

# Lecture 1

Web – programming.

Introduction.  
HTML + CSS

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# Requirements

1. Presence 80%
2. Practices 100%
3. 2 modules

10 lectures

10 practices

Exam;

# Introduction

When it comes to programming websites, there certainly isn't any shortage of available web development languages. In fact, there are currently hundreds programming languages in use today, and many can be used in web development. But that's not to say that one language is just as good as another. Not all programming languages are created equal, and the best language for one situation (or one person), may not be the best language in all cases.

## Best Web Programming Languages

Some of the best/most useful programming languages for web development, and the most in-demand programming languages for the coming years.

These web development languages include:

- JavaScript
- HTML
- CSS
- React
- Python
- C#
- C++
- Java
- PHP
- Angular
- Objective C

## Future Demand for Web Development Languages

The best web development language today may *not* be the best web development language tomorrow. The demand for specific web development languages changes year after year. In order to stay relevant as a developer, it's important to learn the languages that will be in demand in the upcoming years.

Analyzing data from Indeed.com, Coding Dojo came up with a list of coding languages that could be in demand in the years to come.

These languages include:

- Java
- Python
- JavaScript
- C++
- C#
- PHP

# Easy-to-Learn Web Development Languages

Thankfully, developers are often very open about what languages are easier to learn than others.

In fact, the majority say that the easiest languages to learn include:

- HTML
- Python
- JavaScript
- PHP
- Java

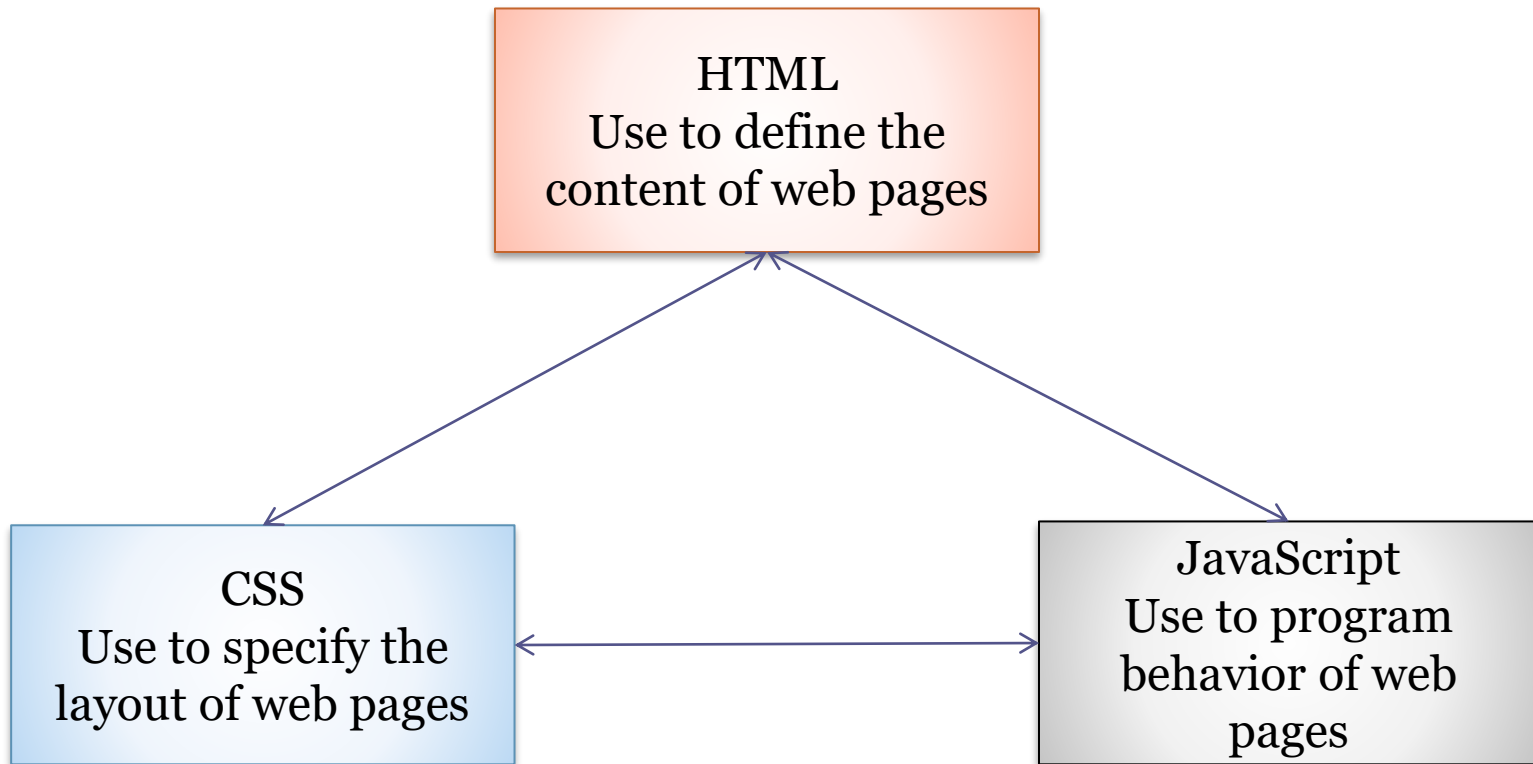
And don't forget that learning is a step-by-step process. Developing an expertise in these easier-to-learn languages will help you develop the learning skills you need to tackle more difficult languages in the future.

