Purwadhika
Digital Technology School

Full Stack AI Software Development

Introduction to Front-end Development, HTML & CSS Fundamental

Job Connector Program

Outline

Introduction about Front-end Development
Knowing the responsibilities and roles of a Front-end Developer, and having the fundamental skills required.

CSS Fundamental
Learning the core concepts of CSS to style and design visually appealing web pages.

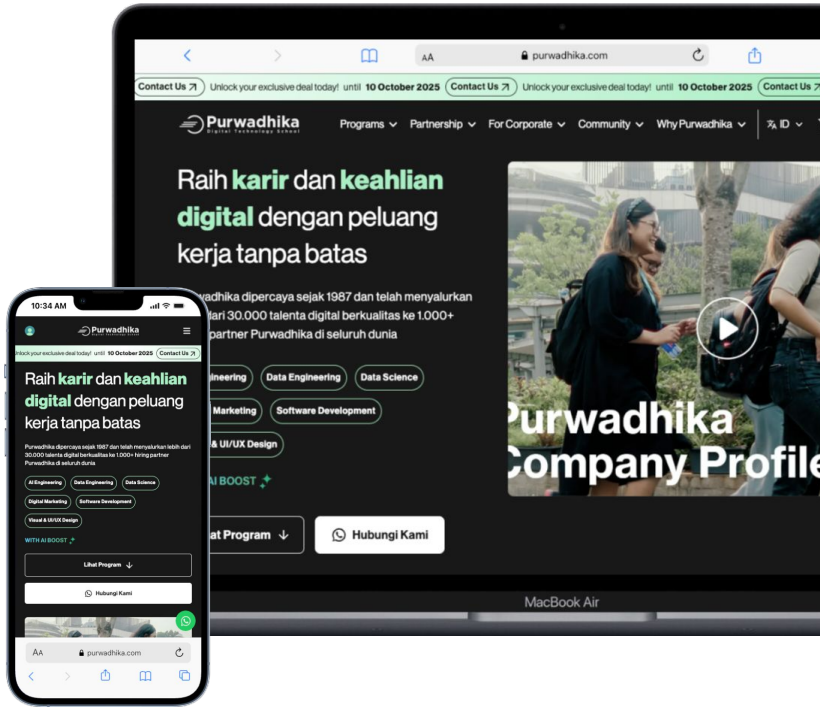
HTML Element
Understanding how to build well-structured web pages using HTML and semantic tags for clarity and accessibility.

What a Front End Developer Does

A **front end developer** has one general responsibility:

To ensure that website visitors can easily interact with the page. They do this through the combination of design, technology and programming to code a website's appearance, as well as taking care of debugging.

Every time you visit a website, everything you see, click, or use is the work of front-end developer.



Intro to Front-end Development

Front end development is the development of code that creates the visual front-end elements of a software, application or website. Front end languages include **HTML**, **CSS**, and **Javascript**

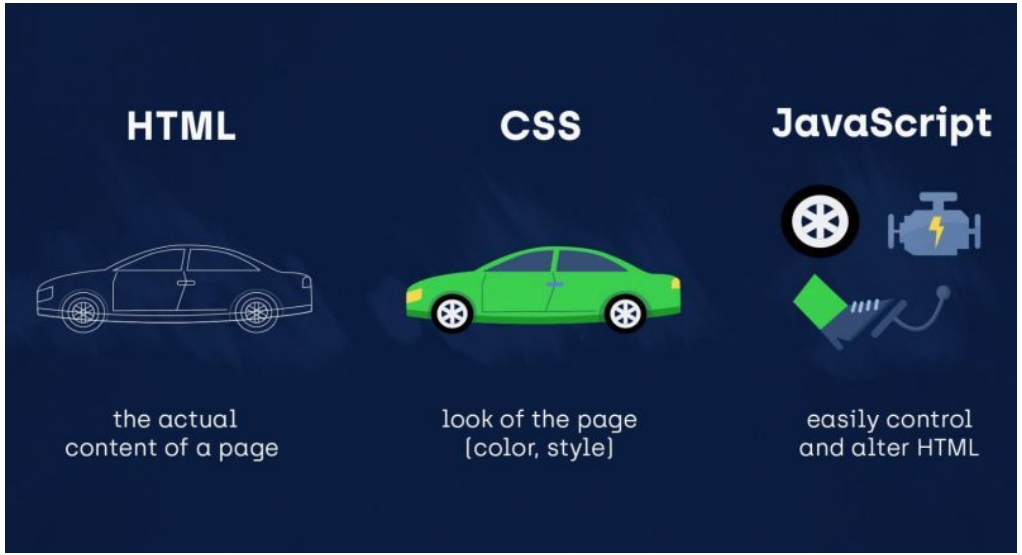
HTML defines the content of web pages
CSS specifies the layout of web pages
JS programs the behaviour of web pages

Intro to Front-end Development

HTML, CSS, and JavaScript are the basic languages you need to know to create a website.

