PRESENTATION ON THE WEB: CSS

INFO20002: Foundations of Informatics

March, 2016

CASCADING STYLE SHEETS (CSS)

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- Declarative language for specifying HTML presentation

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- Declarative language for specifying HTML presentation
- Separates content from presentation

CASCADING STYLE SHEETS (CSS)

- Declarative language for specifying HTML presentation
- Separates content from presentation
- Reduces the amount of effort required to style a document or web site

THREE APPROACHES TO STYLING

- Inline - specify `style` attribute on each element
- Embedded - specify styles in the `head` of the document
- Linked or Imported - load styles from one or more external files

INLINE STYLES

- HTML elements have a variety of properties that control how they are rendered to the screen
- The `style` attribute can be used to specify the properties of a single element

```
<div>Before!</div>
```

Before!

```
<div style="border:1px solid red;padding:10px;">After!</div>
```

EMBEDDED STYLES

- Specified as rules that tell the browser what styles to apply and to which elements
- Declared in a `style` block inside the document `head`

```
<!DOCTYPE html>
<html>
    <head>
        <style>
            h1 { text-align: center }
        </style>
    </head>
    <body>
        <h1>Hello World!</h1>
    </body>
</html>
```

STYLE RULE

```
selector {
    property: value;
    property: value;
}
```

```
h1 {
    color: red;
    padding: 10px;
}
```

SELECTORS

"Selectors" in Cascading Style Sheets Level 2 Revision 1 (CSS 2.1) Specification. https://www.w3.org/TR/CSS2/selector.html.

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- Type, Universal

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- ID
- Attribute, Class

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SELECTORS

- Type, Universal
- ID
- Attribute, Class
- Pseudo-class

"Selectors" in Cascading Style Sheets Level 2 Revision 1 (CSS 2.1) Specification. https://www.w3.org/TR/CSS2/selector.html.

SELECTORS

- Type, Universal
- ID
- Attribute, Class
- Pseudo-class
- Adjacent, Child, Descendent

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TYPE SELECTORS

Define style rules for a particular type of HTML element.

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```
body {
    background-color: black;
    color: white;
}
```

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Define style rules for a particular type of HTML element.

```
body {
    background-color: black;
    color: white;
}

div {
    border: 1px dashed blue;
    padding: 5px;
}
```

UNIVERSAL SELECTOR

Applies a style to all HTML elements.

```
* {
    font-family: Helvetica, sans-serif;
}
```

ID SELECTORS

ID SELECTORS

- Elements can be assigned a unique identifier using the `id` attribute

ID SELECTORS

- Elements can be assigned a unique identifier using the `id` attribute
- The ID selector is the element ID prefixed with a # (hash) character

A `div` element with an `id` attribute value of `summary`.

```
<div id="summary">...</div>
```

A `div` element with an `id` attribute value of `summary`.

```
<div id="summary">...</div>
```

A style that targets the `summary` element.

```
#summary {
    color: blue;
}
```

ATTRIBUTE SELECTOR

ATTRIBUTE SELECTOR

- Selects elements that have a property setting or have a property setting of a particular value

```
<form method="post" action="http://localhost/cgi-bin/contact">
    <input type="text" name="name">
    <input type="email" name="email">
</form>
```

```
<form method="post" action="http://localhost/cgi-bin/contact">
    <input type="text" name="name">
    <input type="email" name="email">
</form>

input[type="text"] { background-color:wheat }
```

```
<form method="post" action="http://localhost/cgi-bin/contact">
    <input type="text" name="name">
    <input type="email" name="email">
</form>

input[type="text"] { background-color:wheat }

input[type="email"] { background-color:yellow }
```

CLASS SELECTOR

CLASS SELECTOR

- HTML elements have an attribute called `class`

CLASS SELECTOR

- HTML elements have an attribute called `class`
- Elements can be assigned zero or more classes by adding the CSS class name to its class attribute

```
<span class='big'>Big</span> text.
```

```
<span class='big'>Big</span> text.
```

```
span.big { font-size: 1.5em; }
```

```
<span class='big'>Big</span> text.
```

```
span.big { font-size: 1.5em; }
```

```
*.big { font-size: 1.5em; }
```

```
<span class='big'>Big</span> text.
```

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span.big { font-size: 1.5em; }
```

```
*.big { font-size: 1.5em; }
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<span class='big'>Big</span> text.
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```
span.big { font-size: 1.5em; }
```

```
*.big { font-size: 1.5em; }
```

```
.big { font-size: 1.5em; }
```

Big text.

