HTML and CSS

To get started with HTML and CSS, please see following videos.

1. https://www.youtube.com/watch?v=OZeoiotzPFg
2. https://www.youtube.com/watch?v=yyqvXhu-HOc

1. HTML Task

a. What is HTML? Give basic structure of the HTML page.

- HTML stands for Hypertext Markup Language.
- It's the standard markup language used to create web pages.
- It provides the structure and content of a web page by using a series of elements and tags to define different parts of the page.
- The basic structure of an HTML page typically includes:

```
<!DOCTYPE html>
<html>
<head>
  <title>WebPage Title</title>
</head>
<body>
</body>
</html>
```

- <!DOCTYPE html> - Specifies the HTML version being used, which in this case is HTML5.
- <html> - root element of an HTML page. All other elements are nested inside this tag.
- <head> - contains meta-information about the document, such as its title, links to stylesheets, scripts, etc.
- <title> - sets the title of the web page, which appears in the browser's title bar or tab.
- <body> - contains the main content of the web page that will be displayed in the browser.
- Inside the <body> tag is where we will put the content that we want to show on our webpage, such as text, images, videos, links, and more.
- Elements are used to structure and format content, and they are denoted by tags like <p> for paragraphs, <h1> for headings, <img> for images, <a> for links, and so on.

b. Difference between inline and block level element.

- Inline and block-level elements in HTML behave differently in terms of rendering and formatting on a web page.

