



Tutorial 3: VS Code, HTML, CSS

CS 108

Spring, 2023-24

Please mark SAFE Attendance.

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Topics

- Visual Studio Code
- HTML tags (review)
- CSS
- Exercises



Visual Studio Code

- Introduction
- Demo

VS Code



Some pros of **VSCode** :-

- ❖ It is free and open-source.
- ❖ It is cross-platform, so it can be used on Windows, macOS, and Linux.
- ❖ It is extensible, with a large number of extensions available to add new features and functionality.
- ❖ It is customizable, so you can change the look and feel to suit your preferences.
- ❖ It is lightweight and fast, so it can be used on even older computers.
- ❖ It has a large and active community, with a lot of resources available online.
- ❖ It is a popular choice for web development, data science etc
- ❖ It has built-in git support
- ❖ It has intellisense, an intelligent code completion feature.

Installation

❖ For [Ubuntu](#), [Windows](#), [MacOS](#)

```
aria@aria-IdeaPad-Slim-5-14IAH8:~/Desktop$ sudo snap install --classic code
[sudo] password for aria:
code 0ee08df0 from Visual Studio Code (vscode**) installed
aria@aria-IdeaPad-Slim-5-14IAH8:~/Desktop$ code --version
1.85.1
0ee08df0cf4527e40edc9aa28f4b5bd38bbff2b2
x64
aria@aria-IdeaPad-Slim-5-14IAH8:~/Desktop$ mkdir CS104
aria@aria-IdeaPad-Slim-5-14IAH8:~/Desktop$ cd CS104
aria@aria-IdeaPad-Slim-5-14IAH8:~/Desktop/CS104$ touch homepage.html
aria@aria-IdeaPad-Slim-5-14IAH8:~/Desktop/CS104$ code .
aria@aria-IdeaPad-Slim-5-14IAH8:~/Desktop/CS104$
```

Welcome Screen



Intellisense

```
<> card.html > html > h
1  <!DOCTYPE html>
2
3  <html>
4  <h
5  </html>
```

- h1
- h2
- h3
- h4
- h5
- h6
- head
- header
- hgroup
- hr
- html
- /html

The h1 element represents a section heading. ×

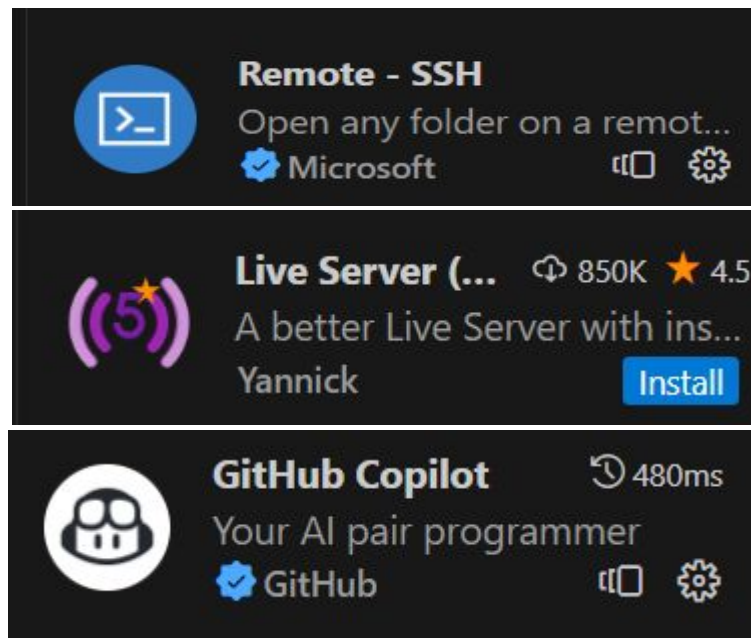
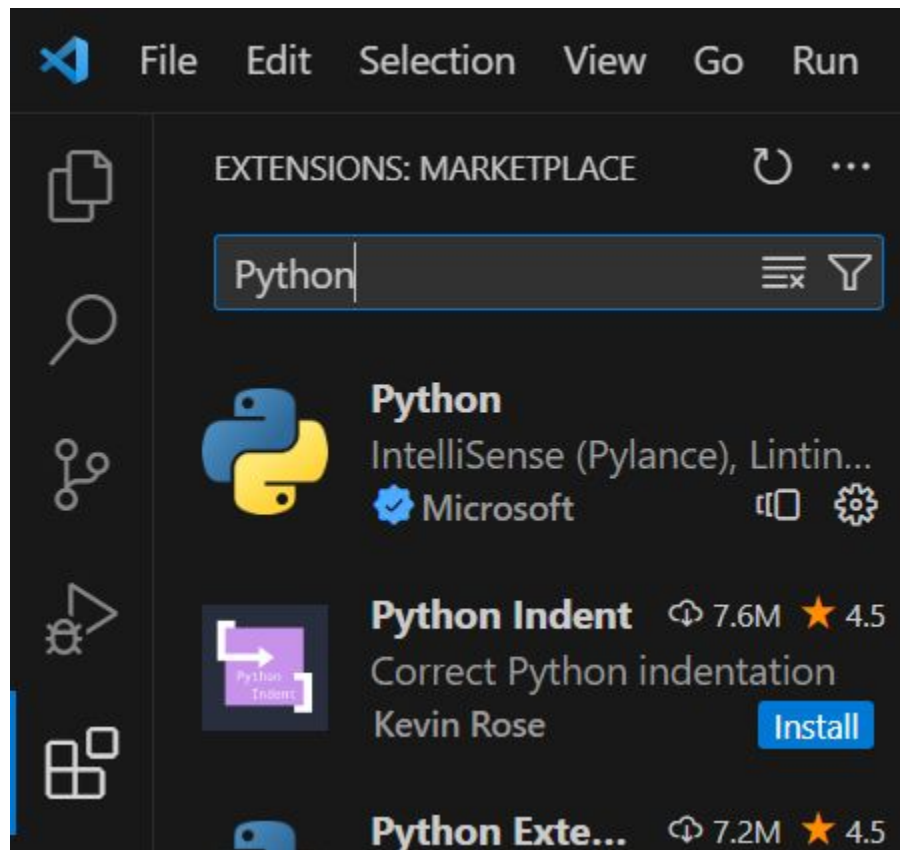
[MDN Reference](#)

```
demo.py > ...
1  a = 2
2  b = 3
3  p = a+b
4  p
```

