



Web Programming Spring 2021

#4

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Topics

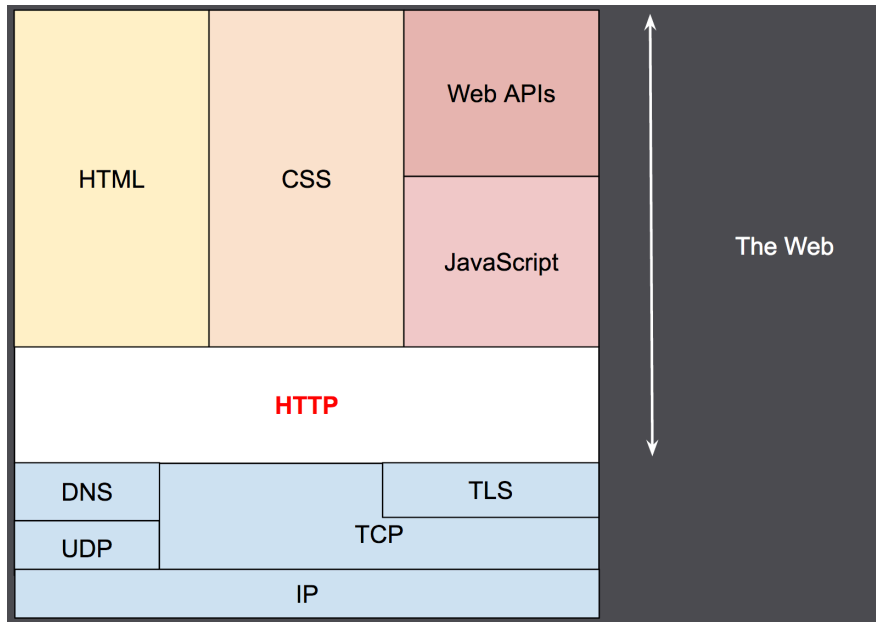
- The concepts of Web Services
- Web data protocols
 - HTTP, WebSocket, WebRTC
 - HTML, CSS
- Web JavaScript programming
- Cookies and sessions
- Web Frontend frameworks
- Web Backend frameworks
- RESTful API design



Google Analytics

Web data protocols

- HTTP, HTTPS
- Web APIs
 - WebSocket
 - WebRTC
- HTML, HTML5
- CSS, CSS3
- Conclusion





Cascading Style Sheets (CSS)

- Why
- CSS ruleset
 - CSS Selector
- element (Box model)
- Positioning
- CSS Grid
- styling





HTML Style

```
<!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%;
}
.menuitem {
  padding: 8px;
  margin-top: 7px;
  border-bottom: 1px solid #f1f1f1;
}
.main {
  float: left;
  width: 60%;
  padding: 0 20px;
  overflow: hidden;
}
```

Problem

Why CSS

```
<!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%;
}
.menuitem {
  padding: 8px;
  margin-top: 7px;
  border-bottom: 1px solid #f1f1f1;
}
.main {
  float: left;
  width: 60%;
  padding: 0 20px;
  overflow: hidden;
}
```

Problem
散落在各個html檔

Style Sheet Language

- 一種風格頁面語言 (style sheet language)
- style.css

```
<!DOCTYPE html>
<html>
<head>
  <link rel="stylesheet" href="styles.css">
</head>
<body>

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

</body>
</html>
```