PSEUDO-CLASSES

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- HTML elements may have one or more states associated with them

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- HTML elements may have one or more states associated with them
- Pseudo-class selectors enable selection of elements in a specified state

```
selector:pseudo-class {
    property: value;
}
```

```
a:link { color: #ff0000; }    /* unvisited link  */
a:visited { color: #00ff00; } /* visited link    */
a:hover { color: #ff00ff; }   /* mouse over link */
a:active { color: #0000ff; }  /* selected link   */
```

```
<a class="red" href="page.html">Link to page</a>
```

```
<a class="red" href="page.html">Link to page</a>

a.red:visited { color: #ff0000; }
```

DESCENDENT SELECTOR

Select elements that are a child of another element

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Select elements that are a child of another element

```
selector1 selector2 { property: value }
```

CHILD SELECTOR

Select the first child matching the selector

CHILD SELECTOR

Select the first child matching the selector

```
selector1 > selector2 { property: value }
```

ADJACENT SELECTOR OR NEXT-SIBLING SELECTOR

Select the next element matching the selector

"Adjacent sibling selectors" in CSS Selectors. Retrieved from https://developer.mozilla.org/en/docs/Web/CSS/Adjacent_sibling_selectors

ADJACENT SELECTOR OR NEXT-SIBLING SELECTOR

Select the next element matching the selector

```
previousElement + nextElement { property: value }
```

"Adjacent sibling selectors" in CSS Selectors. Retrieved from https://developer.mozilla.org/en/docs/Web/CSS/Adjacent_sibling_selectors

ADJACENT SELECTOR OR NEXT-SIBLING SELECTOR

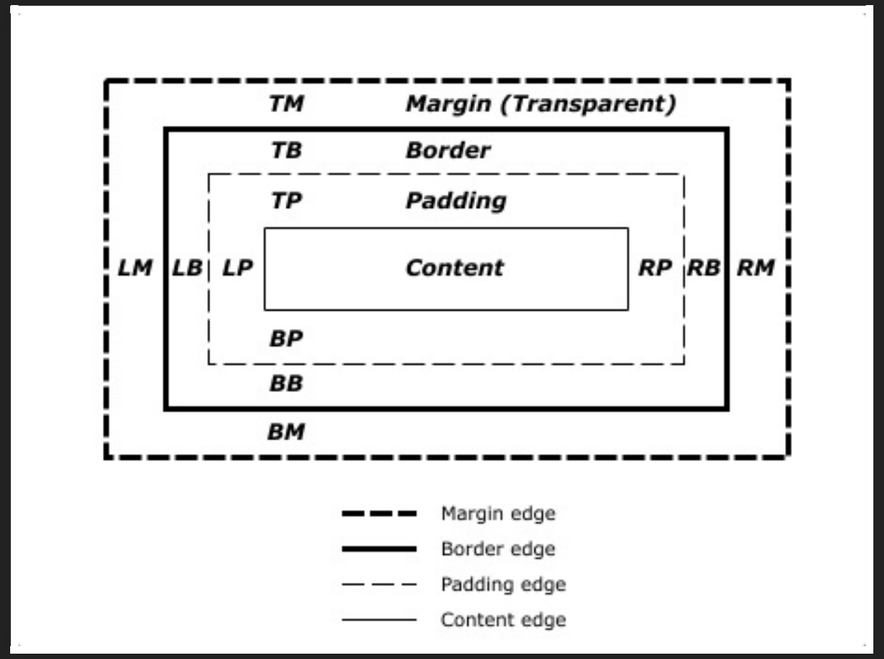
Select the next element matching the selector

```
previousElement + nextElement { property: value }
```

```
img + span.caption { font-style: italic; }
```

"Adjacent sibling selectors" in CSS Selectors. Retrieved from https://developer.mozilla.org/en/docs/Web/CSS/Adjacent_sibling_selectors

THE CSS BOX MODEL



"Box model" in Cascading Style Sheets Level 2 Revision 1 (CSS 2.1) Specification. Retrieved from https://www.w3.org/TR/CSS2/box.html.

