Cascading Style Sheet(CSS)

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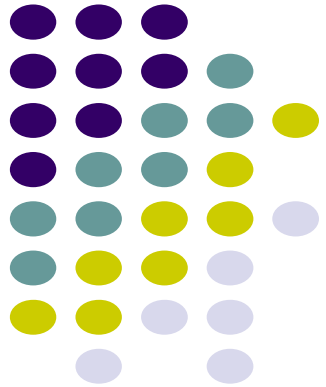


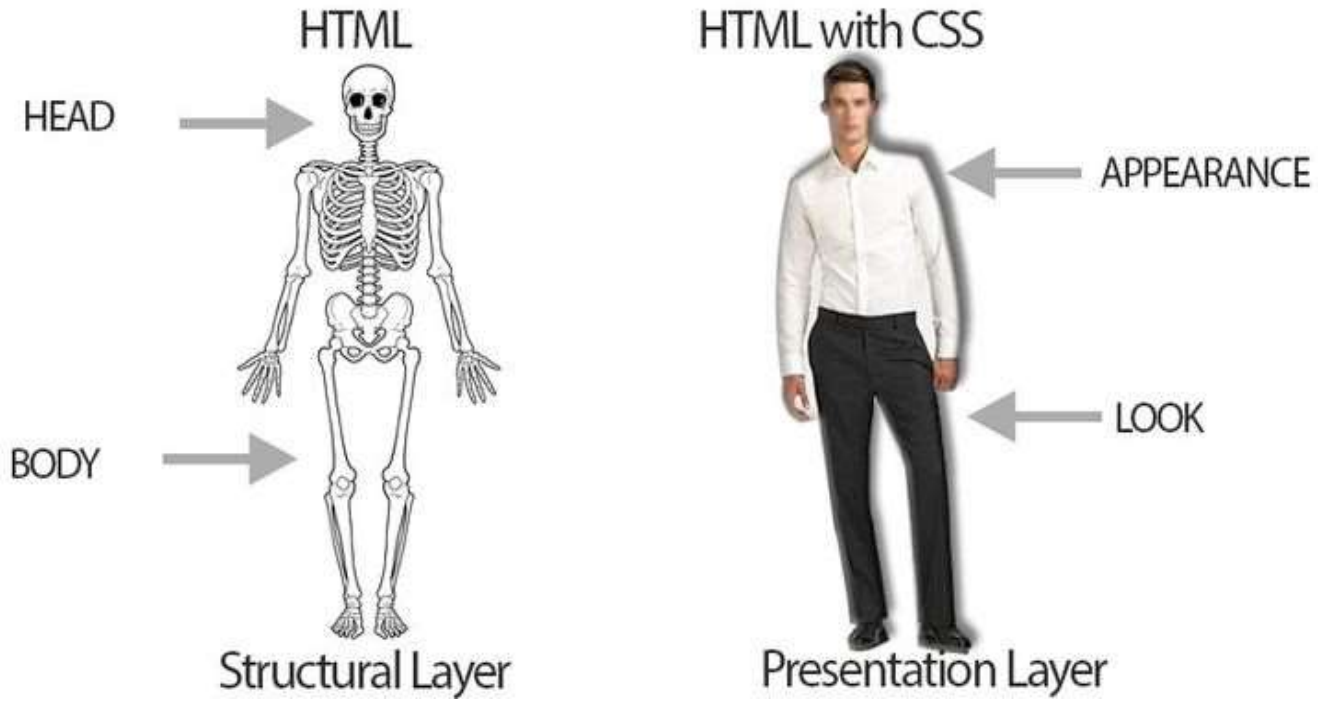
What is CSS?

- Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language such as HTML.
- CSS is designed to enable the separation of presentation and content, including layout, colors, and fonts.

Use of CSS

- CSS describes how HTML elements are to be displayed on screen, paper, or in other media
- CSS saves a lot of work. It can control the layout of multiple web pages all at once
- External style sheets can be stored in CSS files
- CSS is used to define styles for your web pages, including the design, layout and variations in display for different devices and screen sizes.

Difference between HTML and CSS



CSS Rules

- CSS provides set of styling properties and values. These properties can be applied the HTML tags using a predefined CSS rules.

```
selector {
        property1:value1;
        property2:value2;
        property3:value3;
}
```

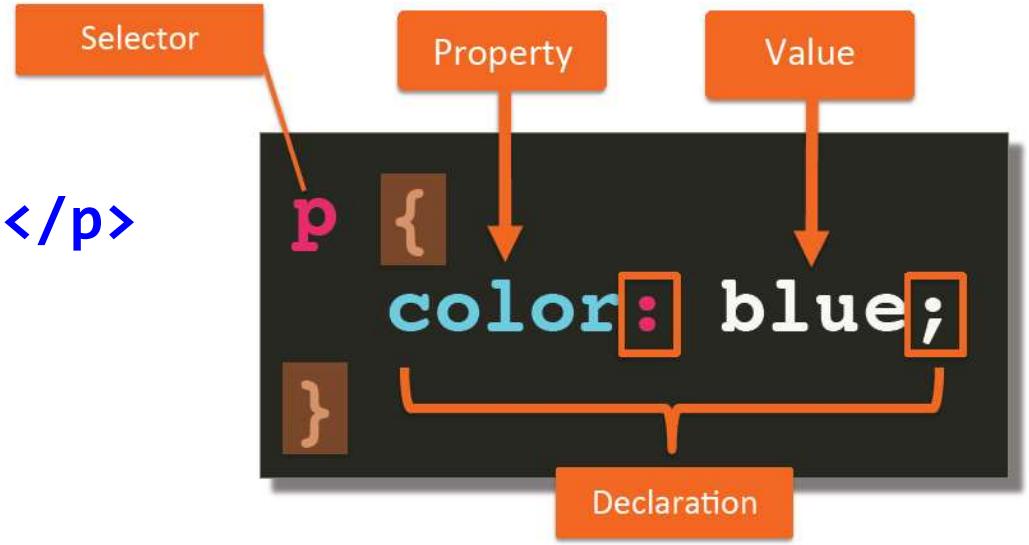
A CSS rule-set consists of a selector and a declaration block:

- The selector points to the HTML element you want to style.
- The declaration block contains one or more declarations separated by semicolons.
  - Each declaration includes a CSS property name and a value, separated by a colon.
  - A CSS declaration always ends with a semicolon, and declaration blocks are surrounded by curly braces.