- p
- print
- pass
- pow
- property
- PendingDeprecationWarning
- PermissionError
- ProcessLookupError
- __package__
- __path__
- ChildProcessError
- BrokenPipeError

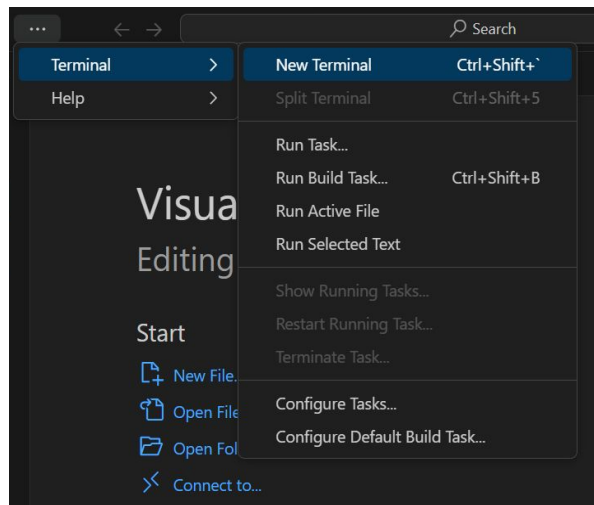
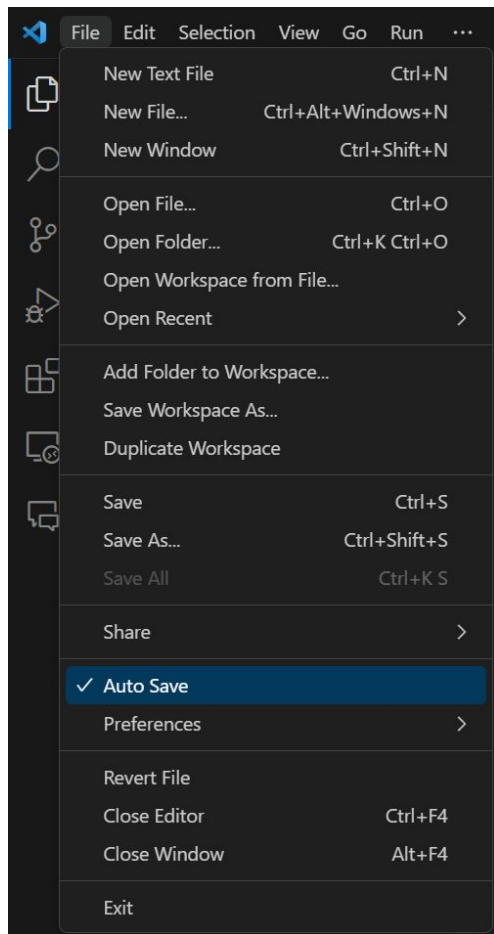
1. Visual Studio Code IntelliSense is provided for JavaScript, TypeScript, JSON, HTML, CSS, SCSS, and Less out of the box.
2. VS Code supports word based completions for any programming language but can also be configured to have richer IntelliSense by installing a language extension.

Extensions



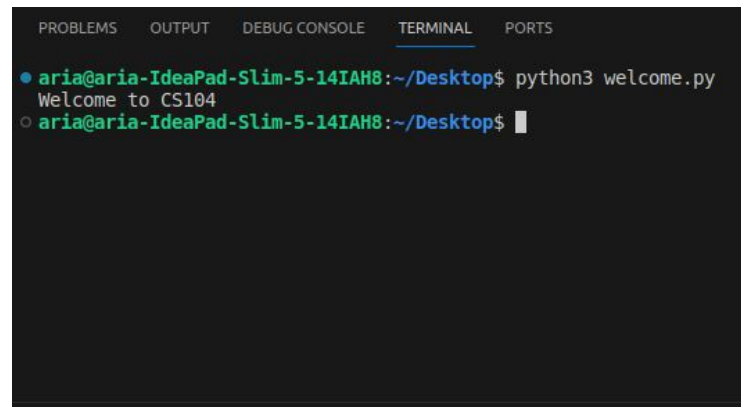
- VS Code comes along with a bunch of useful extensions.
- Remote-SSH allows access to any remote machine with an SSH server as your development environment.
- Live Server launches a local server with a feature to live reload static and dynamic pages.

