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Outline (Cont.)

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6. List
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7. Links
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What is CSS?

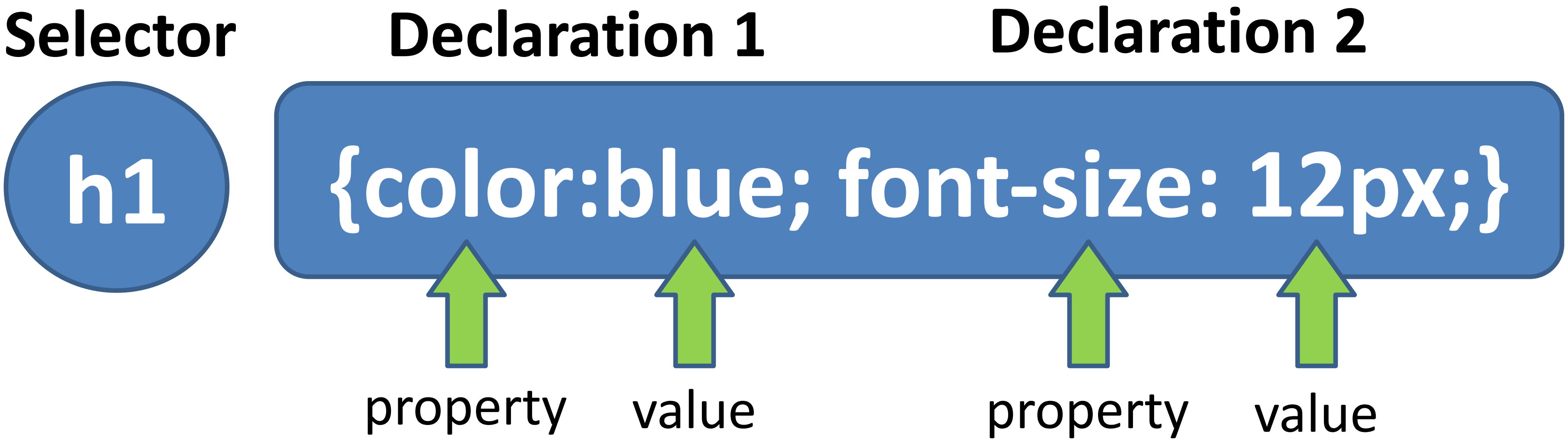
- **C**ascading **S**tyle **S**heets, referred to as **CSS**, is a simple design language intended to **simplify** the process of making web pages **presentable**.
- CSS defines **layout of HTML** documents. For example, CSS covers Fonts, colors, margins, lines, height, width, background images, advanced positions and many other things.

Importance of CSS

- CSS defines HOW HTML elements are to be displayed.
- Styles are normally saved in external .css files.
- External style sheets enable you to change the appearance and layout of all the pages in a Web site, just by editing one single file.
- Advantages :
  - Improves Website Presentation
  - External CSS makes Updates Easier and Smoother
  - External CSS helps Web Pages Load Faster
- Disadvantages :
  - Browser Dependent
  - Difficult to retrofit in old websites

Basic Syntax of CSS

- A CSS rule has two main parts: a **selector**, and one or more **declarations**



Selector **Declaration 1** **Declaration 2**

h1 {color:blue; font-size: 12px;}

property value property value

- The **selector** can be HTML element, id or class.
- Each **declaration** consists of a **property** and a **value**.
- The **property** is the style attribute you want to change. Each property has a **value**.

The “id” selector

- The id selector is used to specify a style for a **single, unique** element.
- The id selector uses the id attribute of the HTML element, and is defined with a **"#“** in css.
- The style rule below will be applied to the element with **id="para1"**:

HTML

```
<h1 id=“para1”>
      Hello Friends
</h1>

<h1>
      How are you
</h1>
```

CSS

```
#para1{
      color: blue;
}
```

Output

```
Hello Friends
How are you
```

The “class” selector

- The class selector is used to specify a style for a **group** of elements.
- The class selector uses the HTML class attribute, and is defined with a "**.**“ in css.

HTML

```
<h1 class=“myClass”>
        Hello Friends
</h1>
<h1>
        How are you
</h1>
<h1 class=“myClass”>
        How are you
</h1>
```

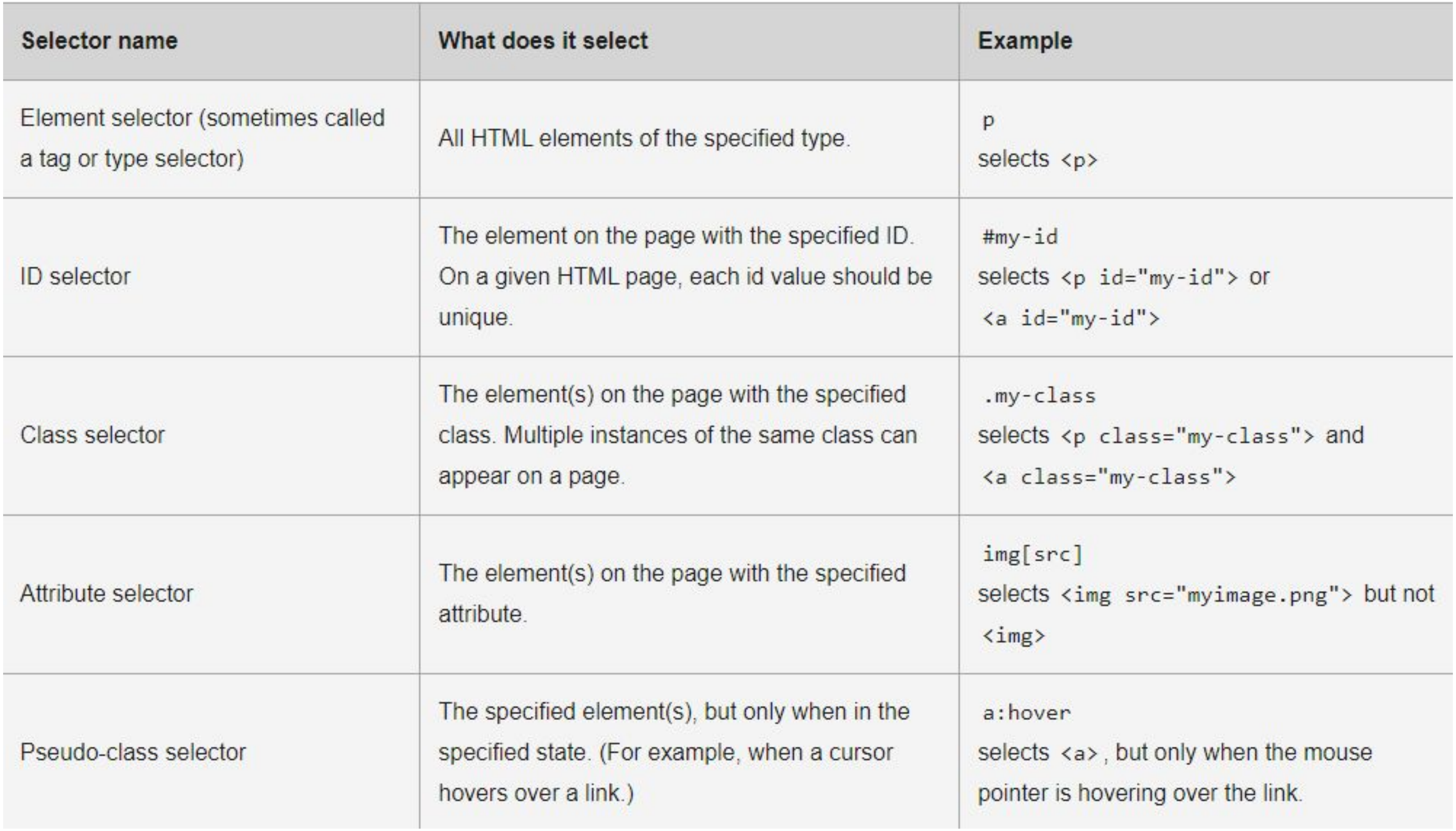
CSS

```
.myClass{
        color: blue;
}
```