Example 1:

- To change the color of a paragraph in the following HTML code.

```
<body>
   <p>Welcome to CSS</p>
</body>
```



Example 2:

- Multiple CSS declarations are separated with semicolons, and declaration blocks are surrounded by curly braces.

```
p {
   color: blue;
   font-size: 20px;
   width: 200px;
}
```

Zero or More Declarations are allowed

```
<body>
  <p>Welcome to CSS</p>
</body>
```

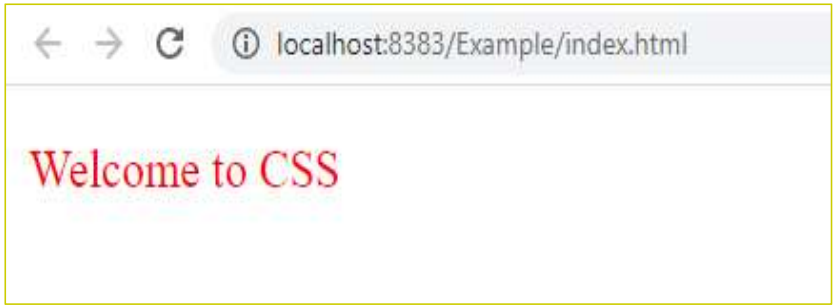
Adding CSS in HTML program

- There are three ways of inserting a style sheet in a HTML web page
  - Inline CSS
  - Internal CSS
  - External CSS

Inline CSS

- An inline style may be used to apply a unique style for a single element.
- To use inline styles, add the style attribute to the relevant element. The style attribute can contain any CSS property.

```
<!DOCTYPE html>
<html>
<head>
    <title>CSS</title>
</head>
<body>
     <p style="color:red;">Welcome to CSS</p>
</body>
</html>
```

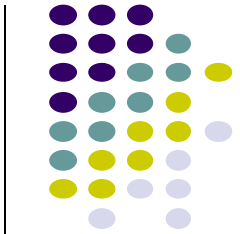


Internal CSS

- Internal styling is used to define a style for one HTML page. Internal styling is defined in the <head> section of an HTML page, within a <style> element:


```
<!DOCTYPE html>
<html>
<head>
    <title>CSS</title>
    <style>
       h1 {
            color: blue;
                text-align: center;
       }
       body {
         background-color: pink;
       }
    </style>
</head>
<body>
     <h1>Welcome to My Page</h1>
     <hr>
     <p>This is an entertainment website</p>
</body>
</html>
```

External CSS



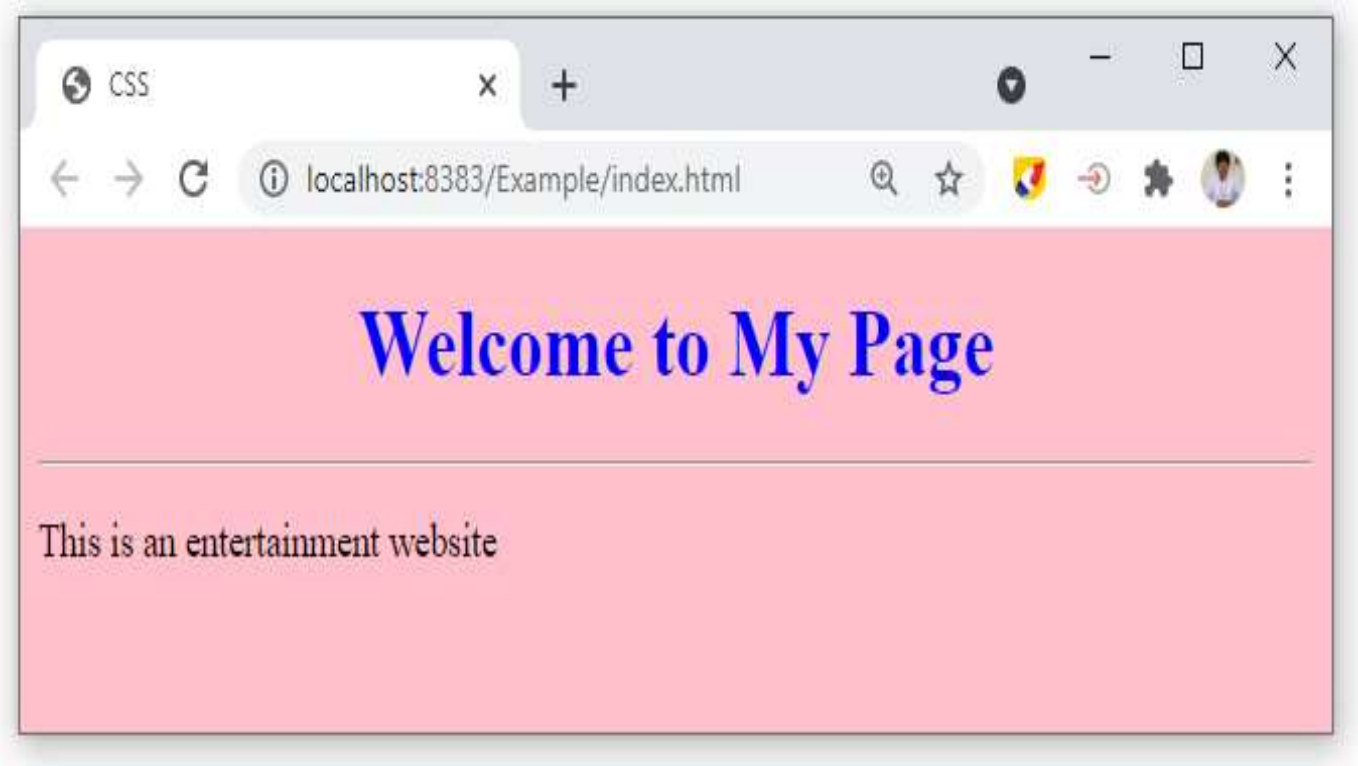
- With an **external style sheet**, you can change the look of an entire website by changing just one file! Each HTML page must include a reference to the external style sheet file inside the <link> element, inside the head section.
- An external style sheet can be written in any text editor, and must be saved with a **.css** extension. The external **.css** file should not contain any HTML tags.

