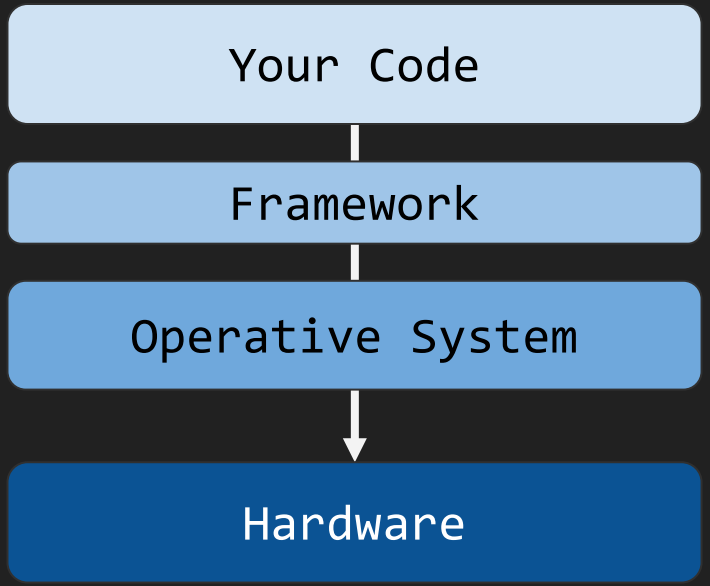
Introduction

Problem - Programming languages do not include a library to create User Interfaces.

Solution - Frameworks

Ready to use - Web provides a very rich and simple framework to create applications



Goals

Introduction to web technologies:

- HTML to create the document structure and content
- CSS to control is visual aspect
- Javascript for interactivity

Deploy

What do we need to start:
- a good web-browser (Chrome or Firefox)
- a good text editor like Editplus (win), VSCode (cross platform), textWrangler (osx), vim (unix) or sublime text (cross platform)

How can I test my code

- **Simple**

  Just open the index.html from the template in your text editor and in your browser. When you do any change to the code, check it in the browser by pressing F5 (refresh site)

- **To open the developer tools press:**

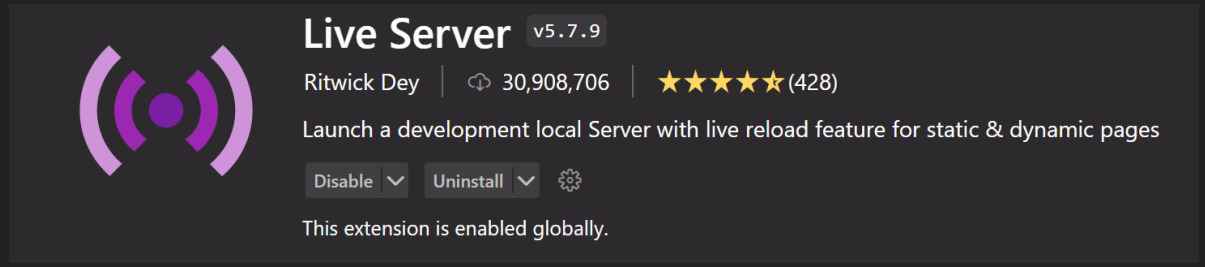
Windows: `Control + Shift + I` or `F12`

OSX: `Command + Opt + I`

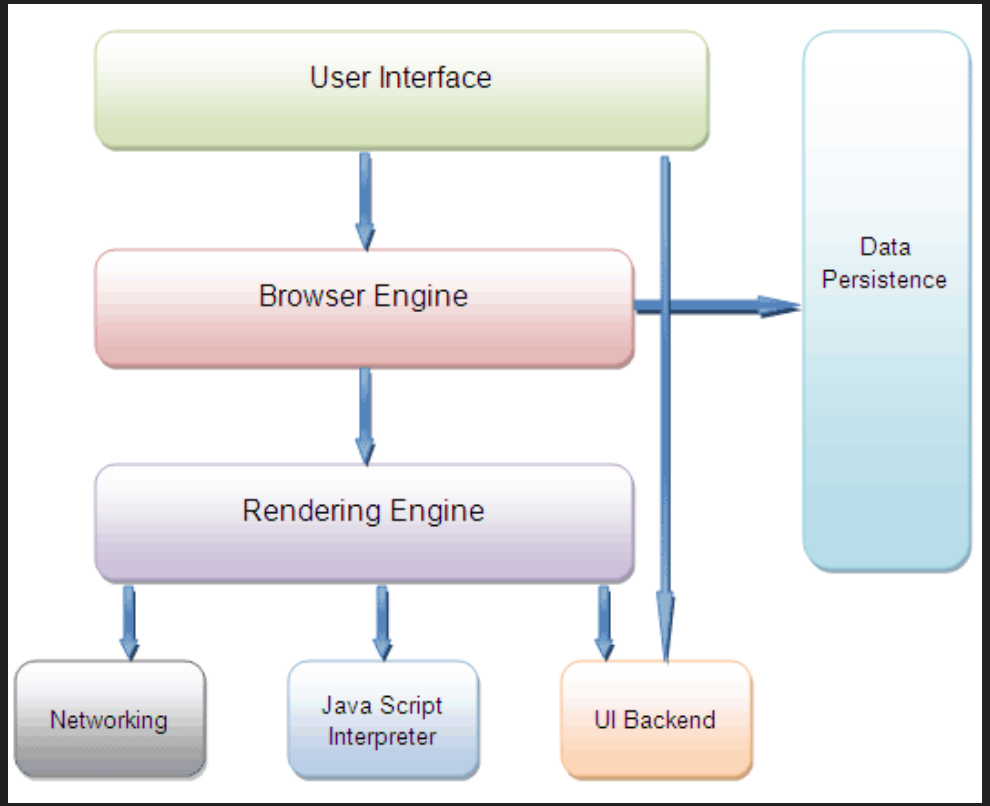
Other tools are online editors like scratchpad or htmledit

- **Vscode extension**

  `Live server`



Inside a browser

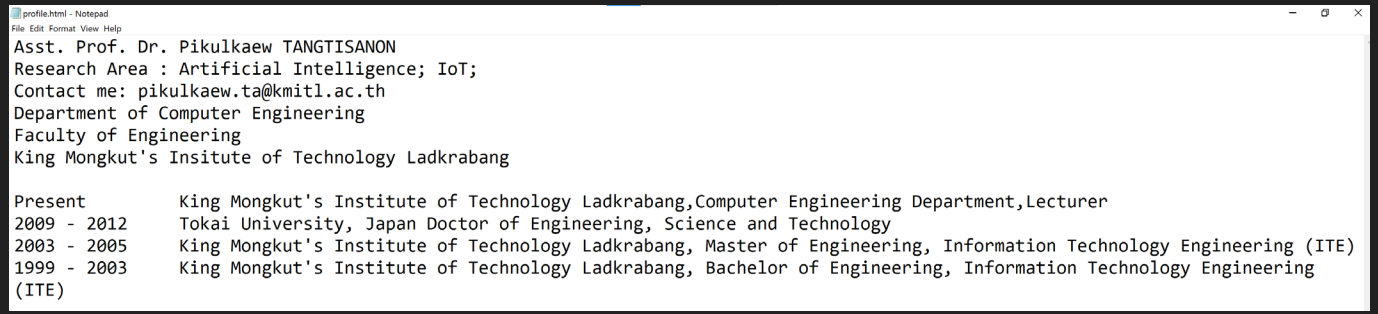


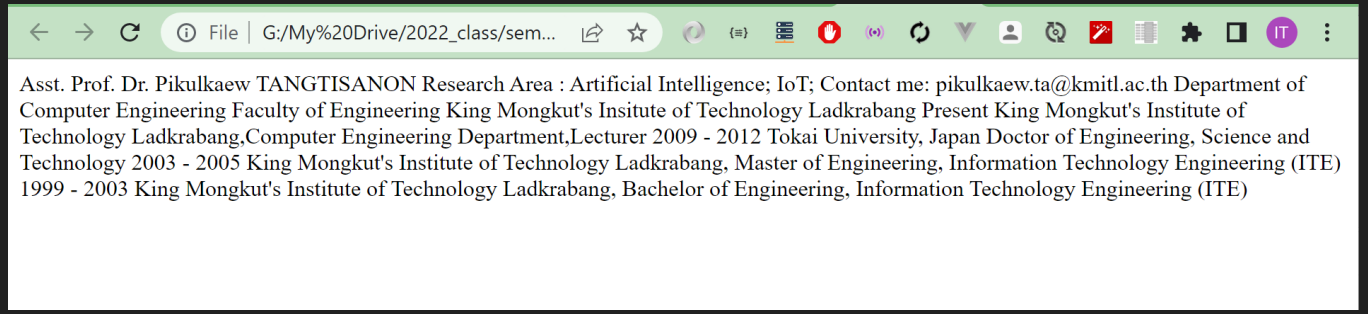
Technologies

- HTML
- CSS
- Javascript

Browsers as a renderer

- Open notepad => Create text file to introduce yourself (no code just plain text file.html)
- Open it in chrome





HTML

HTML = Hyper Text Markup Language.

- Use to define the structure of a document or a website.
- HTML is Not Case Sensitive, but lowercase is recommended.
- HTML is **NOT** a programming language, it's a markup language.
- Series of nested tags (it is a subset of XML)

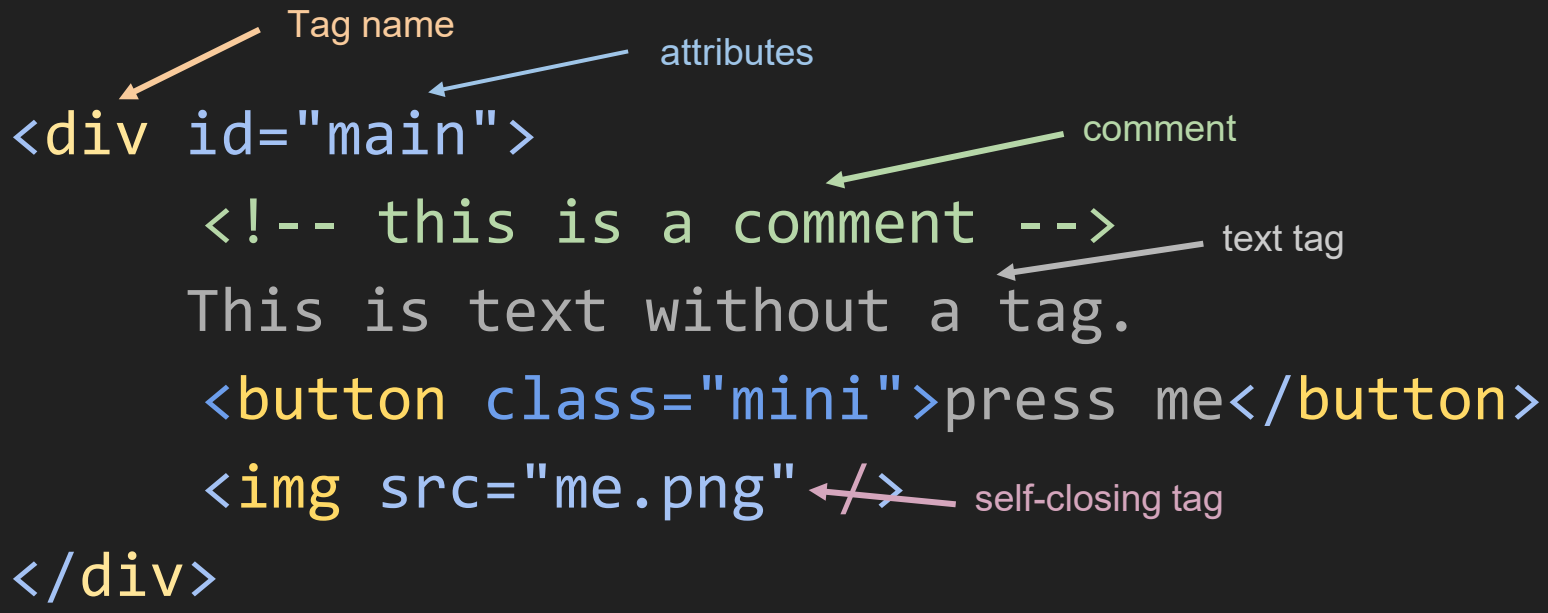
```
<title>This is a title</title>
```

```
<html>
        <head>
        </head>
        <body>
        <div>

        <p>Hi</p>

        </div>
        </body>
</html>
```