MARGIN & PADDING

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```
.spaced {
    margin: 10px;
    padding: 5px;
}
```

MARGIN & PADDING

```
.spaced {
    margin: 10px;
    padding: 5px;
}
```

```
.spaced {
    margin-top: 10px;
    padding-left: 5px;
}
```

You can concisely specify each side in order of top, right, bottom, left:

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```
.spaced {
    margin: 10px 9px 8px 7px;
    padding: 5px 4px 3px 2px;
}
```

BORDER

BORDER

Has properties of thickness, line style and line colour.

```
.outline {
    border: 1px solid orange;
}
```

```
.outline {
    border: 1px solid orange;
}
```

```
.outline {
    border-bottom: 1px dashed orange;
}
```

```
.outline {
    border-bottom: 1px dashed orange;
}
```

Orange border

HEIGHT & WIDTH

"EM, PX, PT, CM, IN ..." in Web Style Sheets, CSS tips & tricks. Retrieved from https://www.w3.org/Style/Examples/007/units.en.html.

HEIGHT & WIDTH

- Specified in either absolute or relative lengths

"EM, PX, PT, CM, IN ..." in Web Style Sheets, CSS tips & tricks. Retrieved from https://www.w3.org/Style/Examples/007/units.en.html.

HEIGHT & WIDTH

- Specified in either absolute or relative lengths
- Absolute lengths are specified in pixels (px)

"EM, PX, PT, CM, IN ..." in Web Style Sheets, CSS tips & tricks. Retrieved from https://www.w3.org/Style/Examples/007/units.en.html.

HEIGHT & WIDTH

- Specified in either absolute or relative lengths
- Absolute lengths are specified in pixels (px)
- Relative lengths are specified as a percentage of the parent element's dimension

"EM, PX, PT, CM, IN ..." in Web Style Sheets, CSS tips & tricks. Retrieved from https://www.w3.org/Style/Examples/007/units.en.html.

RELATIVE DIMENSIONS

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```
.child {
    width: 50%;
}
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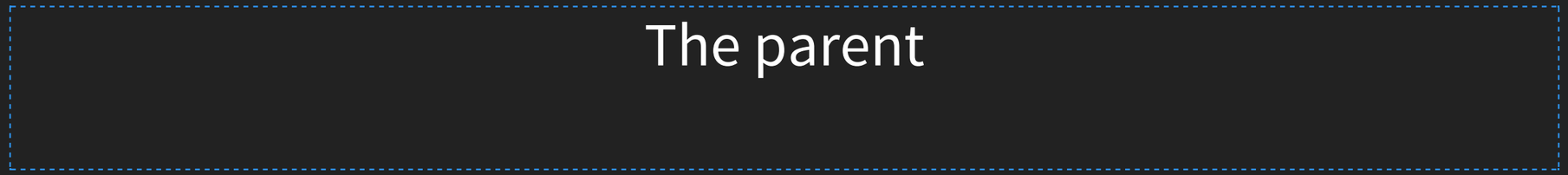
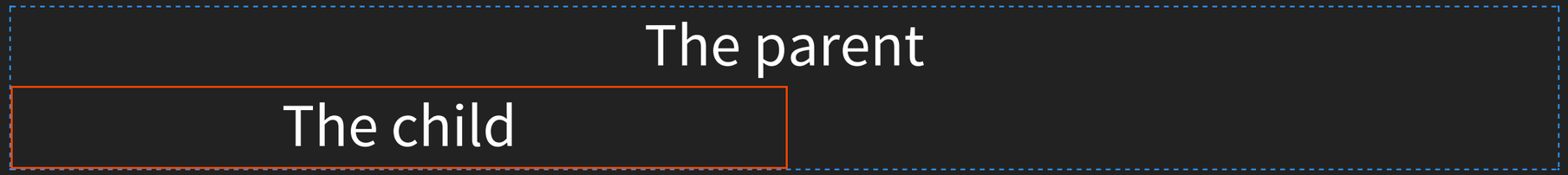


RELATIVE DIMENSIONS

```
.child {
    width: 50%;
}
```



ABSOLUTE DIMENSIONS

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```
.child {
    height: 80px;
    width: 400px;
}
```

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    height: 80px;
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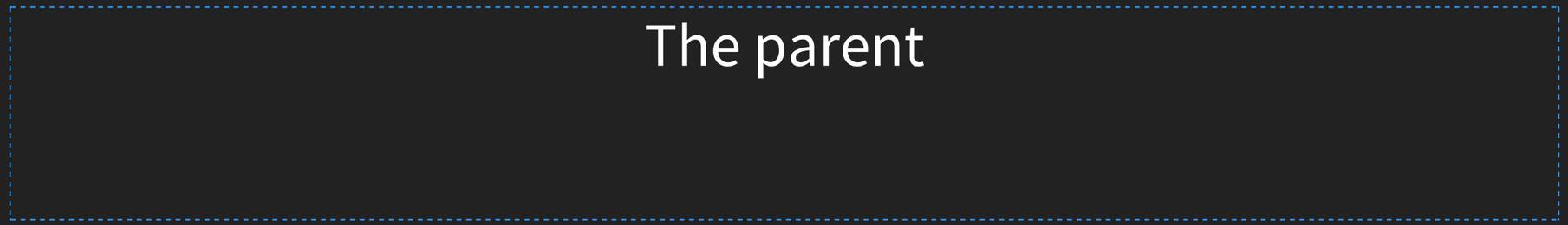

ABSOLUTE DIMENSIONS

