

CSS

Part I

Introduction

- CSS: Cascading Style Sheets
- Created by W3C
- Describes how HTML elements are to be displayed
- 3 ways:
 - Internal
 - External
 - Inline

Advantages of using CSS

- The presentation of the website can be centralized
- Users can compose style sheet of their own for the website
- It is possible for users to select the CSS that suit their look and feel
- Style sheets allow content to be optimized for more than 1 type of device
- Using external CSS make the document size smaller

Inline CSS

- Style attribute

```
<p style="color:blue;">content</p>
```

Internal css

- Defined inside `<script>` element

```
<head>
```

```
    <style>
```

```
        css
```

```
    </style>
```

```
</head>
```

External CSS

- File with .css extension

<head>

 <link rel="stylesheet" type="text/css" href="xstyle.css">

or

 <link rel="stylesheet" href="xstyle.css">

or

 @import url(xstyle.css);

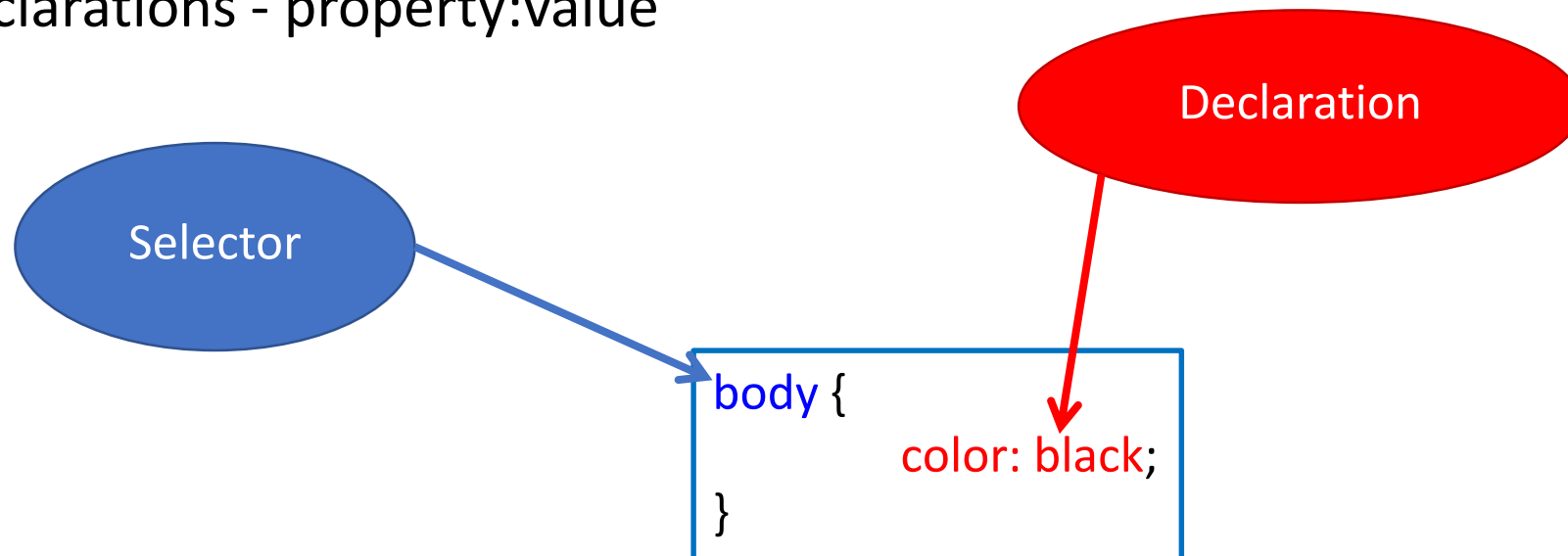
</head>

CSS order

- Inline
- Internal and external
- Browser default

CSS Rules and syntax

- CSS can use white space and line break for purposes of readability
- Comment text is put inside `/* */`
- CSS is composed of 2 parts
 - Type selector or Selector in short
 - Declarations - property:value
- Ex:



Keywords

- Used as property values
- Example: red, green, blue, auto, ...
- Some keywords (e.g. auto) can have different meaning depending on the element to which it is applied