Here is how the "mystyle.css" file looks:

```
h1 {
    color: blue;
    text-align: center;
 }
body {
    background-color: pink;
 }
```

```
<!DOCTYPE html>
<html>
<head>
    <title>CSS</title>
    <link href="mystyles.css" rel="stylesheet">
</head>
<body>
     <h1>Welcome to My Page</h1>
     <hr>
     <p>This is an entertainment website</p>
</body>
</html>
```

External CSS



The CSS Selectors

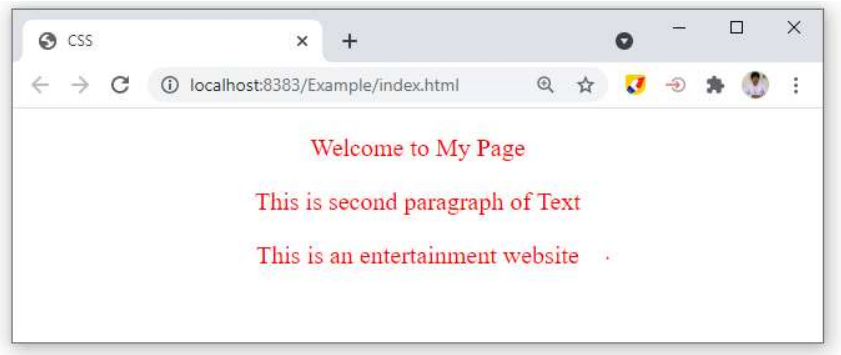
- A CSS selector is the first part of a CSS Rule. CSS selectors are used to "find" (or select) the HTML elements you want to style. There different types of selectors available in CSS
  - **CSS element Selector**
  - **CSS id Selector**
  - **CSS class Selector**
  - **CSS Universal(*) Selector**
  - **CSS Attribute Selector**
  - **CSS Group Selector**
  - **CSS Descendent Selector**
  - **CSS Child Selector**
  - **CSS Sibiling Selector**

The CSS element Selector

- The element selector selects HTML elements based on the element(tag) name.

The "mystyle.css" file looks:

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




```
<!DOCTYPE html>
<html>
<head>
    <title>CSS</title>
    <link href="mystyles.css" rel="stylesheet">
</head>
<body>
     <p>Welcome to My Page</p>
     <p>This is second paragraph of Text</p>
     <p>This is an entertainment website</p>
</body>
</html>
```

The CSS id Selector

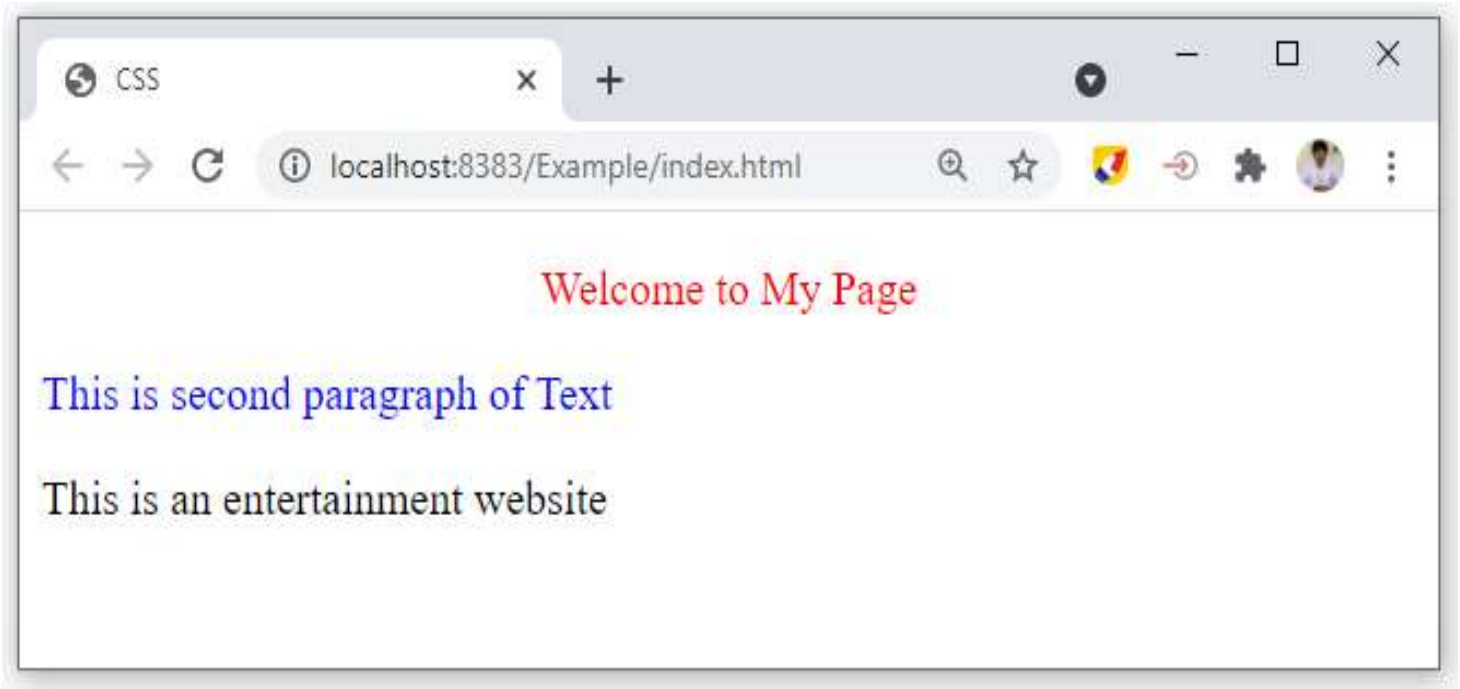
- The **id** selector uses the id attribute of an HTML element to select a specific element.
- The **id** of an element is unique within a page, so the id selector is used to select one unique element!
- To select an element with a specific id, write a hash (#) character, followed by the id of the element.