Output

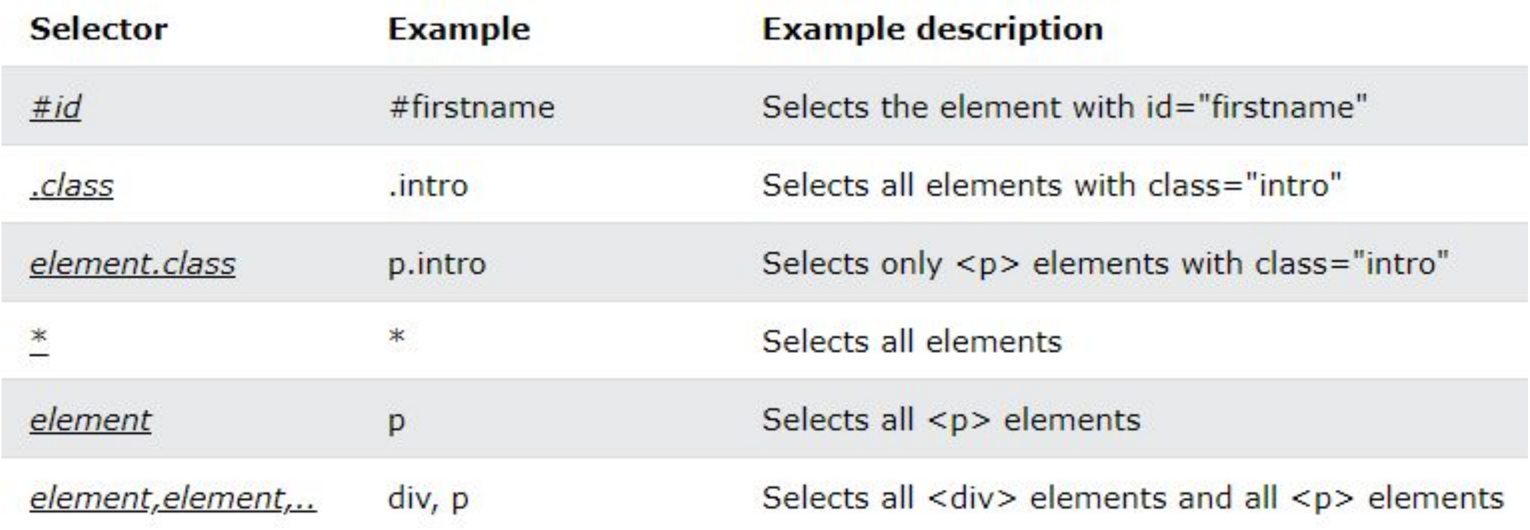
```
Hello Friends
How are you
How are you
```

Summary



Selector name	What does it select	Example
Element selector (sometimes called a tag or type selector)	All HTML elements of the specified type.	`p` selects `<p>`
ID selector	The element on the page with the specified ID. On a given HTML page, each id value should be unique.	`#my-id` selects `<p id="my-id">` or `<a id="my-id">`
Class selector	The element(s) on the page with the specified class. Multiple instances of the same class can appear on a page.	`.my-class` selects `<p class="my-class">` and `<a class="my-class">`
Attribute selector	The element(s) on the page with the specified attribute.	`img[src]` selects `<img src="myimage.png">` but not `<img>`
Pseudo-class selector	The specified element(s), but only when in the specified state. (For example, when a cursor hovers over a link.)	`a:hover` selects `<a>`, but only when the mouse pointer is hovering over the link.

Summary-1



Selector	Example	Example description
#id	#firstname	Selects the element with id="firstname"
.class	.intro	Selects all elements with class="intro"
element.class	p.intro	Selects only <p> elements with class="intro"
*	*	Selects all elements
element	p	Selects all <p> elements
element,element,..	div, p	Selects all <div> elements and all <p> elements

Different ways to write CSS

- There are three ways of writing a style sheet:
  1. Inline Style
  2. Internal/Embedded Style sheet
  3. External Style Sheet

1) Inline Style

- It is possible to place CSS right in your HTML code, and this method of CSS usage is referred to as **inline css**.
- Inline CSS has the **highest priority** out of external, internal, and inline CSS.
- This means that you can **override styles** that are defined in external or internal by using inline CSS.
- If you want to add a style inside an HTML element all you have to do is specify the desired CSS properties with the **style** HTML attribute.
- Example:

HTML

```
<p style="background: blue; color: white;"> My Inline CSS </p>
```

2) Internal Style Sheet

- This type of CSS is only for **Single Web Page**.
- When using internal CSS, we must add a new tag, **<style>,** inside the **<head>** tag.
- The HTML code below contains an example of <style>'s usage.

HTML

```
<html><head>
      <style type="text/css">
            p{ color: red;}
      </style>
</head><body>
      <p>Your page's content!</p></body>
</html>
```

3) External Style Sheet

- When using CSS it is preferable to keep the **CSS separate from your HTML**.
- Placing CSS in a separate file allows the web designer to completely differentiate between content (HTML) and design (CSS).
- External CSS is a file that contains **only CSS** code and is saved with a **".css"** file extension.
- This CSS file is then referenced in your HTML using the **<link> instead of <style>**.

3) External Style Sheet (Cont.)

- Example :

Demo.html

```
<html>
<head>
<link rel=“stylesheet” type=“text/css”
href=“test.css”>
</head>
<body>

<p> Hello Friends </p>
<p id=“para1”> How are you? </p>

</body>
</html>
```

test.css

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

Output

```
Hello Friends
                    How are you?
```

3) External Style Sheet (Cont.)

- Advantages:
    - It keeps your website design and content separate.
    - It's much easier to reuse your CSS code if you have it in a separate file. Instead of typing the same CSS code on every web page you have, simply have many pages refer to a single CSS file with the "link" tag.
    - You can make drastic changes to your web pages with just a few changes in a single CSS file.

Assign Multiple Classes

- We can apply different class to same html element by giving space separated class names in the class attribute:

Demo.html

```
<html>
<head>
<link rel=“stylesheet” type=“text/css”
href=“test.css”>
</head>
<body>

<h1 class=“class1 class2”>
        How are you?
</h1>

</body>
</html>
```

test.css

```
. class1
{
        color : blue;
}
. class2
{
        text-align : center;
}
```

Output

How are you?

Multiple Selection

- We can apply same css to multiple selectors using **comma separated** selector list, for example :

Demo.html

```
<html>
<head>
<link rel=“stylesheet” type=“text/css”
href=“test.css”>
</head>
<body>

<p> Hello Friends </p>
<h1> How are you? </h1>

</body>
</html>
```

test.css

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

Output

```
Hello Friends
How are you?
```

Multi-level Selection

- We can use hierarchical path to target html element by **space separated** element/class/id names, for example :

Demo.html

```
<html>
<head>
<link rel=“stylesheet” type=“text/css”
href=“test.css”>
</head>
<body>
<h1>Hello Friends…</h1>
<div>
        <h1>How are you?</h1>
</div>

</body>
</html>
```

test.css

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

Output

```
Hello Friends…
How are you?
```

Background Property

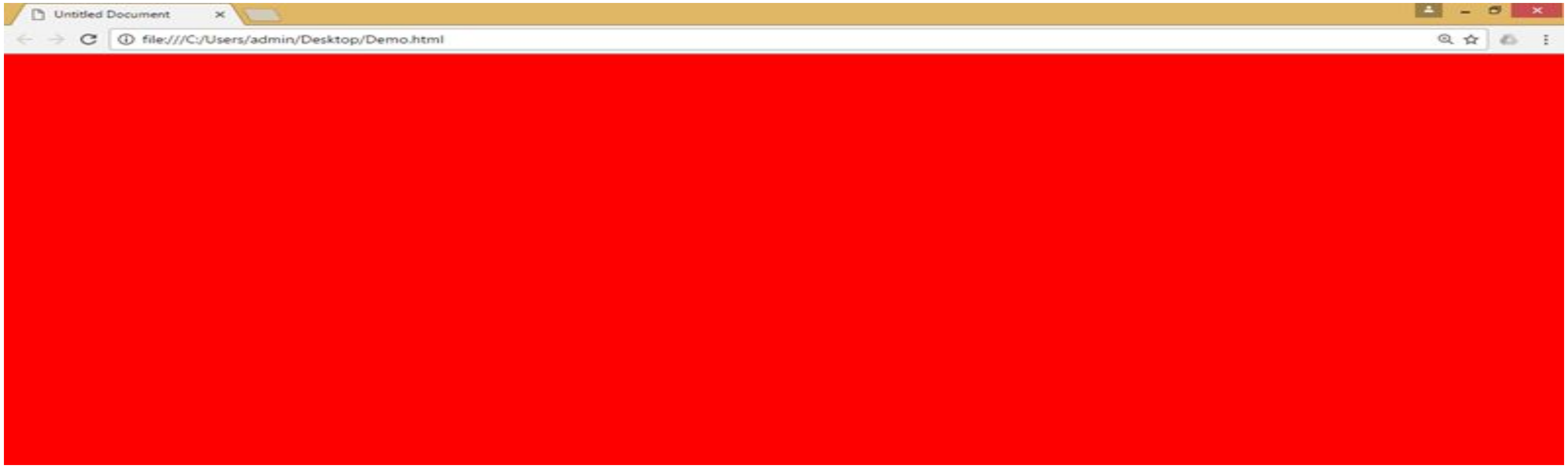
	Property Name
▪ Background Color	(background-color)
▪ Background Image	(background-image)
▪ Background Image Repeat	(background-repeat)
▪ Fixed Background Image	(background-attachment)
▪ Background Image Positioning	(background-position)