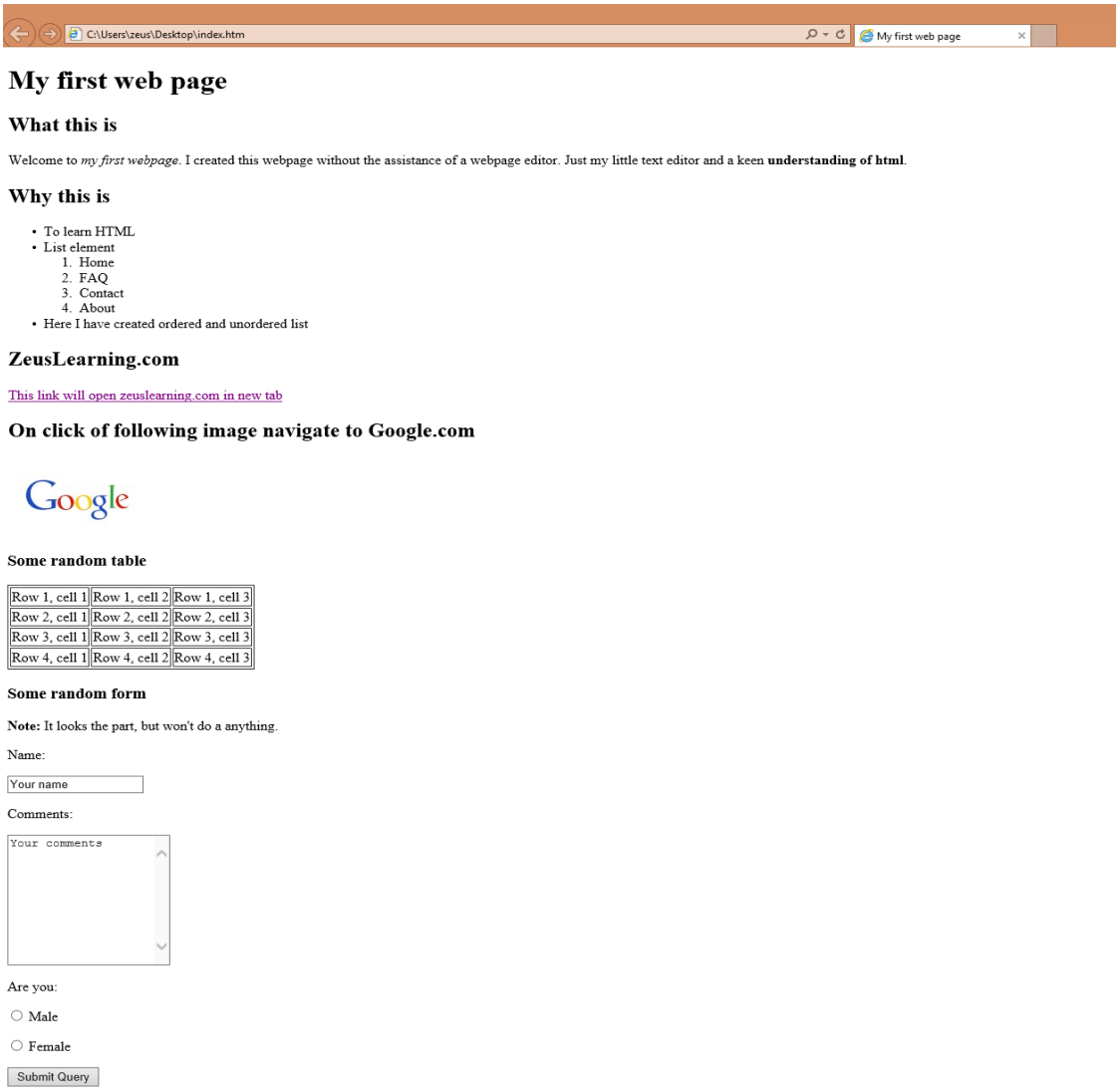
- **Block-level elements:**

- start on a new line and occupy the full width available.
- Examples : , <p>, <h1> to <h6>, <ul>, <ol>, <li>, <table>, etc.

- It Can contain other block-level and inline elements.
- We can set width, height, margins, and paddings for block-level elements.

- **Inline elements:**
- Do not start on a new line; they flow within the content and only take up as much width as necessary.
- Examples : , <a>, , , <img>, <input>, <b>, <i>, etc.
- Generally, do not affect the structure of the content or layout.
- Cannot have width, height, margins, or paddings applied to them.
- Some properties like line-height or font-size may have an effect on the space they occupy.

c. Create an HTML page “index.htm” with following content : completed in code



2. CSS Task

a. Explain the different ways in which CSS can be applied to HTML, what is the preferred way and why.

- CSS (Cascading Style Sheets) can be applied to HTML in three ways:

1) Inline CSS: we can use the style attribute within HTML elements to apply CSS directly.

- For example:

```
<p style="color: blue; font-size: 16px;">This is a paragraph with inline CSS.</p>
```

- Inline CSS is specific to individual elements and overrides external and internal styles.

2) Internal CSS: This involves placing CSS rules inside <style> tags within the <head> section of an HTML document.

- For instance:

```
<head>
  <style>
    p {
      color: blue;
      font-size: 16px;
    }
  </style>
</head>
<body>
  <p>This is a paragraph with internal CSS.</p>
</body>
```

- Internal CSS affects the elements within the HTML document where it's defined.
- It applies to all elements of the specified type within that document.

3) External CSS: This is the preferred and widely-used method. It involves creating a separate .css file containing CSS rules and linking it to HTML documents using the <link> tag within the <head> section:

```
<head>
  <link rel="stylesheet" type="text/css" href="styles.css">
</head>
<body>
  <p>This is a paragraph with external CSS.</p>
</body>
```

- The href attribute in the <link> tag specifies the path to the external CSS file.
- External CSS allows for better organization, easy maintenance, and reusability of styles across multiple HTML documents.

- **Preferred Way**
- The preferred way to apply CSS to HTML is using external CSS. This method provides several advantages:
  1. Separation of Concerns: It separates the structure (HTML) from the presentation (CSS), making the code cleaner and more maintainable.
  2. Ease of Maintenance: When changes are needed, modifying a single external CSS file updates the styling across all linked HTML documents.
  3. Caching: External CSS files can be cached by the browser, resulting in faster page loading times for subsequent visits to the website.
  4. Reusability: The same CSS file can be linked to multiple HTML documents, ensuring consistent styling throughout the website.
- While inline and internal CSS have their uses in specific scenarios (like quick styling changes for a single element or small-scale projects), they can make the code harder to manage as the project grows. External CSS provides a cleaner, more organized, and scalable approach to styling web pages.

b. What are different CSS selectors, with example explain Element, Class and Id selectors.

- CSS selectors are used to target and style specific elements on a webpage.
- Examples of the three main types: element, class, and ID selectors.