The "mystyle.css" file looks:

```
#para1 {
    color: red;
    text-align: center;
 }
#para2 {
    color: blue;
}
```

```
<!DOCTYPE html>
<html>
<head>
    <title>CSS</title>
    <link href="mystyles.css" rel="stylesheet">
</head>
<body>
     <p id="para1">Welcome to My Page</p>
     <p id="para2">This is second paragraph of Text</p>
     <p id="para3">This is an entertainment website</p>
</body>
</html>
```

The CSS id Selector



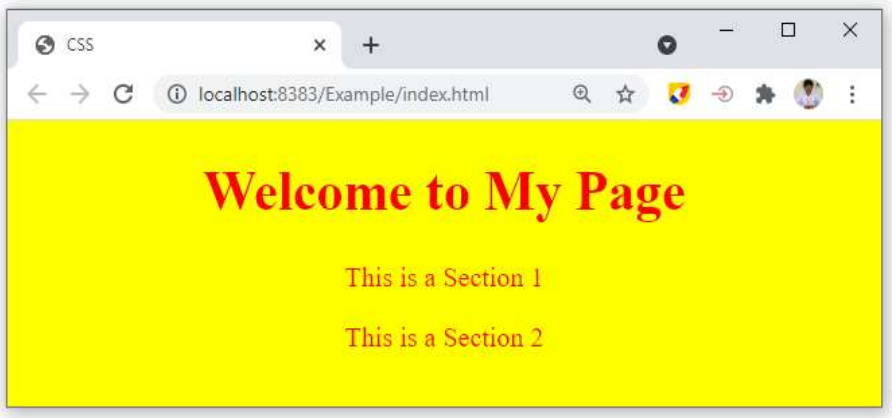
The CSS class Selector

- The class selector selects elements with a specific class attribute.
- To select elements with a specific class, write a period (.) character, followed by the name of the class.


```
<!DOCTYPE html>
<html>
<head>
    <title>CSS</title>
    <style>
        .head{
             color: maroon;
             text-align: center;
        }
        .section1 {
            background-color: yellow;
            color: blue;
            font-size: 25px;
        }
        .section2 {
            color: green;
        }

    </style>
<<body>
     <h1 class="head">Welcome to My Page</h1>
     <div class="section1">This is a Section 1</div>
     <div class="section2">This is a Section 2</div>
</body>
</html>
/head>
```

The CSS Universal(*) Selector

- The universal selector (*) selects all HTML elements on the page. The symbol * can be used to select all HTML tags and apply common styles.




```
<!DOCTYPE html>
<html>
<head>
    <title>CSS</title>
    <style>
      * {
          color: red;
          text-align: center;
          background-color: yellow;
       }
    </style>
</head>
<body>
     <h1 class="head">Welcome to My Page</h1>
     <div class="section">This is a Section 1</div>
     <p class="section">This is a Section 2</p>
</body>
```

The CSS Attribute Selector

- The [attribute] selector is used to select elements with a specified attribute. The CSS attribute selector matches elements based on the presence or value of a given attribute.

HTML Code:

```
Enter Name: <input type="text">
<br><br>
<input type="submit">
```

CSS Code:

```
input[type='text'] {
    color: blue;
    background-color: yellow;
    font-size:25px;
}
```

The CSS Group Selector

- The CSS grouping selector is used to select multiple elements and style them together.
- To group selectors, each selector is separated by a comma (,)

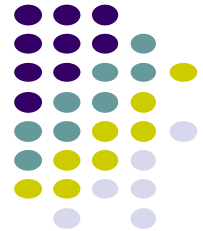
For example: Look at the following CSS code (the h1, h2, and p elements have the same style definitions):

```
h1 {
  text-align: center;
  color: red;
}

h2 {
  text-align: center;
  color: red;
}

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

It will be better to group the selectors, to minimize the code as given below. To group selectors, separate each selector with a comma.

```
h1, h2, p {
  text-align: center;
  color: red;
}
```

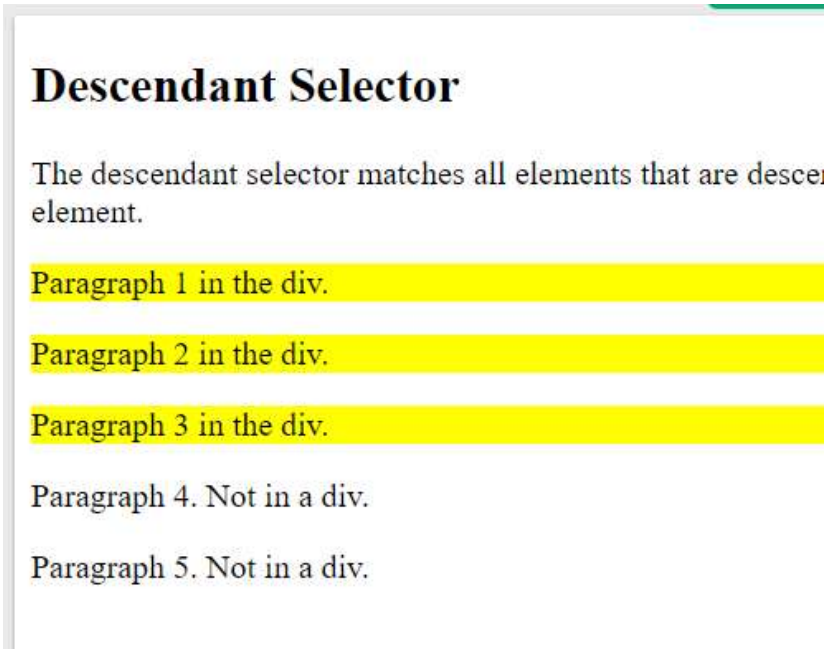
Descendant Selector



- The descendant selector(space) matches all elements that are descendants or inside of a specified element.
- The following example selects all <p> elements inside elements:

```
div p {
  background-color: yellow;
}
```

```
<p>The descendant selector matches all elements that are
descendants of a specified element.</p>

<div>
  <p>Paragraph 1 in the div.</p>
  <p>Paragraph 2 in the div.</p>
  <section><p>Paragraph 3 in the div.</p></section>
</div>

<p>Paragraph 4. Not in a div.</p>
<p>Paragraph 5. Not in a div.</p>
```



Child Selector(>)

- The child selector selects all elements that are the immediate children of a specified element.

```
div > p {
  background-color: yellow;
}
```

```
<div>
  <p>Paragraph 1 in the div.</p>
  <p>Paragraph 2 in the div.</p>
  <section><p>Paragraph 3 in the div.</p>
</section>
</div>
<p>Paragraph 4. Not in a div.</p>
<p>Paragraph 5. Not in a div.</p>
```

Paragraph 1 in the div.

Paragraph 2 in the div.

Paragraph 3 in the div.

Paragraph 4. Not in a div.

Paragraph 5. Not in a div.

Adjacent Sibling Selector(+)

- The adjacent sibling selector selects the element that are the adjacent sibling of a specified element.
- Sibling elements must have the same parent element, and "adjacent" means "immediately following".