This is a heading

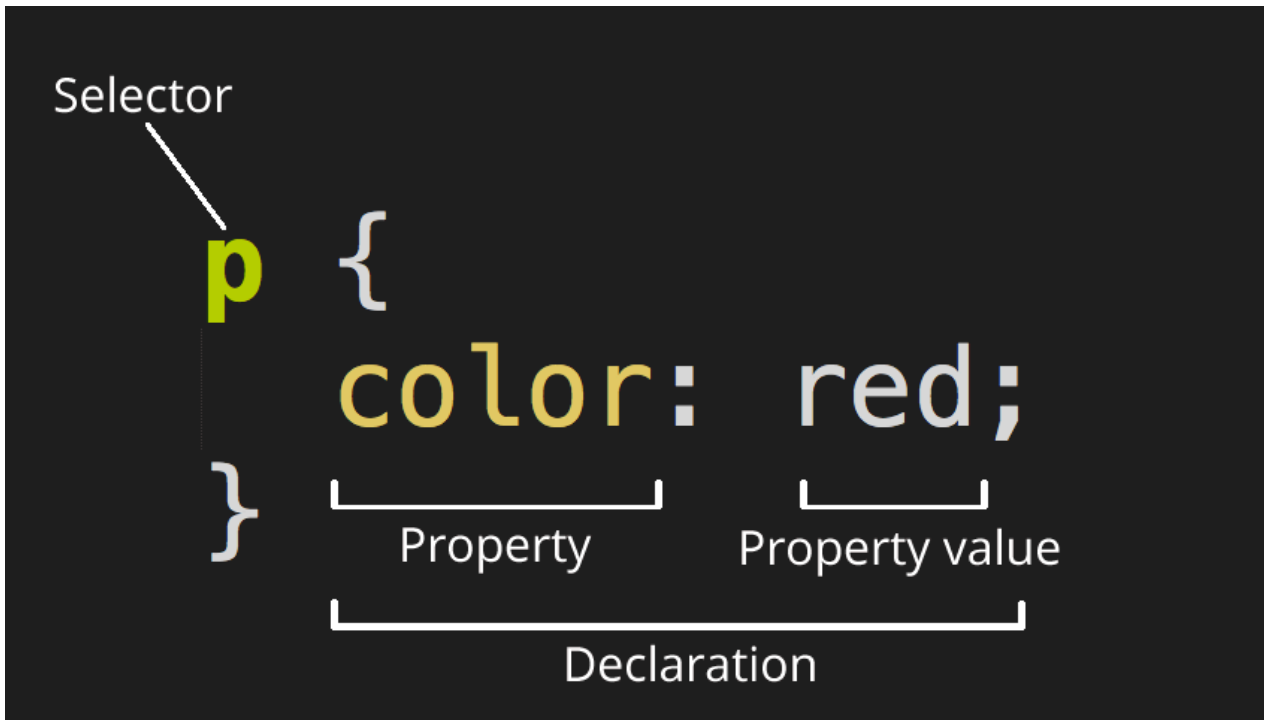
This is a paragraph.



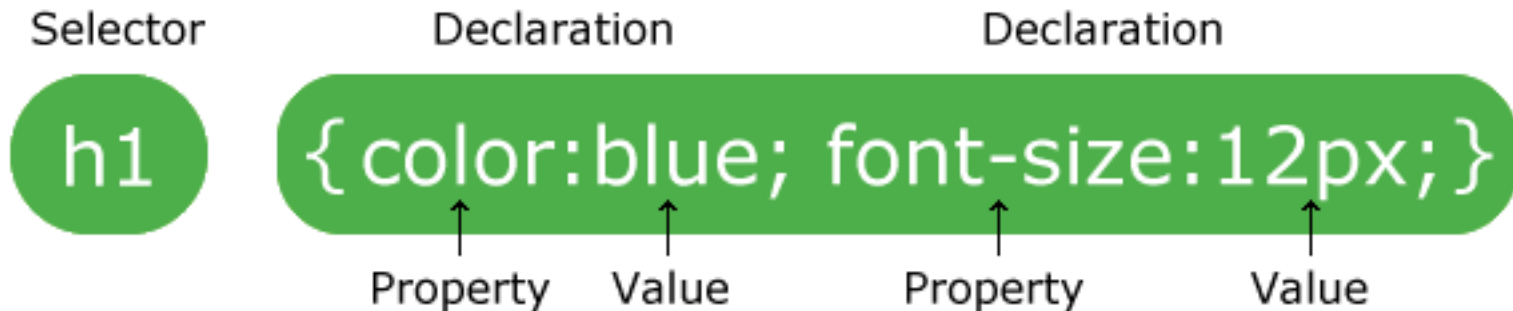
style.css

```
body {  
  background-color: powderblue;  
}  
h1 {  
  color: blue;  
}  
p {  
  color: red;  
}
```


CSS ruleset



CSS ruleset





CSS Selector

- **Simple selectors** (select elements based on name, id, class)
- Combinator selectors (select elements based on a specific relationship between them)
- **Pseudo-class selectors** (select elements based on a certain state)
- Pseudo-elements selectors (select and style a part of an element)
- Attribute selectors (select elements based on an attribute or attribute value)

CSS :

```
* {  
    background-color: skyblue;  
}
```

HTML :

```
<h6>h6</h6>  
  
<div>div</div>  
  
<p>p</p>
```

h6

div

p



通用選擇器 *



```
div {  
  background-color: skyblue;  
}
```

HTML :

```
<h6>h6</h6>  
  
<div>div</div>  
  
<p>p</p>
```

h6

div

p

選擇器 **element**

CSS :

```
#idname {  
    background-color: skyblue;  
}
```



HTML :

```
<div>div</div>  
  
<div id="idname">#idname</div>  
  
<div>div</div>
```