Really, it's up to you. Consider **HTML, CSS, JavaScript, Node, React** but ultimately the choice is yours.

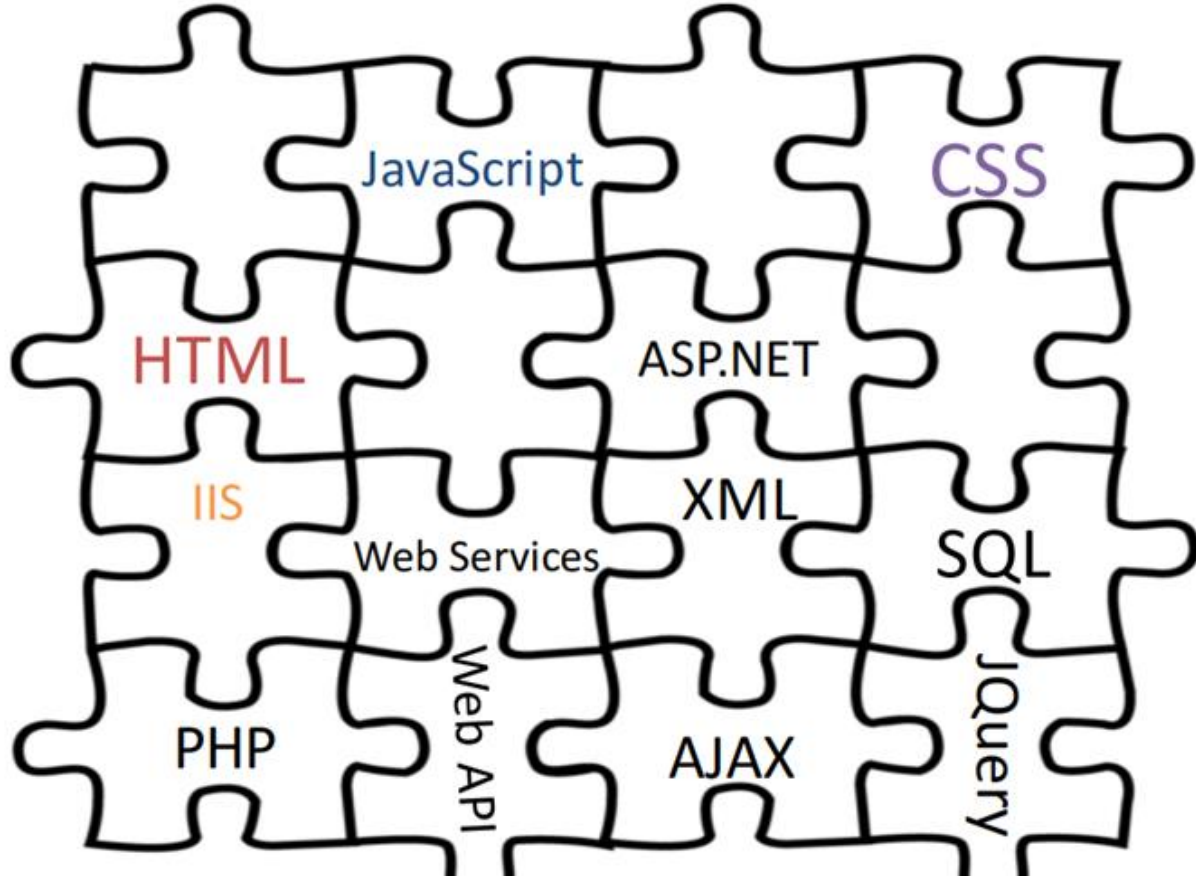
# History of the Web

- Internet (1960s)
- World Wide Web – www (1991)
- First Web Browser – Netscape (1994)
- Google (1998)
- Facebook (2004)
- Smartphones (iPhone 2007)
- Tablets (iPad 2010)
- Web browsers (Opera, Firefox, etc... )

