Welcome to this CoGrammar lecture: Cascading Style Sheets (CSS)

The session will start shortly...

Questions? Drop them in the chat.

Software Engineering Session Housekeeping

- The use of disrespectful language is prohibited in the questions, this is a supportive, learning environment for all - please engage accordingly. **(Fundamental British Values: Mutual Respect and Tolerance)**
- No question is daft or silly - **ask them!**
- There are **Q&A sessions** throughout this session, should you wish to ask any follow-up questions.
- If you have any questions outside of this lecture, or that are not answered during this lecture, please do submit these for upcoming Academic Sessions. You can submit these questions here: Questions

Software Engineering Session Housekeeping cont.

- For all **non-academic questions**, please submit a query: www.hyperiondev.com/support
- Report a **safeguarding** incident: www.hyperiondev.com/safeguardreporting
- We would love your **feedback** on lectures: Feedback on Lectures

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Why Enable Browser Captions?

- Captions provide **real-time text for spoken content**, ensuring inclusivity.
- Ideal for individuals in noisy or quiet environments or for those with **hearing impairments**.

How to Activate Captions:

1. **YouTube or Video Players:**
   - Look for the CC (Closed Captions) icon and click to enable.
2. **Browser Settings:**
   - Google Chrome: Go to *Settings > Accessibility > Live Captions* and toggle ON.
   - Edge: Enable captions in *Settings > Accessibility*.

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Stay Safe Series:

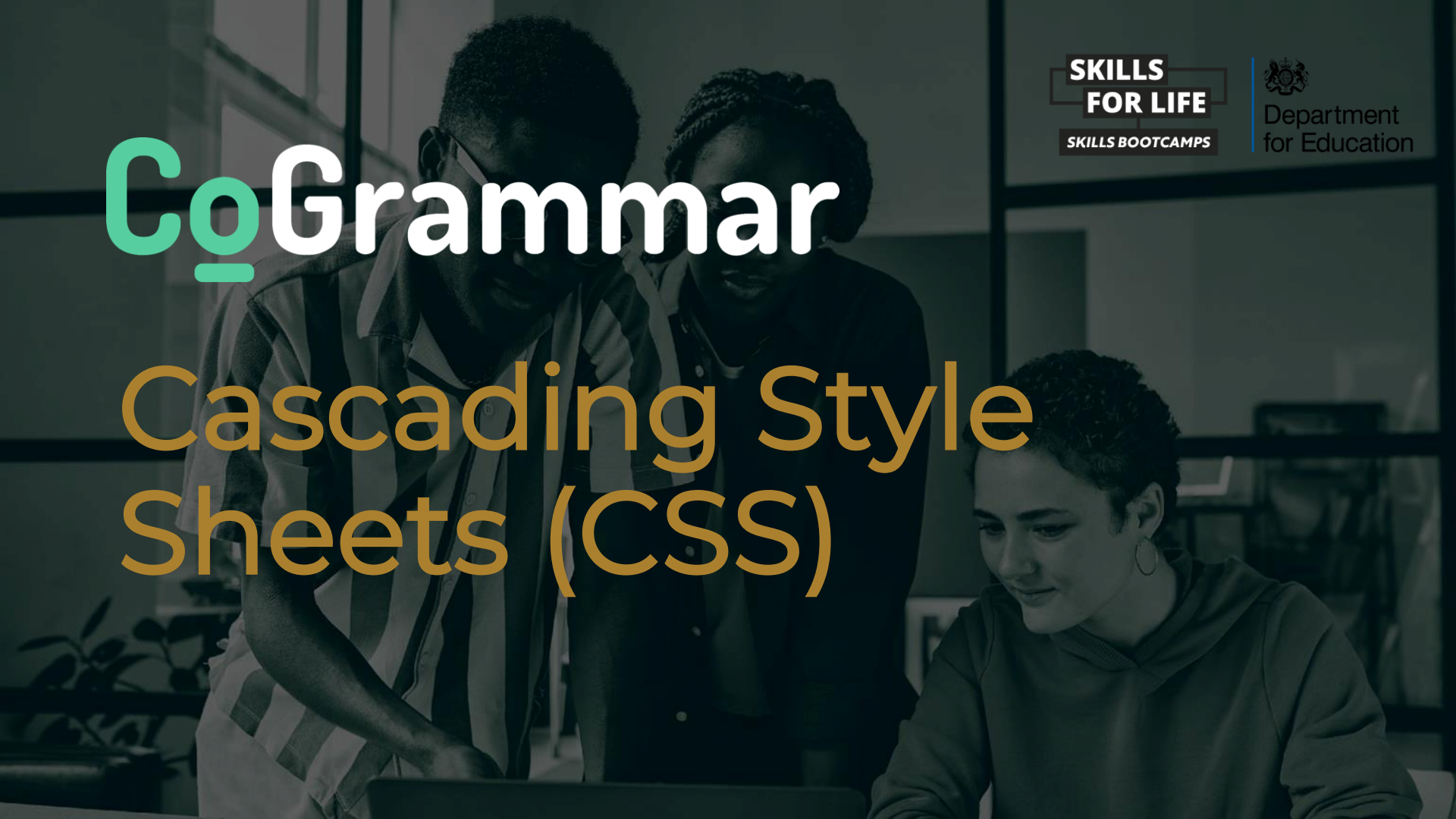
Mastering Online Safety One Week or Step at a Time