Useful Features



VS Code includes an integrated terminal that allows users to run command-line tasks directly within the editor.


When enabled Auto Save, changes made to files are automatically saved without any manual intervention.





Live preview extension


EXTENSIONS: MARKETPL...


live preview


 **Live Preview** 3.7M ★ 4.5
Hosts a local server in you...
Microsoft [Install](#)


 **Live Server** 43.2M ★ 4.5
Launch a development loc...
Ritwick Dey [Install](#)


 **Live Preview** 120K ★ 5
<https://github.com/profime...>
Cumpanasu Florin [Install](#)

 **Live Server ...** 972K ★ 3.5
Preview your HTML file wit...
negokaz [Install](#)


 **Live HTML Pre...** 1M ★ 2
Edit and preview HTML do...
Harshdeep Gu... [Install](#)

 **Deprecated...** 680K ★ 3
This extension is deprecat...
Kenneth Auch... [Install](#)


 **Live Server ...** 844K ★ 4.5
A better Live Server with in...
Yannick [Install](#)



Live Preview v0.4.13 Preview

Microsoft  microsoft.com | 3,724,953 | ★★★★★

Hosts a local server in your workspace for you to preview ...

[Install](#) 

DETAILS

FEATURE CONTRIBUTIONS

CHANGELOG

Live Preview - VS Code Extension

⚠ WARNING: This extension is still under development!

An extension that hosts a local server for you to preview your web projects on!

This extension is most useful for projects where a server is not already created (e.g. not for apps using React, Angular, etc.). To work with these, feel free to run the `Simple Browser: Show` command that is already built-in with VS Code

Categories

Other

Extension Resources

[Marketplace](#)
[Repository](#)
[License](#)
[Microsoft](#)

More Info

Published 2021-06-22,
02:03:59

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Connect

Live Share



HTML tags (review)

- VSCode preview extension
- Tags
- Class and ID

HTML Document

<> card.html >  html >  head

```
1  <!DOCTYPE html>
2
3  <html>
4    <head>
5      |
6    </head>
7
8    <body>
9
10   </body>
11 </html>
```

- ❖ `<!DOCTYPE html>` declares the document type to be **HTML**.
- ❖ The HTML document is enclosed between `<html>` and `</html>` tags.
- ❖ HTML document is divided in two parts, head and body.
- ❖ The head element enclosed within `<head>` and `</head>` represents a collection of metadata for the Document.
- ❖ The body element present in `<body>` and `</body>` represents the content of the document.

Title, headings and paragraphs.

```
<> card.html x
<> card.html > html > body > p
1  <!DOCTYPE html>
2
3  <html>
4    <head>
5      <title>CS 104 ID Card</title>
6    </head>
7
8    <body>
9      <h1>This is h1 heading</h1>
10     <h2>This is h2 heading</h2>
11     <h3>This is h3 heading</h3>
12     <h4>This is h4 heading</h4>
13     <h5>This is h5 heading</h5>
14     <h6>This is h6 heading</h6>
15   <p>
16     Now we are in a paragraph.
17     Moving to newline,
18     is achieved by <br>
19     and not by moving to
20     newline in html code.
21   </p>
22 </body>
23 </html>
```

CS 104 ID Card x
http://127.0.0.1:3000/card.html

This is h1 heading

This is h2 heading

This is h3 heading

This is h4 heading

This is h5 heading

This is h6 heading

Now we are in a paragraph. Moving to newline, is achieved by
and not by moving to newline in html code.

- ❖ The title of the webpage is written within `<title>` and `</title>` in the head element
- ❖ There are 6 heading levels, from `<h1>` to `<h6>`, largest to smallest.
- ❖ The paragraph is written inside `<p>` and `</p>`, whereas `
` is used to break line.

Links and images


card.html x

card.html > ...

```
1  <!DOCTYPE html>
2
3  <html>
4    <head>
5      <title>CS 104 ID Card</title>
6    </head>
7
8    <body>
9      <a href="https://www.iitb.ac.in">IITB</a>
10     <br>
11     
12   </body>
13 </html>
14
15
```

CS 104 ID Card x

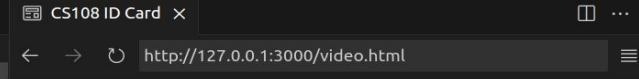
http://127.0.0.1:3000/card.html

IITB


- ❖ The url is written in href attribute of <a> tag, text enclosed in between <a> and is displayed on the webpage. When clicked, the page redirects to the url, to open on a new tab, set target attribute to "_blank".
- ❖ The image location is given to the src attribute of tag, height and width can be adjusted.