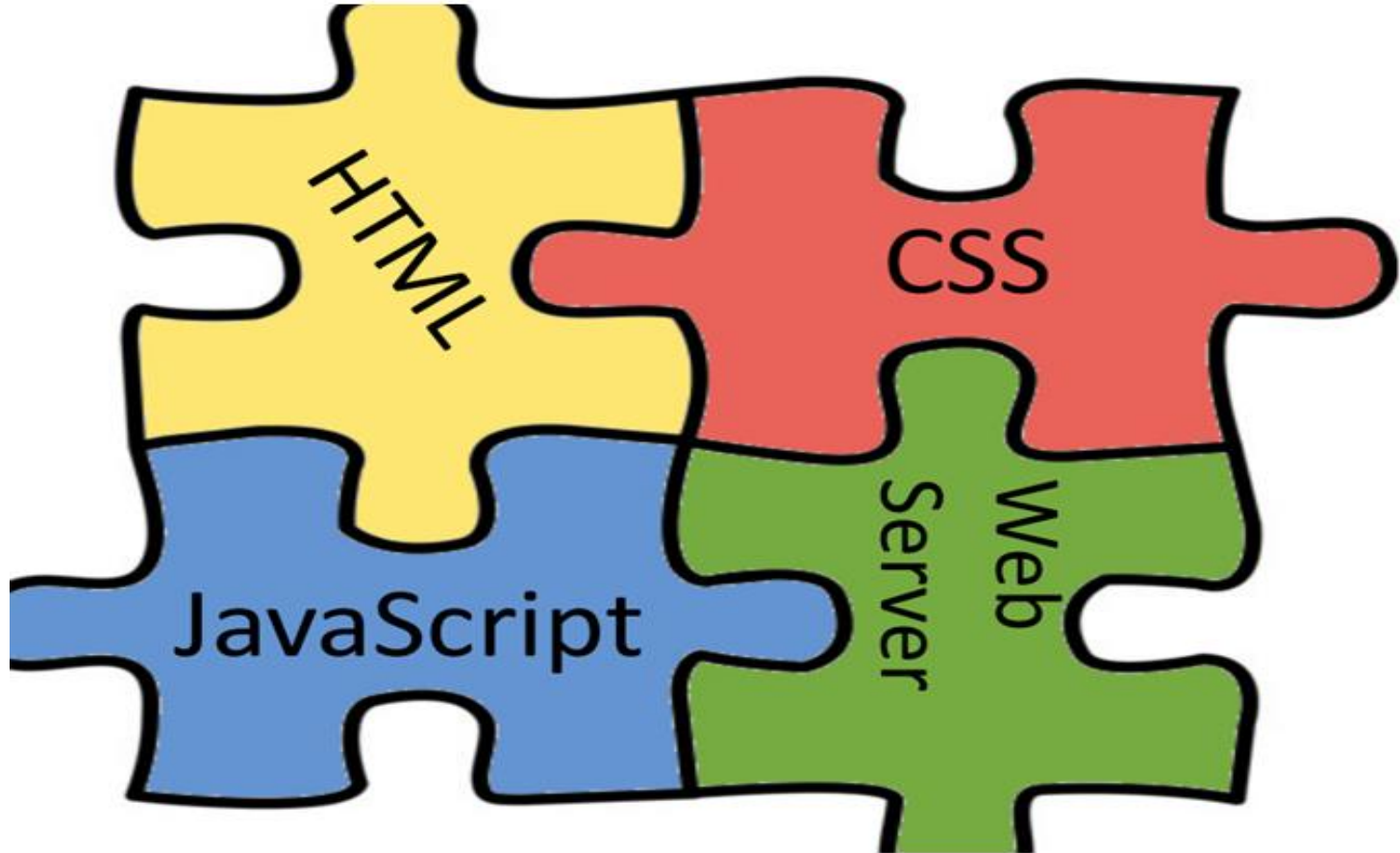
# The Web Programming Triangle



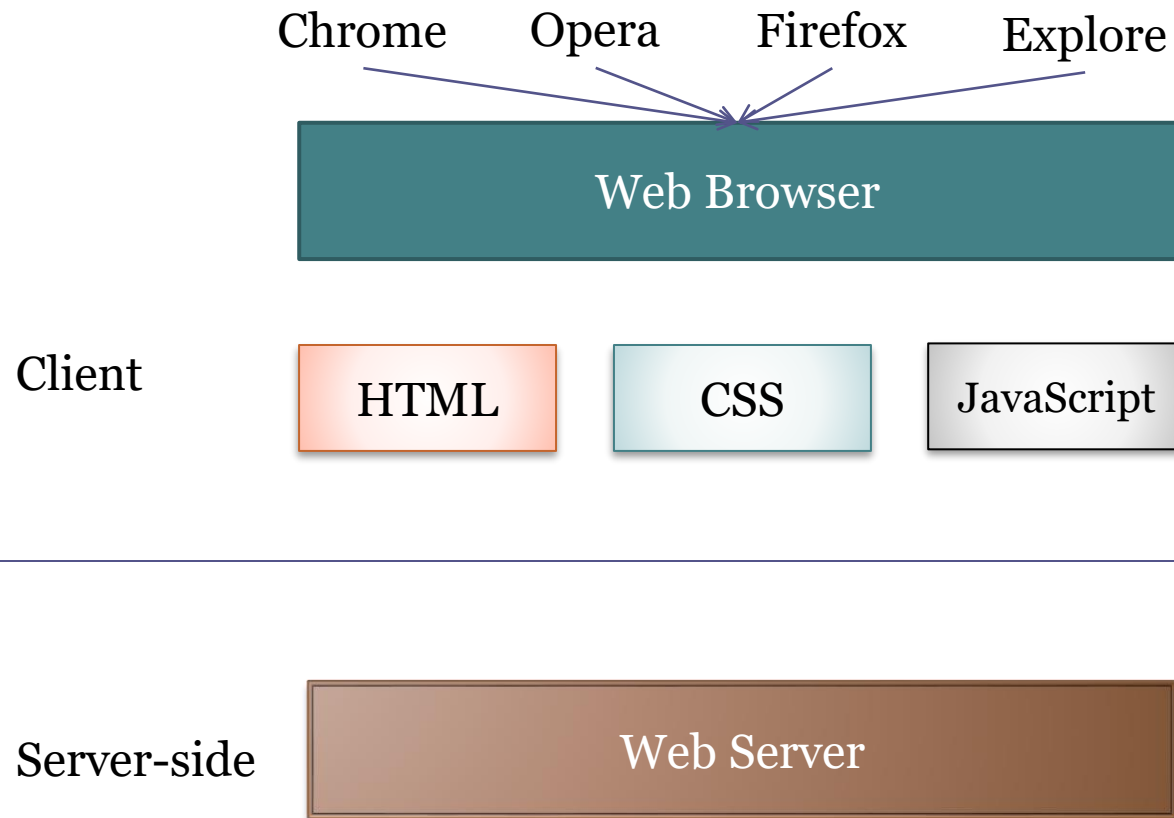
# Web Programming



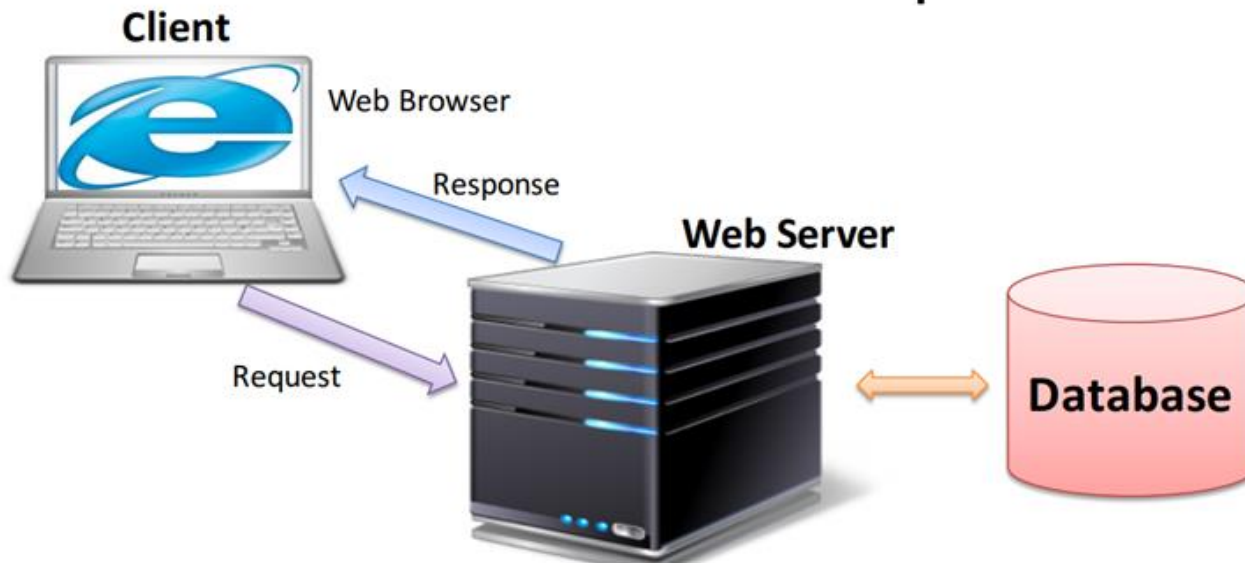




# Web Architecture

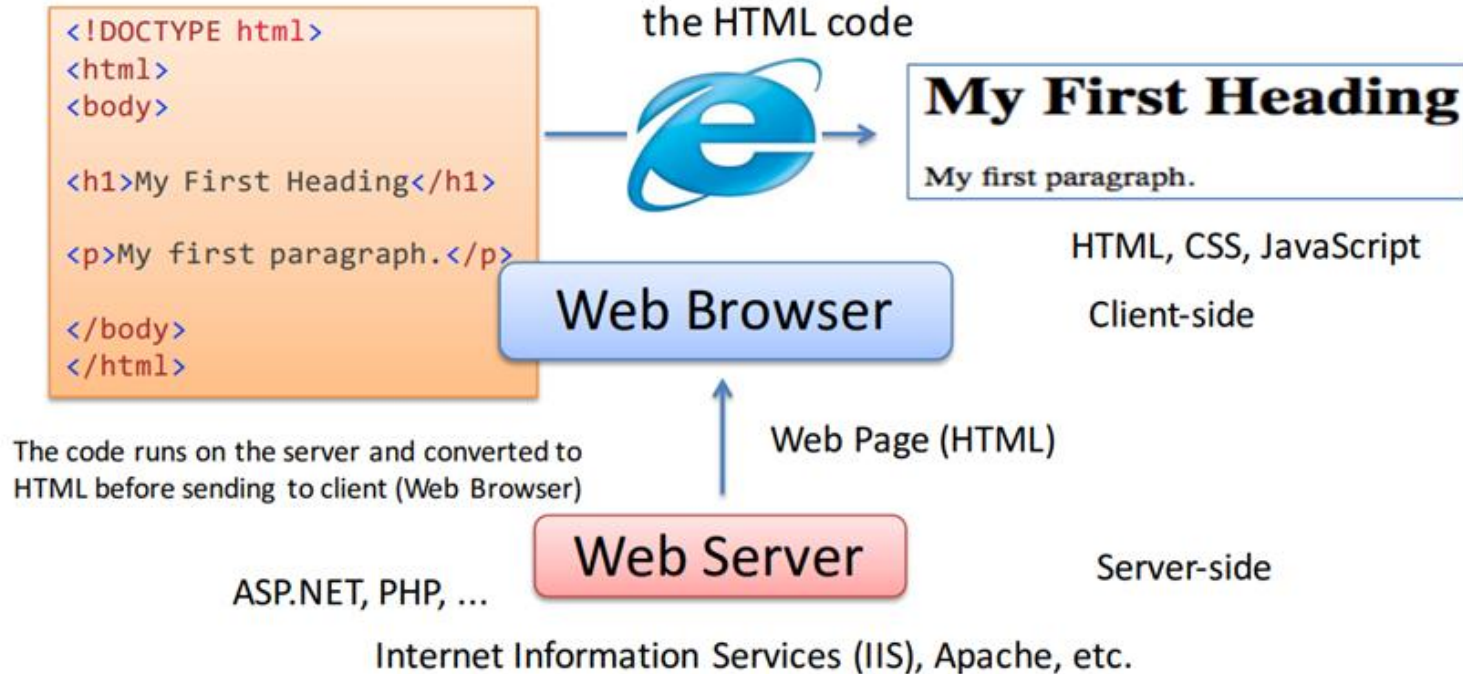


# Client-Server Example



# Web Platform

The Web Browser creates the visual web page you see in the browser based on the HTML code



# HTML

HTML (**H**yper**T**ext **M**arkup **L**anguage) is the **language in which most websites are written**. It is the code that is used to structure a web page and its content. HTML is used to create pages and make them functional.