Background Color

- The **background-color** property specifies the background color of an element.
- The background color of a page is defined in the body selector:
- Below is example of CSS backgrounds

test.css

```
body
{
        background-color : red;
        background-color : #FF0000;
        background-color : rgb(255,0,0);
}
```

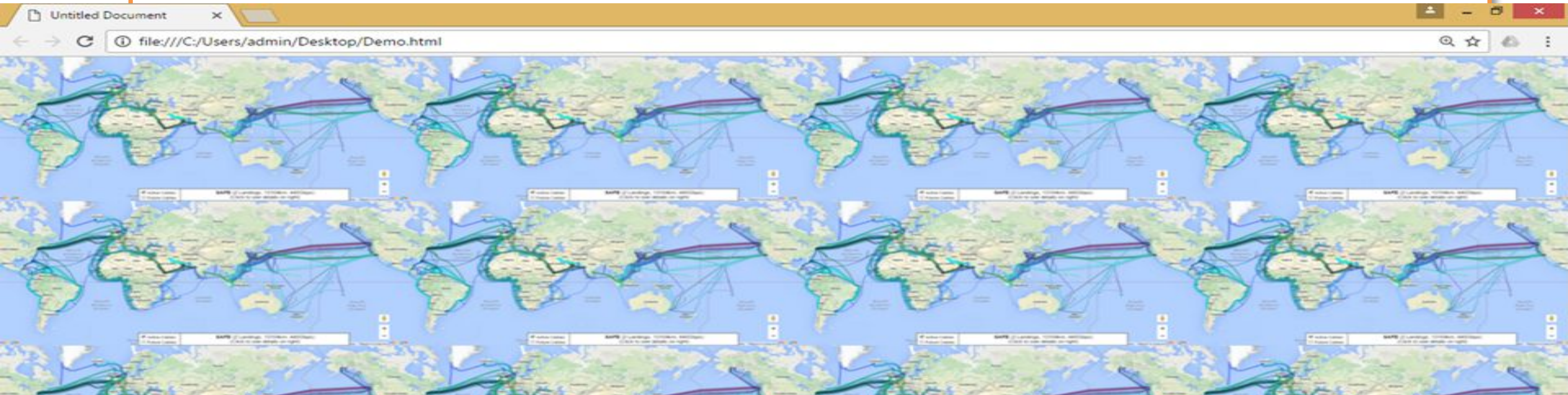


Background Image

- The **background-image** property specifies an image to use as the background of an element.
- For Example,

test.css

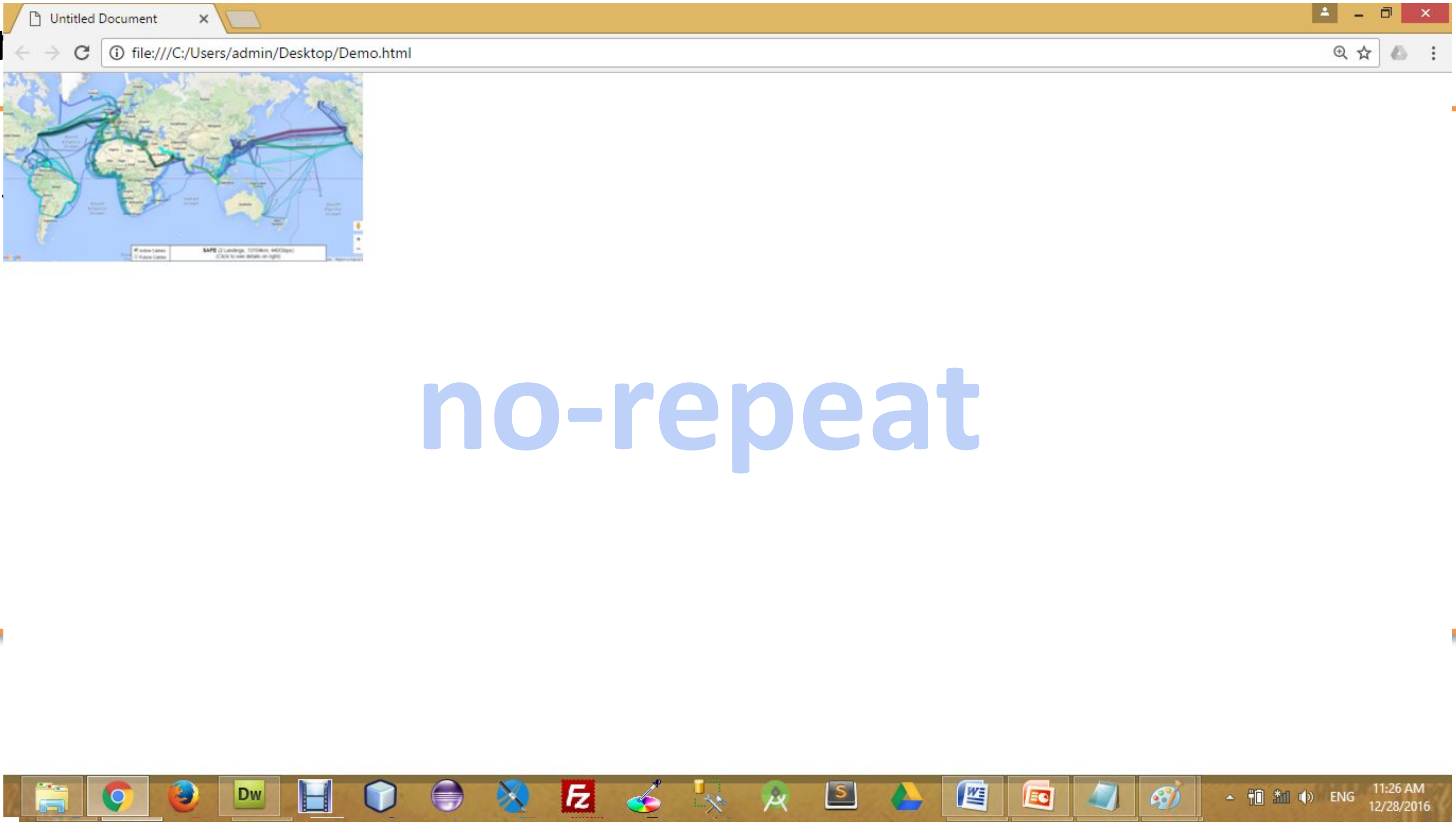
```
body
{
        background-image : url(‘pathToImage.jpg’);
}
```



Background Image Repeat

- You can have a background image repeat vertically (y-axis), hor .

```
bod
{



}
```



no-repeat

Fixed Background Image

- The background-attachment property sets whether a background image is fixed or scrolls with the rest of the page.
- For Example,

test.css

```
body
{
        background-image : url(‘pathToImage.jpg’);
        background-repeat : no-repeat;
        background-attachment : fixed;
}
```

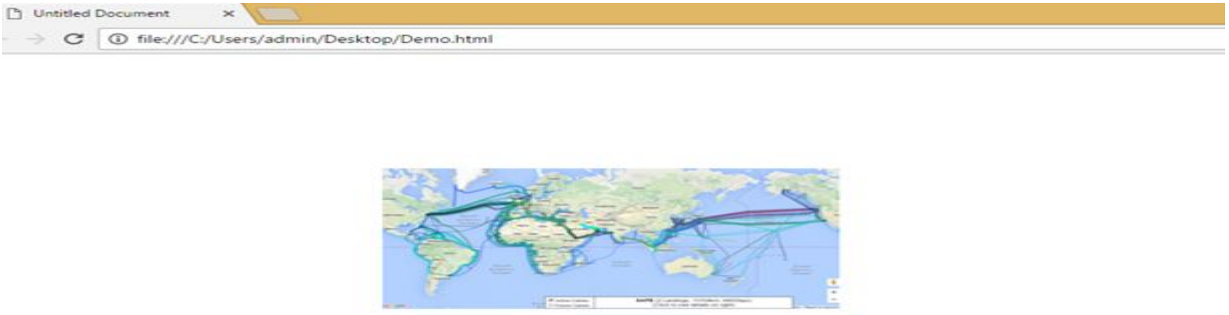
Background Image Positioning

- The **background-position** property sets the starting position of a background image.

test.css

```
body
{
        background-image : url('pathToImage.jpg');
        background-repeat : no-repeat;
        background-position: 20px 10px;
        background-position: 30%30%;
        background-position: top center;
}
```

30% 30%



CSS Font

- CSS font properties define the font family, boldness, size, and the style of a text.

		Property Name
1.	Font Color	(color)
2.	Font Family	(font-family)
3.	Font Size	(font-size)
4.	Font Style	(font-style)
5.	Font Weight	(font-weight)
6.	Font Variant	(font-variant)

CSS Font (Cont.)