To become a Front-End Developer, start with the subjects below, in the following order:

1. **Create the structure with HTML**. The first thing you have to learn is HTML, which is the standard markup language for creating web pages.
2. **Style with CSS**. The next step is to learn CSS, to set the layout of your web page with beautiful colors, fonts, and much more.
3. **Make it interactive with JavaScript**. After studying HTML and CSS, you should learn JavaScript to create dynamic and interactive web pages for your users.



Basic HTML Document

Create your first web page:

https://www.w3schools.com/html/

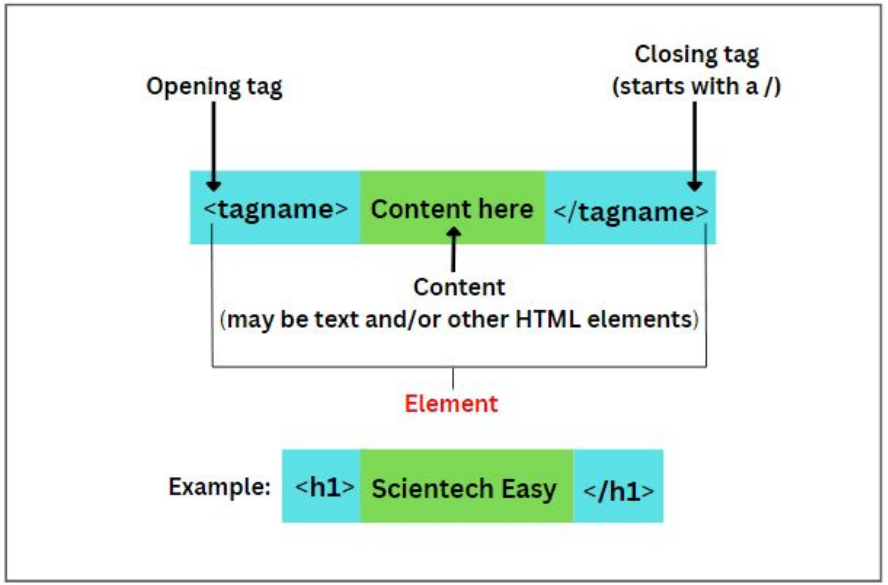
```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>Basic HTML</title>
</head>
<body>
    <p>This is a short paragraph.</p>
</body>
</html>
```

Tag	Description
<!DOCTYPE...>	This tag defines the document type and HTML version.
<html>	This tag encloses the complete HTML document and mainly comprises of document header which is represented by <head>...</head> and document body which is represented by <body>...</body> tags.
<head>	This tag represents the document's header which can keep other HTML tags like <title>, <link> etc.
<title>	The <title> tag is used inside the <head> tag to mention the document title.
<body>	This tag represents the document's body which keeps other HTML tags like <h1>, , <p> etc.

HTML Fundamental

There is **main parts** of the line of code follows:

1. **The opening tag**, define the name of element (in this case, p), wrapped with opening and closing angle brackets.
2. **The closing tag**, similar as the opening tag, this tag includes a forward slash before the element name. This tag places in the end of elements
3. **The content**, content places between the opening and closing tags. In this case, content written as a text.
4. **The element**, the opening tag, the closing tag, and the content together comprise the element.



Heading Tags

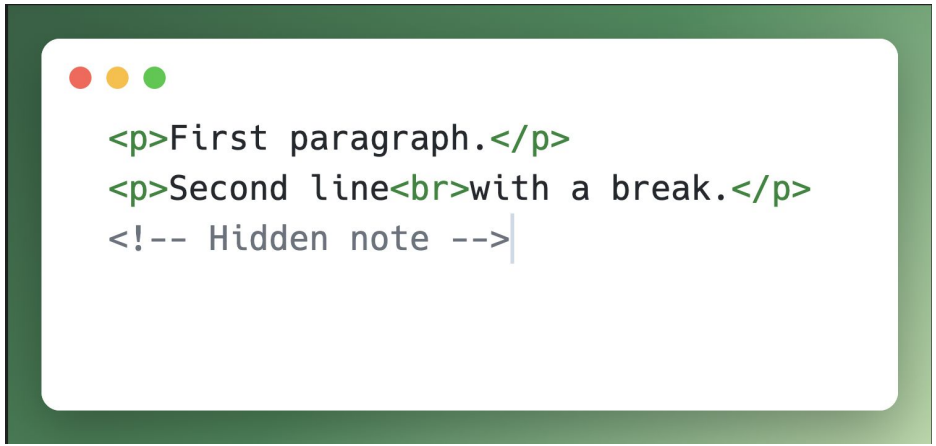
Not only document starts with a heading but HTML also.