*For example*, content could be structured within a set of paragraphs, a list of bulleted points, or using images and data tables.

HTML is a *markup language* that defines the structure of your content. HTML consists of a series of **elements**, which you use to enclose, different parts of the content to make it appear a certain way, or act a certain way. The enclosing tags can make a word or image hyperlink to somewhere else, can italicize words, can make the font bigger or smaller, and so on.

The code used to make them visually appealing is known as CSS.

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="UTF-8">
    <title>Title of the document</title>
  </head>

  <body>
    Content of the document.....
  </body>
</html>
```

# ***RULES TO REMEMBER***

The majority of tags must be **opened** (<tag>) and **closed** (</tag>) with the element information such as a title or text resting between the tags.

When using multiple tags, the tags must be **closed in the order in which they were opened**.

*For example:*

<strong>

<em>This is really important!</em>

</strong>

# BASIC CONSTRUCTION OF AN HTML PAGE

These tags should be placed underneath each other **at the top of every HTML page** that you create.

<!DOCTYPE html> — This tag **specifies the language** you will write on the page. In this case, the language is HTML 5.

<html> — This tag signals that from here on we are going to write in HTML code.

<head> — This is where all the **metadata for the page** goes — stuff mostly meant for search engines and other computer programs.

<body> — This is where the **content of the page** goes.

# HTML Page Structure



```
<!DOCTYPE html>  
<html>  
<body>  
  
<h1>My First Heading</h1>  
  
<p>My first paragraph.</p>  
  
</body>  
</html>
```

Web Browser

The screenshot shows a web browser window. The title bar indicates the file path "C:\Users\J...". The browser's address bar is empty. The main content area displays the rendered HTML page, which has a large heading "My First Heading" and a paragraph "My first paragraph." below it. A red arrow points from the `</body>` tag in the code block above to the browser window, indicating the mapping between the code and the rendered output.



# HTML Editors

Web pages can be created and modified by using professional HTML editors.

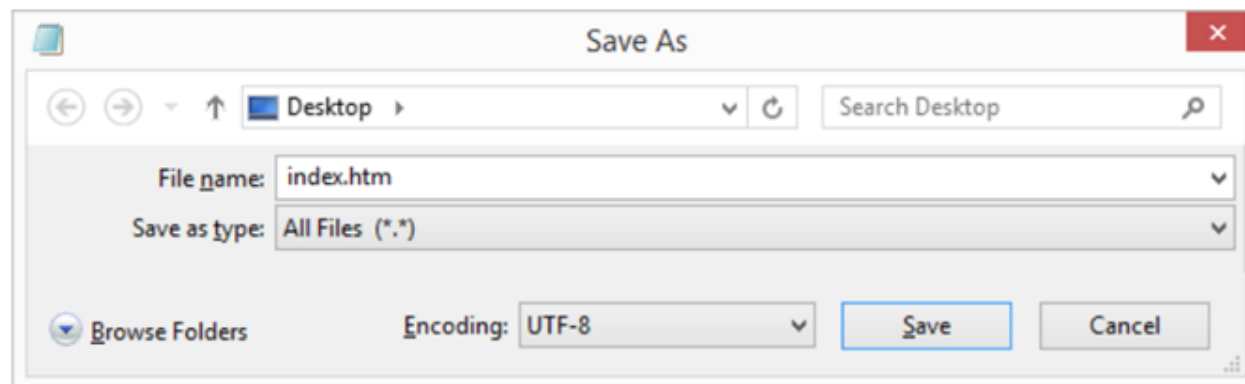
For example :

- Adobe Dreamweaver
- CoffeeCup HTML Editor ...

For learning HTML it is recommend a simple text editor like

**Notepad (PC) or TextEdit (Mac).**

Name the file "**index.htm**" and set the encoding to **UTF-8** (which is the preferred encoding for HTML files).



←  
Save the HTML  
page as...

# Creating 1<sup>st</sup> HTML Web Page

`<tagname>content</tagname>`

```
<!DOCTYPE html>
<html>
<body>

<h1>My First Heading</h1>

<p>My first paragraph.</p>

</body>
</html>
```



- The DOCTYPE declaration defines the document type
- The text between <html> and </html> describes the web document
- The text between <body> and </body> describes the visible page content
- The text between <h1> and </h1> describes a heading
- The text between <p> and </p> describes paragraph

Students: Create this HTML Code in e.g., Notepad and Save the File as .htm. Then Open the File in a Web Browser (just double-click on the file).

# Hyperlinks in HTML

Almost everything you click on while surfing the web is a link takes you to another page within the website you are visiting or to an external site.

Links are included in an attribute opened by the [<a>](#) tag.

The <a> (**or anchor**) opening tag is written in the format:

`<a href="https://blogging.com/how-to-start-a-blog/">Your Link Text Here </a>`

The **first part** of the attribute points to the page that will open once the link is clicked.

Meanwhile, the **second part of the attribute contains the text which will be displayed** to a visitor in order to entice them to click on that link.

If you are building your own website then you will most likely host all of your pages on professional web hosting.