- **Font Color**
  - Set the text-color for different elements
- **Font Family**
  - The font family of a text is set with the font-family property.
- **Font Size**
  - The font-size property sets the size of the text.
    - font-size : 120%
    - font-size : 10px;
    - font-size : x-large;

```
h4{
        color : red;
}
```

```
h4{
        font-family : sans-serif;
}
```

```
h4{
        font-size: 120%;
        font-size : 10px;
                font-size : small;
        font-size : smaller;
        font-size : x-small;
                font-size : xx-small;
                font-size : large;
                font-size : larger;
                font-size : x-large;
                font-size : xx-large;
                font-size : medium;
}
```

CSS Font (Cont.)

- **Font Style**
  - The font-style property is mostly used to specify italic text.

```
h4{
        font-style: italic ;
}
```

- **Font Weight**
  - The font-weight property sets how thick or thin characters in text should be displayed.

```
h4{
        font-weight : 300;
        font-weight : bolder;
        font-weight : lighter;
}
```

- **Font Variant**
  - The font-variant property specifies whether or not a text should be displayed in a small-caps font.
    - font-variant : small-caps;

```
h4{
        font-variant: small-caps;

}
```

CSS Text Property

- While CSS Font covers most of the traditional ways to format your text, CSS Text allows you to control the spacing, decoration, and alignment of your text.

		Property Name
1.	Text Decoration	(text-decoration)
2.	Text Indent	(text-indent)
3.	Text Align	(text-align)
4.	Text Transform	(text-transform)
5.	White Space	(white-space)
6.	Word Spacing	(word-spacing)
7.	Letter Spacing	(letter-spacing)
8.	Line Height	(line-height)

CSS Text Property (Cont.)

Text Decoration

- The text-decoration property is used to set or remove decorations from text.
- The text-decoration property is mostly used to remove underlines from links for design purposes.

```
h4{
        text-decoration : line-through;
        text-decoration : overline;
        text-decoration : underline;
        text-decoration : none;
}
```

Text Indent

- The text-indentation property is used to specify the indentation of the first line of a text.

```
h4{
        text-indent : 20px;
        text-indent : 30%;
}
```

Text Align

- The text-align property is used to set the horizontal alignment of a text.

```
h4{
        text-align : right;
        text-align : justify;
        text-align : left;
        text-align : center;
}
```

CSS Text Property (Cont.)

- **Text Transform**
  - The text-transform property is used to specify uppercase and lowercase letters in a text.

```
h4{
        text-transform : capitalize;
        text-transform : uppercase;
        text-transform : lowercase;
}
```

- **White Space**
  - The white-space attribute allows you to prevent text from wrapping until you place a break <br /> into your text.

```
h4{
         white-space : nowrap;
}
```

- **Word Spacing**
  - With the CSS attribute word-spacing you are able to specify the exact value of the spacing between your words. Word-spacing should be defined with exact values.

```
h4{
         word-spacing : 10px;
}
```

CSS Text Property (Cont.)

- **Letter Spacing**
  - With the CSS attribute letter-spacing you are able to specify the exact value of the spacing between your letters. Letter-spacing should be defined with exact values.

```
h4{
        letter-spacing : 3px;
}
```

- **Line Height**
  - The line-height attribute will set the height of the line in the page.

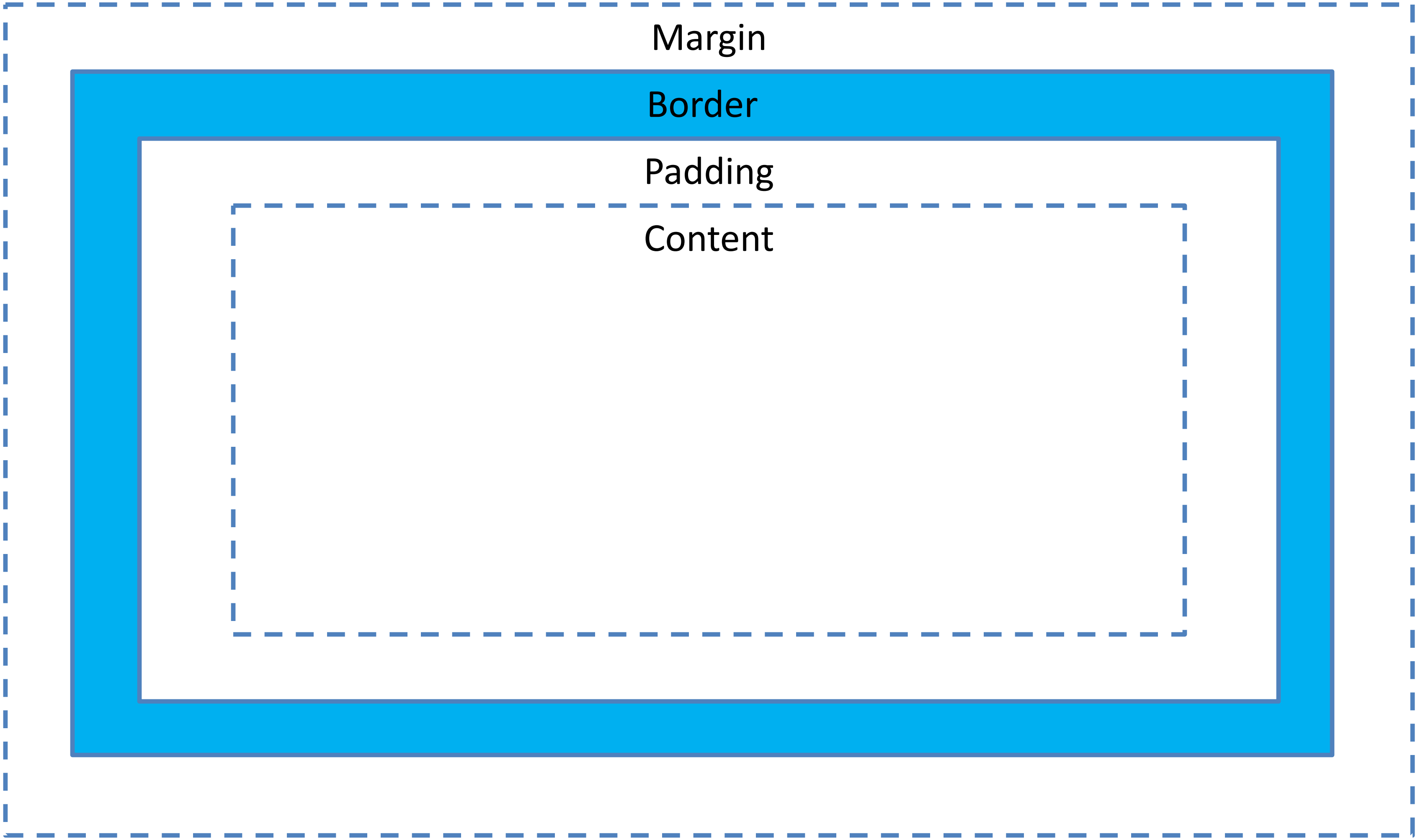
```
h4{
        line-height : 10px;
}
```