There are six levels of headings, which use the elements <h1>, <h2>, <h3>, <h4>, <h5>, and <h6>.

While heading tags called, browser adds one line before and one line after that.

https://www.w3schools.com/html/html_headings.asp

Paragraph, Break, & Comment Tag



- **<p>** represent for paragraph tag. Text, number or even symbol could be put inside this tags
- **<hr>** used to add a horizontal line
- **
** this tags used to break the line.
- **<!-- –>** used as comment. Content could be put inside the tag and won't show in HTML page

https://www.w3schools.com/html/html_paragraphs.asp

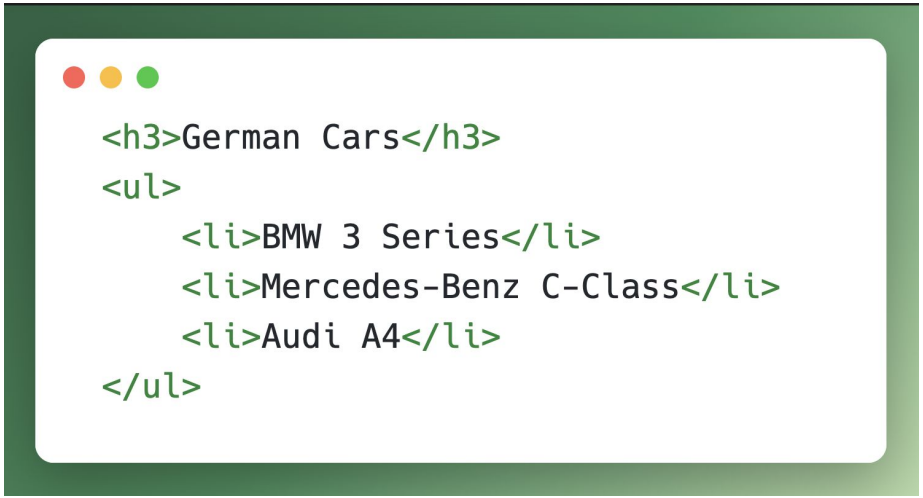
HTML Text Formatting

```
<b>Bold text</b><br>
<i>Italic text</i><br>
<u>Underlined text</u><br>
<strong>Important text</strong><br>
<em>Emphasized text</em><br>
<mark>Highlighted text</mark><br>
<small>Smaller text</small><br>
<del>Deleted text</del><br>
<ins>Inserted text</ins><br>
<sup>Superscript</sup><br>
<sub>Subscript</sub>
```

Here is several tags that could be used in order to modify content inside the tag.

https://www.w3schools.com/html/html_formatting.asp

Unordered List Tag

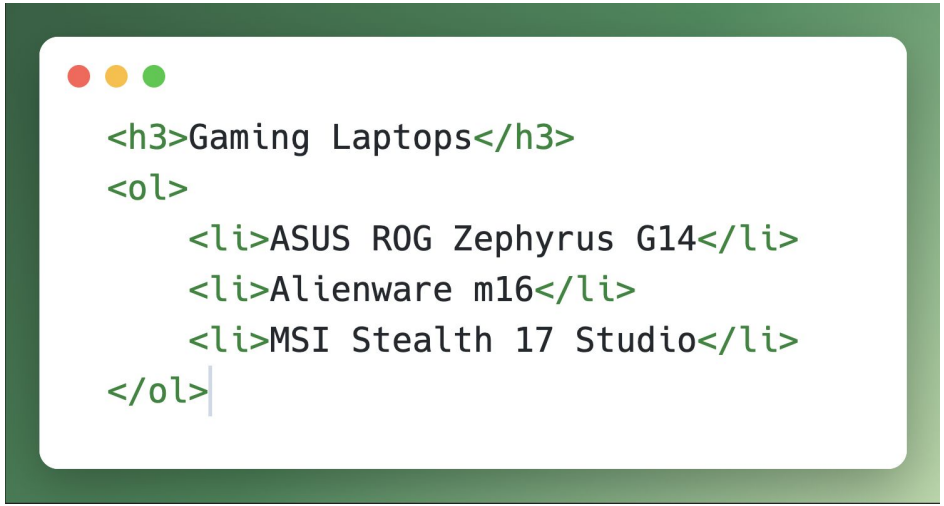


```
<h3>German Cars</h3>
<ul>
    <li>BMW 3 Series</li>
    <li>Mercedes-Benz C-Class</li>
    <li>Audi A4</li>
</ul>
```