```
div + p {
  background-color: yellow;
}
```

```
<div>
  <p>Paragraph 1 in the div.</p>
  <p>Paragraph 2 in the div.</p>
</div>

<p>Paragraph 3. Not in a div.</p>
<p>Paragraph 4. Not in a div.</p>
```

Paragraph 1 in the div.

Paragraph 2 in the div.

Paragraph 3. Not in a div.

Paragraph 4. Not in a div.

General Sibling Selector

- The general sibling selector selects all elements that are siblings of a specified element.

```
<style>
div ~ p {
  background-color: yellow;
}
</style>
```

```
<div>
  <p>Paragraph 2.</p>
</div>

<p>Paragraph 3.</p>
<code>Some code.</code>
<p>Paragraph 4.</p>
```

Paragraph 1.

Paragraph 2.

Paragraph 3.

Some code.

Paragraph 4.

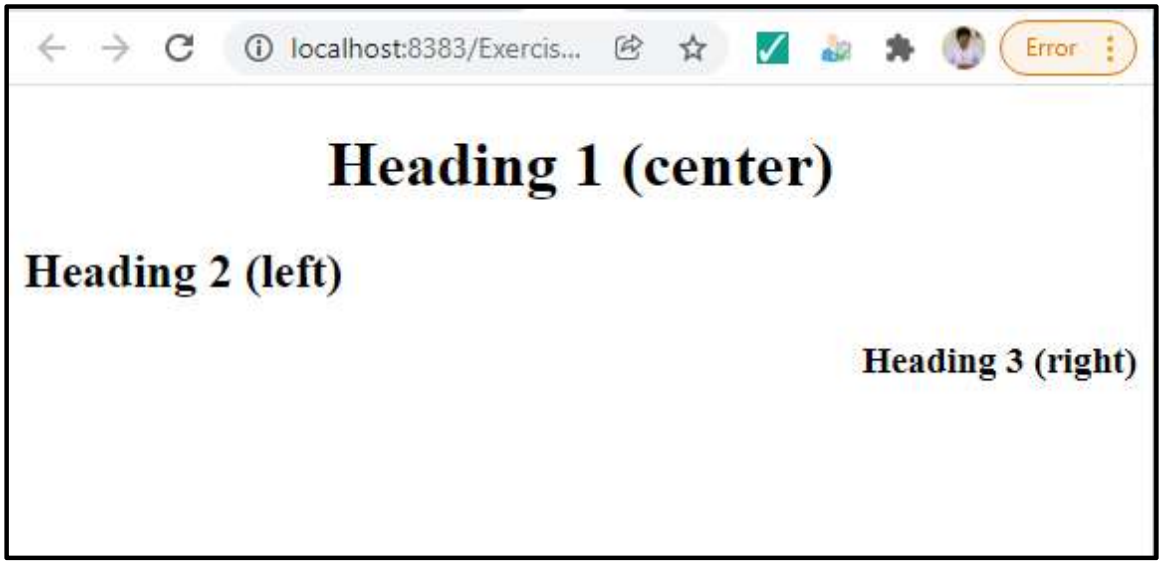
Text Color

- The color property is used to set the color of the text. The color is specified by:
  - a color name - like "red"
  - a HEX value - like "#ff0000"
  - an RGB value - like "rgb(255,0,0)"


```
<!DOCTYPE html>
<html>
<head>
<style>
h1 {
  color: green;
}
</style>
</head>
<body>
<h1>This is heading 1</h1>
</body>
</html>
```

Text Alignment

- The text-align property is used to set the horizontal alignment of a text.
- A text can be left or right aligned, centered, or justified.




```
<!DOCTYPE html>
<html>
    <head>
        <style>
            h1 {
                text-align: center;
            }

            h2 {
                text-align: left;
            }

            h3 {
                text-align: right;
            }
        </style>
    </head>
    <body>
        <h1>Heading 1 (center)</h1>
        <h2>Heading 2 (left)</h2>
        <h3>Heading 3 (right)</h3>
    <body>
</html>
```

Text Decoration

- The text-decoration property is used to set or remove decorations from text.
- Values are: none, underline, overline, line-through

```
h2 {
  text-decoration: overline;
}

h3 {
  text-decoration: line-through;
}

h4 {
  text-decoration: underline;
}
```

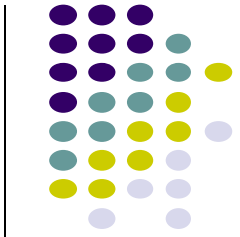
```
<h2>Overline text decoration</h2>
<h3>Line-through text decoration</h3>
<h4>Underline text decoration</h4>
```

CSS Font Styles

- Choosing the right font for your website is important!
- CSS Font Family Names

Generic Font Family	Examples of Font Names
Serif	Times New Roman Georgia Garamond
Sans-serif	Arial Verdana Helvetica
Monospace	Courier New Lucida Console Monaco
Cursive	Brush Script MT Lucida Handwriting
Fantasy	Copperplate Papyrus

The CSS font-family Property



- In CSS, the font-family property used to specify the font Name.

```
.p1 {
  font-family: "Times New Roman", Times, serif;
}

.p2 {
  font-family: Arial, Helvetica, sans-serif;
}

.p3 {
  font-family: "Lucida Console", "Courier New", monospace;
}
```

```
<h1>CSS font-family</h1>
<p class="p1">This is a paragraph, shown in the Times New Roman font.</p>
<p class="p2">This is a paragraph, shown in the Arial font.</p>
<p class="p3">This is a paragraph, shown in the Lucida Console font.</p>
```

Font Style

- The font-style property is mostly used to specify italic text.
- This property has three values:
  - normal - The text is shown normally
  - italic - The text is shown in italics
  - oblique - The text is "leaning" (oblique is very similar to italic, but less supported)

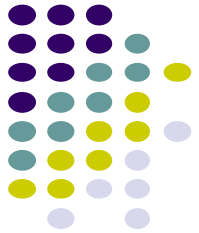
```
p.normal {
  font-style: normal;
}

p.italic {
  font-style: italic;
}

p.oblique {
  font-style: oblique;
}
```

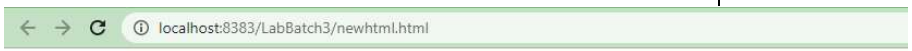
Font Size

- The font-size property sets the size of the text.
- The font-size value can be an absolute, or relative size.
  - absolute: px, em
    - 16px=1em
  - relative: %, vw
    - 1vw = 1% of screen width (responsive font-size)

font-size