HTML: syntax example

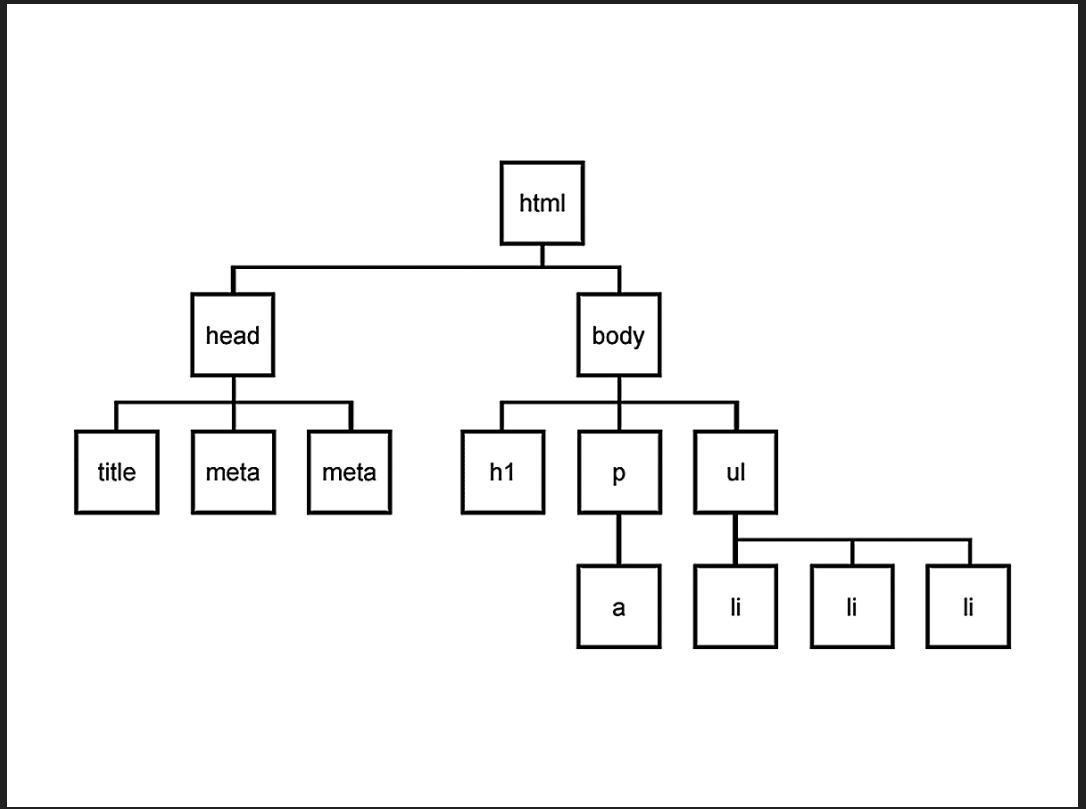
```
<!DOCTYPE html>
<html>
<head>
<title>Page Title</title>
</head>
<body>

<h1>My First Heading</h1>
<p>My first paragraph.</p>
<br>

</body>
</html>
```

HTML: syntax example



DOM is a tree

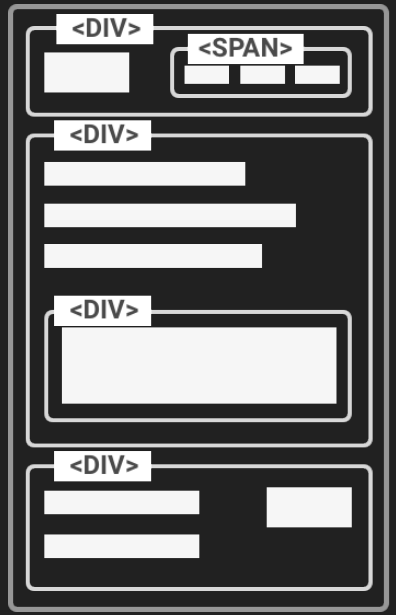
Every node can only have one parent, and every node can have several children, so the structure looks like a tree.

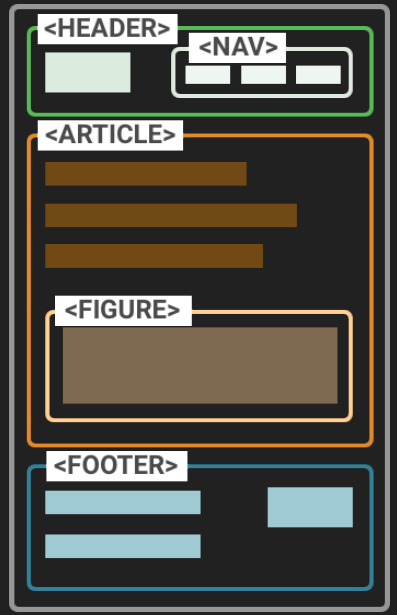


HTML: main tags

Although there are lots of tags in the HTML specification, 99% of the webs use a subset of HTML tags with less that 10 tags, the most important are:

-
- <img>
-
- <p>
- <h1>, … , <h6>
- <img>
- <style>
- <script>
-





HTML: other interesting tags

There are some tags that could be useful sometimes:

- <button>
- <audio>
- <video>
- <canvas>
- <iframe>

HTML: tagging correctly

Try to avoid doing this:

```
<div>
Title

Here is some content
Here is more content
</div>
```

Do this instead

```
<div>
    <h1>Title</h1>
    <p>Here is content.</p>
    <p>Here is more content</p>
</div>
```

Attributes

- id: tells a unique identifier for this tag
- class: tells a generic identifier for this tag

```
<div id="profile-picture" class="mini-image">...</div>
```

Attribute	Example
id	<table **id**="table01"
class	<p **class**="normal">
style	<p **style**="font-size:16px">
data-	<div **data**-id="500">
onclick	<input **onclick**="myFunction()">
onmouseover	<a **onmouseover**="this.setAttribute('style','color:red')">

Image

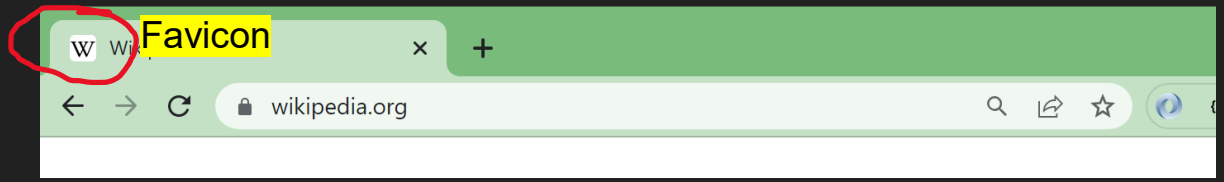
- GIF, ICO, JPEG,PNG,SVG
- Absolute URL

  src=https://www.kmitl.ac.th/images/img_student.jpg
- Relative URL

  src="images/img_student.gif"
- The width and height Attributes

  <img src="img_student.jpg" width="500" height="600">
- Favicon

  <link rel="icon" type="image/x-icon" href="/images/favicon.ico">



Table

```
<table>
    <tr>
      <td>Emil</td>
      <td>Tobias</td>
      <td>Linus</td>
    </tr>
  </table>
```

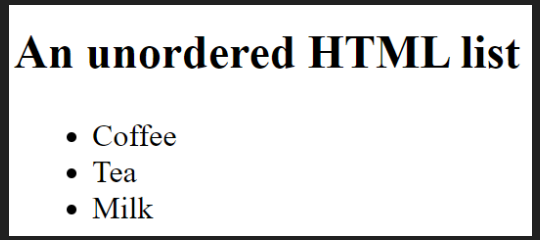
- Border

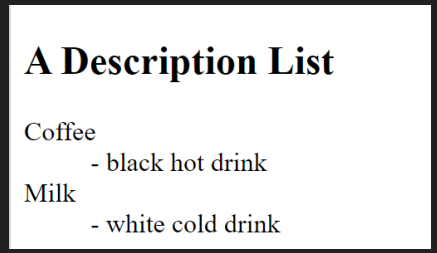
```
table, th, td {
  border: 1px solid black;
},
```

```
table, th, td {
  border: 1px solid black;
  border-collapse: collapse;
}
```

List

- Unordered Lists : <ul>
- Ordered List :
- Description Lists : <dl><dt></dt><dd></dd><dl>





Attribute : Style

<tagname style="property:value;">

- Background Color

```
<h1 style="background-color:blue;">This is a heading</h1>
```

- Text Color

```
<h1 style="color:blue;">This is a heading</h1>
```

- Fonts

```
<h1 style="font-family:verdana;">This is a heading</h1>
```

- Text Size

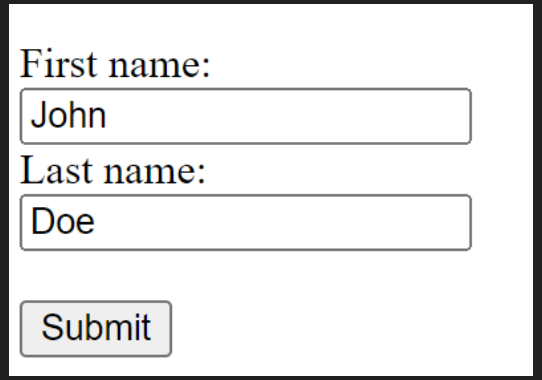
```
<h1 style="font-size:300%;">This is a heading</h1>
```

- Text Alignment

```
<h1 style="text-align:center;">Centered Heading</h1>
```

Form

```
<form action="/action_page.php">
  <label for="fname">First name:</label><br>
  <input type="text" id="fname" name="fname" value="John"><br>
  <label for="lname">Last name:</label><br>
  <input type="text" id="lname" name="lname" value="Doe"><br><br>
  <input type="submit" value="Submit">
</form>
```