Data types

- Strings
- Integers and real numbers

Length and measurement options

- 3 kinds:
 - Absolute
 - in = inches
 - cm = centimeters
 - mm = millimeters
 - Pt = points => 1 point = 1/72 inch
 - Pc = picas => 1 picas = 12 points
 - Relative
 - em = length relates to font-size
 - ex: font-size:10px, 2em = 20px
 - ex = length relates to font
 - px = pixels (length relative to viewing device)
 - Percentage
 - Ex: width:100%

Colors

- CSS supports a number of options for specifying color:

Colors

- Color keywords

| | | | | | | |
|-----------------|----------------------|-----------------|------------------|----------------|---------------|----------------|
| indianRed | orange | mediumPurple | forestGreen | cadetBlue | wheat | whiteSmoke |
| lightCoral | gold | blueViolet | green | steelBlue | burlyWood | seashell |
| salmon | yellow | darkViolet | darkgreen | lightSteelBlue | tan | beige |
| darkSalmon | lightYellow | darkOrchid | yellowGreen | powderBlue | rosyBrown | oldLace |
| lightSalmon | lemonChiffon | darkMagenta | oliveDrab | lightBlue | sandyBrown | floralWhite |
| red | lightGoldenRodYellow | purple | olive | skyBlue | goldenRod | ivory |
| crimson | papayaWhip | indigo | darkOliveGreen | lightSkyBlue | darkGoldenrod | antiqueWhite |
| firebrick | moccasin | darkSlateBlue | mediumAquamarine | deepSkyBlue | peru | linen |
| darkRed | peachPuff | slateBlue | darkSeaGreen | dodgerBlue | chocolate | lavenderBlush |
| pink | paleGoldenRod | mediumSlateBlue | lightSeaGreen | cornflowerBlue | saddleBrown | mistyRose |
| lightPink | khaki | greenYellow | darkCyan | royalBlue | sienna | gainsboro |
| hotPink | darkKhaki | chartreuse | teal | blue | brown | lightGray |
| deepPink | lavender | lawnGreen | aqua | mediumBlue | maroon | silver |
| mediumVioletRed | thistle | lime | cyan | darkBlue | white | darkGray |
| paleVioletRed | plum | limeGreen | lightCyan | navy | snow | gray |
| lightSalmon | violet | paleGreen | paleTurquoise | midnightBlue | honeydew | dimGray |
| coral | orchid | lightGreen | aquamarine | cornsilk | mintCream | lightSlateGray |
| tomato | fuchsia | springGreen | turquoise | blanchedAlmond | azure | slateGray |
| orangeRed | magenta | mediumSeaGreen | mediumTurquoise | bisque | aliceBlue | darkSlateGray |
| darkOrange | mediumOrchid | seaGreen | darkTurquoise | navajoWhite | ghostWhite | black |

Colors

- RGB values
- RGB percentage
- RGBA (RGB with Alpha channel: CSS 3)
- Hexadecimal – 3 pairs of hex number to represent RGB
- Shorthand Hexadecimal (limited to 216 colors) – defines method to simplify Hex number from 6 hex numbers to 3 hex numbers by using only pair of the same number

Color examples

Color Keywords

```
div {  
    color: black;  
    background-color: red;  
    border: thin solid orange;  
}
```

RGB Colors

```
Body {background-color: rgb(128, 128, 128);}
```

Equal amounts of 3 channels form variation of gray
0,0,0 is black and 255,255,255 is white

RGB values can also be represented using percentage
body {background-color: rgb(50%, 50%, 50%);}

Hexadecimal Colors

```
div {  
    color: #000000;  
    background-color: #FF0000;  
    border: thin solid #FFA500;  
}
```

Short Hexadecimal Colors

```
div {  
    color: #000;  
    background-color: #F00;  
    border: thin solid #FA5;  
}
```

Selector

- Address the target elements to be CSS-formatted
- May be HTML tag
- May be user-specified via class or id attributes
- Can be grouping

- Ex:

```
h1, h2, h3, h4, h5
{
    font-family: Arial;
    color: black;
}
```


CSS Selector

- The universal (wild card) selector
- Contextual/descendant selectors
- Child selectors
- Direct/indirect adjacent sibling combinators
- Attribute selectors
- User-defined class and id selector