Videos and iframe

```
video.html x
< video.html > html > head > title
1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
4   <title>CS108 ID Card</title>
5 </head>
6 <body>
7   <p>The following shows a video from our local directory</p>
8   <br>
9   <video src="video.mp4" height="200" controls></video>
10  <br><br>
11  <p>The following is fetched from youtube and is embedded
12    using iframe</p>
13  <iframe height="200" width="360"
14    src="https://www.youtube.com/embed/FWTNMzK9vG4?si=onTrI-zezTiX9Vrv"
15    title="YouTube video player"
16    frameborder="0"
17    allow="accelerometer; autoplay; clipboard-write;
18    encrypted-media; gyroscope; picture-in-picture; web-share"
19    allowfullscreen></iframe>
20 </body>
21 </html>
```



The following shows a video from our local directory



The following is fetched from youtube and is embedded using iframe



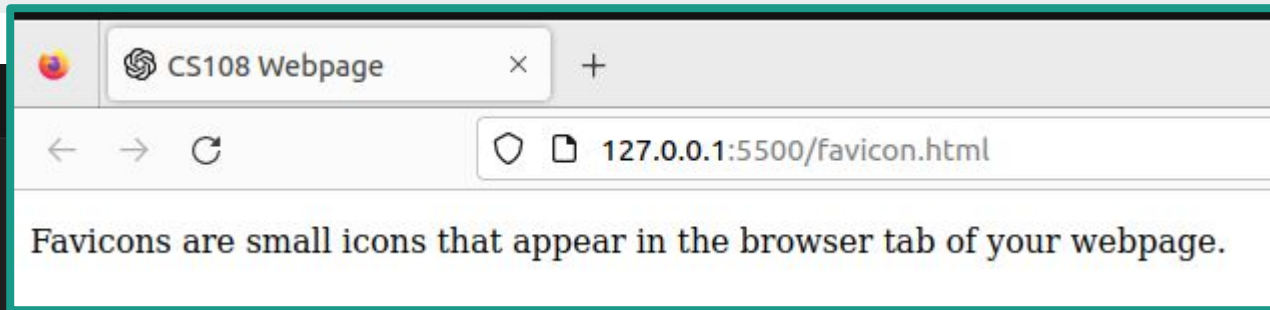
- ❖ Like images, video location is given to the `src` attribute of the `<video>` tag. The `controls` attribute adds video controls like play, pause and volume.
- ❖ The `<iframe>` tag can be used to display a youtube video in the web page.

Favicon and Comments

<> favicon.html x

<> favicon.html > html

```
1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
4   <title>CS108 Webpage</title>
5   <!-- Favicons are small icons that appear in the browser tab of your webpage. -->
6   <link rel="icon" href="logo.png" type="image/x-icon">
7 </head>
8 <body>
9   <p>Favicons are small icons that appear in the browser tab of your webpage.</p>
10 </body>
11 </html>
```



- ❖ Everything between `<!--` and the `-->` will be hidden from the display on the web page.
- ❖ To setup a favicon, we `<link>` our current document to the icon in the `href` attribute, we also specify the type of linked resource to be an icon by setting `rel` and `type` attributes as shown

Tables, Lists and Formatting

tables.html x

CS108 Tut-3 x

tables.html > ...

```
1 <!DOCTYPE html>
2 <head>
3   <title>CS108 Tut-3</title>
4 </head>
5 <body>
6   <h3>Major Attractions of India</h3>
7   <table>
8     <tr> <!-- Table Row -->
9       <th>City</th> <th>Food</th> <th>Place</th>
10    </tr>
11    <tr>
12      <td>Cuttack</td> <td>Dahi Vada</td> <td>Barabati Fort</td>
13    </tr>
14    <tr>
15      <td>Hyderabad</td> <td>Dum Biryani</td> <td>Charminar</td>
16    </tr>
17    <tr>
18      <td>Amritsar</td> <td>Kulcha</td> <td>Golden Temple</td>
19    </tr>
20  </table>
21  <p><i><b>Based on the table above we conclude some points</b></i></p>
22  <hr>
23  <ol> <!-- Ordered List -->
24    <li>Amritsar is famous for <del>Biryani</del> <ins>Kulcha</ins></li>
25    <li></li>
26    <li>Cuttack is famous for
27      <ul>
28        <li>Barabati Fort</li>
29        <li>Dahi Vada</li>
30      </ul>
31    </li>
32    <li>India is <mark>beautiful</mark></li>
33    <li>p<sub>0</sub> = 25<sup>2</sup> = 625</li>
34  </ol>
35 </body> </html>
```

Major Attractions of India

City	Food	Place
Cuttack	Dahi Vada	Barabati Fort
Hyderabad	Dum Biryani	Charminar
Amritsar	Kulcha	Golden Temple

Based on the table above we conclude some points

❖

1. Amritsar is famous for ~~Biryani~~ Kulcha

❖

2.

❖

3. Cuttack is famous for

- Barabati Fort
- Dahi Vada

❖

4. India is beautiful

❖

5. $p_0 = 25^2 = 625$

- ❖ Tables are created using `<table>` tag. `<tr>` represents table rows. `<th>` and `<td>` are table header and table data respectively.
- ❖ List items are defined inside `` tags. `` creates ordered lists, and `` creates unordered lists.
- ❖ Try out nesting `` inside `` and same for ``!
- ❖ `` (bold) and `<i>` (italic) are text styling tags.
- ❖ `<sub>` and `<sup>` produce subscripting and superscripting respectively.