While the digital world can be a wonderful place to make education and learning accessible to all, it is unfortunately also a space where harmful threats like online radicalisation, extremist propaganda, phishing scams, online blackmail and hackers can flourish.

As a component of this BootCamp the *Stay Safe Series* is designed to guide you through essential measures in order to protect yourself & your community from online dangers, whether they target your privacy, personal information or even attempt to manipulate your beliefs.

Trustworthy Websites:
How to Spot Secure Sites

- **Look for the padlock.**
- **Check if there is a valid SSL/TLS certificate**.
- Look for a site seal.
- Check if the URL is legitimate.
- Pop-up and Redirection ads are a red flag.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Cascading Style Sheets (CSS)

Polls

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Poll

- *Refer to the polls section to vote for you option.*

1. What is the primary purpose of CSS?
    a. To define the structure and content of a webpage.
    b. To add interactivity and dynamic behaviour to a webpage.
    c. To enhance the accessibility features of a webpage.
    d. To style the presentation and layout of a webpage.

Poll

- *Refer to the polls section to vote for you option.*

2. Which CSS property is used to change the colour of text?
    a. text-color
    b. color
    c. font-color
    d. text-style

Learning Outcomes

- Define CSS.
- Explain what selectors are.
- Identify different element selectors such as element, class and ID type.
- Use common CSS properties to style elements on your web pages.

Learning Outcomes

- Define the box model
- Implement the box model for a more structured layout and spacing.
- Explain what a CSS framework is.
- Use a CSS framework like Bootstrap to create web pages in a streamlined manner.

What is CSS?

- Cascading Style Sheets (CSS) is a language which is used to change the presentation and look of a particular document which has been written in a markup language, such as HTML.
- CSS is usually applied to web pages, but can also be used in other areas, such as XML documents.

Inline Styling

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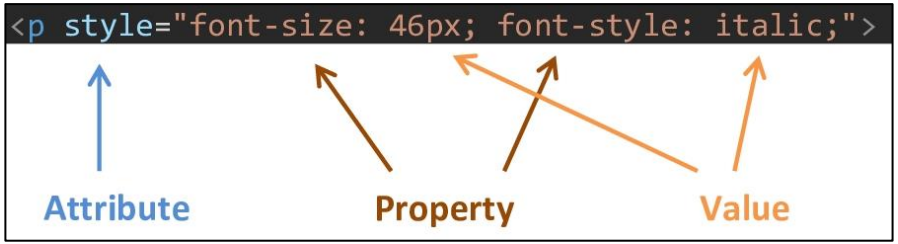
Style Attribute

- Like all other attributes, the style attribute goes inside the element's beginning tag, right after the tag name.
- After specifying that you are changing the style attribute, you type =, and then, within double quotes, list the properties you want to change and after a colon specify the value for that property.



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Using Inline Style

- An example of using the style attribute to change the font of an element is shown below:

```
<p style="font-family:Georgia;color:blue;">
    Look at this stylish paragraph!
</p>
```

Look at this stylish paragraph!