The universal selector

- CSS 3
- The universal selector is an asterisk (*)
- When use alone, it tell CSS interpreter to apply the CSS rule to the entire document
- Ex:

```
* {font-family: Arial; color: black; }
```

Contextual/descendant selectors

- CSS 3
- In CSS 1 descendant selectors are referred to as contextual
- Apply style based on whether one element is a descendant of another

Example:

```
<body>
  <h1>this header1 is outside div</h1>
  <div>
    <h1>this h1 is inside div</h1>
    <h1>this h1 is also inside div</h1>
    <p>this is not h1</p>
  </div>
  <h1>outside div</h1>
  <div>
    <table>
      <tr>
        <td>
          <h1> Some header text </h1>
        </td>
      </tr>
    </table>
  </div>
</body>
```

```
div h1 {color: darkolivegreen;}
```

Example:

```
<body>
```

```
<h1>this header1 is outside div</h1>
```

```
div td h1 {color: darkolivegreen;}
```

```
<div>
```

```
<h1>this h1 is inside div</h1>
```

```
div table h1 {color: darkolivegreen;}
```

```
<h1>this h1 is also inside div</h1>
```

```
<p>this is not h1</p>
```

```
div table td h1 {color: darkolivegreen;}
```

```
</div>
```

```
<h1>outside div</h1>
```

```
<div>
```

```
<table>
```

```
<tr>
```

```
<td>
```

```
<h1> Some header text </h1>
```

```
</td>
```

```
</tr>
```

```
</table>
```

```
</div>
```

```
</body>
```

Universal – Descendant Combination

- Universal selector can be combined with other selectors
- Ex:

```
div * {color:lavender;}
```

Direct child selectors

- CSS 3
- Quite similar to descendant selector
- Apply style only to immediate children of the element
- Ex:

```
h2>em {color: blue;}
```

Direct Adjacent Sibling Combinator

- CSS 3
- Select based on whether two element appear side by side in a document as a sibling
- Ex:

`h2 + p {color: red;}`

Example

h2 + p {color: red;}

```
<body>
```

```
  <div>
```

```
    <h2>Welcome to CSS widgets.</h2>
```

```
    <p>This paragraph of text is indented 20 pixels.</p>
```

```
  </div>
```

```
  <p>This paragraph of text is not indented; it does not have the same  
    parent as an h2 element.
```

```
</p>
```

```
</body>
```

Indirect Adjacent Sibling Combinator

- CSS 3
- Select based on sibling relationship like direct adjacent sibling combinator
- Do not require that the element appear side by side
- The element must share the same parent element
- Use a tilde (~)

Example

```
h2 ~ h3 {color:lightgreen;}
```

```
<body>
```

```
  <div>
```

```
    <h2>Welcome to CSS widgets.</h2>
```

```
    <p>This paragraph of text is indented 20 pixels.</p>
```

```
    <h3>Some underlined text.</h3>
```

```
  </div>
```

```
</body>
```

Attribute Selector

- CSS 3
- Apply style declaration based on the presence of attributes or attribute values that appear in the tag
- Ex:

```
input[type] {background: green;}
```

Attribute Selector

- Selection based on the value of attribute
 - `input[type="text"] { ... }`
 - `input[type="text"][name="some name"] { ... }`
 - `input[type~="text" "file" "password"] { ... }`
- Attribute substring selectors
 - Select attribute values that begin with a string
 - `a[href^="http://"] { ... }`
 - Select attribute values that end with a string
 - `a[href$=".html"] { ... }`
 - Select attribute values that contain a string
 - `a[href*=".ac"] { ... }`

Class and ID Selectors

- CSS 3
- Select based on 'class' or 'id' attribute
- class selector
 - html tag: `<div class="aclass">some content</div>`
 - class selector: `.aclass { ... }`
- id selector
 - html tag: `<div id="someid">some content</div>`
 - id selector: `#someid { ... }`
- Class and ID selector can be made more specific
 - `div.aclass { ... }`
 - `div#someid { ... }`