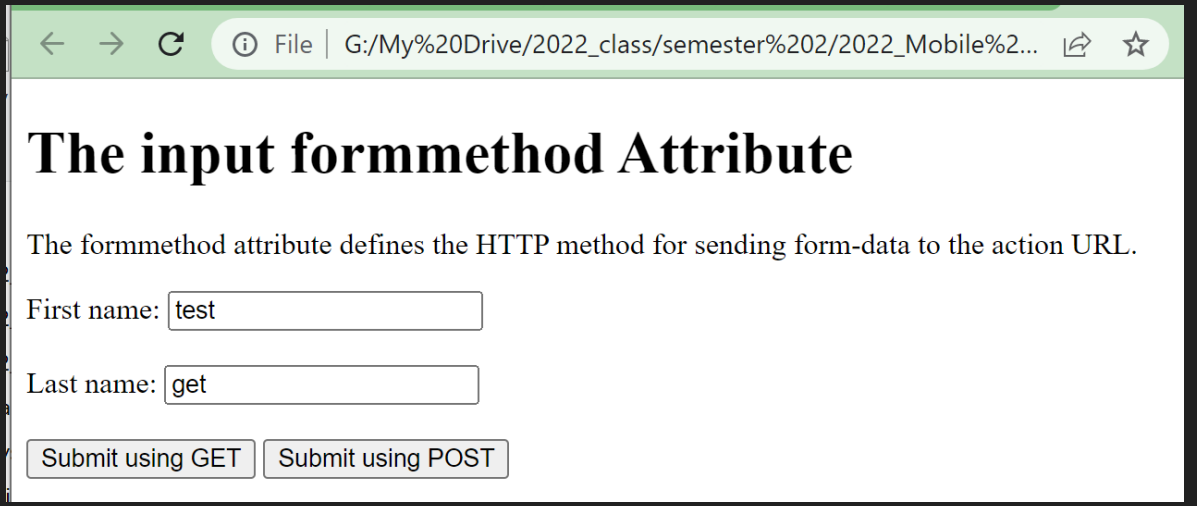
Form Attribute

- _blank
- _self => default
- _parent
- _top
- framename

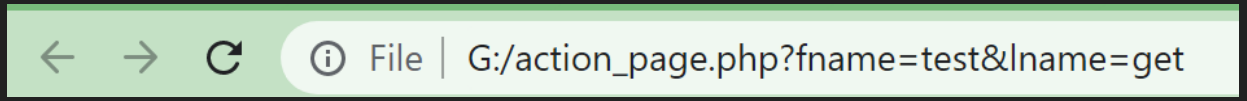
```
<form action="/action_page.php" target="_blank">
```

Form Method

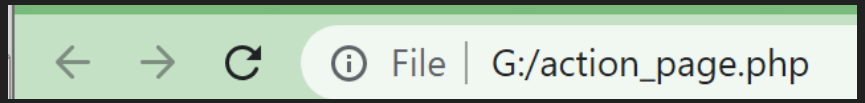
- get => default
- post




```
<form action="/action_page.php" method="get" target="_blank">
```

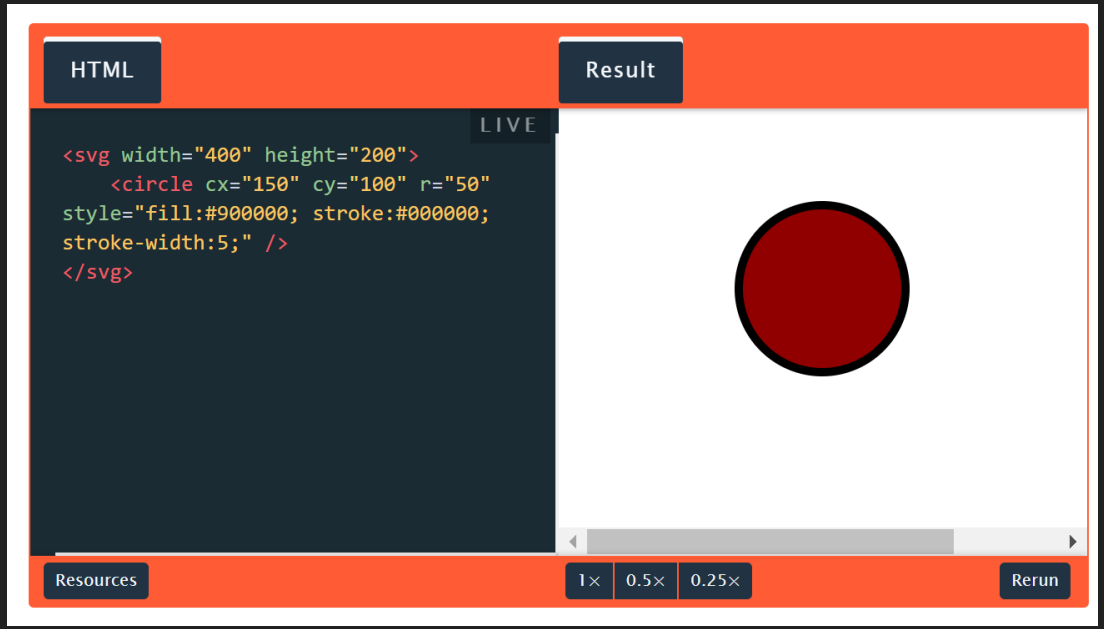



```
<input type="submit" formmethod="post" value="Submit using POST">
```



HTML 5

- HTML5 is the newest version of HTML
- new elements, attributes, new video format
- New Semantic Elements
    - <section>, <header>, <footer> <nav>, <mark>, <figure>, <aside> <figcaption>, <data>, <time>, <output>, <progress>, <meter> and <main>.
- Inline SVG => SVG tag

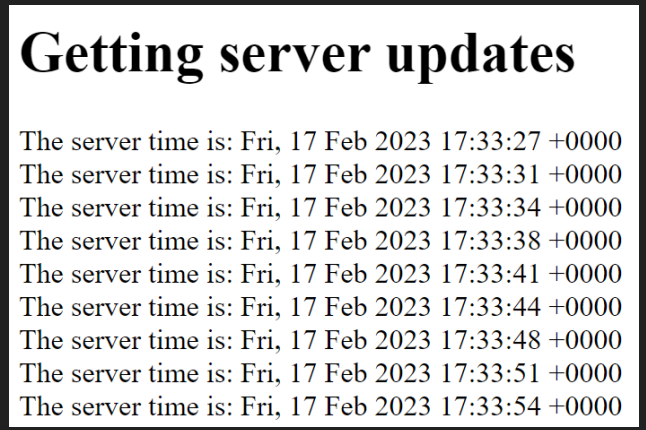


HTML 5

- Form Features => number, range, form validator
- WebM Video Format => <audio> and <video> tags
- Placeholder Attribute

HTML 5

- Server-sent Events
- Local Web Storage



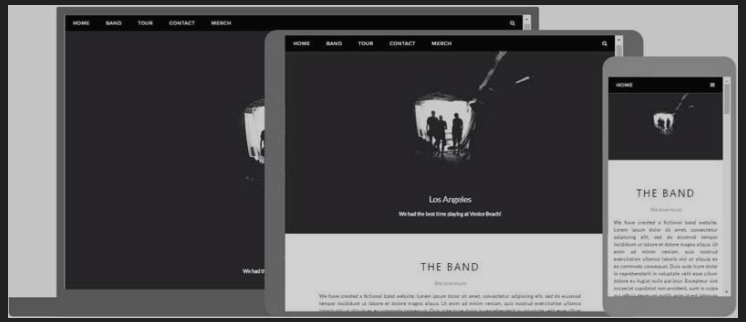

```
<!DOCTYPE html>
<html>
<body>

<h1>Getting server updates</h1>
<div id="result"></div>

<script>
if(typeof(EventSource) !== "undefined") {
  var source = new EventSource("demo_sse.php");
  source.onmessage = function(event) {
    document.getElementById("result").innerHTML += event.data + "
<br>";
  };
} else {
  document.getElementById("result").innerHTML = "Sorry, your browser
does not support server-sent events...";
}
</script>

</body>
</html>
```

What is Responsive web design

- Responsive web design is about creating web pages that look good on all devices!

- A responsive web design will automatically adjust for different screen sizes and viewports.

- Viewport




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

Responsive Image

```
<!DOCTYPE html>
<html>
<head>
<meta name="viewport" content="width=device-width, initial-scale=1.0">
</head>
<body>

<h2>Responsive Image</h2>
<p>When the CSS width property is set in a percentage value, the image will scale up and down when resizing the browser window. Resize the browser window to see the effect.</p>

<img src="img_girl.jpg" style="width:100%;">

</body>
</html>
```

```
<img src="img_girl.jpg" style="max-width:100%;height:auto;">
```

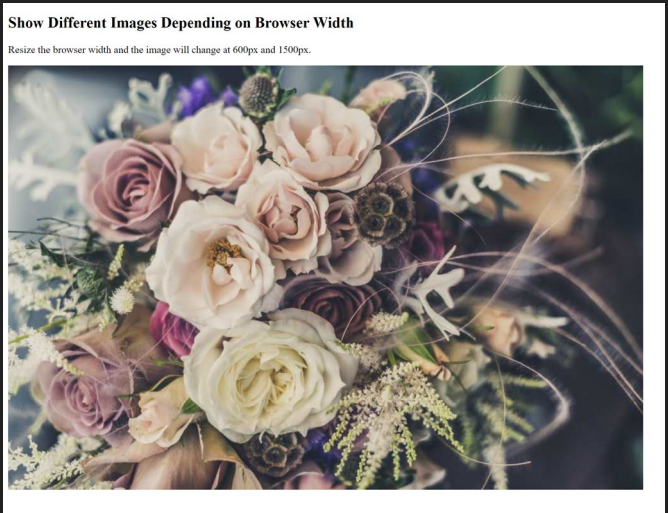
Example

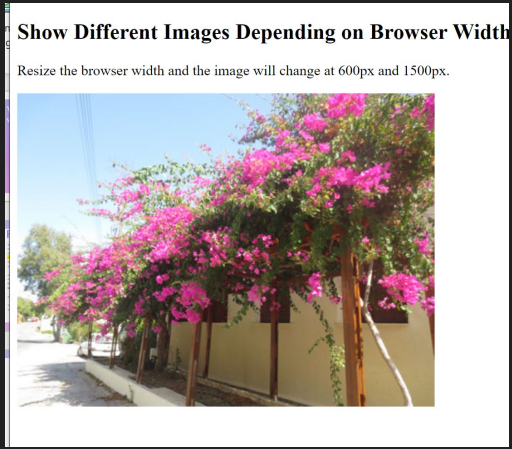
https://mobile2006.000webhostapp.com/image.html