Inline Style Limitations

- When you style an element individually by changing that element's properties, it is known as inline styling.
- Inline styling allows you to specify the style of an individual element in the line where that element is declared.
- What if you wanted to apply similar styles to all elements of a certain type? For example, what if you wanted to change the font of all paragraphs on your web page?
- You can do this by creating a CSS rule.

Internal CSS

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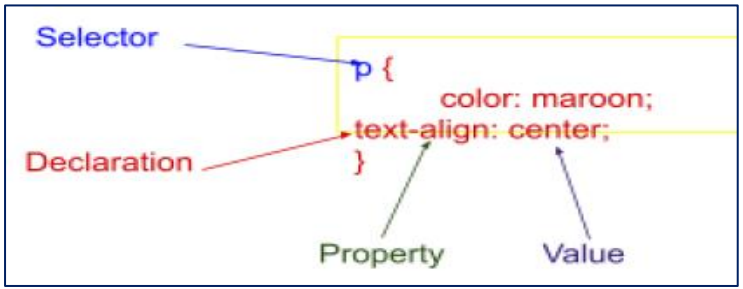
Internal CSS

- You can define a CSS rule in the head part of your HTML template -> This is called internal CSS.
- The CSS rule below will format all paragraphs to the colour red with font-family Arial. If the browser can't find Arial, then it will look for Helvetica. Paragraph backgrounds will be blue.

```
<head>
    <style>
        p{
            color: red;
            font-family: Arial, Helvetica;
            background-color: blue;
        }
    </style>
</head>
```

CSS Syntax

- The selector indicates which HTML element you want to style.
- The declaration block is surrounded by curly braces and contains one or more declarations with each declaration ending with a semicolon.
- Each declaration includes a property and a value, separated by a colon.



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Element Selectors

- Let's take another look at our CSS rule.

```css
p{
    color: red;
    font-family: Arial, Helvetica;
    background-color: blue;
}
```

- Our selector here is an element selector.
- All elements of type 'paragraph' will have the properties as defined by the selector above.

What if we don't want all the paragraphs to have the same properties?

Class Selectors

- A class selector is used when the selector describes the rule only for elements that have a class attribute with the same name. Class styling can be applied multiple times.
- In <head> you will define the class rule in a <style> element preceded by a full stop(.).

```
.changestyle{
    font-family: 'Times New Roman';
}
```

- In <body> you will use the class attribute to apply the rule.

```
<p class="changestyle">
    Changed my style! What do you think?
</p>
```

Changed my style! What do you think?

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Id Selectors

- An id selector describes the style of an element with a specific id attribute defined. Id styling can be applied only one time.
- In <head> you will define the id rule in a <style> element preceded by a hash(#).

```
#head{
    font-size: 20px;
    color: red;
}
```

- In <body> you will use the id attribute to apply the rule.

```
<h2 id="head">Welcome to my Page!</h2>
```

Welcome to my Page!

External CSS

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External CSS

- If your website consists of many HTML files, you likely want to be able to apply the same style rules to all the web pages. To accomplish this, use external CSS instead of internal CSS.
- Create a separate file with the extension .css. Within this file write all the style rules that you would like to specify.
- You can then link this external CSS file to all the HTML files in which you would like the style rules to apply.
- To link an external CSS file to a specific HTML file, include the below in the <head> section of the HTML file.

```
<link rel="stylesheet" href="style.css">
```

External CSS ...

- Another important reason to separate CSS from HTML files is to improve the maintainability of your website.
- If you wanted to update the look and feel of a website, this could easily be done by simply replacing the external CSS file if only external CSS is used for the website.
- You may find, though, that it is necessary to use a combination of external, internal and inline style.
  In this case, it is important to understand the concept of cascading.

Cascading

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Cascading

- As we know, CSS stands for cascading style sheets. You may have wondered why it is called cascading style sheets. Cascading has to do with how the rules are prioritised.
- If your website contains external, internal and inline CSS, the following rules apply:
  - Inline CSS overrides internal and external CSS files.
  - Internal CSS overrides external CSS rules.
  - If there are conflicting rules regarding properties, the general rule is that the more recently defined rule takes precedence.

Cascading

- When several CSS rules match the same element, they are all applied to that element. Only afterwards are any conflicting properties evaluated to see which individual styles will win over others.
- Another important rule to remember is that the more specific a rule is, the higher its precedence. The specificity is determined by the kind of selector that is used for the styling.