Used to create bullets. Started with <ul> tag to define the unordered list. To define the list, put <li> inside <ul> element.

https://www.w3schools.com/html/html_lists_unordered.asp

Ordered List



```
<h3>Gaming Laptops</h3>
<ol>
    <li>ASUS ROG Zephyrus G14</li>
    <li>Alienware m16</li>
    <li>MSI Stealth 17 Studio</li>
</ol>
```

Used to create numbering. Ordered list will show a list using a numbers. Similar to unordered list, but in order to use this, put <ol> at the beginning of element.

https://www.w3schools.com/html/html_lists_ordered.asp

HTML Table

```html
<table>
    <tr>
        <th>ID</th>
        <th>Name</th>
        <th>Department</th>
        <th>Salary</th>
    </tr>
    <tr>
        <td>101</td>
        <td>John Doe</td>
        <td>Marketing</td>
        <td>$5,000</td>
    </tr>
</table>
```

HTML table contain of:

- **<table>**
- **<tr>**
- **<th> or <td>**

https://www.w3schools.com/html/html_tables.asp

Column Span

```html
<table border="1" cellpadding="5">
    <tr>
        <th>ID</th>
        <th>Name</th>
        <th>DOB</th>
    </tr>
    <tr>
        <td>1</td>
        <td>Putu Wijaya</td>
        <td>Denpasar, 15 January 1990</td>
    </tr>
    <tr>
        <td colspan="3">Data per Juny 2025</td>
    </tr>
</table>
```

Row Span

```
<table>
    <tr>
        <th>Name</th>
        <th>DOB</th>
    </tr>
    <tr>
        <td>1</td>
        <td>Budi Darmawan</td>
        <td>Tangerang, 12 Maret 1970</td>
        <td rowspan="2">Accounting</td>
    </tr>
</table>
```

Anchor Tags

Absolute Links

```
<a href="https://www.wikipedia.org"
target="_blank">Open Wikipedia
(Absolute Link)</a>
```

Relative Links

```
<a href="products.html" target="_blank">
View Products (Relative Link)</a>
```

https://www.w3schools.com/html/html_links.asp

Images Tag

```
<h3>Tungtung Sahur (Local File)</h3>
    <img src="images/tungtung-sahur.jpg" alt="Tungtung Sahur confused face" width="250">
<h3>Ballerinca Cappuccina (SVG) </h3>
    <img src="ballerinca.svg" alt="Ballerinca dancing SVG" width="250">
<h3>Crocodilo Bombardilo (Web Source)</h3>
    <img src="https://i.imgur.com/example123.jpg" alt="Angry crocodile meme" width="250">
```

https://www.w3schools.com/tags/tag_img.asp

Figures & Caption Tag

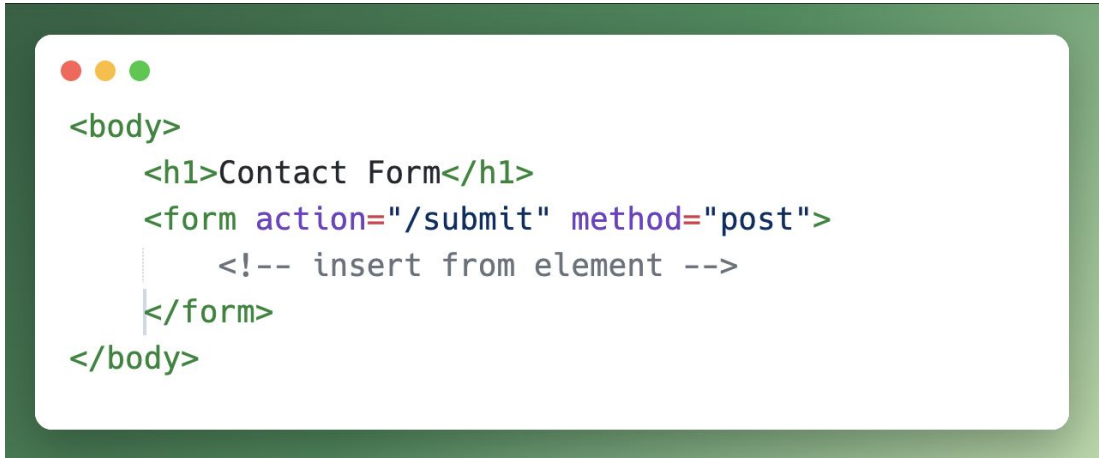
```
<figure >
    <img src="https://upload.wikimedia.org/wikipedia/en/9/91/CaptainAmerica109.jpg" alt="Captain America Comic Cover"
        width="300">
    <figcaption>
        Captain America on the cover of his comic book. A Marvel superhero known for his iconic shield and leadership in
            the Avenger.
    </figcaption>
</figure
```