Forms

```
ms.html > html > body > form > label
<body>
  <form action="/tables.html" method="post">
    <!-- text input -->
    <label for="name">Name</label>
    <input type="text" id="name" name="name">
    <br><br>

    <!-- radio buttons -->
    <label>Grad Year</label>
    <input type="radio" id="2025" name="batch" val
    <label for="2025">2025</label>
    <input type="radio" id="2026" name="batch" val
    <label for="2026">2026</label>
    <input type="radio" id="2027" name="batch" val
    <label for="2027">2027</label>
    <br><br>

    <!-- checkboxes -->
    <label>Courses you've taken</label>
    <input type="checkbox" id="cs101" name="cs101"
    <label for="cs101">CS101</label>
    <input type="checkbox" id="cs108" name="cs108"
    <label for="cs108">CS108</label>
    <input type="checkbox" id="ma106" name="ma106"
    <label for="ma106">MA106</label>
    <br><br>

    <!-- button -->
    <label for="clickme">Clickable Button</label>
    <input type="button" value="Click me" name="cl
    <br><br>

    <!-- submit button -->
    <input type="submit" value="Submit">
  </form>
</body>
```

→ ↶ ↷ http://127.0.0.1:3000/forms.html

Name

Grad Year ☐ 2025 ☐ 2026 ☐ 2027

Courses you've taken ☐ CS101 ☐ CS108 ☐ MA106

Clickable Button

- ❖ We use `<form>` to create a **HTML** form, **action** attribute specified the target URL where the data will be sent, **method** attribute defines the **HTTP** method to be used.
 - In case of get, the data is displayed in the URL
- ❖ The `<input>` tags are used to take any input from user side. The attribute **type** specifies what kind of input. By default it is **"text"**
 - **type = "radio"** : Single Choice
 - **type = "checkbox"** : Multi Choice
 - **type = "button"** : Clickable button
 - **type = "submit"** : Submitting form data to a handler that is specified in the action attribute of `<form>`
- ❖ The **for** attribute in `<label>` corresponds to the **id** attribute of `<input>`.
- ❖ The **name** attribute is used for server side script.
- ❖ In case of buttons and submit input, the **value** attribute determines the text on the button.
- ❖ `<select>` tag lists a dropdown. More on this in Exercise!

Class and ID



- ❖ Classes are used to group HTML elements together and apply styles or behavior to multiple elements simultaneously.
 - `<tag class="classname">Content</tag>`
- ❖ Elements can have multiple classes separated by spaces
 - `<tag class="class1 class2">Content</tag>`
- ❖ IDs are used to uniquely identify a single HTML element on a page. IDs must be unique within a document. No two elements should share the same ID.
 - `<tag id="elementID">Content</tag>`
- ❖ Classes and IDs are commonly used in CSS to apply styles to specific groups of elements:
 - `.classname { /* styles */ }`
 - `#elementID { /* styles */ }`
- ❖ Classes are often used in JavaScript for selecting and manipulating groups of elements, whereas IDs are to target and manipulate specific elements.

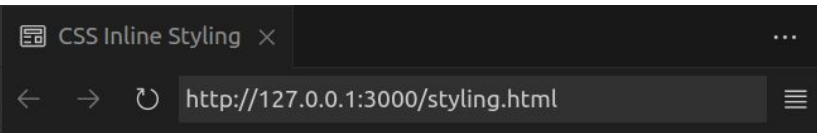


CSS

- Inline Styling
- Internal Styling
- External Styling
- Div element

Inline Styling

```
< styling.html x # mystyles.css
< styling.html > html
1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
4   <title>CSS Inline Styling</title>
5 </head>
6 <body>
7   <p style="color: red; font-size: 20px;">
8     Q: Why do programmers always mix up Christmas
9     and Halloween?
10  </p>
11  <p style="color: blue; font-size: 20px">
12    A : Because Oct 31 == Dec 25!
13  </p>
14 </body>
15 </html>
```