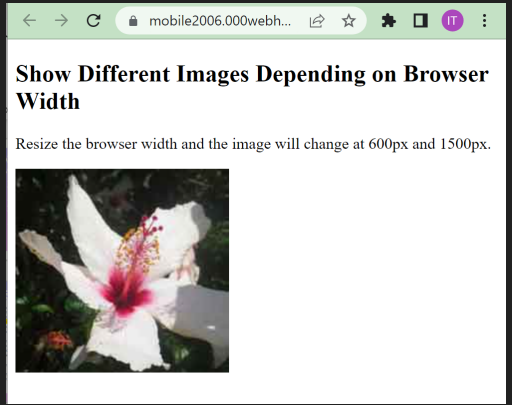
Choose image depends on size of screen

```
<!DOCTYPE html>
<html>
<head>
<meta name="viewport" content="width=device-width, initial-scale=1.0">
</head>
<body>

<h2>Show Different Images Depending on Browser Width</h2>
<p>Resize the browser width and the image will change at 600px and 1500px.</p>

<picture>
  <source srcset="img_smallflower.jpg" media="(max-width: 600px)">
  <source srcset="img_flowers.jpg" media="(max-width: 1500px)">
  <source srcset="flowers.jpg">
  <img src="img_flowers.jpg" alt="Flowers" style="width:auto;">
</picture>

</body>
</html>
```

https://mobile2006.000webhostapp.com/image3.html

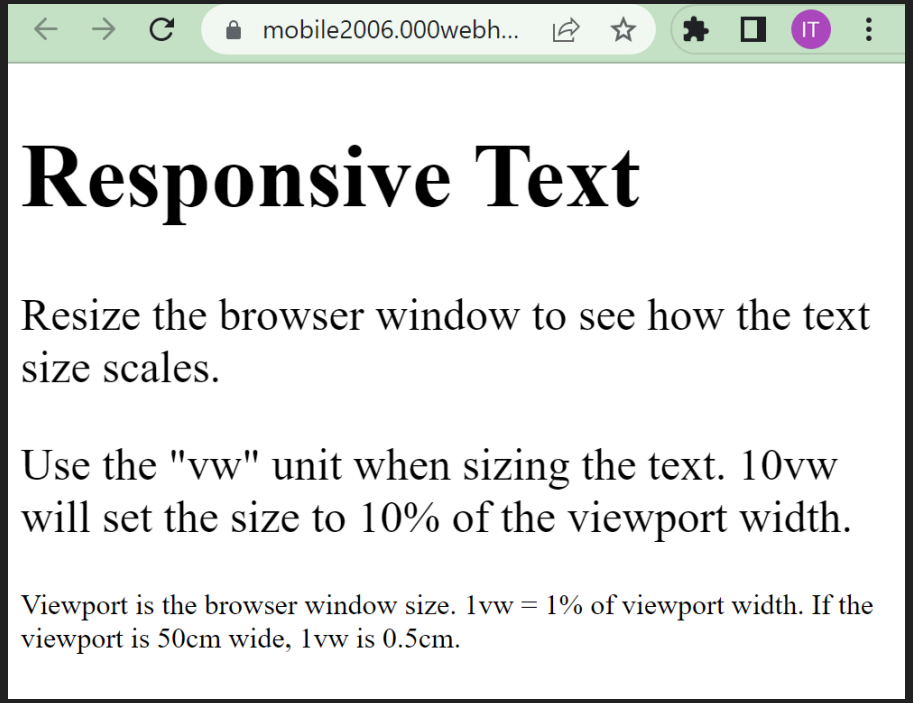






Responsive text size => vw

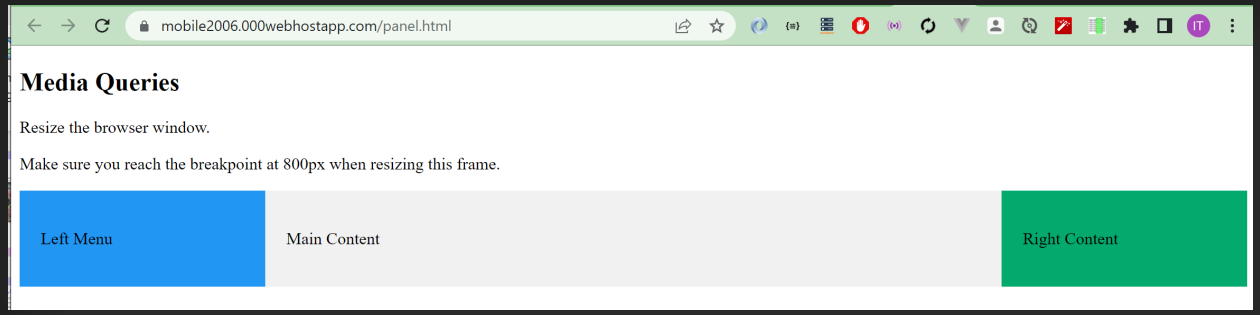
```
<!DOCTYPE html>
<html>
<head>
<meta name="viewport" content="width=device-width, initial-scale=1.0">
</head>
<body>

<h1 style="font-size:10vw;">Responsive Text</h1>

<p style="font-size:5vw;">Resize the browser window to see how the text size scales.</p>

<p style="font-size:5vw;">Use the "vw" unit when sizing the text. 10vw will set the size to 10% of the viewport width.</p>

<p>Viewport is the browser window size. 1vw = 1% of viewport width. If the viewport is 50cm wide, 1vw is 0.5cm.</p>

</body>
</html>
```

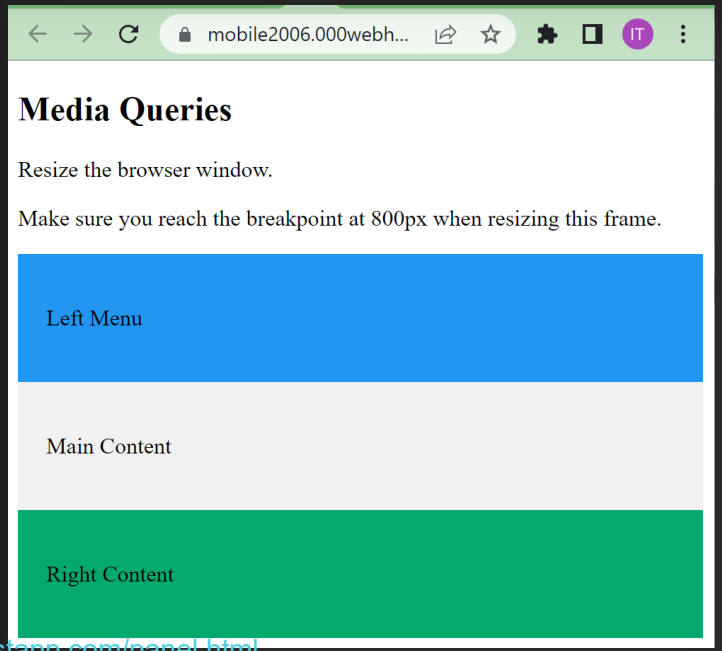


https://mobile2006.000webhostapp.com/text.html

Media Queries

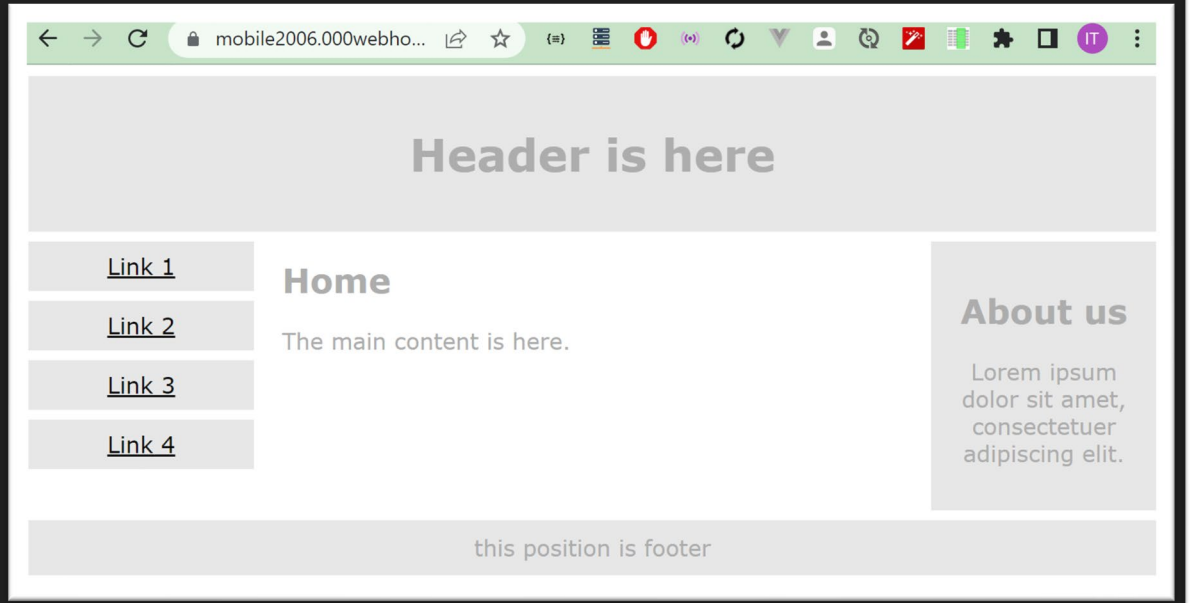
```
<style>
.left, .right {
  float: left;
  width: 20%; /* The width is 20%, by default */
}

.main {
  float: left;
  width: 60%; /* The width is 60%, by default */
}

/* Use a media query to add a breakpoint at 800px: */
@media screen and (max-width: 800px) {
  .left, .main, .right {
    width: 100%; /* The width is 100%, when the viewport is 800px or smaller */
  }
}
</style>
```

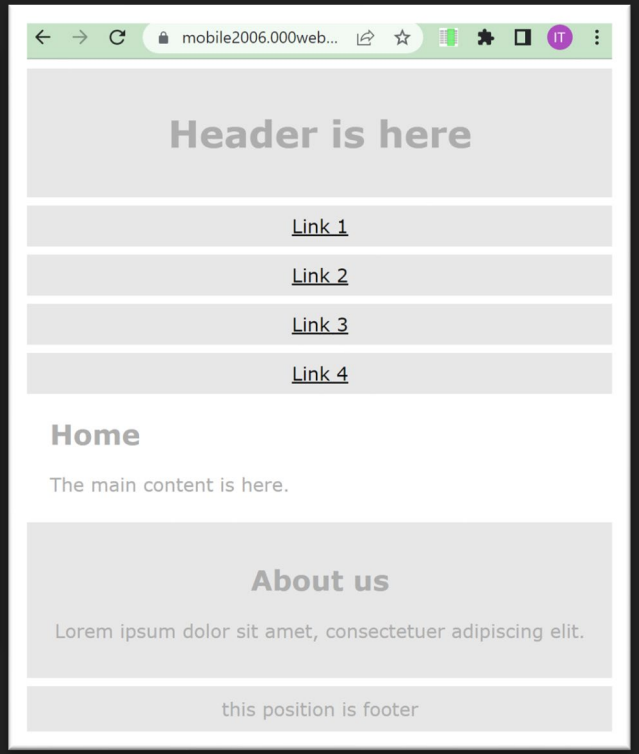




https://mobile2006.000webhostapp.com/panel.html

Responsive Web page





https://mobile2006.000webhostapp.com/responsive.html

```
<!DOCTYPE html>
<html>
<head>
<meta name="viewport" content="width=device-width,
initial-scale=1.0">
<style>
* {
  box-sizing: border-box;
}
.menu {
  float: left;
  width: 20%;
  text-align: center;
}
.menu a {
  background-color: #e5e5e5;
  padding: 8px;
  margin-top: 7px;
  display: block;
  width: 100%;
  color: black;
}
.main {
  float: left;
  width: 60%;
  padding: 0 20px;
}
.right {
  background-color: #e5e5e5;
  float: left;
  width: 20%;
  padding: 15px;
  margin-top: 7px;
  text-align: center;
}

@media only screen and (max-width: 620px) {
  /* For mobile phones: */
  .menu, .main, .right {
    width: 100%;
  }
}
</style>
</head>
<body style="font-family:Verdana;color:#aaaaaa;">

<div style="background-color:#e5e5e5;padding:15px;text-align:center;">
  <h1>Hello World</h1>
</div>

<div style="overflow:auto">
  <div class="menu">
    <a href="#">Link 1</a>
    <a href="#">Link 2</a>
    <a href="#">Link 3</a>
    <a href="#">Link 4</a>
  </div>

  <div class="main">
    <h2>Lorum Ipsum</h2>
    <p>Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy
nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat.</p>
  </div>

  <div class="right">
    <h2>About</h2>
    <p>Lorem ipsum dolor sit amet, consectetuer adipiscing elit.</p>
  </div>
</div>

<div style="background-color:#e5e5e5;text-align:center;padding:10px;margin-
top:7px;">© copyright w3schools.com</div>

</body>
</html>
```

