



HTML Fundamentals

Basic Structure

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Page Title</title>
</head>
<body>
  <!-- Content here -->
</body>
</html>
```

- `<!DOCTYPE html>`: Declares the document type.
- `<html lang="en">`: Root element, specifies language.
- `<head>`: Contains metadata, title, and links to stylesheets.
- `<body>`: Contains the visible content of the page.

Common Tags

<code><h1></code>	Heading tags, <code><h1></code> is the most important. to
<code><h6></code>	
<code><p></code>	Paragraph tag for text content.
<code><a></code>	Anchor tag for creating hyperlinks. Use <code>href</code> attribute to specify the URL.
<code></code>	Image tag for embedding images. Use <code>src</code> attribute to specify the image source, and <code>alt</code> for alternative text.
<code></code> , <code></code> , <code></code>	Unordered list, ordered list, and list item tags.
<code><div></code>	Division tag, a generic container for grouping content.

Semantic Elements

<code><header></code>	Represents the header of a section or page.
<code><nav></code>	Represents a section of navigation links.
<code><main></code>	Specifies the main content of a document.
<code><article></code>	Represents a self-contained composition in a document.
<code><aside></code>	Represents content that is tangentially related to the content around it.
<code><footer></code>	Represents the footer of a section or page.

CSS Fundamentals

Selectors

<code>*</code>	Universal selector, selects all elements.
<code>element</code>	Type selector, selects all elements of the specified type (e.g., <code>p</code> , <code>div</code>).
<code>.class</code>	Class selector, selects all elements with the specified class.
<code>#id</code>	ID selector, selects the element with the specified ID.
<code>element element</code>	Descendant selector, selects all elements that are descendants of the specified element.
<code>element > element</code>	Child selector, selects all elements that are direct children of the specified element.

Box Model

The CSS box model defines the space around HTML elements. It consists of:

- Content:** The actual content of the element (e.g., text, images).
- Padding:** Clears the area around the content.
- Border:** A line that surrounds the padding and content.
- Margin:** Clears the area outside the border.

Common Properties

<code>color</code>	Sets the text color.
<code>background-color</code>	Sets the background color.
<code>font-size</code>	Sets the font size.
<code>margin</code>	Sets the margin around an element.
<code>padding</code>	Sets the padding around an element.
<code>border</code>	Sets the border around an element.

JavaScript Fundamentals

Variables

- `var`: Function-scoped or globally-scoped.
- `let`: Block-scoped.
- `const`: Block-scoped, constant value (cannot be reassigned).

```
let x = 10;
const PI = 3.14;
var y = 20;
```

Data Types

Primitive	Number, String, Boolean, Null, Undefined, Symbol (ES6)
Object	Objects, Arrays, Functions

Functions

```
function greet(name) {
  return "Hello, " + name + "!";
}

const add = (a, b) => a + b; // Arrow function
```

DOM Manipulation

<code>document.getElementById(id)</code>	Gets an element by its ID.
<code>document.querySelector(selector)</code>	Returns the first element that matches a CSS selector.
<code>element.innerHTML</code>	Gets or sets the HTML content of an element.
<code>element.addEventListener(event, function)</code>	Attaches an event handler to an element.

Responsive Web Design

Viewport Meta Tag

```
<meta name="viewport" content="width=device-width, initial-scale=1.0">
```

- `width=device-width`: Sets the width of the viewport to the device width.
- `initial-scale=1.0`: Sets the initial zoom level when the page is first loaded.

Media Queries

```
@media (max-width: 768px) {  
  /* Styles for screens smaller than 768px */  
}  
  
@media (min-width: 769px) and (max-width: 1200px) {  
  /* Styles for screens between 769px and 1200px */  
}
```

Flexible Layouts

Flexbox	A CSS layout module that provides an efficient way to align and distribute space among items in a container.
Grid	A two-dimensional layout system that allows you to create complex layouts with rows and columns.
Responsive Images	Use the <code><picture></code> element or the <code>srcset</code> attribute of the <code></code> element to provide different image sources for different screen sizes.