Used to add a caption into an image assets

https://www.w3schools.com/tags/tag_figure.asp

Forms HTML

Form could contain several inputs and buttons



```
<body>
    <h1>Contact Form</h1>
    <form action="/submit" method="post">
        <!-- insert from element -->
    </form>
</body>
```

https://www.w3schools.com/html/html_forms.asp

Input Tag

```
<input type="text">
<input type="password">
<input type="email">
<input type="number">
<input type="date">
<input type="time">
<input type="color">
<input type="file">
<input type="checkbox">
<input type="radio">
<input type="range">
<input type="url">
<input type="tel">
<input type="hidden">
<input type="submit">
<textarea></textarea>
```

<input> tags have several attributes that could be used depends on functionality.

https://www.w3schools.com/tags/tag_input.asp

Button Tag

<button> tag used to interact between user and web page

https://www.w3schools.com/tags/tag_button.asp

Select Forms

```
<select name="city">
    <option value="jakarta">Jakarta</option>
    <option value="bandung">Bandung</option>
    <option value="denpasar">Denpasar</option>
    <option value="yogyakarta">Yogyakarta</option>
</select>
<select name="interest">
    <option value="web-dev">Web Development</option>
    <option value="data-science">Data Science</option>
    <option value="digital-marketing">Digital Marketing</option>
</select>
```

https://www.w3schools.com/tags/tag_select.asp

Label, Fieldset, & Legend Tag

```
<fieldset>
    <legend»Preferences</legend>
    <label for="city">City:</label><br>
    <select id="city" name="city">
        <option value="jakarta">Jakarta</option>
        <option value="bandung">Bandung</option>
        <option value="denpasar">Denpasar</option>
        <option value="yogyakarta">Yogyakarta</option>
    </select><br><br>
    <label>Field of Interest:</label><br>
    <input type="radio" id="web" name="interest" value="web">
    <label for="web">Web Development</label><br>
    <input type="radio" id="data" name="interest" value="data">
    <label for="data">Data Science</label><br>
    <input type="radio" id="marketing" name="interest" value="marketing">
    <label for="marketing">Digital Marketing</label><br>
</fieldset>
```

Usually, <label> tag is used along with input. <legend> tag also could be used like label tag.

https://www.w3schools.com/tags/tag_label.asp

Division Tag

```
<div>
    <h2>Header Section</h2>
    <p>This is the top part of the page. </p>
</div>
<div>
    <h2>Content Section</h2>
    <p>This section contains the main content.</p>
</div>
<div>
    <h2>Footer Section</h2>
    <p>This is the bottom part of the page. </p>
</div>
```

The div tag represents a generic container, because it defaults to a block. As a block, it starts on its own new line, similar to how <p> tags work.

https://www.w3schools.com/tags/tag_div.asp

Find out more on,

https://developer.mozilla.org/en-US/docs/Learn/HTML/Cheatsheet

What is Cascading Style Sheets?

CSS (Cascading Style Sheets) describes how HTML elements are to be displayed on screen, paper, or in other media.

CSS saves a lot of work. It can control the layout of multiple web pages all at once. External stylesheets are better stored in CSS files separately.

How to Write CSS?

There are several ways to write down css:

- Inline Styles
- Internal Styles
- External Styles

https://www.w3schools.com/html/html_css.asp

Inline Styles

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>Honda Car</title>
</head>
<body>
    <h1 style="color:red; font-family:Arial; text-align:center;">Honda Civic</h1>
    <p style="font-size:16px; color:gray; text-align:justify;">
        The Honda Civic is a compact car known for its reliability, fuel efficiency, and modern design.
        It remains one of the most popular cars worldwide.
    </p>
    <img sIC="https://upload.wikimedia.org/wikipedia/commons/5/54/2017_Honda_Civic_SR_VTEC_CVT_1.0_Front-jpg"
        alt="Honda Civic"
        style="width:300px; display:block; margin:auto; border:2px solid black; border-radius:10px;">
</body>
</html>
```

Internal Styles

```
<! DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>Toyota Car</title>
    <style>
        h1 {
            color: darkgreen;
        }
    </style>
</head>
<body>
    <h1>Toyota Avanza</h1>
    <p>The Toyota Avanza is a popular family car in many countries. </p>
</body>
</html>
```

External Styles

index.html

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>Mitsubishi Carc/title>
    <link rel="stylesheet" href="index.css">
</head>
<body>
    <h1>Mitsubishi Pajero</h1>
    <p>The Mitsubishi Pajero is a durable SUV designed for both city and
        off-road driving.
    </p>
</body>
</html>
```

style.css

```css
h1 {
    color: darkgreen;
    font-style: italic;
}
```

Selector

```
<!DOCTYPE html>
<html>
<head>
    <style>
        h2 { color: orange;}
        p { color: red;}
        .mobil & color: blue;}
        #avanza { color: greenyellow;}
    </style>
</head>
<body>
    <h2>Halo</h2>
    <p>Hai</p>
    <p class="mobil" id="avanza">Ini Avanza</p>
    <p class="mobil" id="alya">Ini Alya</p>
</body>
</html>
```