Framework

https://www.w3schools.com/w3css/default.asp

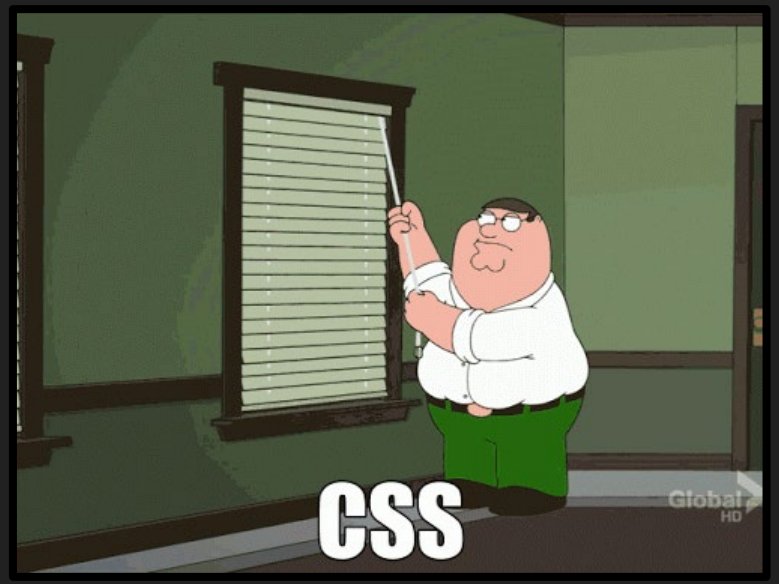
```
<link rel="stylesheet" href="https://www.w3schools.com/w3css/4/w3.css">
```

https://getbootstrap.com/

```
<meta name="viewport" content="width=device-width, initial-scale=1">
<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/css/bootstrap.min.css">
<script src="https://ajax.googleapis.com/ajax/libs/jquery/3.5.1/jquery.min.js"></script>
<script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/js/bootstrap.min.js"></script>
```

Technologies

- HTML
- CSS
- Javascript



HTML + CSS

Jordy Gabriel

#Jdam

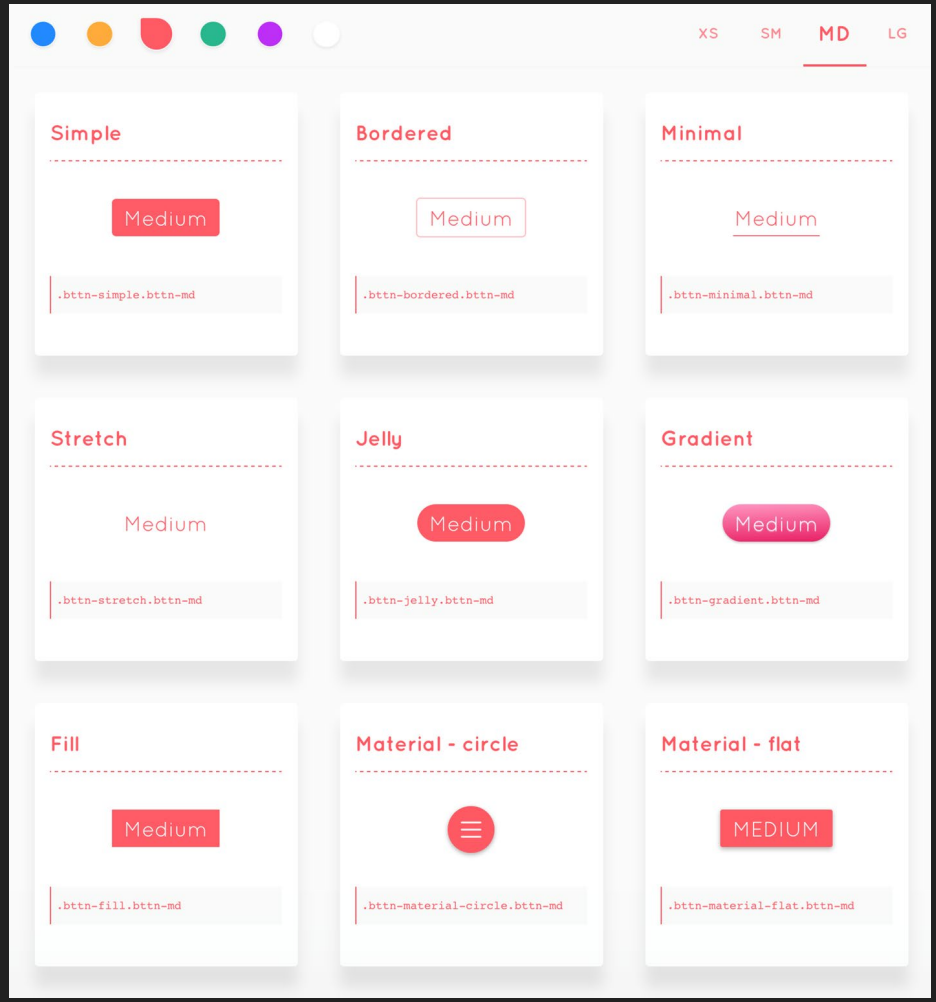
HTML Vs CSS

```
<I><FONT face="Arial" color="green"><H3> Test HTML vs CSS</H3></FONT></I>
```


```
H3 {font-family : Arial; font-style : italic; color : green}
```

CSS

- Colors: content, background, borders
- Margins: interior margin, exterior margin
- Position: where to put it
- Sizes: width, height
- Behaviour: changes on mouse over

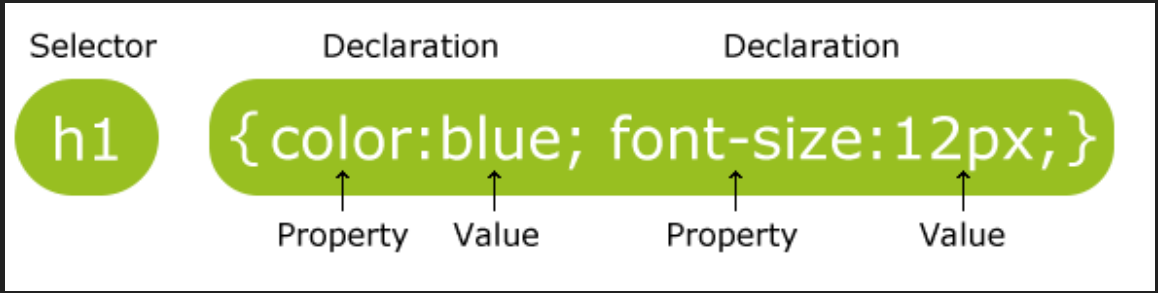


CSS example

```
* {
    color: blue; /*a comment */
    margin: 10px;
    font: 14px Tahoma;
}
```

CSS

- selector { property: value }
- body { background-color: lime}
- h1, h2, h3 { font-size: x-large; background-color: yellow }



CSS fields

Here is a list of the most common CSS fields and an example:

- `color: #FF0000;  red;  rgba(255,00,100,1.0); //different ways to specify colors`
- `background-color: red;`
- `background-image: url('file.png');`
- `font: 18px 'Tahoma';`
- `border: 2px solid black;`
- `border-top: 2px solid red;`
- `border-radius: 2px; //to remove corners and make them more round`
- `margin: 10px; //distance from the border to the outer elements`
- `padding: 2px; //distance from the border to the inner elements`
- `width: 100%;  300px;  1.3em;  //many different ways to specify distances`
- `height: 200px;`
- `text-align: center;`
- `box-shadow: 3px 3px 5px black;`
- `cursor: pointer;`
- `display: inline-block;`
- `overflow: hidden;`

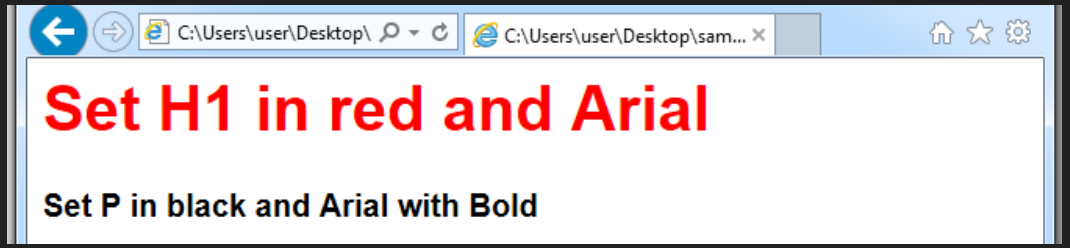
CSS how to add it

There are four ways to add CSS rules to your website:

- Inline
  ```
  <p style="color: blue; margin: 10px">
  ```
- Embedded
  ```
  <style>
      p { color: blue }
  </style>
  ```
- Linked
  ```
  <link href="style.css" rel="stylesheet" />
  ```
- Using Javascript (we will see this one later).