1. Element Selector:
   - It targets HTML elements directly by their tag names.
   - Example: To target all <p> (paragraph) elements on a page and make their text color red:

```
p {
  color: red;
}
```

2. Class Selector:
    - It targets elements based on their assigned class attribute.
    - Example: Let's say we have a CSS class called "highlight" that we want to apply to certain elements:

      HTML:

      ```
      <p class="highlight">This is a highlighted paragraph.</p>

      <div class="highlight">This is a highlighted div.</div>
      ```

      CSS:

      ```
      .highlight {
        background-color: yellow;
        font-weight: bold;
      }
      ```

3. ID Selector:
    - It targets a specific HTML element by its unique ID attribute.
    - Example: An element with the ID "main-heading" can be styled as follows:

      HTML:

      ```
      <h1 id="main-heading">Welcome to my website</h1>
      ```

      CSS:

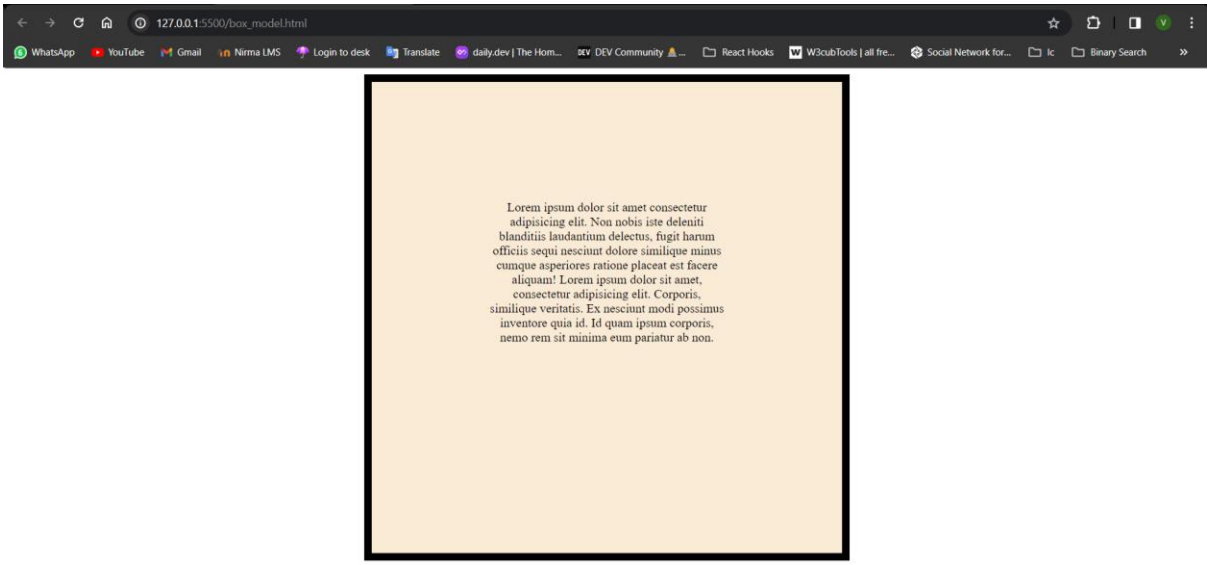
      ```
      #main-heading {
        text-align: center;
        color: blue;
      }
      ```

- IDs should be unique within a page, whereas classes can be used on multiple elements.
- Several other types of selector are attribute selector, Descendant selector,child selector,pseudo classes and pseudo elements.

c. With the help of a diagram explain CSS Box Model.