```
<!DOCTYPE html>
<html>
    <head>
        <style>
            .heading1 {
               font-size: 20px;
            }
            .heading2 {
               font-size: 2em;
            }
            .heading3 {
               font-size: 60%;
            }
            .heading4{
               font-size: 10vw;
            }
        </style>
    </head>
    <body>
        <h1 class="heading1">Hello World1</h1>
        <h1 class="heading2">Hello World2</h1>
        <h1 class="heading3">Hello World3</h1>
        <h1 class="heading4">Hello World4</h1>
    </body>
</html>
```





Hello World1

Hello World2

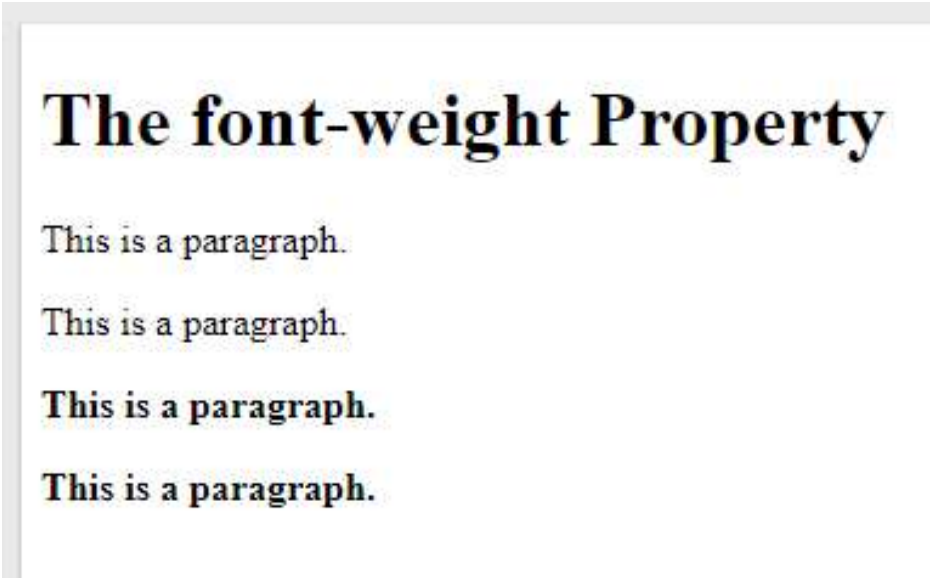
Hello World3

Hello World4

font-weight

- The font-weight property sets how thick or thin characters in text should be displayed.
- Values: normal, bold, bolder, lighter, 100 to 900 (400-normal, 700 is bold)

```
.normal {
  font-weight: normal;
}
.lighter {
  font-weight: lighter;
}
.thick {
  font-weight: bold;
}
.thicker {
  font-weight: 900;
}
```



Backgrounds and Color Gradients

- The CSS background properties are used to define the background effects for elements.
- CSS background properties:
  - background-color
  - background-image
  - background-repeat
  - background-attachment
  - background-position

CSS Background Properties

- **background-color**
  - **Values:** names, hex values, rgb() function
- **background-image**
  - **Values:** url('url of the image')
- **background-repeat:**
  - **Values**: repeat, no-repeat,repeat-x,repeat-y
- **background-attachement:**
  - **Values**: fixed, scroll.
- **background-position:**
  - **Values**: top, bottom, left, right, center, inherit, initial.
- **background-size:**
  - **Values**: auto, cover, contain, length(px,cm,%)

Setting Background Color

- The background-color property specifies the background color of an element.
- Example
  - The background color of a page is set like this:

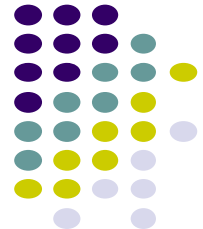
```
body {
  background-color: lightblue;
}
```

With CSS, a color is most often specified by:
•a valid color name - like red
•a HEX value - like #ff0000
•an RGB value - like rgb(255,0,0)
•an HSL value – like hsl(2,40%,60%)

Setting Background color

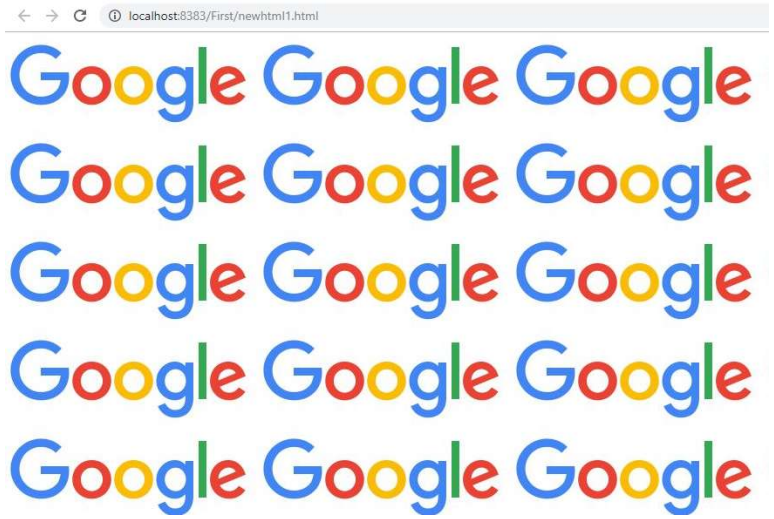
```
<!DOCTYPE html>
<html>
<head>
<style>
body {
  background-color: yellow;
}
</style>
</head>
<body>

<h1>Hello World!</h1>

<p>This page has a light blue background color!</p>

</body>
</html>
```

Setting Background Image

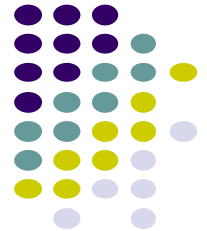


- The background-image property specifies an image to use as the background of an element.
- By default, the image is repeated so it covers the entire element.