Box Model

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Box Model

- Everything in CSS has a box around it.
- We can use these boxes to build complex layouts on our pages.
- We can set the display type of a box to block and inline.
- This will change the behaviour of our box when certain changes are applied.
- We can then edit the main parts of a box, being content, padding, border and margins.

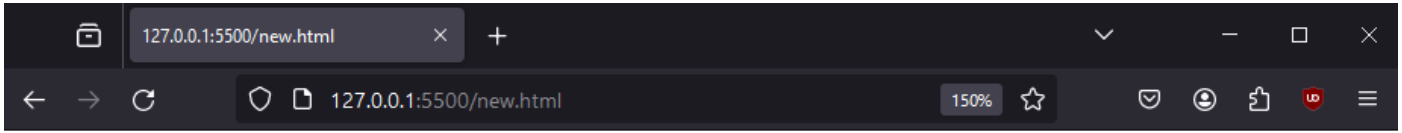
Box Model

- Block Box
  - A block box type will take up the full width of the page.
  - Has a line break before and after the box.
- Inline Box
  - An inline box type will take up the width of it's content.
  - Has no line break before or after the box.

Box Model

- Let's start with the normal display of a paragraph element.

```
<p style="background-color: red;">Hello world!</p>
```



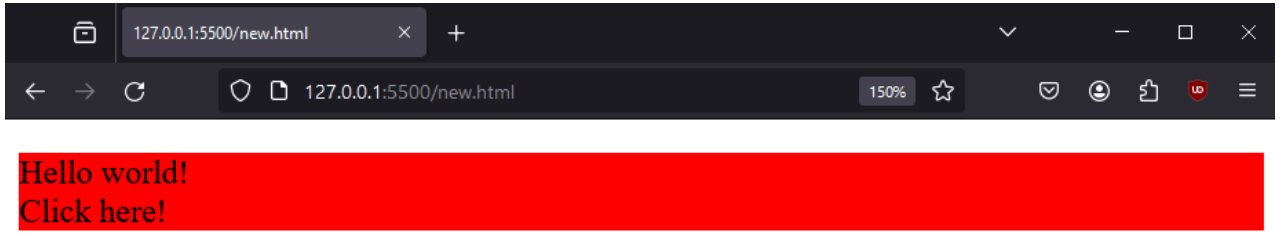
Hello world!

Box Model: Block

- When adding another element inline and setting it to use a block display we can see how the new lines apply and how our second element will also take up as much width as possible.

```
.box{
    display: block;
}
```

```
<p style="background-color: red;">Hello world! <a class="box">Click here!</a></p>
```

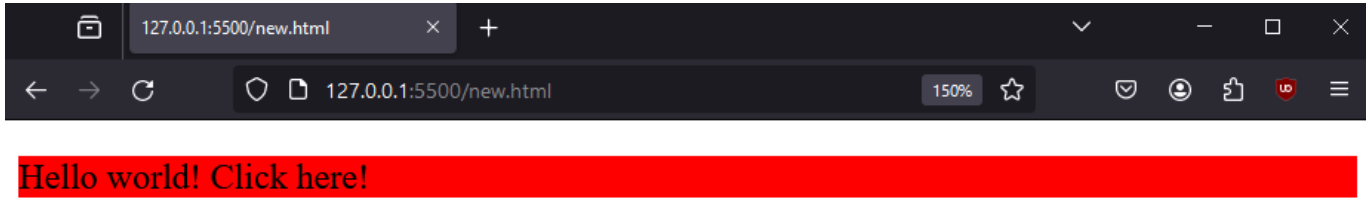


Box Model: Inline

- When adding another element inline and setting it to use an inline display we can see how the new element gets placed next to our previous element.

```
.box{
    display: inline;
}
```

```
<p style="background-color: red;">Hello world! <a class="box">Click here!</a></p>
```