選擇器 #idname

div

#idname

div

CSS :

```
.classname {  
    background-color: skyblue;  
}
```



HTML :

```
<div class="classname">.classname</div>  
  
<div class="foo classname bar">.foo.classname.bar</div>  
  
<div>div</div>
```

HTML

Copy

選擇器 .classname

.classname

.foo.classname.bar

div

CSS :

```
[title] {  
    background-color: skyblue;  
}
```



HTML :

屬性選擇器

```
<div>沒有 title 屬性</div>  
  
<div title="one">title="one"</div>  
  
<div title="two">title="two"</div>
```

沒有 title 屬

title="one"

title="two"



CSS Links

This is a link

Note: a: hover MUST come after a: link and a: visited in the CSS definition in order to be effective.

Note: a: active MUST come after a: hover in the CSS definition in order to be effective.

```
<!DOCTYPE html>
<html>
<head>
<style>
/* unvisited link */
a:link {
  color: red;
}

/* visited link */
a:visited {
  color: green;
}

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

/* selected link */
a:active {
  color: blue;
}
</style>
</head>
<body>

<h2>CSS Links</h2>
<p><b><a href="default.asp" target="_blank">This is a
link</a></b></p>
<p><b>Note:</b> a: hover MUST come after a: link and
a: visited in the CSS definition in order to be effective.
</p>
<p><b>Note:</b> a: active MUST come after a: hover in the
CSS definition in order to be effective.</p>

</body>
</html>
```

CSS Pseudo-classes



```
<!DOCTYPE html>
<html>
<head>
<style>
p::first-letter {
  color: #ff0000;
  font-size: xx-large;
}
</style>
</head>
<body>

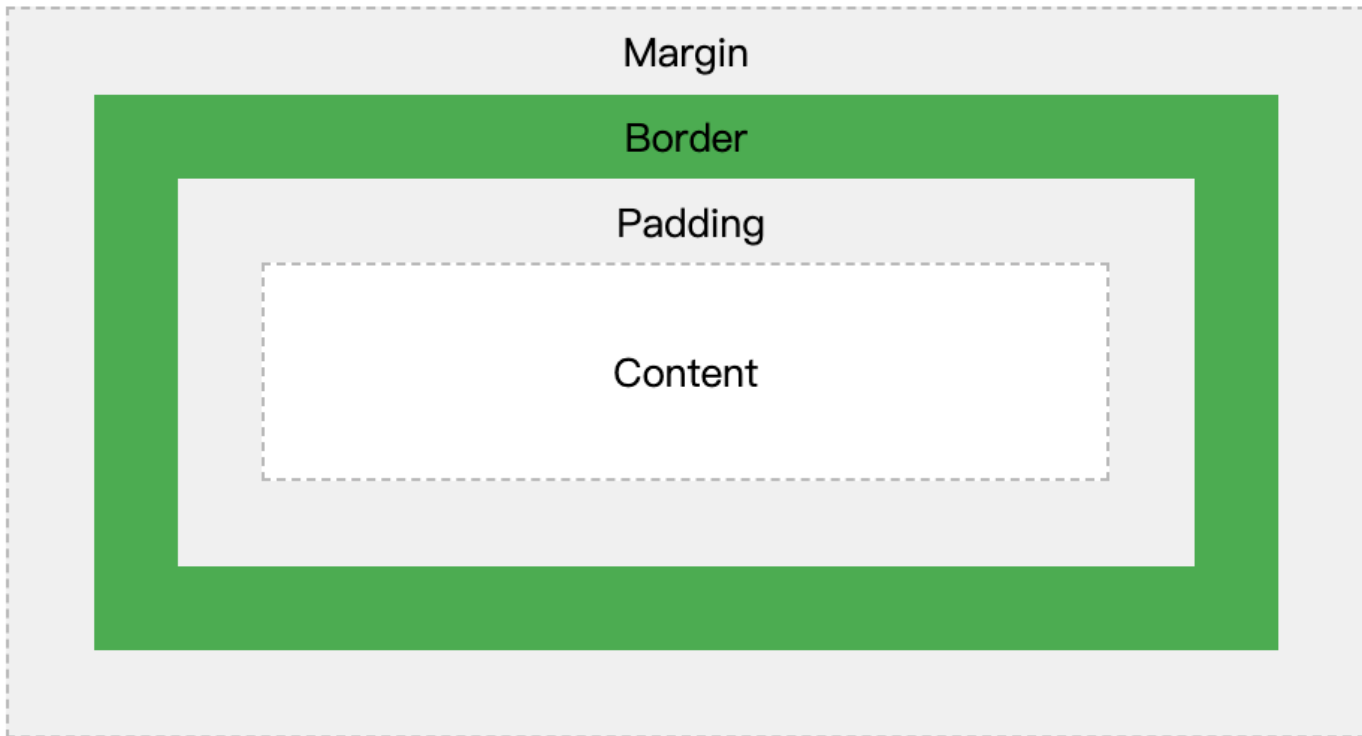
<p>You can use the ::first-letter pseudo-element to
add a special effect to the first character of a text!
</p>

</body>
</html>
```