```
<!DOCTYPE html>
<html>
<body>

<h1>This is a heading</h1>

<a href="http://www.google.com">This is a link to Google</a>

</body>
</html>
```

# ADDING IMAGES IN HTML TO YOUR WEBSITE

The `<img>` tag has everything you need to display images on your site. Much like the `<a>` anchor element, `<img>` also contains an attribute.

The attribute *features information* for your computer regarding the **source**, **height**, **width** and **alt text** of the image.

```
<!DOCTYPE html>
<html>
<body>

<h1>This is a heading</h1>



</body>
</html>
```

Активир  
Чтобы акт  
"Параметр

# Useful link to explore

<https://google.github.io/styleguide/htmlcssguide.html>

## Google HTML/CSS Style Guide

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## 1 Background

This document defines formatting and style rules for HTML and CSS. It aims at improving collaboration, code quality, and enabling supporting infrastructure. It applies to raw, working files that use HTML and CSS, including GSS files. Tools are free to obfuscate, minify, and compile as long as the general code quality is maintained.

## 2 General

### 2.1 General Style Rules

#### 2.1.1 Protocol

Use UTF-8 for embedded resources when possible.

# FURTHER TAGS

Tags and attributes are the basis of HTML.

*Tags* are used to **mark up the start of an HTML element** and they are usually enclosed in angle brackets.

An example of a tag is: `<h1>`.

Most tags must be opened `<h1>` and closed `</h1>` in order to function.

***Attributes*** contain **additional pieces of information**.

Attributes take the form of an opening tag and additional info is **placed inside**.

An example of an attribute is with **`<img>` tag**:

In this instance, the image source (`src`) and the alt text (`alt`) are attributes of the `<img>` tag.

**`<meta>`**

This is where information *about* the document is stored: character encoding, name (page context), description.

# HTML Tags

```
<a href="http://www.google.com">This is a link to Google</a>
```

Bold Text:

```
<b>This is my Text</b>
```

Headers:

```
<h1>This is my Header</h1>
```

```
<h2>This is my Header</h2>
```

```
<h3>This is my Header</h3>
```

Title:

```
<title>This is my Title</title>
```

Image:

```

```

Paragraph:

```
<p>My first paragraph.</p>
```

Line Break:

```
This is my Text
```

```
<br>
```

```
This is also my Text
```

Comments:

```
<!-- Write your comments here -->
```

# How to Use Google Fonts in HTML and CSS

Open [Google fonts](https://fonts.google.com/) official website and the following window will appear and Select the category/ font family of your choice:

The screenshot shows the Google Fonts website interface. At the top, there is a search bar with the text "Search fonts". To the right of the search bar, there is a dropdown menu labeled "Sentence" and a text input field with the placeholder "Type something". Further right, there is a size selector showing "40px" and a slider. Below the search bar, there are several filters: "Handwriting" (selected), "Language", "Font properties", and two checkboxes for "Show only variable fonts" and "Show only color fonts". A category dropdown menu is open on the left, showing options: "Serif", "Sans Serif", "Display", "Handwriting" (checked), and "Monospace". Below the filters, there are three font preview cards. The first card is for "Pacifico" by Vernon Adams, Jacques Le Bailly, Botjo Nikoltchev, and Ani Petrova, showing the text "Whereas recognition of the inherent dignity". The second card is for "Dancing Script" by Impallari Type, also showing the same text. The third card is for "Impallari Type" (labeled as "Variable" in the original image), showing the same text. At the bottom right, there is a watermark that says "Активация Windows".



Select the google font of your choice and click on the “select this style”, Copy the link of the selected style from the window that appear on the right side of the screen and put it in HTML

Google Fonts

Fonts Icons Knowledge FAQ

Google Fonts > Dancing Script

Specimen Type tester Glyphs About & license Download family

Type here to preview text 44px

Regular 400

Whereas recognition of the inherent dignity

Remove Regular 400

Medium 500

Whereas recognition of the inherent dignity

Select Medium 500

SemiBold 600

Whereas recognition of the inherent dignity

Select SemiBold 600

Bold 700

Selected family

Review

Dancing Script

Regular 400

Add more styles Remove all

```
<link rel="preconnect" href="https://fonts.googleapis.com">
<link rel="preconnect" href="https://fonts.gstatic.com" crossorigin>
<link href="https://fonts.googleapis.com/css2?family=Dancing+Script&display=swap" rel="stylesheet">
```

```
<style>
@import url('https://fonts.googleapis.com/css2?family=Dancing+Script&display=swap');
</style>
```

API docs Download all

Активация Windows  
Чтобы активировать Windows, перейдите в раздел "Параметры".

Copy the CSS rules for font-family and paste it in the CSS file:

Google Fonts

Fonts Icons Knowledge FAQ

Google Fonts > Dancing Script

Specimen Type tester Glyphs About & license Download family

Regular 400

Whereas recognition of the inherent dignity

Remove Regular 400

Medium 500

Whereas recognition of the inherent dignity

Select Medium 500

SemiBold 600

Whereas recognition of the inherent dignity

Select SemiBold 600

Bold 700

Whereas recognition of the inherent dignity

Select Bold 700

Selected family

Review

Dancing Script

Regular 400

Add more styles Remove all