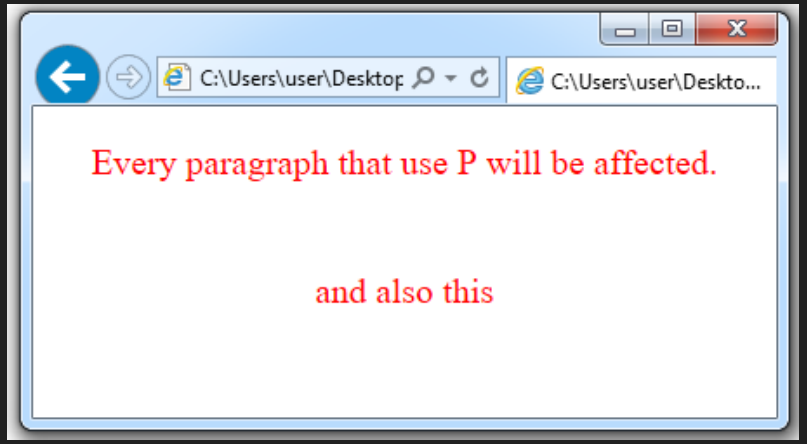
CSS : Inline

```
<html>
<body>
        <h1 style = “color:red; font-family:Arial”>
        Set H1 in Arail red </h1>
        <p style = “color:black; font-family:Arial; font-weight:bold”>
        Set P in black, Arial with bold </p>
</body>
</html>
```

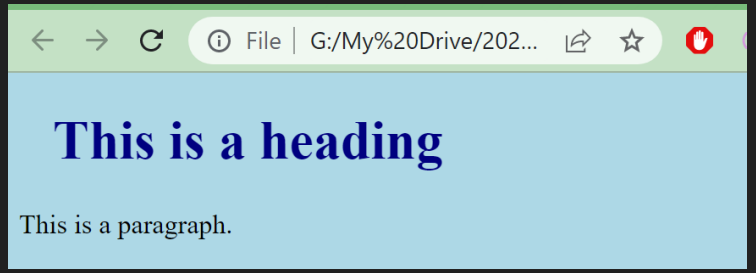


CSS : Embedded

```
<html>
<head>
<style>
        p {         text-align: center;
                    color: red;
                    font-size: 25;
          }
</style>
</head>

<body>
        <p> Every paragraph that use P tag will be affected. </p>
        <p> and also this </p>
</body>
</html>
```



CSS : Linked



sample1.CSS

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

index.html

```
<html>
<head>
    <link rel="stylesheet" type="text/css" href="sample1.css">
</head>
<body>
            <h1>This is a heading</h1>
            <p>This is a paragraph.</p>
</body>
</html>
```

CSS : 2 in 1

ใน sample1.CSS

```
h1 { color: blue; }
```

```
<!DOCTYPE html>
<html>
<head>
<link rel="stylesheet" type="text/css" href="mystyle.css">
<style>
h1 {
  color: orange;
}
</style>
</head>
<body>


</body>
</html>
```

This is a heading

CSS : 2 in 1

ใน sample1.CSS

```
h1 { color: blue; }
```

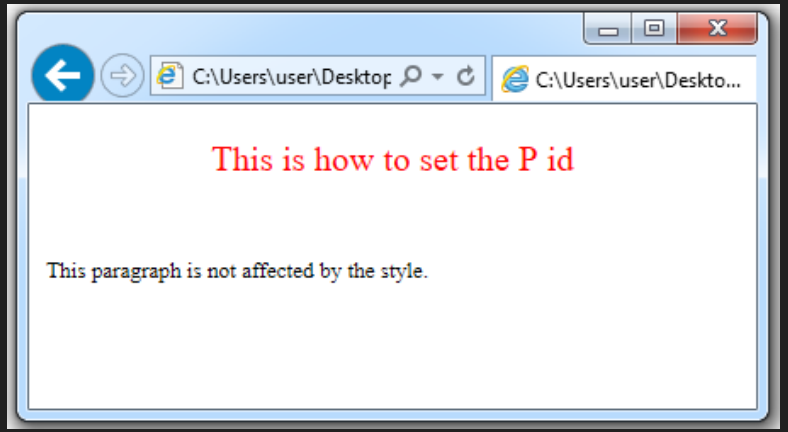
```
<!DOCTYPE html>
<html>
<head>
<style>
h1 {
  color: orange;
}
</style>
<link rel="stylesheet" type="text/css" href="mystyle.css">
</head>
<body>

<h1>This is a heading</h1>


</body>
</html>
```

This is a heading

CSS : id selector

#para1 => id selector

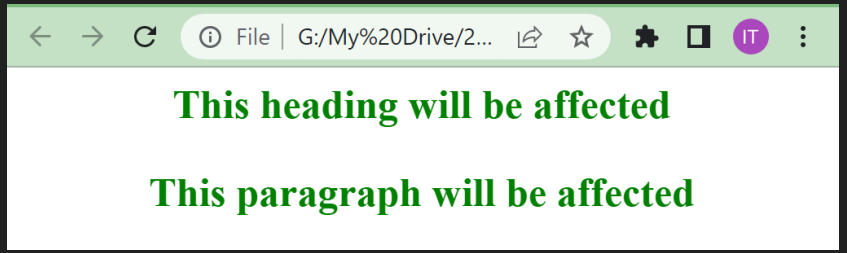
```
<html>
<head>
<style>
        #para1 {    text-align: center;
                    color: red;
                    font-size: 25;
                }

</style>
</head>
<body>

        <p id = “para1”> This is how to set the P id </p>

        <p> This paragraph is not affected by the style </p>

</body>
 </html>
```



CSS : Class selector

.center => class selector

```
<html>
<head> <style>
            .center {     text-align: center;
                                    color: green;
                                    font-size: 25;
                          }

</style> </head> <body>

            <h1 class = “center”> This heading will be affected </p>

            <p class = “center”> This paragraph will be affected  </p>

</body> </html>
```



CSS : Class selector (2)

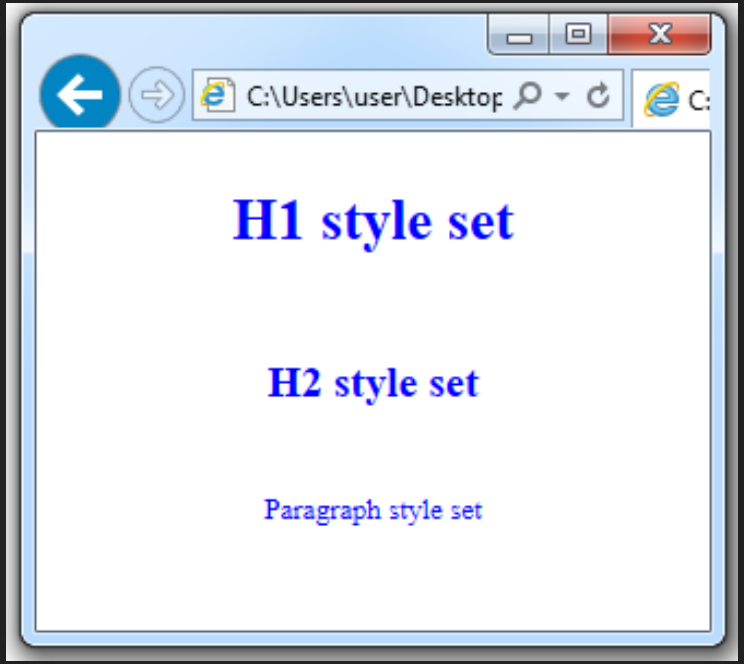
.center => class selector

```
<html>
<head> <style>
            p.center {    text-align: center;
                                    color: red; }
            p.large {     font-size: 300% }

</style> </head> <body>

            <h1 class = “center”> This heading will not be affected </p>

            <p class = “center”> This paragraph will be affected in red-center  </p>

            <p class = “center large”> This paragraph will be affected all </p>

</body> </html>
```

CSS : Group selector

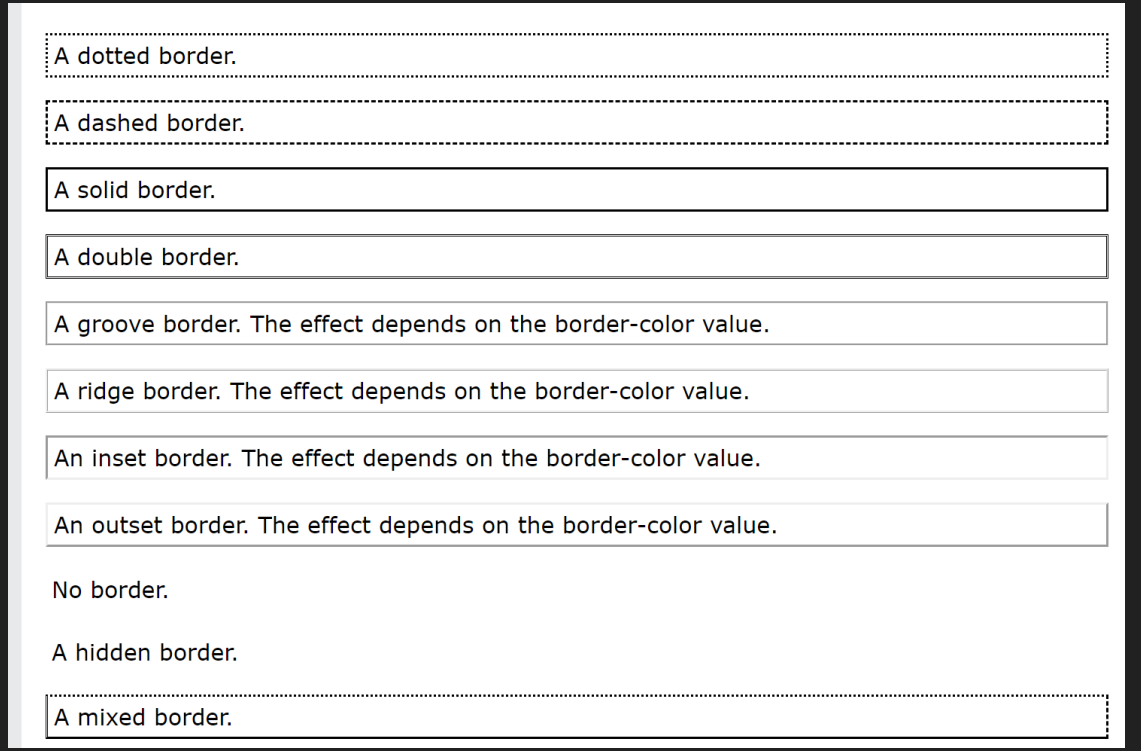
h1, h2, p { } => group selector

```
<html>
<head> <style>
            h1, h2, p {   text-align: center;
                                    color: blue;
                          }

</style> </head> <body>

            <h1> heading 1 </h1>

            <h2> heading 1 </h2>

            <p> paragraph </p>

</body> </html>
```



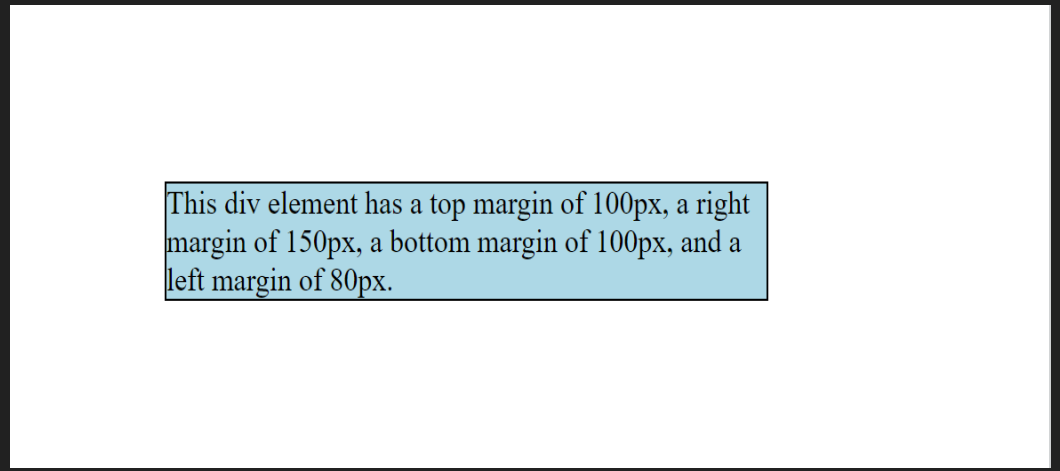
CSS : Border

- p.dotted {border-style: dotted;}
- p.dashed {border-style: dashed;}
- p.solid {border-style: solid;}
- p.double {border-style: double;}
- p.groove {border-style: groove;}
- p.ridge {border-style: ridge;}
- p.inset {border-style: inset;}
- p.outset {border-style: outset;}
- p.none {border-style: none;}
- p.hidden {border-style: hidden;}
- p.mix {border-style: dotted dashed solid double;}