```
body {
    background-image:url(google.JPG);
}
```



Background Image - Repeat Horizontally or Vertically

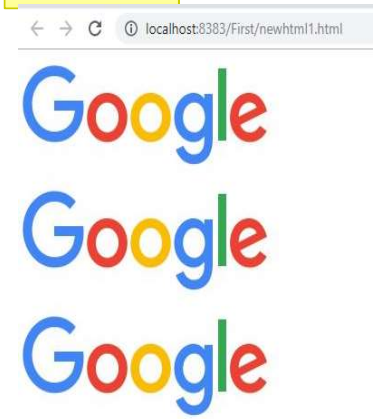


- background-repeat used to manage the repetitions in horizontally, vertical and even no-repetitions.

Horizontal

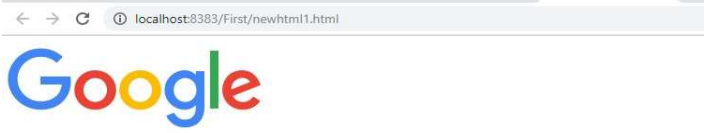
```
body {
    background-image:url(google.JPG);
    background-repeat:repeat-x;
}
```

Vertical




```
body {
    background-image:url(google.JPG);
    background-repeat:repeat-y;
}
```

No-repeat




```
body {
    background-image:url(google.JPG);
    background-repeat:no-repeat;
}
```

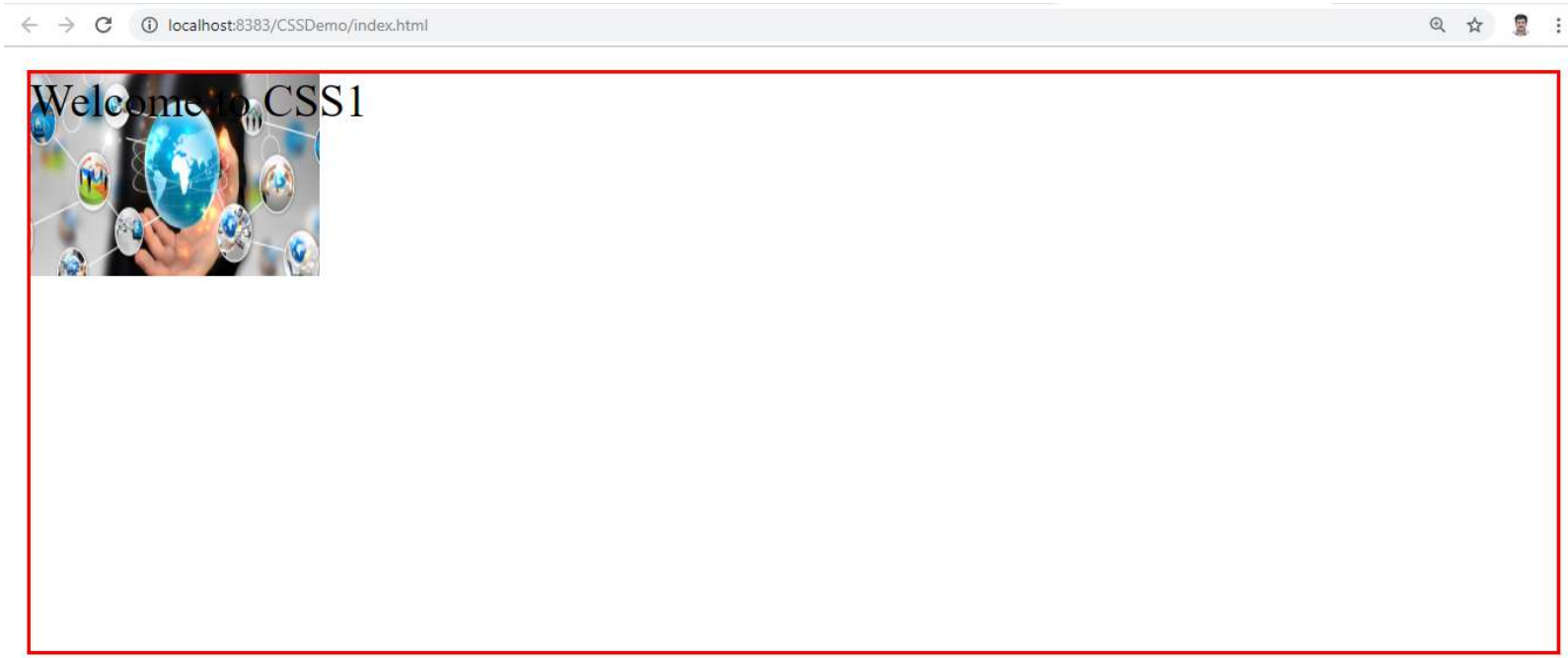
Setting size for background Image
- background-size property

index.html

Source | History