The Box Model

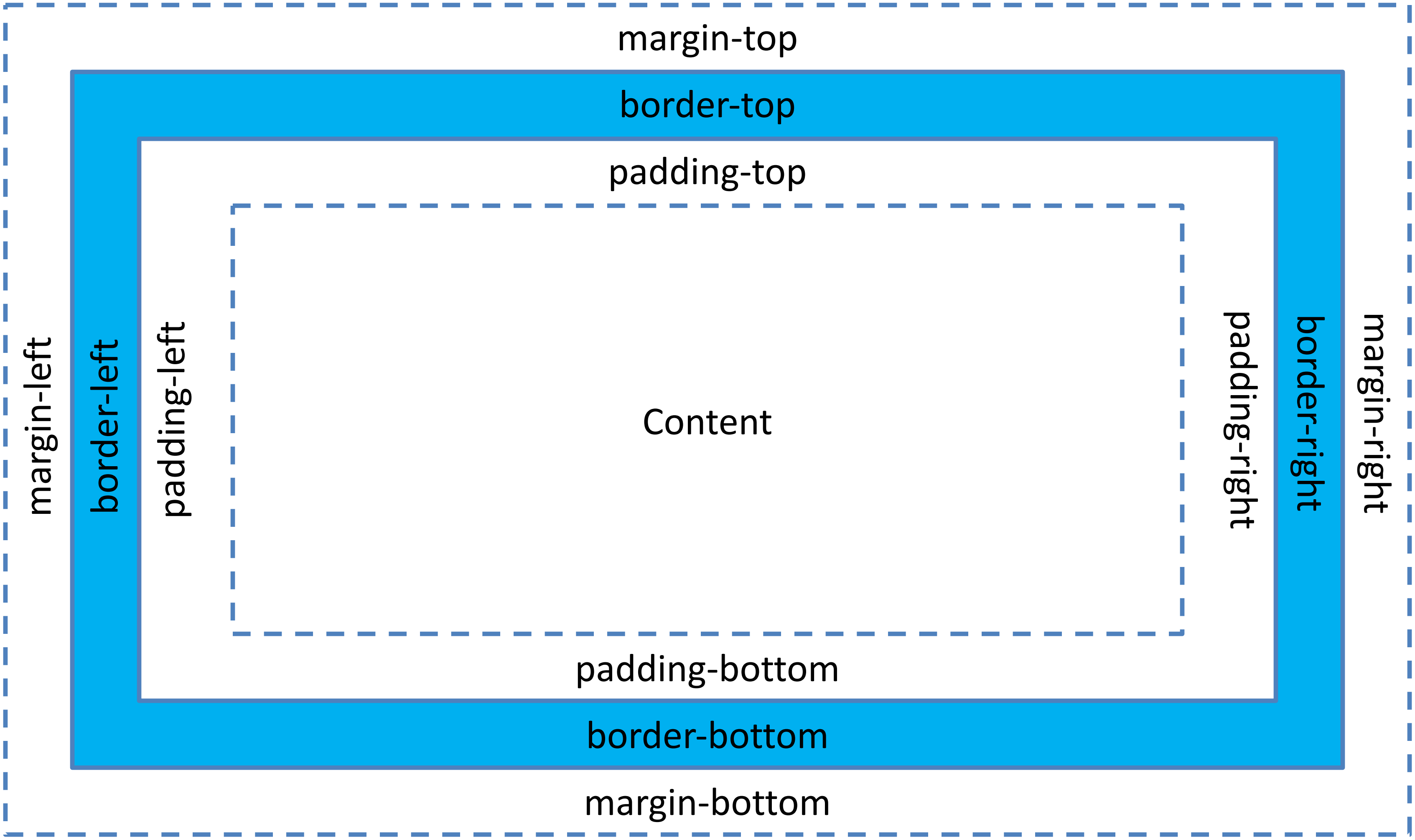
- All HTML elements can be considered as boxes. In CSS, the term "box model" is used when talking about design and layout.
- The CSS box model is essentially a box that wraps around HTML elements, and it consists of: **margins**, **borders**, **padding**, and the actual **content**.
- The box model allows us to place a border around elements and space elements in relation to other elements.

The Box Model (Cont)

- The image below illustrates the box model:



The Box Model (Cont)



margin-top

border-top

padding-top

margin-left

border-left

padding-left

Content

padding-right

border-right

margin-right

padding-bottom

border-bottom

margin-bottom

CSS Padding

- The CSS padding properties define the space between the element border and the element content.
- The top, right, bottom, and left padding can be changed independently using separate properties.
- A shorthand padding property can also be used, to change all padding at once.

```
h4{
        padding : 10px;
}
```

```
h4{
        padding-top : 10px;
        padding-right : 20px;
        padding-bottom : 30 px;
        padding-left : 40 px;
}
```

```
h4{
     padding : 10px 20px 30px 40px;
}
```

CSS Border

- The CSS border properties allow you to specify the style and color of an element's border.
- Border Style Types
  - The border-style property specifies what kind of border to display.
- Border Width
  - The border-width property is used to set the width of the border.
- Border Color
  - The border-color property is used to set the color of the border.
  - Border colors can be any color defined by RGB, hexadecimal, or key terms. Below is an example of each of these types.
- The top, right, bottom, and left border can be changed independently using separate properties.

```
h4{
        border : 1px solid red;
}
```

```
h4{
        border-style : solid;
        border-style : dotted;
        border-style : double;
}
```

```
h4{
        border-width : 7px;
}
```

```
h4{
        border-color : red;
}
```

```
h4{
           border-top : 1px solid red;
}
```

CSS Margin

- The CSS margin properties define the space around elements

```
h4{
        margin: 10px;
}
```

- The top, right, bottom, and left margin can be changed independently using separate properties.

```
h4{
        margin -top : 10px;
        margin -right : 20px;
        margin -bottom : 30 px;
        margin -left : 40 px;
}
```

- A shorthand margin property can also be used, to change all margins at once.

```
h4{
     margin : 10px 20px 30px 40px;
}
```

CSS List

- The CSS list properties allow you to:
  - Set different list item markers for ordered & unordered lists
  - Set an image as the list item marker
  - Set the position of the marker
- CSS List Style Type
- CSS List with Image
- CSS List Position

```
ul{
list-style-type: circle;
list-style-type: disc;
list-style-type: square;
list-style-type: armenian;
list-style-type: cjk-ideographic;
list-style-type: decimal-leading-zero;
list-style-type: georgian;
list-style-type: hebrew;
list-style-type: katakana;
list-style-type: lower-greek;
}
```

```
ol{
      list-style-image : url(‘imgPath’);
}
```

```
ol{
     list-style-position : outside;
     list-style-position : inside;
}
```

Styling Links

- Anchor/Link States
  - The **four** links states are:
    1. a:link - a normal, unvisited link
    2. a:visited - a link the user has visited
    3. a:hover - a link when the user mouse over it
    4. a:active - a link the moment it is clicked

```
a:link{
        color:#FF0000;
/*unvisited link*/
}
```

```
a:visited{
        text-decoration : none;
/*visited link*/
}
```

```
a:hover{
        color:#00FF00;        /*mouse
over link*/
}
```

```
a:active{
        color:#0000FF;        /*selected
link*/
}
```

CSS Positioning

- Absolute Positioning
  - With absolute positioning, you define the exact pixel value where the specified HTML element will appear.
  - The point of origin is the top-left of the browser's viewable area, so be sure you are measuring from that point.

```
h1{
        position : absolute;
        left : 50px;
        top : 100px;
}
```

- Relative Positioning
  - Relative positioning changes the position of the HTML element relative to where it normally appears.

```
h1{
        position : relative;
        left : 50px;
        top : 100px;
}
```

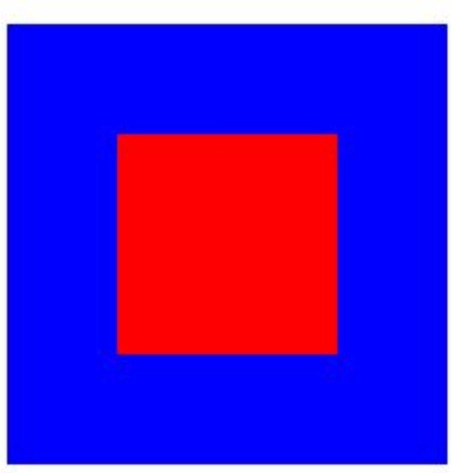
- Fixed Positioning
  - The element is positioned relative to the browser window, in fixed position, element will be in the same place even we scroll the screen.

```
h1{
        position : fixed;
        top : 50px;
        left : 100px;
}
```

```
position: static|absolute|fixed|relative|sticky|initial|inherit;
```

CSS Layers

- CSS allows you to control which item will appear on top with the use of layers.
- In CSS, each element is given a priority.
- If there are two overlappi elements, the element priority will appear on top
- To manually define a priori value. The larger the valu priority the element will ha



HTML

```
<div id="division1">
</div>
<div id="division2">
</div>
```

CSS

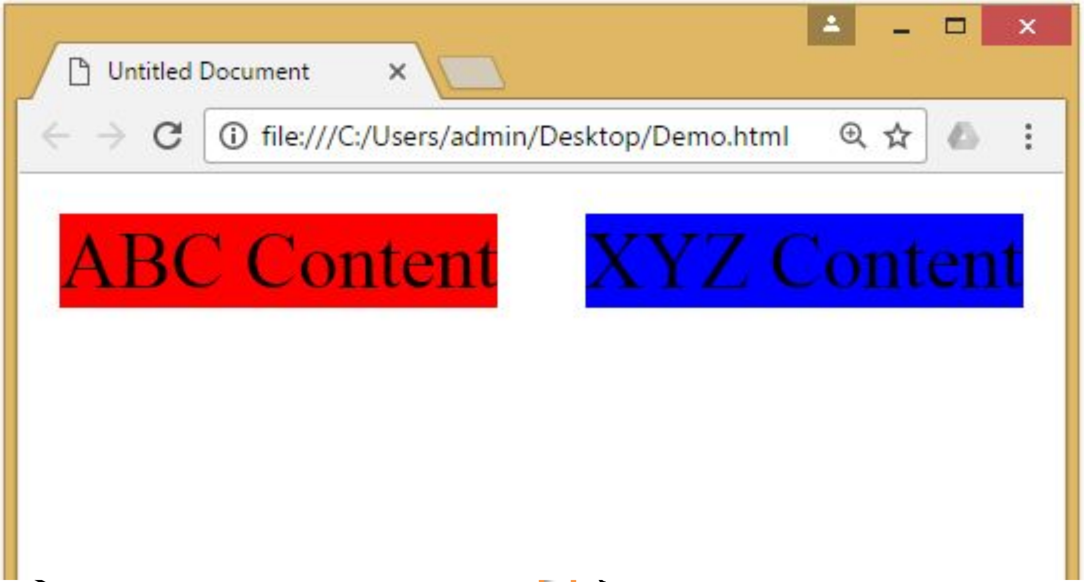
```
#division1{
        position : absolute;
        height : 100px;
        width : 100px;
        left : 100px;
        top : 150px;
        background-color : red;
        z-index : 5;

ision2{
        position : absolute;
        height : 200px;
        width : 200px;
        left : 50px;
        top : 100px;
        background-color : blue;
         z-index : 2;
}
```