You can use the `::first-letter` pseudo-element to add a special effect to the first character of a text!

CSS Pseudo-elements

CSS Box Model



```
<!DOCTYPE html>
<html>
<head>
<style>
div {
  background-color: lightgrey;
  width: 300px;
  border: 15px solid green;
  padding: 50px;
  margin: 20px;
}
</style>
</head>
<body>

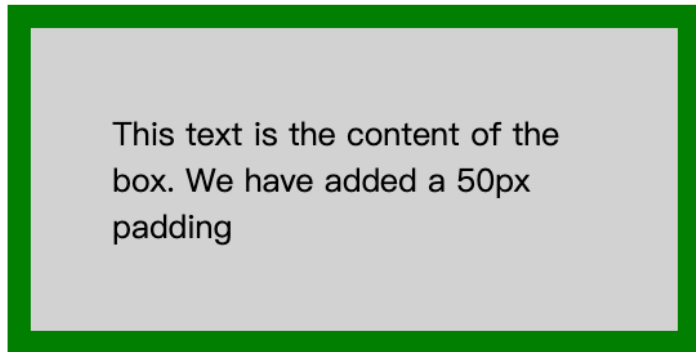
<h2>Demonstrating the Box Model</h2>
|
<p>The CSS box model is essentially a box that wraps around
every HTML element. It consists of: borders, padding,
margins, and the actual content.</p>

<div>This text is the content of the box. We have added a
50px padding</div>

</body>
</html>
```

Demonstrating the Box Model

The CSS box model is essentially a box that wraps around every HTML element. It consists of: borders, padding, margins, and the actual content.





Calculate the total width:

```
div {  
  width: 320px;  
  padding: 10px;  
  border: 5px solid gray;  
  margin: 0;  
}
```

320px (width)
+ 20px (left + right padding)
+ 10px (left + right border)
+ 0px (left + right margin)
= 350px

CSS Box Model properties

Margin

Border

Padding

Content

```
div {  
  padding-top: 50px;  
  padding-right: 30px;  
  padding-bottom: 50px;  
  padding-left: 80px;  
}
```



CSS Layout - The position Property

- static
 - relative
 - fixed
 - absolute
 - sticky
-
- **top, right, bottom, left**
 - **left: 30px;**



Position:static

```
<!DOCTYPE html>
<html>
<head>
<style>
div.static {
  position: static;
  border: 3px solid #73AD21;
}
</style>
</head>
<body>

<h2>position: static;</h2>

<p>An element with position: static; is not positioned in any
special way; it is
always positioned according to the normal flow of the page:
</p>

<div class="static">
  This div element has position: static;
</div>

</body>
</html>
```

position: static;

An element with position: static; is not positioned in any special way; it is always positioned according to the normal flow of the page:

This div element has position: static;



```
<!DOCTYPE html>
<html>
<head>
<style>
div.relative {
  position: relative;
  left: 30px;
  border: 3px solid #73AD21;
}
</style>
</head>
<body>

<h2>position: relative;</h2>

<p>An element with position: relative; is positioned
relative to its normal position:</p>

<div class="relative">
This div element has position: relative;
</div>

</body>
</html>
```

position: relative;

An element with position: relative; is positioned relative to its normal position:

This div element has position: relative;



```
<!DOCTYPE html>
<html>
<head>
<style>
div.fixed {
  position: fixed;
  top: 200px;
  left: 100px;
  width: 300px;
  border: 3px solid #73AD21;
}
</style>
</head>
<body>

<h2>position: fixed;</h2>

<p>An element with position: fixed; is positioned relative to
the viewport, which means it always stays in the same place even
if the page is scrolled:</p>

<div class="fixed">
This div element has position: fixed;
</div>

</body>
</html>
```

position: fixed;