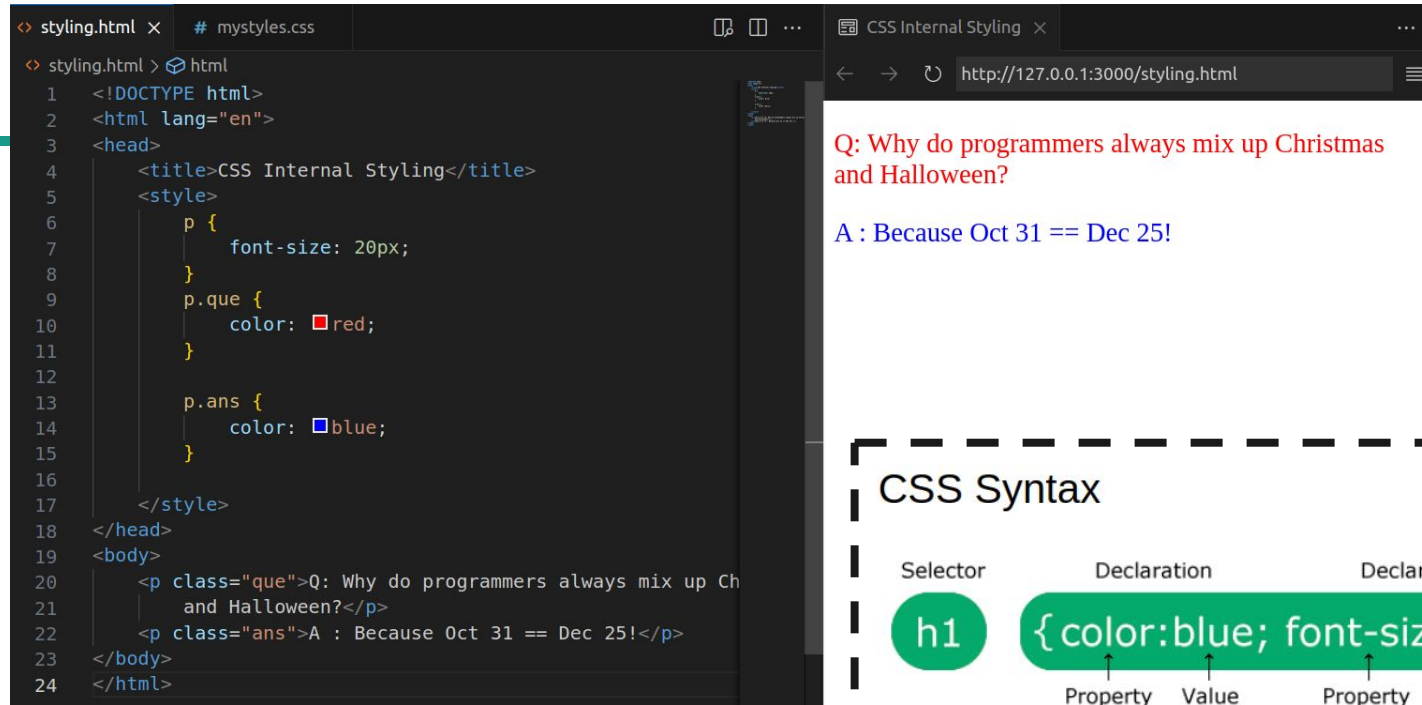


Q: Why do programmers always mix up Christmas and Halloween?

A : Because Oct 31 == Dec 25!

- ❖ Inline styling involves applying styles directly to individual HTML elements using the `style` attribute.
- ❖ In this example, the `style` attribute is used to set the color to `red` for the Question and `blue` for the Answer and the font size is 20px for both the `<p>` tags.

Internal Styling



The screenshot shows a code editor with a file named `styling.html` and a browser window displaying the rendered page. The code in the editor is as follows:

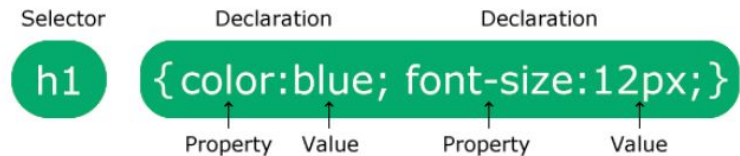
```
1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
4   <title>CSS Internal Styling</title>
5   <style>
6     p {
7       font-size: 20px;
8     }
9     p.que {
10      color: red;
11    }
12
13    p.ans {
14      color: blue;
15    }
16  </style>
17 </head>
18 <body>
19   <p class="que">Q: Why do programmers always mix up Christmas
20     and Halloween?</p>
21   <p class="ans">A : Because Oct 31 == Dec 25!</p>
22 </body>
23 </html>
```

The browser window shows the rendered page with the title "CSS Internal Styling". The first paragraph, "Q: Why do programmers always mix up Christmas and Halloween?", is styled in red. The second paragraph, "A : Because Oct 31 == Dec 25!", is styled in blue.

Q: Why do programmers always mix up Christmas and Halloween?

A : Because Oct 31 == Dec 25!

CSS Syntax

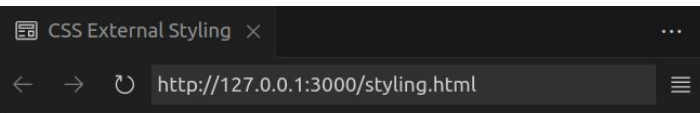


- ❖ Internal styling is achieved by placing CSS rules within a `<style>` tag in the HTML document, typically within the `<head>` section.
- ❖ Follow the CSS syntax to add styles to different elements, classes, ids. Selector `p` describes styling for all `<p>` tags, Selector `p.que` describes styling for all `<p>` tags with `class = "que"`

External Styling

```
<> styling.html x
<> styling.html > html
1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4  |   <title>CSS External Styling</title>
5  |   <link rel="stylesheet" href="mystyles.css">
6  </head>
7  <body>
8  |   <p class="que">Q: Why do programmers always mix up
9  |       Christmas
10 |       and Halloween?</p>
11 |   <p class="ans">A : Because Oct 31 == Dec 25!</p>
12 </body>
13 </html>
```

```
# mystyles.css x
# mystyles.css > p.ans
1  p {
2  |   font-size: 20px;
3  }
4  p.que {
5  |   color: red;
6  }
7
8  p.ans {
9  |   color: blue;
10 }
```