Selector used to tell which element would given style through CSS.

h2, **P**, **.mobil** and **#avanza** are called **Selectors**. **{color: orange;}** are **Property** and **Value**.
To select an element to style, simply:

- call its tag e.g
  - h2 {color: orange;}
- call its class e.g
  - .mobil {color: blue;}
- call its id e.g
  - #avanza {color: green;}

https://www.w3schools.com/css/css_selectors.asp

Attribute Selector

```
<! DOCTYPE html>
<html>
<head>
    <style>
        a[href] {
        color: red;
        }
    </style>
</head>
<body>
    <p><a href="#">Jaya jaya jaya !</a></p>
</body>
</html>
```

Color

```html
<!DOCTYPE html>
<html>
<head>
<style>
    body {
        background-color: yellow;
    }
    h1 {
        color: rgb(0, 0, 255);
    }
    h2 {
        color: #00ff00;
    }
    p{
        color: hs1(360, 100%, 75%);
    }
</style>
</head>
<body>
    <h1>Selamat datang #</h1>
    <h2>Purwadhika *</h2>
    <p>Digital Technology School</p>
</body>
</html>
```

Color used to change the color of the text. There are several ways to choose the palette color:

- Red, Green, Blue Color Values
  - **{color: rgb(0, 0, 255) ;}**
- Hexadecimal Value
  - **{color: #00FF00;}**
- Hue, Saturation, Lightness Value
  - **{color: hs1(360, 100%, 75%) ;}**
- Alpha Transparency
  - **{color: rgba(0, 0, 255, 0.782) ;}**
  - **{color: hsla(360, 100%, 75%, 0.5);}**

Background Color

```html
<!DOCTYPE html>
<html>
<head>
    <style>
        body {
            background-color: blue;
            /* option 1 */
            background: linear-gradient(blue, yellow);
            /* option 2 */
            background: linear-gradient(90deg, blue, yellow);
            /* option 3 */
            background: linear-gradient(blue, yellow);
        }
    </style>
</head>
<body>
</body>
</html>
```

Background color would give a color into the whole content on the tag

Background Image

```
<!DOCTYPE html>
<html>
<head>
    <style>
        body {
            background-color: lightgray;
            background: url("lin.jpg");
            background-position: left top;
            background-size: 1280px 720px;
        }
    </style>
</head>
<body>
</body>
</html>
```

Not only color, but also image could be set as a background for content inside the tag

Font & Text

```html
<!DOCTYPE html>
<html>
<head>
    <style>
        p {
            font-family: "Impact", Arial;
            font-style: italic;
            text-transform: uppercase;
            text-decoration: line-through;
            text-shadow: -4px 4px 4px red;
            line-height: 50%;
            letter-spacing: 2px;
            word-spacing: 4px;
            text-align: left;
            text-indent: 2rem;
        }
    </style>
</head>
<body>
    <p>Halo kamu</p>
</body>
</html>
```

font-family (*web safe fonts*):
Arial, Helvetica, Times New Roman, Times, Courier New, Courier, Verdana, Georgia, Palatino, etc.

font-style:
normal, italic, oblique

text-transform:
capitalize, uppercase, lowercase, none

text-decoration:
underline, overline, line-through, wavy, none

text-align:
left, center, right

Width & Height

```
<! DOCTYPE html>
<html>
<head>
    <style>
        .konten {
            background-color: pink;
            width: 900px; height: 100px;
        }
    </style>
</head>
<body>
    <div class="konten">Halo Semuanya! </div>
</body>
</html>
```