CSS Float Property

`float: none|left|right|initial|inherit;`

- The CSS float property defines that an element should be taken out of the normal flow of the document and placed along the left or right sid
- Text and ir

element.



file:///C:/Users/admin/Desktop/Demo.html

ABC Content

XYZ Content

ed;

```
<div id="division1" >
      ABC Content
</div>
<div id="division2">
      XYZ Content
</div>
```

```
}
#division2{
      background-color : blue;
      float : right;
      width: 40%;
}
```

Introduction to CSS3

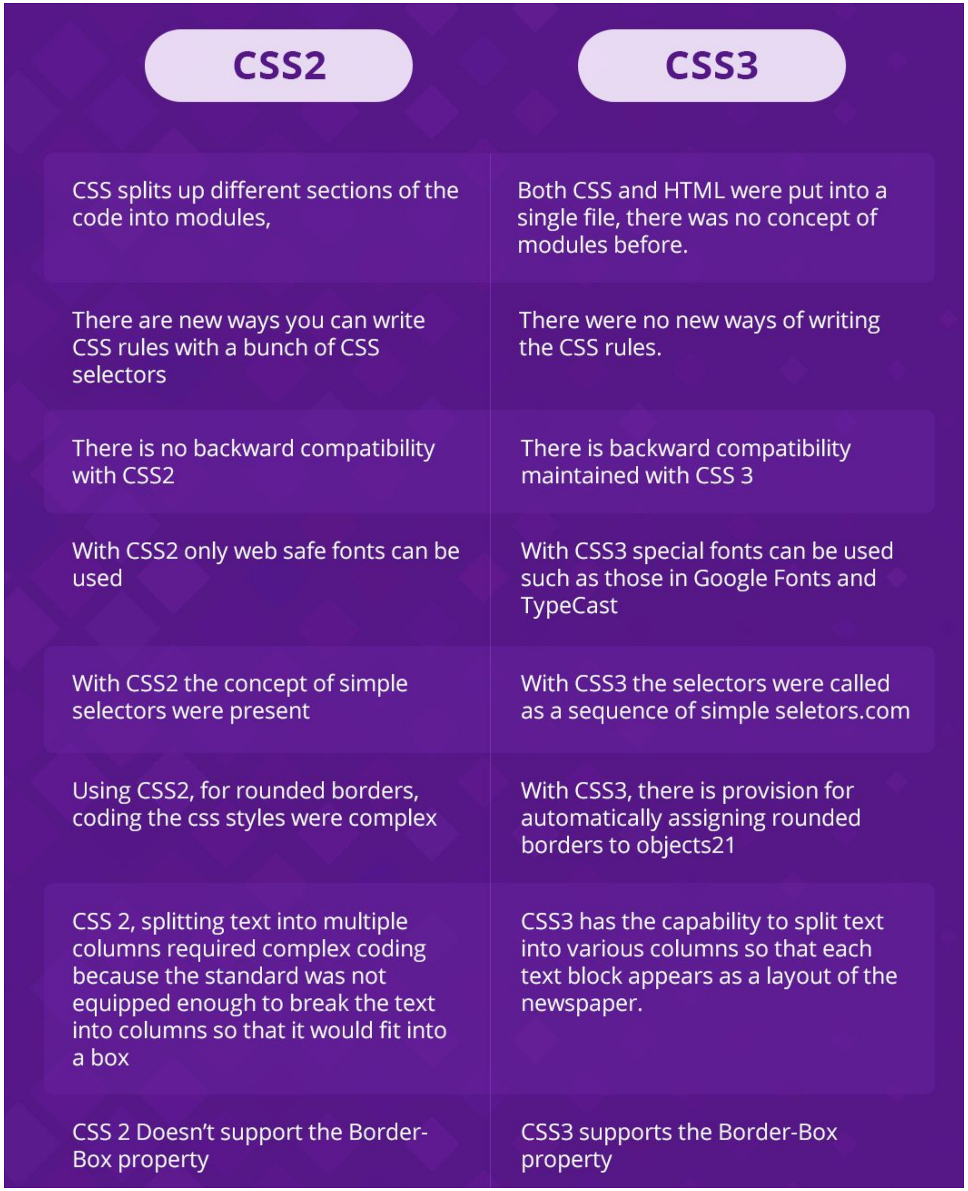
- CSS3 is the **latest standard** for CSS.
- CSS3 is completely backwards-compatible with earlier versions of CSS.
- CSS3 has been split into "modules". It contains the "old CSS specification" (which has been split into smaller pieces). In addition, new modules are added.
- CSS3 Transitions are a presentational effect which allow property changes in CSS values, such as those that may be defined to occur on :hover or :focus, to occur smoothly over a specified duration – rather than happening instantaneously as is the normal behaviour.
- Transition effects can be applied to a wide variety of CSS properties, including background-color, width, height, opacity, and many more.

Introduction to CSS3 (Cont)

- Some of the most important CSS3 modules are:
  - CSS Animations and Transitions
  - Calculating Values With calc()
  - Advanced Selectors
  - Generated Content and Counters
  - Gradients
  - Webfonts
  - Box Sizing
  - Border Images
  - Media Queries
  - Multiple Backgrounds
  - CSS Columns

https://www.tutorialspoint.com/css/css3_tutorial.htm

Introduction to CSS3 (Cont)



CSS2	CSS3
CSS splits up different sections of the code into modules,	Both CSS and HTML were put into a single file, there was no concept of modules before.
There are new ways you can write CSS rules with a bunch of CSS selectors	There were no new ways of writing the CSS rules.
There is no backward compatibility with CSS2	There is backward compatibility maintained with CSS 3
With CSS2 only web safe fonts can be used	With CSS3 special fonts can be used such as those in Google Fonts and TypeCast
With CSS2 the concept of simple selectors were present	With CSS3 the selectors were called as a sequence of simple seletors.com
Using CSS2, for rounded borders, coding the css styles were complex	With CSS3, there is provision for automatically assigning rounded borders to objects21
CSS 2, splitting text into multiple columns required complex coding because the standard was not equipped enough to break the text into columns so that it would fit into a box	CSS3 has the capability to split text into various columns so that each text block appears as a layout of the newspaper.
CSS 2 Doesn't support the Border-Box property	CSS3 supports the Border-Box property

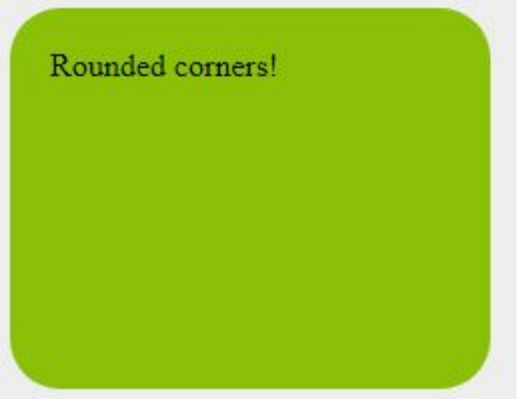
CSS3

CSS3 is collaboration of CSS2 specifications and new specifications, we can called this collaboration is module. Some of the modules are shown below −

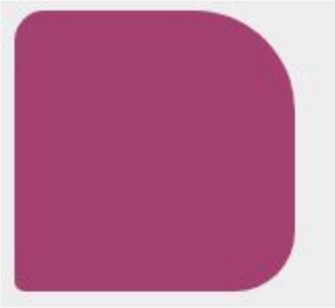
- Selectors
- Box Model
- Backgrounds
- Image Values and Replaced Content
- Text Effects
- 2D Transformations
- 3D Transformations
- Animations
- Multiple Column Layout
- User Interface

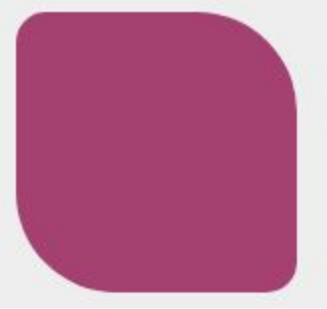
1. CSS3 Rounded Corners

- `border-radius: 25px;`
- `border-radius: 15px 50px 30px 5px;`
- `border-radius: 15px 50px;`