An element with position: fixed; is positioned relative to the viewport, which means it always stays in the same place even if the page is scrolled:

This div element has position: fixed;



position: fixed;

An element with position: fixed; is positioned relative to the viewport, which means it always stays in the same place even if the page is scrolled. This div element has position: fixed;

```
<!DOCTYPE html>
<html>
<head>
<style>
div.fixed {
  position: fixed;
  top: 200px;
  left: 100px;
  width: 300px;
  border: 3px solid #73AD21;
}
</style>
</head>
<body>

<h2>position: fixed;</h2>

<p>An element with position: fixed; is positioned relative to the viewport, which means
it always stays in the same place even if the page is scrolled:</p>

<div class="fixed">
This div element has position: fixed;
</div>

</body>
</html>
```

```
<!DOCTYPE html>
<html>
<head>
<style>
div.relative {
  position: relative;
  width: 400px;
  height: 200px;
  border: 3px solid #73AD21;
}
```

```
div.absolute {
  position: absolute;
  top: 80px;
  right: 0;
  width: 200px;
  height: 100px;
  border: 3px solid #73AD21;
}
</style>
</head>
<body>
```

```
<h2>position: absolute;</h2>
```

```
<p>An element with position: absolute; is positioned
relative to the nearest positioned ancestor (instead
of positioned relative to the viewport, like fixed):
</p>
```

```
<div class="relative">This div element has position:
relative;
  <div class="absolute">This div element has
position: absolute;</div>
</div>
```

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

position: absolute;

An element with position: absolute; is positioned relative to the nearest positioned ancestor (instead of positioned relative to the viewport, like fixed):

This div element has position: relative;

This div element has
position: absolute;



```
div.sticky {
  position: -webkit-sticky; /* Safari */
  position: sticky;
  top: 0;
  background-color: green;
  border: 2px solid #4CAF50;
}
```

Try to scroll inside this frame to understand how sticky positioning works.

I am sticky!

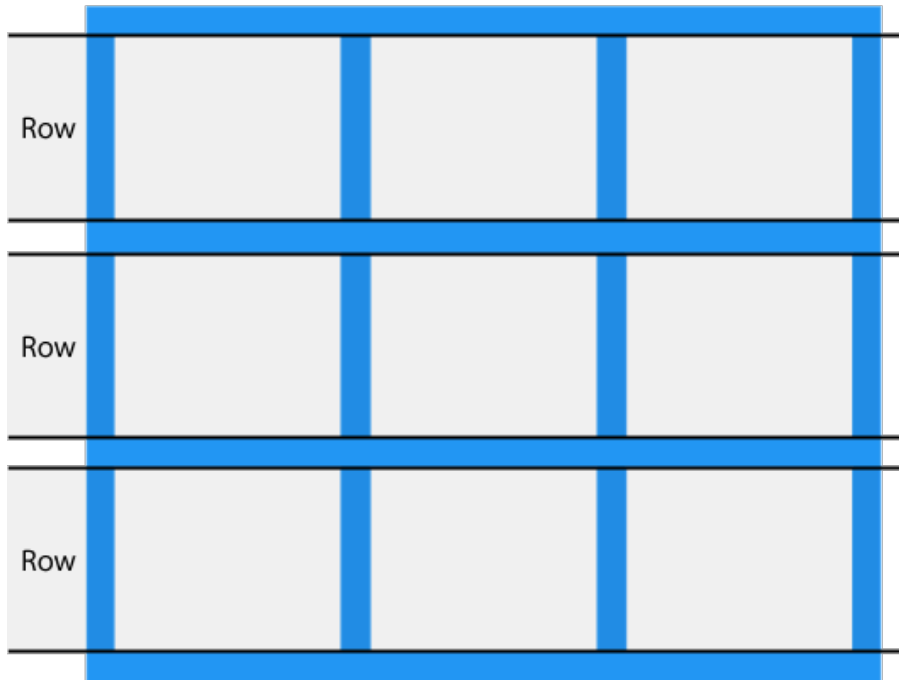
Lorem ipsum dolor sit amet, illum definitiones no quo, maluisset concludaturque et eum, altera fabulas ut quo. Atqui causae gloriatur ius te, id agam omnis evertitur eum. Affert laboramus repudiandae nec et. Inciderint efficiantur his ad. Eum no molestiae