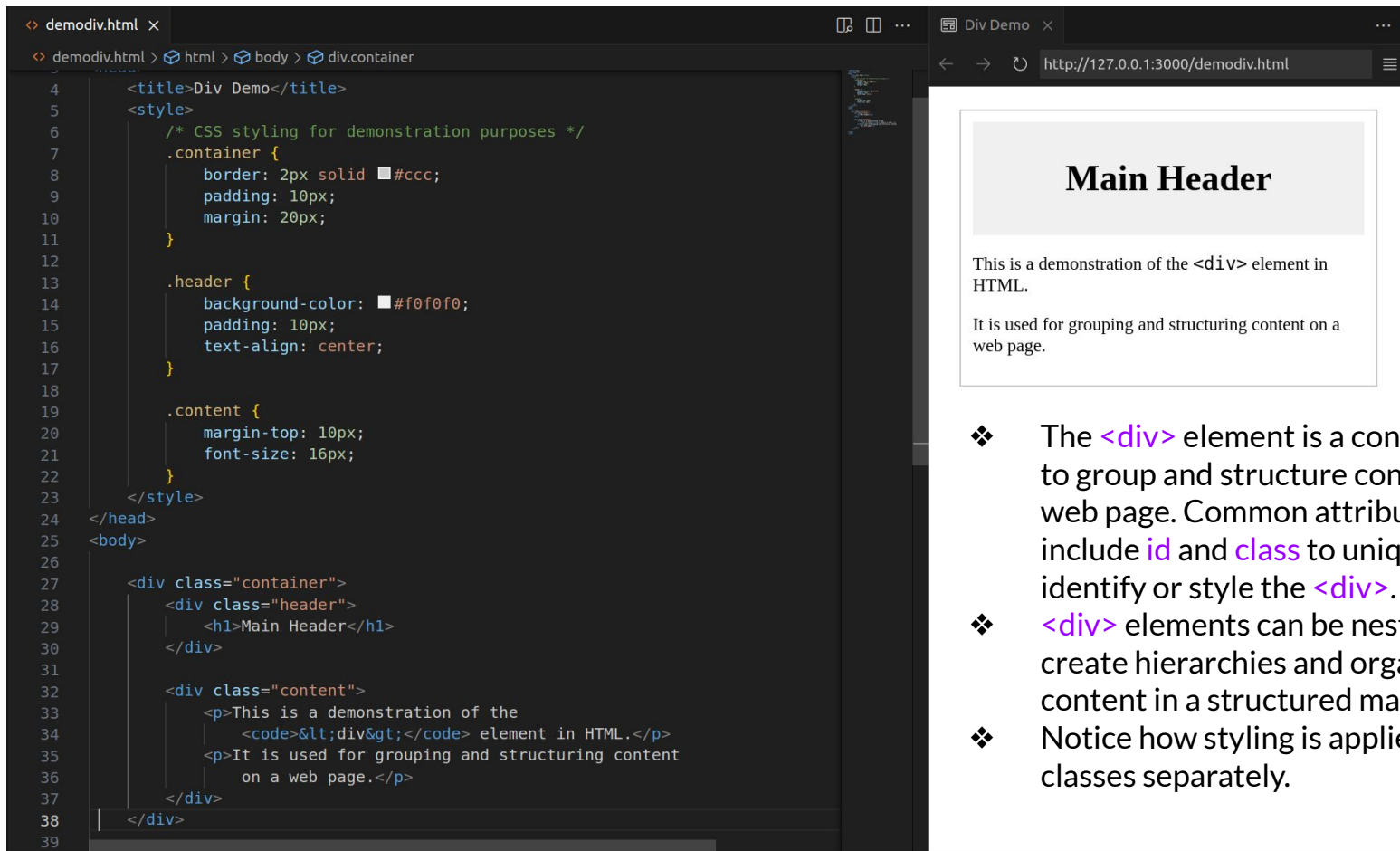


Q: Why do programmers always mix up Christmas and Halloween?

A : Because Oct 31 == Dec 25!

- ❖ External styling involves linking an external CSS file to the HTML document using the `<link>` element within the `<head>` section.
- ❖ To read more about CSS selectors: https://www.w3schools.com/css/css_selectors.asp

<div> element



The screenshot displays a code editor on the left and a web browser on the right. The code editor shows the HTML and CSS for a demo page. The CSS defines three classes: `.container` (border, padding, margin), `.header` (background color, padding, text-align), and `.content` (margin-top, font-size). The HTML structure uses these classes to create a container, a header, and a content area.

```
4 <title>Div Demo</title>
5 <style>
6   /* CSS styling for demonstration purposes */
7   .container {
8     border: 2px solid #ccc;
9     padding: 10px;
10    margin: 20px;
11  }
12
13  .header {
14    background-color: #f0f0f0;
15    padding: 10px;
16    text-align: center;
17  }
18
19  .content {
20    margin-top: 10px;
21    font-size: 16px;
22  }
23 </style>
24 </head>
25 <body>
26
27   <div class="container">
28     <div class="header">
29       <h1>Main Header</h1>
30     </div>
31
32     <div class="content">
33       <p>This is a demonstration of the
34         <code>&lt;div&gt;</code> element in HTML.</p>
35       <p>It is used for grouping and structuring content
36         on a web page.</p>
37     </div>
38   </div>
39
```

The browser window shows the rendered page with the title "Div Demo" and the URL "http://127.0.0.1:3000/demodiv.html". The page content is displayed within a structured layout defined by the CSS classes.