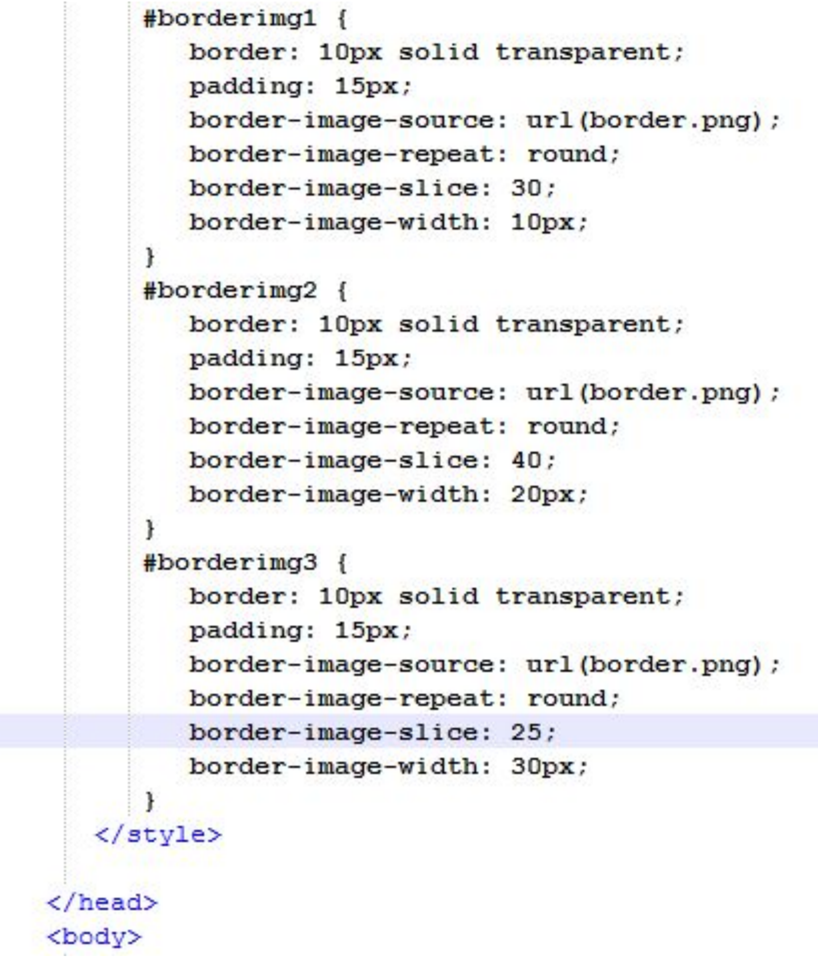
Rounded corners!



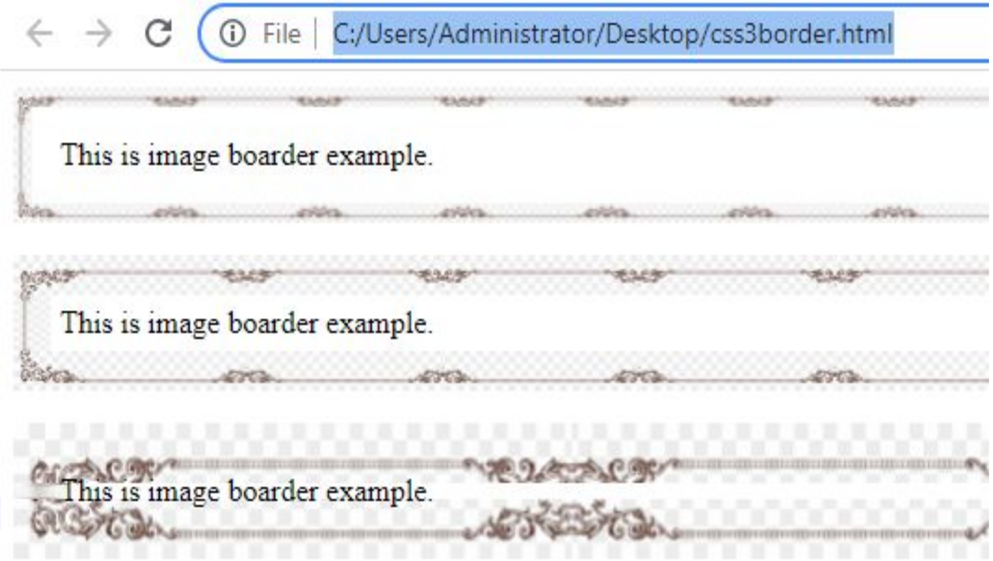


border-radius, border-top-left-radius, border-top-right-radius, border-bottom-right-radius, border-bottom-left-radius

2. CSS3 Border Image



```
    #borderimg1 {
       border: 10px solid transparent;
       padding: 15px;
       border-image-source: url(border.png);
       border-image-repeat: round;
       border-image-slice: 30;
       border-image-width: 10px;
    }
    #borderimg2 {
       border: 10px solid transparent;
       padding: 15px;
       border-image-source: url(border.png);
       border-image-repeat: round;
       border-image-slice: 40;
       border-image-width: 20px;
    }
    #borderimg3 {
       border: 10px solid transparent;
       padding: 15px;
       border-image-source: url(border.png);
       border-image-repeat: round;
       border-image-slice: 25;
       border-image-width: 30px;
    }
  </style>

</head>
<body>
```



This is image boarder example.

This is image boarder example.

This is image boarder example.

2. CSS3 Border Image (multibackground)

```
#multibackground {
   background-image: url(/css/images/logo.png),
url(/css/images/border.png);
   background-position: left top, left top;
   background-repeat: no-repeat, repeat;
   padding: 75px;
 }
```

3. CSS3 Gradient

Linear and Radial
LINEAR:

1) Top to bottom

```
background: linear-gradient(pink,green);
```

2) Left to right

```
background: linear-gradient(to right, red , blue);
```

3) Diagonal

```
background: linear-gradient(to bottom right, red , blue);
```

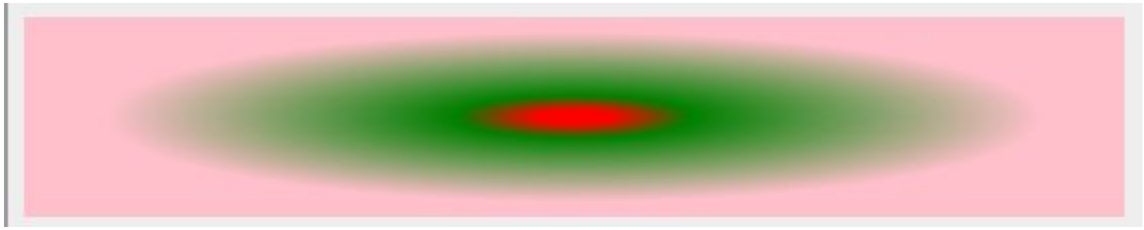
4)multicolor

```
background: linear-gradient(red, orange, yellow, red, blue, green,pink);
```

3. CSS3 Gradient

```
RADIAL:
```

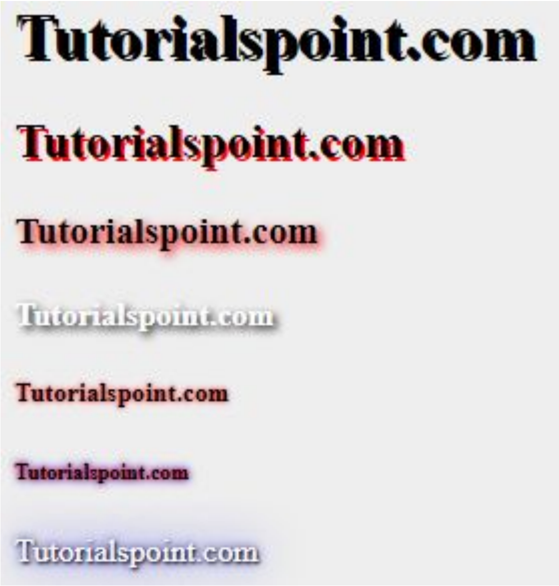
```
background: radial-gradient(red 5%, green 15%, pink 60%);
```