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Box Model: Defaults

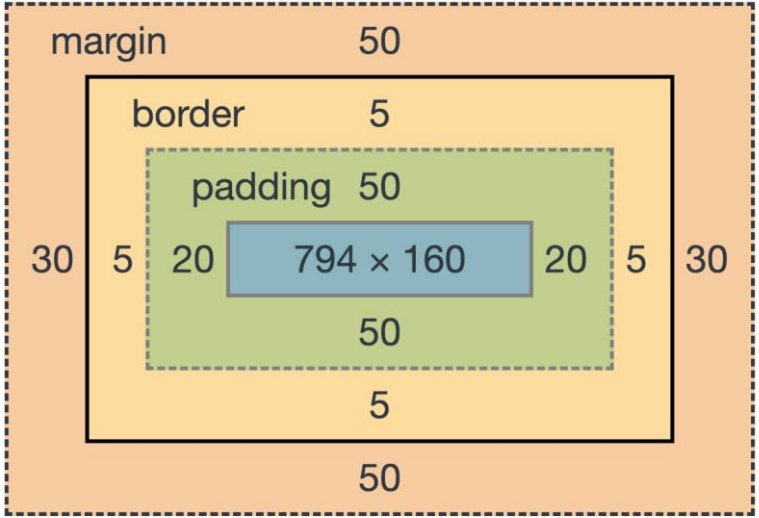
- Block-level elements (e.g., , <header>, <p>, <footer>) naturally have display: block;, so they automatically take up the full width of their parent container.
- Inline elements (e.g., , <a>,) naturally have display: inline;, meaning they only take up as much space as their content.

Box Model: Parts

Now that we have seen some ways to structure our boxes, let's take a look at how we can edit the box itself.

- There are 4 main parts to our box that we can edit.
  - Content: The actually content in the block.
  - Padding: Space between content and border
  - Border: Space between padding and margin
  - Margin: Space between border and other elements

Box Model: Layout



Box Model: Implementation

```css
.box {
    width: 200px;                /* Width of the content area */
    height: 100px;               /* Height of the content area */

    padding: 20px;               /* Space inside the box, around content */
    border: 5px solid black;     /* Border width, style, and color */
    margin: 30px;                /* Space outside the border */

    box-sizing: border-box;      /* padding & border part of width/height */
}
```

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Bootstrap

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Bootstrap

- Bootstrap is an open-source CSS framework.
- It contains predefined templates we can use for styling our web pages.
- We link Bootstrap with our html pages similarly to how we link our own style sheets.

```
<link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css">
```

- Now that we have access to the style rules we can apply them to our pages.

Bootstrap: Buttons

- We can create a button and apply the class “btn” and “btn-success” from bootstrap to apply the style.
- There are many types of button.

```
<button type="button" class="btn btn-success">Button</button>
```


```
<button type="button" class="btn btn-warning">Button</button>
```

Bootstrap: Images

- We can also add some style to images. Let's say we would like our images to be displayed like thumbnails with rounded corners.

```
<img src="tennis.jpg" class="img-thumbnail">
```

Bootstrap: Tables

- Here we are adding some style to a table.

```
<table class="table table-striped-columns table-hover">
        <th>Name</th>
        <th>Surname</th>
        <th>Age</th>
    <tr>
        <td>Peter</td>
        <td>Parker</td>
        <td>21</td>
    </tr>
    <tr>
        <td>Tony</td>
        <td>Stark</td>
        <td>38</td>
    </tr>
</table>
```

Bootstrap: Table Style

Name	Surname	Age
Peter	Parker	21
Tony	Stark	38

Let’s take a short break

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Let’s get coding!

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Polls

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Poll

- *Refer to the polls section to vote for you option.*

1. Which CSS selector targets elements with a specific class?
    a. #
    b. .
    c. :
    d. @

Poll

- *Refer to the polls section to vote for you option.*

2. Which CSS property is used to add space around an element's content, inside the border?
    a. margin
    b. padding
    c. border-spacing
    d. spacing

Conclusion and Recap

- CSS: Allows us to apply style to our web pages.
- Inline, Internal, External CSS: We have different levels where we can write CSS rules and these levels affect how the rules are applied.
- Selectors: Selectors help us choose the element for a specific style.
- Cascading: The more specific selectors, override less specific selectors else they follow the order of implementation.
- Box Model: Think of all your elements as boxes to structure your web pages.
- Bootstrap: A web framework with predefined CSS rules that you can apply to your projects to streamline design.

Questions and Answers

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Learner Challenge

- **Interests or Hobbies:**
  - Create a webpage about your favourite sport, hobbies or interest.
  - You can add all the content to your web page using HTML and style your page using CSS.
  - Try to use a mixture of inline, internal and external CSS to create an eye-catching web page.

Thank you for attending

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