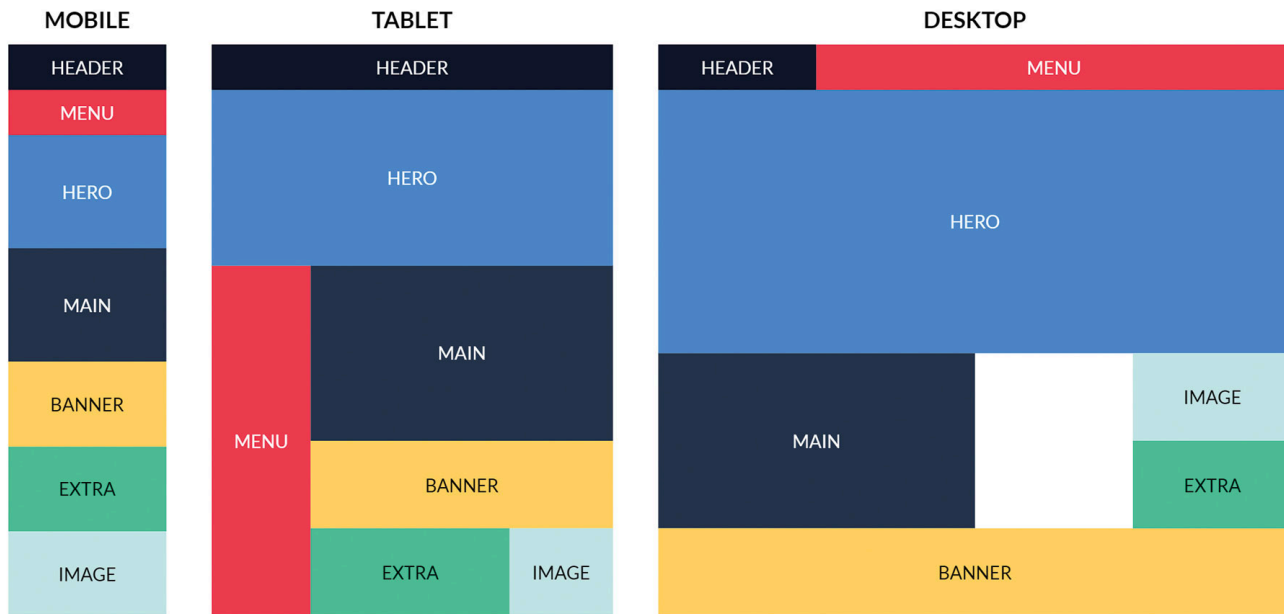
I am sticky!

Lorem ipsum dolor sit amet, illum definitiones no quo, maluisset concludaturque et eum, altera fabulas ut quo. Atqui causae gloriatur ius te, id agam omnis evertitur eum. Affert laboramus repudiandae nec et. Inciderint efficiantur his ad. Eum no molestiae voluptatibus.

CSS Grid

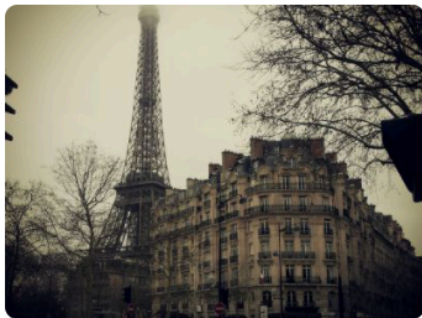
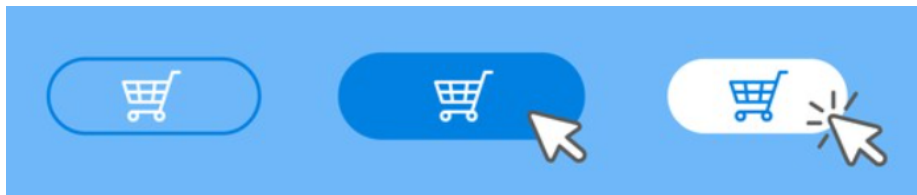


CSS Grid + RWD



CSS Advanced

- Web Fonts
- Animations
- Styling Images



CSS styling



- Bootstrap
 - 讓你更容易創造自適應(RWD, Responsive Web Design)網頁
 - open-source
- Google Material Design



Conclusion

- Why
- CSS ruleset
- CSS Selector
- element (Box model)
- Positioning
- styling





Thanks!

Open for any questions

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