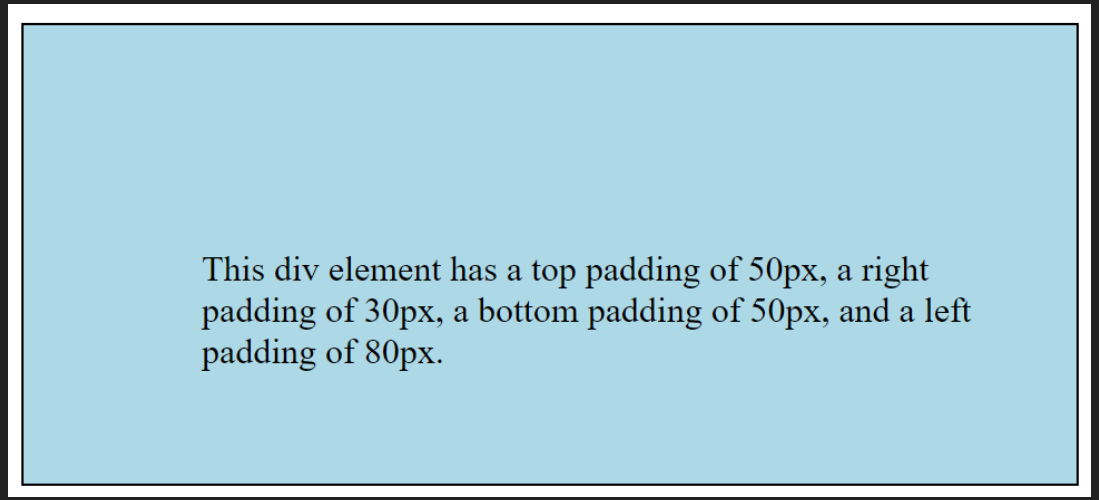
CSS : Margins

```
<style>
div {
  border: 1px solid black;
  margin-top: 100px;
  margin-bottom: 100px;
  margin-right: 150px;
  margin-left: 80px;
  background-color: lightblue;
}
</style>
or top, right, bottom, left
margin: 100px 150px 100px 80px;
```

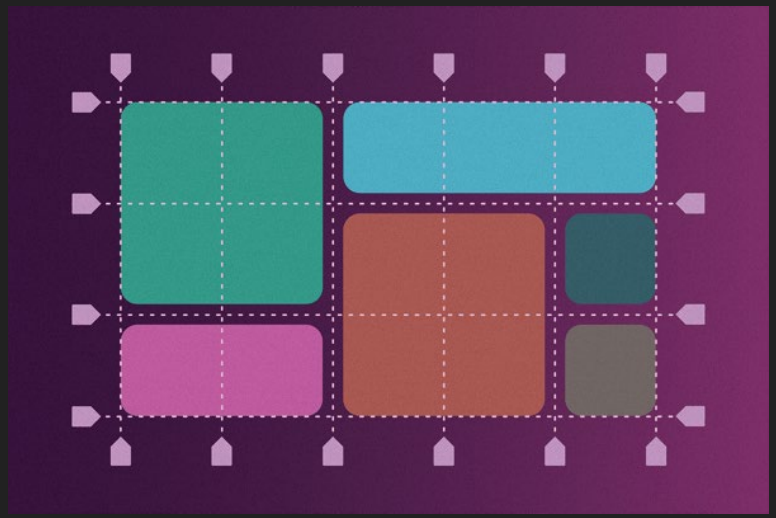


CSS : Padding

```
<style>
div {
  border: 1px solid black;
  background-color: lightblue;
  padding-top: 100px;
  padding-right: 30px;
  padding-bottom: 50px;
  padding-left: 80px;
}
</style>
</head>
<body>
<div>This div element has a top padding of 50px, a right padding of 30px, a bottom padding of 50px, and a left padding of 80px.</div>
or or top, right, bottom, left
 padding: 100px 30px 50px 80px;
```



Grid system



HTML

```html
<div class="grid-container">
  <div class="grid-item1">1</div>
  <div class="grid-item2">2</div>
</div>
```

CSS

```css
.grid-container {
  display: grid;
  grid-template-rows: 100px; 100px;
  grid-template-columns: 100px; 100px; 100px;
  grid-gap: 5px;
}

.grid-item1 {
  background: blue;
  border: black 5px solid;
  grid-column-start: 1;
  grid-column-end: 5;
  grid-row-start: 1;
  grid-row-end: 3;
}
```

CSS : !important

```
<style>
#myid {
  background-color: blue;
}

.myclass {
  background-color: gray;
}

p {
  background-color: red ;
}
</style>
</head>
<body>

<p>This is some text in a paragraph.</p>
<p class="myclass">This is some text in a paragraph.</p>
<p id="myid">This is some text in a paragraph.</p>
```

This is some text in a paragraph.

This is some text in a paragraph.

This is some text in a paragraph.

```
p {
  background-color: red !important;
}
```

This is some text in a paragraph.

This is some text in a paragraph.

This is some text in a paragraph.

Technologies

- HTML
- CSS
- Javascript

Javascript: insert code

There is three ways to execute javascript code in a website:

- Embed the code in the HTML using the <script> tag.

```
<script> /* some code */ </script>
```

- Import a Javascript file using the <script> tag:

```
<script src="file.js" />
```

- Inject the code on an event inside a tag:

```
<button onclick="javascript: /*code*/">press me</button>
```

Javascript: Syntax

Very similar to C++ or Java but much simpler.

```
var my_number = 10; //this is a comment
var my_string = "hello"; /* this is also comment */
var my_array = [10,20,"name",true];
var my_object = { name: "javi", city: "Barcelona" };

function say( str )
{
	for(var i = 0; i < 10; ++i)
		console.log(" say: " + str );
}
```

Javascript example

```
<html>
    <body>
        <h1>This is a title</h1>




    </body>
</html>
```

Javascript API

Javascript comes with a rich API to do many things like:

- Access the DOM (HTML nodes)
- Do HTTP Requests
- Play videos and sounds
- Detect user actions (mouse move, key pressed)
- Launch Threads
- Access the GPU, get the Webcam image, ...

And the API keeps growing with every new update of the standard.

Check the WEB API reference to know more

Javascript: retrieving element

You can get elements from the DOM (HTML tree) using different approaches.

- Crawling the HTML tree (starting from the body, and traversing its children)
- Using a selector (like in CSS)
- Attaching events listeners (calling functions when some actions are performed)

Javascript: crawling the DOM

From javascript you have different variables that you can access to get information about the website:

- document: the DOM information (HTML)
- window: the browser window

The document variable allows to crawl the tree:

```
document.body.children[0] // returns the first node inside body tag
```

Basic command : Document Object

Object.Method(“ ”)

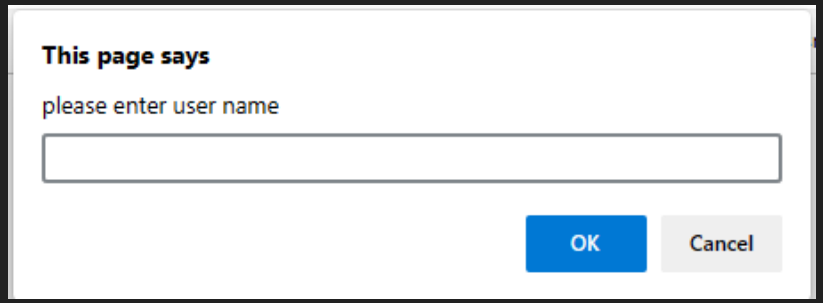
document.write(“Hello !!”);

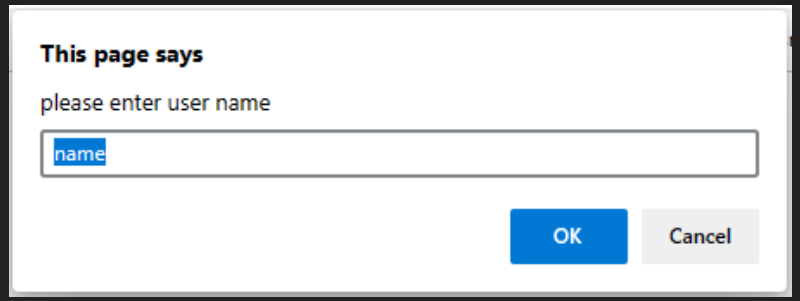
```
<html>
<head>
<title>This is a JavaScript example</title>
</head>
<body>
        <script>
        document.write("<h1> This is my first JavaScript Page</h1>");
        </script>
 </body>
</html>
```

Basic command :Prompt()

prompt (“message”, “value”)

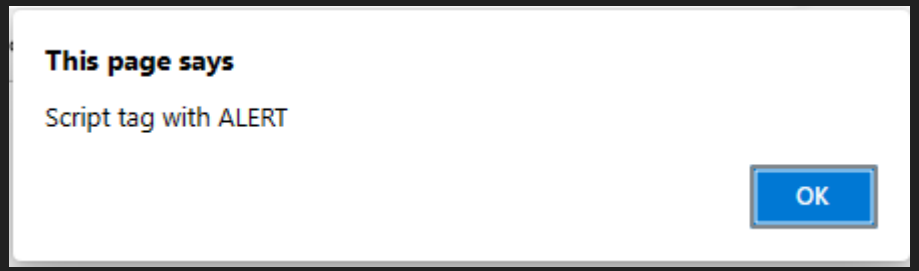
```
<script >
window.prompt("please enter user name")
window.prompt("please enter user name”, “name”)
</script>
```





Basic command :Alert

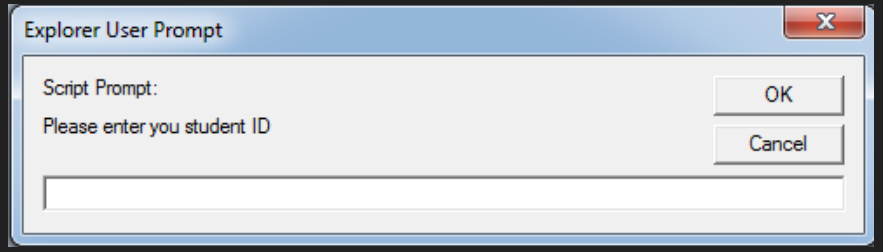
```
<script>
                    window.alert("Script tag with ALERT");
                    alert("Script tag with ALERT2");
</script>
```

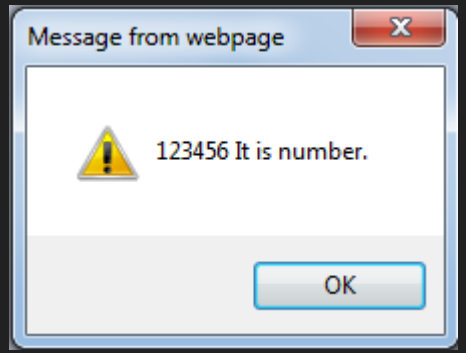


Basic command :isNaN ()