Width and **height** used to define the size of class named as **konten**

Unit Length

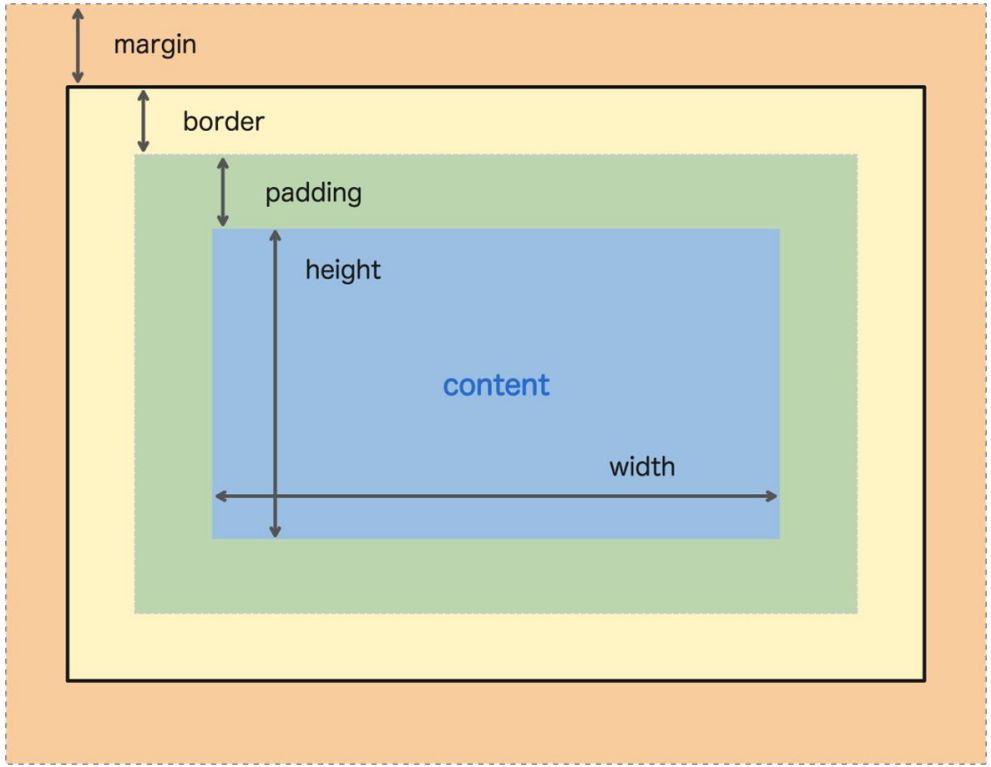
Absolute Lengths

- **px:** the unit for pixels
- **pt:** the unit for points
- **cm:** the unit for centimeters
- **mm:** the unit for millimeters
- **in:** the unit for inches
- **pc:** the unit for picas

Relative Lengths

- **%:** the unit for percentages
- **em:** relative to current font size
- **rem:** relative to current font size on the element
- **vw:** relative to the width of viewport divided by 100
- **vh:** relative to the height of viewport/100
- **vmin:** relative to the smaller viewport's dimension/100
- **vmax:** relative to the larger viewport's dimension/100
- **ch:** relative to 0
- **ex:** relative to the x-height of font

Margin, Border, & Padding



Margin

```
<!DOCTYPE html>
<html>
<head>
    <style>
        div {
            background-color: lightblue;
            width: 900px;
            height: 500px;
            margin-top: 200px;
            margin-right: 200px;
            margin-bottom: 200px;
            margin-left: 200px;
        }
    </style>
</head>
<body>
    <div>
        <h1>Contoh Margin</h1>
    </div>
</body>
</html>
```

Here is shorthand to write down margin

margin: 200px;

*this can be used if all margin position have same value

margin: 200px 150px;

*the first value will represent top and bottom, the second one represent left and right

margin: 200px 100px 150px 80px;

*if every position has different value, use this shorthand. This represent value from top, right, bottom, and left

Border

```
<! DOCTYPE html>
<html>
<head>
    <style>
        div {
            background-color: lightblue;
            width: 900px;
            height: 500px;
        }
        h1 {
            color: white;
            background-color: blue;
            padding: 25px;
            border: 20px ridge yellow;
            border-radius: 10px;
            box-shadow: -0.5rem 0.5rem 1rem gray;
        }
    </style>
</head>
<body>
    <div>
        <h1>Contoh Border</h1>
    </div>
</body>
</html>
```

Border style

solid, dotted, dashed, double, inset, outset, groove, ridge

Padding

```
<! DOCTYPE html>
<html>
<head>
    <style>
        div {
            background-color: lightblue;
            width: 900px;
            height: 500px;
        }
        h1 {
            color: white;
            background-color: blue;
            padding: 25px;
            border: 20px ridge yellow;
            border-radius: 10px;
            box-shadow: -0.5rem 0.5rem 1rem gray;
        }
    </style>
</head>
<body>
    <div>
        <h1>Contoh Padding</h1>
    </div>
</body>
</html>
```

Here is shorthand to write down padding

padding: 200px;
*this can be used if all padding position have same value

padding: 200px 150px;
*the first value will represent top and bottom, the second one represent left and right

padding: 200px 100px 150px 80px;
*if every position has different value, use this shorthand. This represent value from top, right, bottom, and left

