a 2nd year Computer Engineering student.</p>
    <p>I am currently learning web development.</p>
    <p>I enjoy solving problems and building projects that help me learn new technologies.</p>
    <hr>
    <h2>My Skills</h2>
    <h3>Programming Languages:</h3>
    <ul>
        <li>C Programming</li>
        <li>Java</li>
        <li>Python</li>
        <li>HTML</li>
    </ul>
    <h3>What I'm Learning:</h3>
    <ol>
        <li>Web Programming</li>
        <li>Data Structures</li>
        <li>Database Management</li>
        <li>JavaScript</li>
    </ol>
    <hr>
    <h2>My Projects</h2>
    <table border="1">
        <tr>
            <th>Project Name</th>
            <th>Language</th>
            <th>Year</th>
        </tr>
        <tr>
            <td>Calculator</td>
            <td>C++</td>
            <td>1st Year</td>
        </tr>
        <tr>
            <td>Student ID Card Generator</td>
            <td>Python</td>
            <td>2nd Year</td>
        </tr>
        <tr>
            <td>Personal Website</td>
            <td>HTML</td>
            <td>2nd Year</td>
        </tr>
    </table>
    <hr>
    <h2>Contact Me</h2>
    <form>
        <label>Your Name:</label><br>
        <input type="text" name="name"><br><br>
        <label>Your Email:</label><br>
        <input type="email" name="email"><br><br>
        <label>Message:</label><br>
        <textarea name="message" rows="4" cols="50"></textarea><br><br>
        <input type="submit" value="Send Message">
    </form>
    <hr>
    <h2>My Education</h2>
    <p><b>College:</b>Pillai University</p>
    <p><b>Course:</b> Computer Engineering</p>
    <p><b>Year:</b> 2nd Year</p>
    <hr>
    <p><i>Thank you for visiting my portfolio!</i></p>
</body>
</html>
```

My Personal Portfolio

About Me

Hello! My name is Sneha Pillai. I am a 2nd year Computer Engineering student.

I am currently learning web development.

I enjoy solving problems and building projects that help me learn new technologies.

My Skills

Programming Languages:

- C Programming
- Java
- Python
- HTML

What I'm Learning:

1. Web Programming
2. Data Structures
3. Database Management
4. JavaScript

My Projects

Project Name	Language	Year
Calculator	C++	1st Year
Student ID Card Generator	Python	2nd Year
Personal Website	HTML	2nd Year

Contact Me

Your Name:

Your Email:

Message:

Send Message

My Education

College: Pillai University

Course: Computer Engineering

Year: 2nd Year

Thank you for visiting my portfolio!

3. Add a navigation bar
    a. To link different pages like “About”, “Projects” to “Home” page
    b. To link different Sections of a single page

```html
<!DOCTYPE html>
<html>
<head>
    <title>My Portfolio</title>
</head>
<body>
    <h2>Navigation Menu</h2>
    <p>
        <a href="#home">Home</a> |
        <a href="#about">About</a> |
        <a href="#skills">Skills</a> |
        <a href="#projects">Projects</a> |
        <a href="#contact">Contact</a>
    </p>
    <hr>
    <div id="home">
        <h1>Welcome to My Portfolio</h1>
        <p>Hello! My name is Sneha. I am a 2nd year Computer Engineering student.</p>
        <p>This website contains information about my skills, projects, and education.</p>
    </div>
    <hr>
    <div id="about">
        <h1>About Me</h1>
        <p>I am a 2nd year Computer Engineering student at Pillai University.</p>
        <p>I am learning web development .</p>
        <p>I enjoy solving problems and building projects.</p>
        <h3>My Interests:</h3>
        <ul>
            <li>Web Development</li>
            <li>Problem Solving</li>
            <li>Software Development</li>
        </ul>
      </div>
    <hr>
    <div id="skills">
        <h1>My Skills</h1>
        <h3>Programming Languages:</h3>
        <ul>
            <li>C Programming</li>
            <li>Java</li>
            <li>Python</li>
            <li>HTML</li>
        </ul>
        <h3>Currently Learning:</h3>
        <ol>
            <li>Web Development</li>
            <li>Operating Systems</li>
            <li>JavaScript</li>
        </ol>
    </div>
    <hr>
    <div id="projects">
        <h1>My Projects</h1>
        <table border="1">
            <tr>
                <th>Project Name</th>
                <th>Language</th>
                <th>Year</th>
            </tr>
            <tr>
                <td>Calculator</td>
                <td>C++</td>
                <td>1st Year</td>
            </tr>
            <tr>
                <td>Student Record System</td>
                <td>Python</td>
                <td>2nd Year</td>
            </tr>
            <tr>
                <td>Personal Website</td>
                <td>HTML</td>
                <td>2nd Year</td>
            </tr>
        </table>
    </div>
    <hr>
    <div id="contact">
        <h1>Contact Me</h1>
        <form>
            <label>Your Name:</label><br>
            <input type="text" name="name"><br><br>
            <label>Your Email:</label><br>
            <input type="email" name="email"><br><br>
            <label>Message:</label><br>
            <textarea name="message" rows="4" cols="50"></textarea><br><br>
            <input type="submit" value="Send Message">
        </form>
        <p><b>Email:</b> sneha@gmail.com</p>
        <p><b>College:</b> Pillai University</p>
    </div>
    <hr>
    <p><i>Thank you for visiting my portfolio!</i></p>
    <p><a href="#home">Back to Top</a></p>
</body>
</html>
```

Navigation Menu

Home | About | Skills | Projects | Contact

Welcome to My Portfolio

Hello! My name is Sneha. I am a 2nd year Computer Engineering student.

This website contains information about my skills, projects, and education.

About Me

I am a 2nd year Computer Engineering student at Pillai University.

I am learning web development .

I enjoy solving problems and building projects.

My Interests:

- Web Development
- Problem Solving
- Software Development

My Skills

Programming Languages:

- C Programming
- Java
- Python
- HTML

Currently Learning:

1. Web Development
2. Operating Systems
3. JavaScript

My Projects

Project Name	Language	Year
Calculator	C++	1st Year
Student Record System	Python	2nd Year
Personal Website	HTML	2nd Year

Contact Me

Your Name:

Your Email:

Message:

Send Message

Email: sneha@gmail.com

College: Pillai University

Thank you for visiting my portfolio!

Back to Top

Conclusion

We have successfully used developer tools to deconstruct websites and understand their structure and have demonstrated this using basic HTML tags to build a website.