- isNaN(testValue);
- To check the input value is number or not

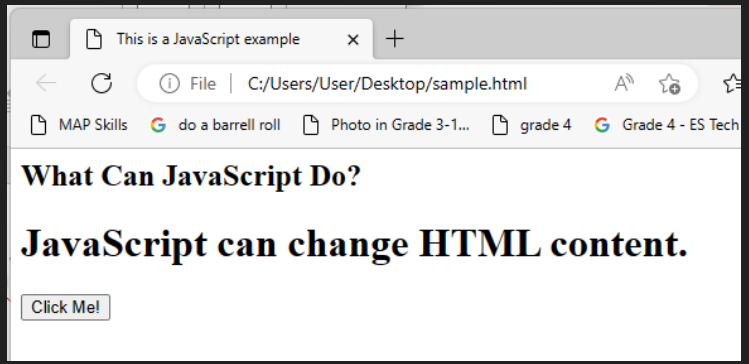
```
<script>
    var x = prompt("Please enter you student ID","");
    if (isNaN(x))
            alert(x+" It is text, not number");
    else
            alert(x+" It is number.");
</script>
```

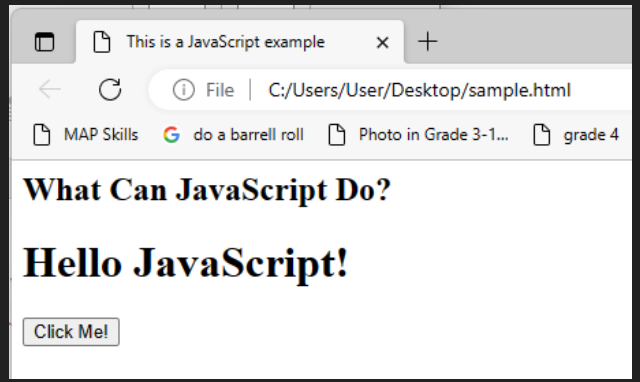




getElementById ()

```
<body>
<h2>What Can JavaScript Do?</h2>
<h1 id="demo">JavaScript can change HTML content.</h1>

<button type="button"
onclick='document.getElementById("demo").innerHTML = "Hello JavaScript!"'>Click Me!</button>

</body>
```



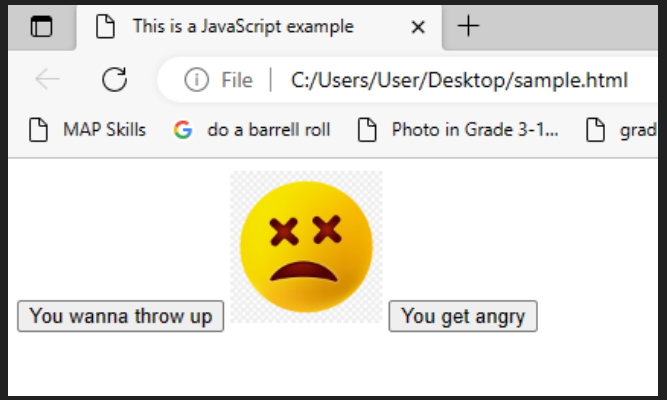


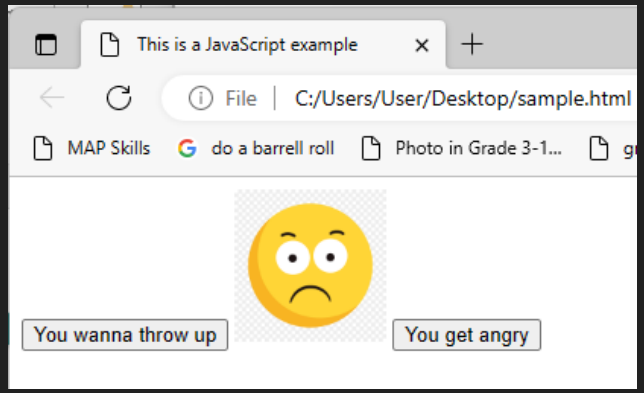
getElementById () => image change

<button onclick="document.getElementById('myImage').src='sad.png'">You wanna throw up</button>

<img id="myImage" src="sad.png" style="width:100px">

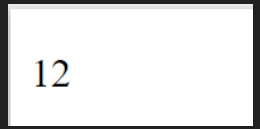
<button onclick="document.getElementById('myImage').src='frown.png'">You get angry</button>





Function

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

<p id="demo"></p>

<script>
function myFunction(p1, p2) {
  return p1 * p2;
}
document.getElementById("demo").innerHTML = myFunction(4, 3);
</script>

</body>
</html>
```



Local variable

```
<p id="demo1"></p>

<p id="demo2"></p>

<script>
myFunction();

function myFunction() {
  let carName = "Volvo";
  document.getElementById("demo1").innerHTML = typeof carName + " " + carName ;
}

document.getElementById("demo2").innerHTML = typeof carName ;

</script>
```

string Volvo

Undefined

Event object

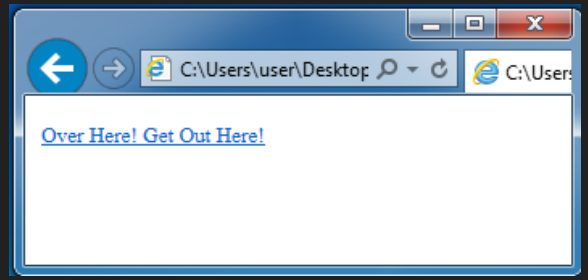
- onClick()

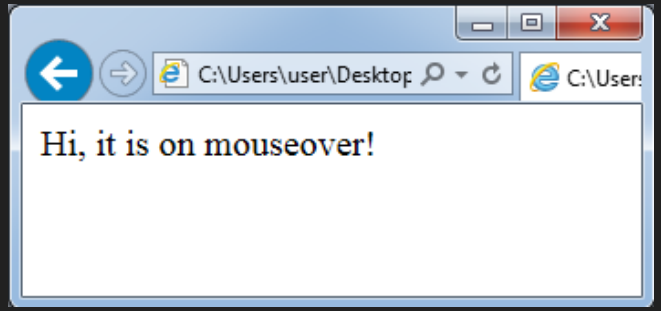
```
<html><body>

<button onclick="myFunction()">Click me</button>

<p id="demo"></p>

<script>
		function myFunction() {
		document.getElementById("demo").innerHTML = "Hello World";}
</script></body></html>
```

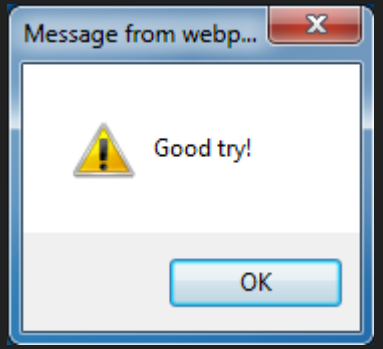
Mouse Event

- onclick
- ondbclick
- onmousedown
- onmousemove
- onmouseover
- onmouseout
- onmouseup

```
<a href="#" onMouseOver="document.write
        ('Hi, nice to see you!')">Over Here!</a>
<a href="#" onMouseOut="alert('Good try!')">
        Get Out Here!</a>
```



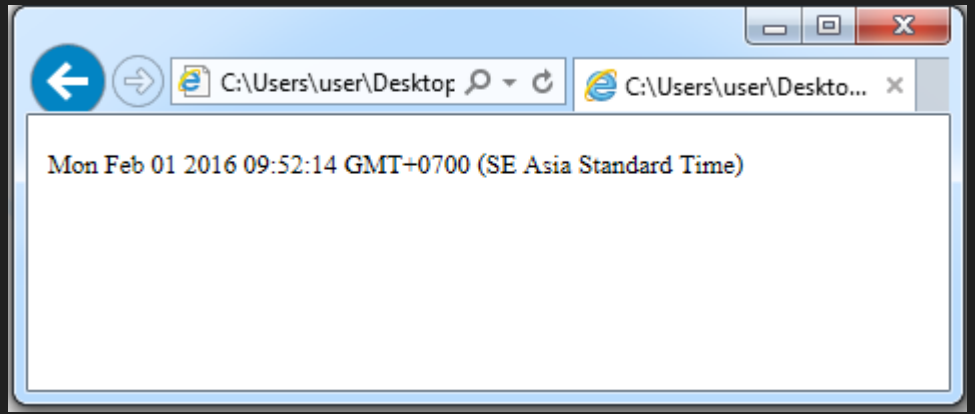




Date time

- getDate()
- getDay()
- getHours()
- getMinutes()
- getSeconds()
- getMonth()
- getYear()
- getTime()

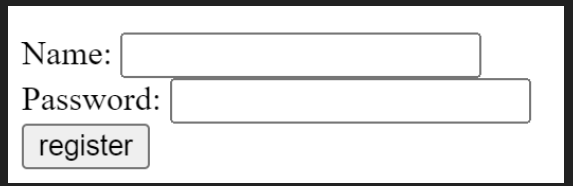
```
<SCRIPT>
        var x= Date();
        document.write (x);
</SCRIPT>
```

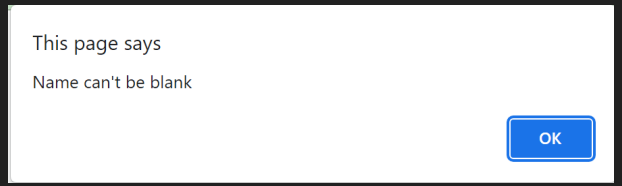


Validate form

```
<html>
<body>
<script>
function validateform(){
var name=document.myform.name.value;
var password=document.myform.password.value;

if (name==null || name==""){
  alert("Name can't be blank");
  return false;
}else if(password.length<6){
  alert("Password must be at least 6 characters long.");
  return false;
  }
}
</script>
```

```
<body>
<form name="myform" method="post"
onsubmit="return validateform()" >
Name: <input type="text" name="name"><br/>
Password: <input type="password"
name="password"><br/>
<input type="submit" value="register">
</form>
</body>
</html>
```





Example of a website

HTML in index.html

```
<link href="style.css" rel="stylesheet"/>
<h1>Welcome</h1>
<p>
     <button>Click me</button>
</p>
<script src="code.js"/>
```

CSS in style.css

```
h1 { color: #333; }
button {
     border: 2px solid #AAA;
     background-color: #555;
}
```

Javascript in code.js

```
//fetch the button from the DOM
var button = document.querySelector("button");

//attach and event when the user clicks it
button.addEventListener("click", myfunction);

//create the function that will be called when the
button is pressed
function myfunction()
{
          //this shows a popup window
          alert("button clicked!");
}
```

Github

- https://git-scm.com/downloads
- cmd => git –version
- git config --global user.email “pikulkaew.ta@kmitl.ac.th"
- git config --global user.name “pikulkaew“
- git config –list
- เข้าเวป github.com=>sign in => new => create repo

optional
git remote –v
git remote rm origin

Github2

- เปิด vscode => create index.html => open terminal
- git init
- git add .
- git commit -m "first commit“
- git branch -M main
- git remote add origin https://github.com/....
- git push -u origin main => auto pop up ให้ sign in ในเวป
- check in github
- add file hello.html
- git add .
- git commit -m "second commit“
- git push -u origin main

Github3

- build html
- go to repo that you’ve just upload your html
- Pages
    - Branch => main=>root =>save
    - pikulkaew.github.io/test => index.html
    - pikulkaew.github.io/test/hello.html => index.html

Deploy html on google cloud

- Create Virtual Machine
- sudo apt-get update
- sudo apt install nginx

- vi test.html
- 34.xx.xx.xx/test.html
- sudo apt-get install git
- git clone https://github.com/...