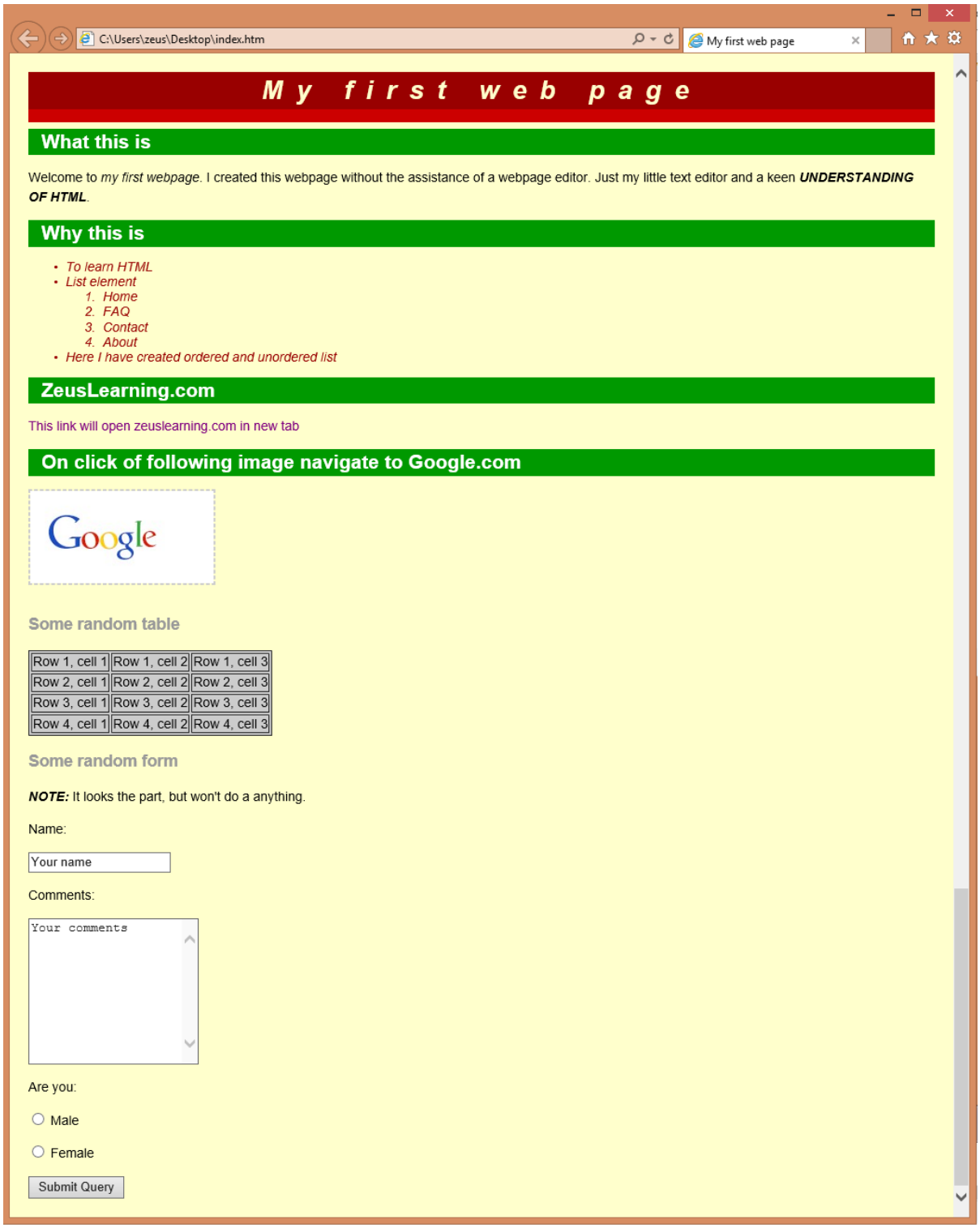
- The CSS Box Model is a fundamental concept that describes the layout and structure of elements in HTML and CSS.
- It comprises content, padding, border, and margin.
- Here's a breakdown:
  a. Content: The actual content of the HTML element, like text, images, etc.
  b. Padding: The space between the content and the border. It's the inner spacing of an element.
  c. Border: The border surrounding the padding and content.
  d. Margin: The space between the border of an element and surrounding elements.
- Here's a simple diagram representing the CSS Box Model:

```
div{
            border: 10px solid black;
            width: 300px;
            height: 300px;
            margin: auto;
            padding: 150px;
            text-align: center;
            background-color: antiquewhite;
        }
```



- The total width and height of an element are calculated as the sum of content width/height + padding + border + margin.

d. To HTML page create in the task 1.a, apply following CSS : completed in code



JavaScript

a. List down ways in which JavaScript command can be added to a webpage, what is the preferred way.

- JavaScript commands can be added to a webpage in several ways.
- Here are the most common methods:

1.Inline Scripting:

- JavaScript code directly embedded within HTML tags using the onclick, onload, or similar event attributes.

Example:

```
<button onclick="alert('Hello!')">Click me</button>
```

2.Internal Script:

- JavaScript code included within the <script> tag in the HTML document itself, typically within the <head> or <body> section.

Example:

```
<script>
  // JavaScript code
  alert('Hello from internal script!');
</script>
```

3.External Script:

- Linking to an external JavaScript file using the <script> tag's src attribute.

Example:

```
<script src="script.js"></script>
```

- The content of script.js would contain JavaScript code.

The preferred way to add JavaScript to a webpage is External Javascript.

- Using external JavaScript files keeps the HTML cleaner and allows for better organization and caching of code.
- Placing script tags at the end of the HTML body or using defer attribute helps improve page load performance.
- Separating JavaScript from HTML (avoiding inline scripting) makes code maintenance and scalability easier.

b. To the webpage created in the task 2.d , on click of “Submit” button call JavaScript function to validate:(completed in code)

I. Name and comments fields are not empty.
II. User has selected one entry from male/female radio button
III. In case user has not entered data for name and comment field or not selected anything from male/female radio button – show alert message “All fields are compulsory” and set focus to the first filed that is empty.