Main Header

This is a demonstration of the `<div>` element in HTML.

It is used for grouping and structuring content on a web page.

- ❖ The `<div>` element is a container used to group and structure content on a web page. Common attributes include `id` and `class` to uniquely identify or style the `<div>`.
- ❖ `<div>` elements can be nested to create hierarchies and organize content in a structured manner.
- ❖ Notice how styling is applied to div classes separately.

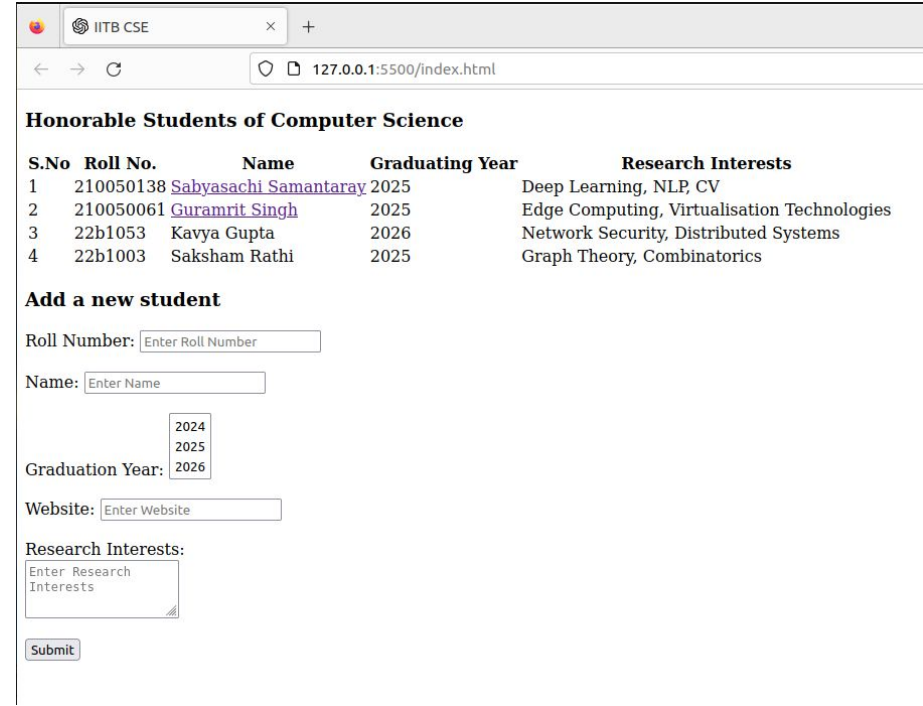


Exercises

- HTML
- CSS

Exercise 1 (Template with HTML)

- ❖ A simple template of a IITB CSE student information page.
- ❖ Deliverables:
 - Favicon and Title of the web page
 - Table of students with their information
 - Hyperlinked names with their webpages
 - A form to collect information of a new student to be added
 - All input sections except Website is mandatory
 - Dropdown for Graduation Year
 - Placeholder Text as shown in Figure
 - Submit Button(Non Functional as of Now)
- ❖ Solution: [index.html](#) (provided)



Honorable Students of Computer Science

S.No	Roll No.	Name	Graduating Year	Research Interests
1	210050138	Sabyasachi Samantary	2025	Deep Learning, NLP, CV
2	210050061	Guramrit Singh	2025	Edge Computing, Virtualisation Technologies
3	22b1053	Kavya Gupta	2026	Network Security, Distributed Systems
4	22b1003	Saksham Rathi	2025	Graph Theory, Combinatorics

Add a new student

Roll Number:

Name:

Graduation Year:

Website:

Research Interests:

Exercise 2 (Styling with CSS)

- ❖ In extension to the previous exercise, now add styling to enhance the visual appeal of the HTML template.
- ❖ Additionally, remove the default features of the `<a>` tag, where in the links are blue and underlined. Instead now, it shows underline only when hovered.
- ❖ Do all the styling in file `styles.css` and link it with the html file.
- ❖ Solution: `styles.css` (provided)
- ❖ Coming Up (Next Week):
 - On submitting details of a new student, it updates the table above.

S.No	Roll No.	Name	Graduating Year	Research Interests
1	210050138	Sabyasachi Samantaray	2025	Deep Learning, NLP, CV
2	210050061	Guramrit Singh	2025	Edge Computing, Virtualisation Technologies
3	22b1053	Kavya Gupta	2026	Network Security, Distributed Systems
4	22b1003	Saksham Rathi	2026	Graph Theory, Combinatorics

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