```
.child {
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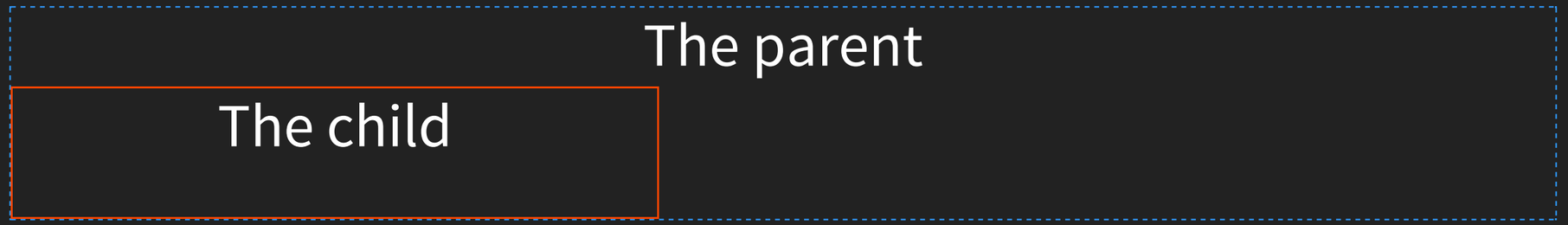

POSITION

- Relative - relative to the top left corner of parent
- Absolute - document coordinate position
- Fixed - screen coordinate position

ABSOLUTE POSITION

```
.child {
    position: absolute;
    top: 100px;
    left: 100px;
    height: 100px;
    width: 100px;
    background-color: #2E93F2;
}
```

FIXED POSITION

```
.child {
    position: fixed;
    top: 100px;
    left: 100px;
    height: 100px;
    width: 100px;
    background-color: #2E93F2;
}
```

COLOUR

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- Named - `red`, `green`, `blue`, ...

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- Hexadecimal value - `#10FFA9`

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- Hexadecimal value - `#10FFA9`
- RGB decimal value - `rgb(255, 255, 255)`

COLOUR

- Named - `red`, `green`, `blue`, ...
- Hexadecimal value - `#10FFA9`
- RGB decimal value - `rgb(255, 255, 255)`
- RGBA decimal value - `rgba(255, 255, 255, 0.5)`

FONTS

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- Specify the font using the `font-family` attribute

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- Specify the font using the `font-family` attribute

```
body {
    font-family: 'Helvetica Neue', Helvetica, sans-serif;
}
```

GENERIC AND FALLBACKS

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- The browser predefines a number of generic fonts: `serif`, `sans-serif`, `monospace`, ...

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- The actual font used for each of the above depends on the OS, so you will get varying results
- If multiple fonts are specified, the browser will fall back to the next font in the list if the prior font is not found

```
body { font-family: 'Helvetica Neue', Helvetica, Arial, sans-serif; }
```

LINKING FONTS

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```
<link href='https://fonts.googleapis.com/css?family=Raleway' rel='stylesheet' type='
```

LINKING FONTS

```
<link href='https://fonts.googleapis.com/css?family=Raleway' rel='stylesheet' type='
```

```
font-family: 'Raleway', sans-serif;
```

IMPORTED STYLES

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- Styles can be imported from an external file using the `link`

IMPORTED STYLES

- Styles can be imported from an external file using the `link`
- Styles are applied in the order they are loaded

```
<!DOCTYPE html>
    <head>
        <link type="text/css" href="styles.css" rel="stylesheet">
    </head>
    <body>
        <h1>Page Title</h1>
    </body>
</html>
```

MEDIA QUERIES

"Use CSS media queries for responsiveness" in Web Fundamentals. Retrieved from https://developers.google.com/web/fundamentals/design-and-ui/responsive/fundamentals/use-media-queries?hl=en.

MEDIA QUERIES

- Media queries are filters that enable the browser to change styles depending on the device rendering the document or its state

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MEDIA QUERIES

- Media queries are filters that enable the browser to change styles depending on the device rendering the document or its state
- Queries can be specified either on the stylesheet link or in the CSS itself

"Use CSS media queries for responsiveness" in Web Fundamentals. Retrieved from https://developers.google.com/web/fundamentals/design-and-ui/responsive/fundamentals/use-media-queries?hl=en.