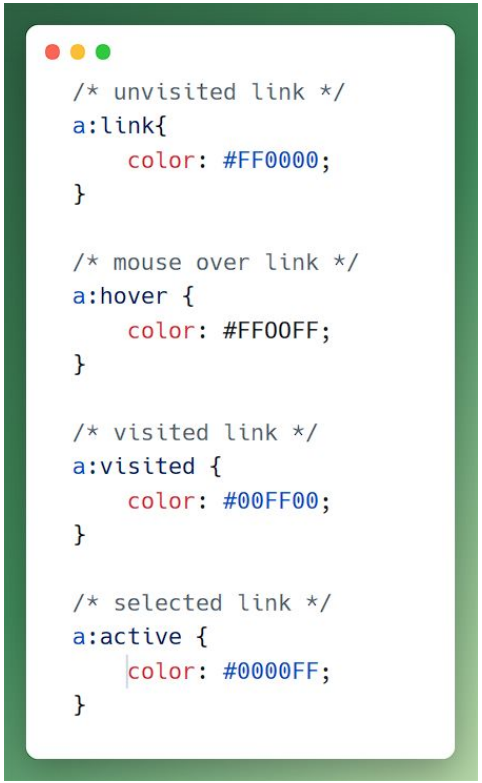
Pseudo-class

A **CSS pseudo-class** is a keyword added to a selector that specifies a special state of the selected element(s). For example, :hover can be used to change a button's color when the user's pointer hovers over it.

For example, it can be used to:

- Style an element when a user mouses over it
- Style visited and unvisited links differently
- Style an element when it gets focus

Pseudo-class Example



```
/* unvisited link */
a:link{
    color: #FF0000;
}

/* mouse over link */
a:hover {
    color: #FF00FF;
}

/* visited link */
a:visited {
    color: #00FF00;
}

/* selected link */
a:active {
    color: #0000FF;
}
```

a:link

- Meaning: Styles links that have not been visited yet.
- Example: A link the user has never clicked before.
- Color in example: #FF0000 ➜ red.

a:visited

- Meaning: Styles links that have already been visited by the user.
- Example: A link that was previously clicked.
- Color in example: #00FF00 ➜ green.

a:hover

- Meaning: Applies styles when the user moves the mouse pointer over a link.
- Common use: To give a visual hover effect or feedback.
- Color in example: #FF00FF ➜ magenta.

a:active

- Meaning: Styles links while they are being clicked (during the active state before release).
- Color in example: #0000FF ➜ blue.

Order of Priority (LVHA Rule)

To make all pseudo-classes work correctly, they must be written in this order:

:link ➜ :visited ➜ :hover ➜ :active

Pseudo-elements

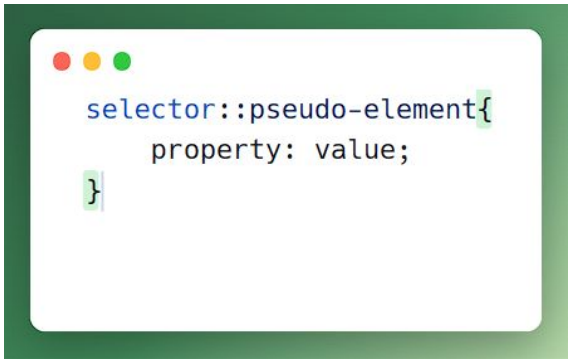
A **CSS pseudo-element** is a keyword added to a selector that lets you style a specific part of the selected element(s). For example, ::first-line can be used to change the font of the first line of a paragraph.

A CSS pseudo-element is used to style specified parts of an element.

For example, it can be used to:

Style the first letter, or line, of an element

Insert content before, or after, the content of an element



Pseudo-elements Example

```css
p::first-letter {
    font-size: 2em;
    color: #FF0000;
}

p::first-line {
    font-weight: bold;
    color: #00AAFF;
}

h1::before {
    content: "🚀 ";
}

h1::after {
    content: " 🌟";
}

::selection {
    background-color: #FF00FF;
    color: white;
}
```

::first-line

- Meaning: Styles only the first line of text
- Example: Highlight first line in paragraph

::first-letter

- Meaning: Styles the first letter of an element
- Example: Drop-cap in articles

::before

- Meaning: Adds content before the element
- Example: Decorative icons or bullets

::after

- Meaning: Adds content after the element
- Example: Labels or suffix icons

::selection

- Meaning: Styles selected text
- Example: Custom text highlight

Exercise

Create a component with styling like this figma design :

- https://www.figma.com/design/DddxdmtrZFEOcv0cPuUwM2/blog-preview-card?node-id=1-2&node-type=canvas
- https://www.figma.com/design/VLtlf6F1uCUebVNxMZuH3b/product-preview-card-component (*focus in mobile version only*)

Thank you