```
1   <!DOCTYPE html>
2   <html>
3       <head>
4           <style>
5               div {
6                   background-image: url('tech.jpeg');
7                   background-repeat: no-repeat;
8                   background-size: 100px 70px;
9                   height: 200px;
10                  border: 1px solid red;
11              }
12          </style>
13      </head>
14      <body>
15          <div id="b1">Welcome to CSS1</div>
16      </body>
17  </html>
```

Setting size for background Image



Setting background image size

- background-size:cover

- background-size : cover is used to span the image to the containing element's width and height.

index.html

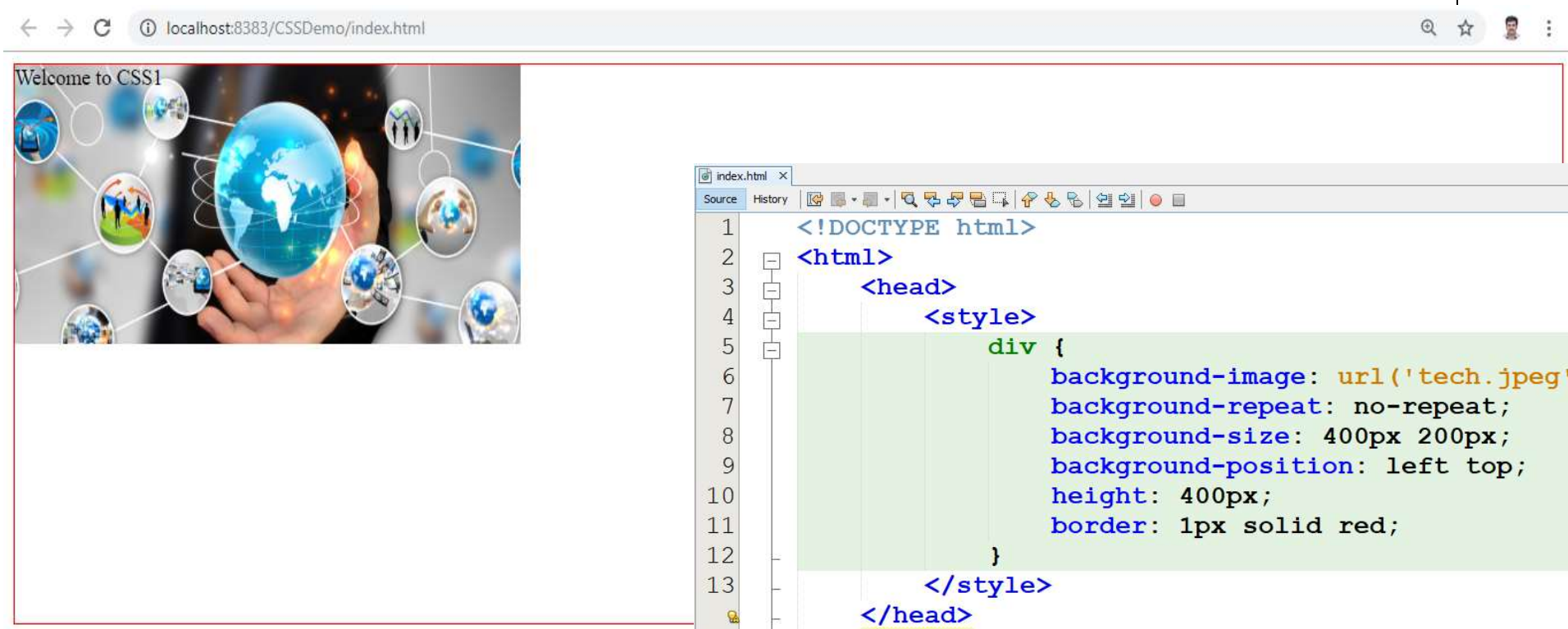
Source | History

```
1   <!DOCTYPE html>
2   <html>
3       <head>
4           <style>
5               div {
6                   background-image: url('tech.jpeg');
7                   background-repeat: no-repeat;
8                   background-size: cover;
9                   height: 200px;
10                  border: 1px solid red;
11              }
12          </style>
        </head>
14      <body>
15          <div id="b1">Welcome to CSS1</div>
16      </body>
17  </html>
```

Setting background image size

- **background-size:cover**

Setting background image position - background-position property



index.html

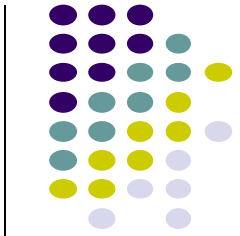
Source | History

```
1   <!DOCTYPE html>
2   <html>
3       <head>
4           <style>
5               div {
6                   background-image: url('tech.jpeg');
7                   background-repeat: no-repeat;
8                   background-size: 400px 200px;
9                   background-position: left top;
10                  height: 400px;
11                  border: 1px solid red;
12              }
13          </style>
14      </head>
15      <body>
16          <div id="b1">Welcome to CSS1</div>
17      </body>
18  </html>
```

background-position: center top;

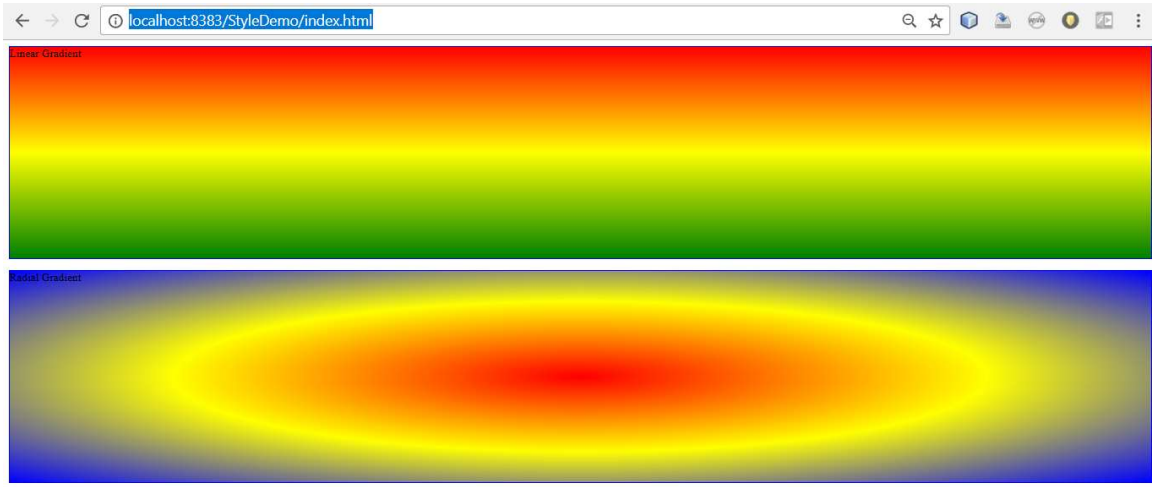
```
<style>
    div {
        background-image: url('tech.jpeg');
        background-repeat: no-repeat;
        background-size: 400px 200px;
        background-position: center top;
        height: 400px;
        border: 1px solid red;
    }
</style>
```

Color Gradients



- **Gradients** let you display smooth transitions between two or more specified colors.
- CSS3 defines two types of gradients:
  - **Linear Gradients (goes down/up/left/right/diagonally)**
  - **Radial Gradients (defined by their center)**

```
<style>
    div {
        border:1px solid blue;
        background:linear-gradient(red,yellow,green);
        height: 300px;
    }
    p {
        border:1px solid blue;
        background:radial-gradient(red,yellow,blue);
        height: 300px;
    }
</style>
```



Repeating a linear-gradient

- The repeating-linear-gradient() function is used to repeat linear gradients:

```
#grad {
  height: 200px;
  background-image: repeating-linear-gradient(red, yellow 10%, green 20%);
}
```