```
<link rel="stylesheet" type="text/css" media="screen" href="screen.css">
```

```
<link rel="stylesheet" type="text/css" media="screen" href="screen.css">

<link rel="stylesheet" type="text/css" media="handheld" href="mobile.css">
```

```
<link rel="stylesheet" type="text/css" media="screen" href="screen.css">

<link rel="stylesheet" type="text/css" media="handheld" href="mobile.css">

<link rel="stylesheet" type="text/css" media="print" href="print.css">
```

```
@media (min-width: 500px) and (max-width: 600px) {
    h1 {
        color: fuchsia;
    }

    .desc:after {
        content:" In fact, it's between 500px and 600px wide.";
    }
}
```

CASCADING STYLES

"Inheritance" in Cascading Style Sheets Level 2 Revision 1 (CSS 2.1) Specification. Retrieved from https://www.w3.org/TR/2011/REC-CSS2-20110607/#minitoc.

CASCADING STYLES

- HTML elements inherit some or all presentation properties from their parent elements

"Inheritance" in Cascading Style Sheets Level 2 Revision 1 (CSS 2.1) Specification. Retrieved from https://www.w3.org/TR/2011/REC-CSS2-20110607/#minitoc.

CASCADING STYLES

- HTML elements inherit some or all presentation properties from their parent elements
- The result is that properties 'cascade' down the DOM

"Inheritance" in Cascading Style Sheets Level 2 Revision 1 (CSS 2.1) Specification. Retrieved from https://www.w3.org/TR/2011/REC-CSS2-20110607/#minitoc.

```
<p>
    <strong>Cascading</strong> Style Sheets
</p>
```

"Cascading and inheritance" in Getting Started with CSS. Retrieved from https://developer.mozilla.org/en/docs/Web/Guide/CSS/Getting_started/Cascading_and_inheritance.

```
<p>
    <strong>Cascading</strong> Style Sheets
</p>
```

```
p { color: blue; text-decoration: underline; }
```

"Cascading and inheritance" in Getting Started with CSS. Retrieved from https://developer.mozilla.org/en/docs/Web/Guide/CSS/Getting_started/Cascading_and_inheritance.

```
<p>
    <strong>Cascading</strong> Style Sheets
</p>
```

```
p { color: blue; text-decoration: underline; }
```

```
strong { color: red; }
```

"Cascading and inheritance" in Getting Started with CSS. Retrieved from https://developer.mozilla.org/en/docs/Web/Guide/CSS/Getting_started/Cascading_and_inheritance.

```
<p>
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p { color: blue; text-decoration: underline; }
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Cascading Style Sheets

"Cascading and inheritance" in Getting Started with CSS. Retrieved from https://developer.mozilla.org/en/docs/Web/Guide/CSS/Getting_started/Cascading_and_inheritance.

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- Styles are sorted by importance, origin and specificity

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- Styles are sorted by importance, origin and specificity
- The most specific selector has the greatest priority

PRIORITY OF APPLICATION

- Styles are sorted by importance, origin and specificity
- The most specific selector has the greatest priority
- If two selectors have the same priority, the one defined latest is applied

CLASSES ARE ADDITIVE

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```
.big { font-size: 1.5em; }
```

CLASSES ARE ADDITIVE

```
.big { font-size: 1.5em; }

.red { color: red; }
```

CLASSES ARE ADDITIVE

```
.big { font-size: 1.5em; }

.red { color: red; }

.uppercase { text-transform: uppercase; }
```

CLASSES ARE ADDITIVE

```
.big { font-size: 1.5em; }

.red { color: red; }

.uppercase { text-transform: uppercase; }

<span class='big red uppercase'>Big</span> <span>text.</span>
```

CLASSES ARE ADDITIVE

```
.big { font-size: 1.5em; }

.red { color: red; }

.uppercase { text-transform: uppercase; }

<span class='big red uppercase'>Big</span> <span>text.</span>
```

BIG text.

RESOURCES

- Cascading Style Sheets Level 2 Revision 1 (CSS 2.1) Specification. https://www.w3.org/TR/CSS2/selector.html
- CSS Tricks
- sitepoint
- w3schools.com