```
<style>
@import url('https://fonts.googlea
pis.com/css2?family=Dancing+Script
&display=swap');
</style>
```

CSS rules to specify families

```
font-family: 'Dancing Script', cur
sive;
```

# How to Use Multiple Google Fonts in HTML and CSS

Copy the link and paste it in the HTML file's head section:

## HTML

- ```
<html>
<head>
<link rel="stylesheet" href="fonts.css">
<link rel="preconnect" href="https://fonts.googleapis.com">
<link rel="preconnect" href="https://fonts.gstatic.com" crossorigin>
<link href="https://fonts.googleapis.com/css2?family=Comforter&family=Open+Sans:wght@300&family=Quintessen
tial&display=swap" rel="stylesheet">
</head>
<body>
<h3>CSS Fonts </h3>
<p> First Paragraph</p>
<p> Second Paragraph</p>
</body>
</html>
```

## CSS

We selected two different google fonts i.e. “Comforter”, and “Open sans”, and we want to use “Comforter” for the <h3> element and “Open sans” for the <p> elements. In this case CSS will look like this:

```
h3{
  font-family: 'Comforter', cursive;
}
p{
  font-family: 'Open Sans', sans-serif;
}
```

In the CSS file, paste the CSS rules in element selectors to style them according to the choice.

# CSS

CSS (Cascading Style Sheets) is the language we use to style an HTML document. CSS describes how HTML elements should be displayed.

Used to control the style and layout of multiple Web pages all at once

```
body {  
    background-color: #d0e4fe;  
}  
h1 {  
    color: orange;  
    text-align: center;  
}  
p {  
    font-family: "Times New Roman";  
    font-size: 20px;  
}
```

# *Why we need CSS*

- HTML was never intended to contain tags for formatting a document.
- HTML was intended to define the content of a document, like:
- `<h1>This is a heading</h1>`
- `<p>This is a paragraph.</p>`
- When tags like `<font>`, and color attributes were added to the HTML 3.2 specification, it started a nightmare for web developers. Development of large web sites, where fonts and color information were added to every single page, became a long and expensive process.
- To solve this problem, the World Wide Web Consortium (W3C) created CSS.
- In HTML 4.0, all formatting could be removed from the HTML document, and stored in a separate CSS file.
- All browsers support CSS today.

# HTML + CSS

```
<!DOCTYPE html>
<html>
<head>
<style>
body {
  background-color: #d0e4fe;
}

h1 {
  color: orange;
  text-align: center;
}

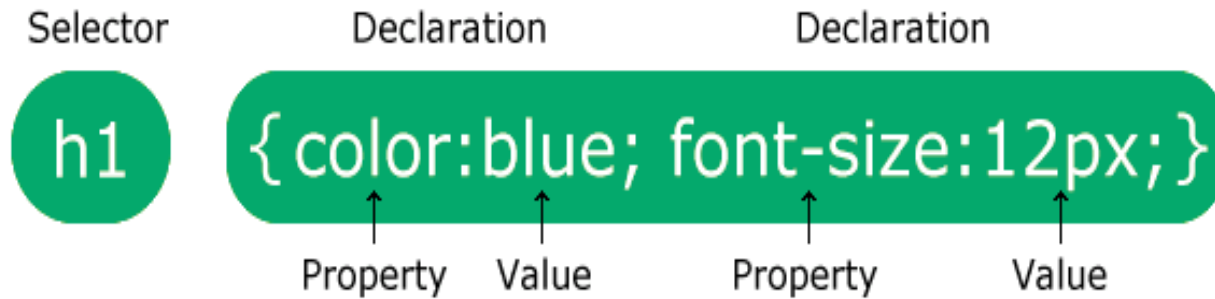
p {
  font-family: "Times New Roman";
  font-size: 20px;
}
</style>
</head>
<body>

<h1>My First CSS Example</h1>
<p>This is a paragraph.</p>

</body>
</html>
```



# CSS syntax



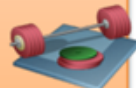
A CSS declaration always end with a semicolons and a declaration groups are surrounded by curly braces .

# CSS Classes

```
.center {  
    text-align: center;  
    color: red;  
}
```

```
} p.center {  
    text-align: center;  
    color: red;  
}
```

```
<!DOCTYPE html>  
<html>  
<head>  
<style>  
    .center {  
        text-align: center;  
        color: red;  
    }  
</style>  
</head>  
<body>  
  
<h1 class="center">My Heading</h1>  
<p class="center">My Paragraph</p>  
  
</body>  
</html>
```



```
<!DOCTYPE html>  
<html>  
<head>  
<style>  
    p.center {  
        text-align: center;  
        color: red;  
    }  
</style>  
</head>  
<body>  
  
<h1 class="center">My Heading</h1>  
<p class="center">My Paragraph</p>  
  
</body>  
</html>
```

Students: Try these Examples



# *Three Ways To Insert CSS*

**CSS can be added to HTML documents in 3 ways:**

**Inline** - by using the style attribute inside HTML elements.

- An inline style loses many of the advantages of a style sheet (by mixing content with presentation). Use this method sparingly.

**Internal** - by using a <style> element in the <head> section.

- An internal style sheet should be used when single document has a unique style
- You define it in the head section of an HTML page, inside the <style>tag

**External** - by using a <link> element to link to an external CSS file.

- is ideal when the style is applied to many pages. With it you can change the look of an entire Web site by changing just one file.
- Can be written in any text editor. The file should not contain any html tags.
- Must be saved with .css extension

# Internal Style Sheet Example

You define internal styles in the head section of an HTML page, inside the <style> tag, like this:

```
<head>
<style>
body {
    background-color: linen;
}
h1 {
    color: maroon;
    margin-left: 40px;
}
</style>
</head>
```



Students: Try this Example

```
<!DOCTYPE html>
<html>
<head>
<style>
body {
    background-color: linen;
}
h1 {
    color: maroon;
    margin-left: 40px;
}
</style>
</head>
<body>

<h1>This is a heading</h1>
<p>This is a paragraph.</p>

</body>
</html>
```

# External Style Sheet Example

Each HTML page must include a link to the style sheet with the <link> tag. The <link> tag goes inside the head section:

```
<head>  
<link rel="stylesheet" type="text/css" href="mystyle.css">  
</head>
```

An example of a style sheet file called "myStyle.css", is shown below:

```
body {  
    background-color: lightblue;  
}  
  
h1 {  
    color: navy;  
    margin-left: 20px;  
}
```

# CSS Properties

## Text Color

```
body {  
    color: blue;  
}  
  
h1 {  
    color: #00ff00;  
}  
  
h2 {  
    color: rgb(255,0,0);  
}
```

## Text Alignment

```
h1 {  
    text-align: center;  
}  
  
p.date {  
    text-align: right;  
}  
  
p.main {  
    text-align: justify;  
}
```

## Background Color

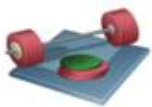
```
body {  
    background-color: lightblue;  
}
```

## Text Size

```
h1 {  
    font-size: 40px;  
}  
  
h2 {  
    font-size: 30px;  
}  
  
p {  
    font-size: 14px;  
}
```

## Text Font

```
p {  
    font-family: "Times New Roman", Times, serif;  
}
```



Students: Create a Style Sheet (.CSS) and a HTML page where you use these Properties

# CSS Example

[http://www.w3schools.com/css/demo\\_default.htm](http://www.w3schools.com/css/demo_default.htm)

## Welcome to My Homepage

Use the menu to select different Stylesheets

Stylesheet 1

Stylesheet 2

Stylesheet 3

Stylesheet 4

No Stylesheet

## Same Page Different Stylesheets

This is a demonstration of how different stylesheets can change the layout of your HTML page. You can change the layout of this page by selecting different stylesheets in the menu, or by selecting one of the following links:

[Stylesheet1](#), [Stylesheet2](#), [Stylesheet3](#), [Stylesheet4](#).

### No Styles

This page uses DIV elements to group different sections of the HTML page. Click here to see how the page looks like with no stylesheet:

[No Stylesheet](#).

### View Stylesheets

The stylesheets uses CSS syntax to layout the HTML page. Take a look at the stylesheets used in this demonstration:

[Stylesheet1](#), [Stylesheet2](#), [Stylesheet3](#), [Stylesheet4](#).

### Side-Bar

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Ut wisi enim ad minim veniam, quis nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat. Duis autem vel eum iriure dolor in hendrerit in vulputate velit esse molestie consequat, vel illum dolore eu feugiat nulla facilisis at vero eros et accumsan et iusto odio dignissim qui blandit praesent luptatum zzril delenit augue duis dolore te feugait nulla facilisi.

# Questions for you ;)

1. What does HTML stand for?
  - A. Hyper Text Markup Language
  - B. Hot Mail
  - C. How to Make Lasagna
  
2. How many tags are in a regular element?
  - A. 2
  - B. 1
  - C. 3
  
3. What is the difference between an opening tag and a closing tag?
  - A. Opening tag has a / in front
  - B. Closing tag has a / in front
  - C. There is no difference

4. `< br / >` What type of tag is this?

- A. Break tag
- B. A broken one
- C. An opening tag

5. `< body >` Is this an opening tag or a closing tag?

- A. Opening
- B. Closing

6. `< / body >` Is this an opening tag or a closing tag?

- A. Opening
- B. Closing

7. Where is the meta tag only found?

- A. The last page
- B. The home page
- C. The second page

**8.** Which is the correct way to tag an image?

- A. `src="image.jpg/gif" alt="type some text"`
- B. `Src="image.jpg/gif" alt="type some text"`
- C. none is correct

**9.** What is an element that does not have a closing tag called?

- A. Tag
- B. Empty element
- C. Closed element

**10.** Which of the following is an example of an empty element?

- A. `< img / >`
- B. `< img > < / img >`
- C. `< / img>`



**11.** What should values always be enclosed in?

- A. Quotation marks
- B. Commas
- C. Parenthesis

**12.** Where do all items for the same website need to be saved?

- A. In the same folder
- B. Where ever is fine
- C. In different folders

**13.** What does `< a href = "http://www.google.com" title = "Link to Google" target = "_blank" > Google < / a >` do?

- A. Adds a link to google on the page
- B. Adds a search engine to the page
- C. Nothing

**14.** What is always a welcome page, and explains the purpose or topic of the site?

- A. Page 4
- B. Homepage
- C. Table of contents

**15.** What does View Source do?

- A. Nothing
- B. Brings up a note pad with the HTML code already used for the site.
- C. Opens a new website.

# The correct answers

1.A

2.A

3.B

4.A

5.A

6.B

7.B

8.C

9.B

10. A

11.A

12.A

13.A

14.B

15.B

Well Done!



Thank you for you attention!