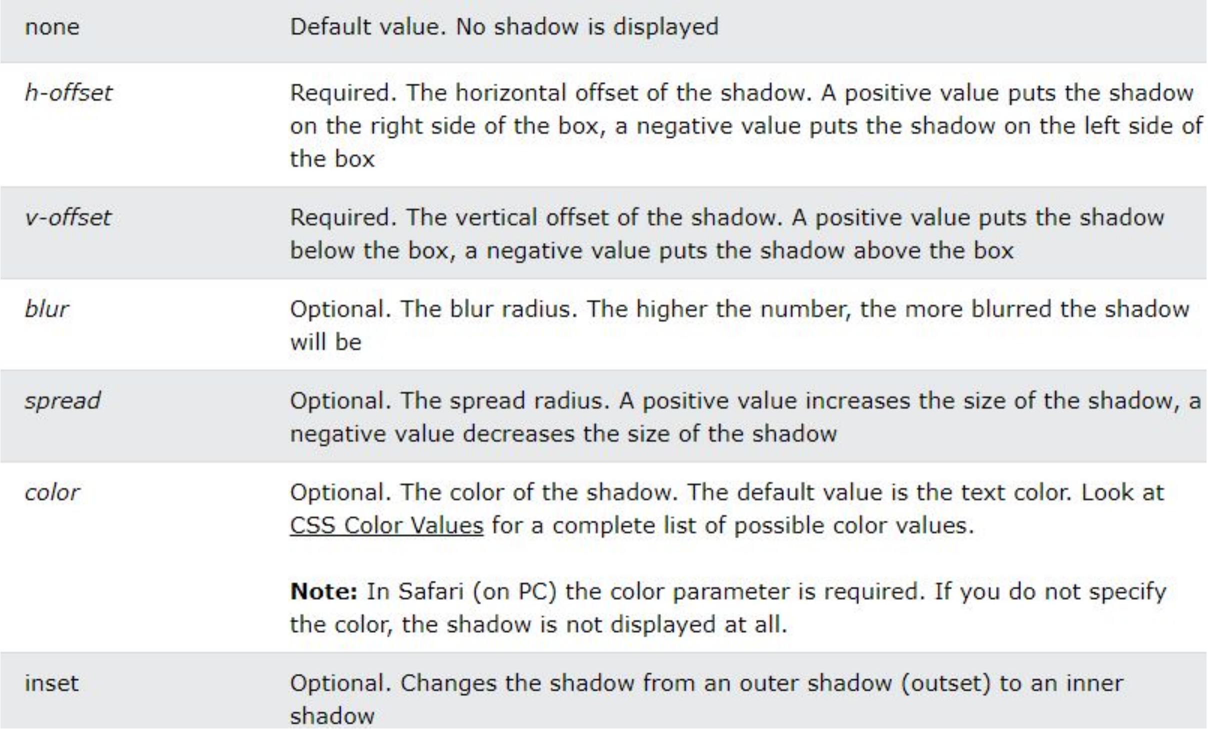


4. CSS3 Text & box Shadow

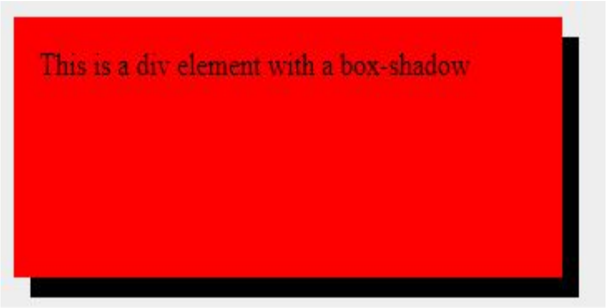
```
text-shadow: h-shadow v-shadow blur-radius color|none|initial|inherit;

text-shadow: 2px 2px red;
```

```
box-shadow: none|h-offset v-offset blur spread color
|inset|initial|inherit;
```

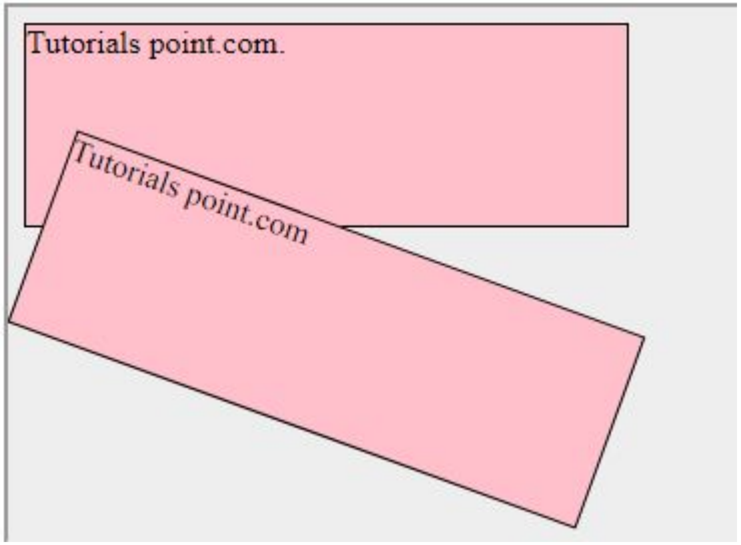




none	Default value. No shadow is displayed
h-offset	Required. The horizontal offset of the shadow. A positive value puts the shadow on the right side of the box, a negative value puts the shadow on the left side of the box
v-offset	Required. The vertical offset of the shadow. A positive value puts the shadow below the box, a negative value puts the shadow above the box
blur	Optional. The blur radius. The higher the number, the more blurred the shadow will be
spread	Optional. The spread radius. A positive value increases the size of the shadow, a negative value decreases the size of the shadow
color	Optional. The color of the shadow. The default value is the text color. Look at CSS Color Values for a complete list of possible color values. **Note:** In Safari (on PC) the color parameter is required. If you do not specify the color, the shadow is not displayed at all.
inset	Optional. Changes the shadow from an outer shadow (outset) to an inner shadow

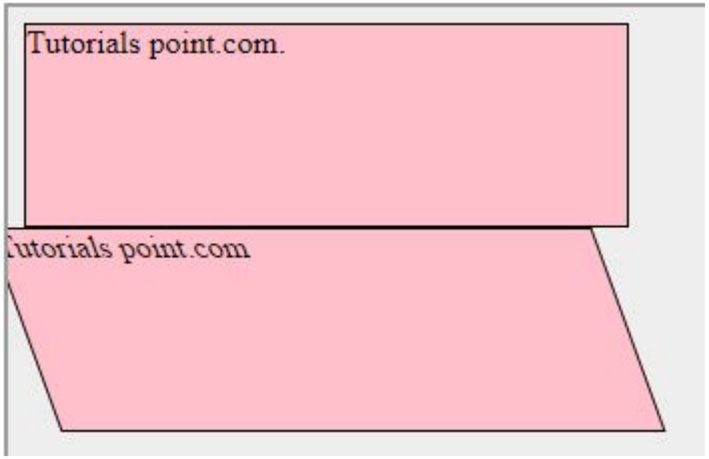


5. 2D Transform



translate(x,y)
translateX(n)
translateY(n)
scale(x,y)
scaleX(n)
scaleY(n)
rotate(angle)
skewX(angle)
skewY(angle)

```
transform: rotate(20deg);
transform: skewX(20deg);
```



6. Animation

t@keyframes

- animation-name
- animation-duration
- animation-delay
- animation-iteration-count
- animation-direction
- animation-timing-function
- animation-fill-mode
- animation

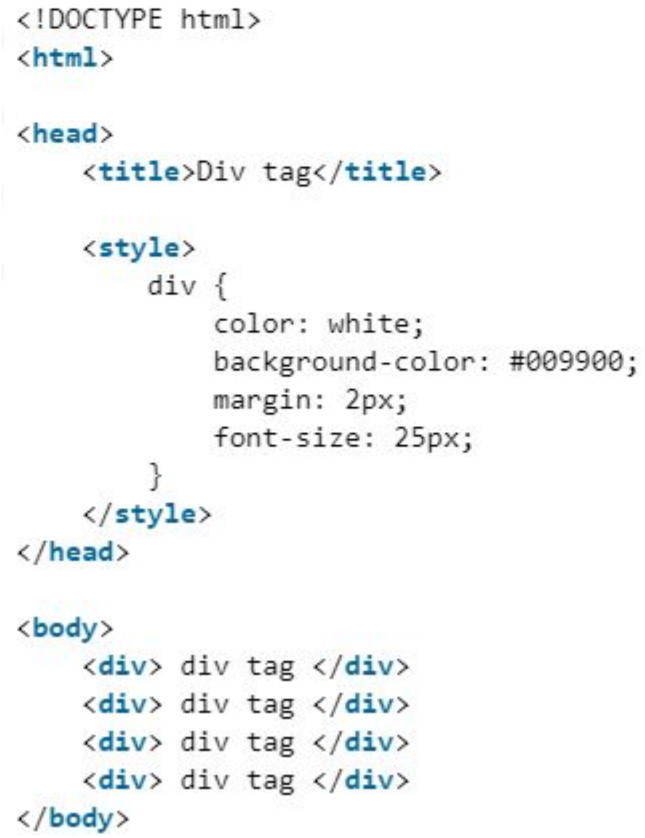
animation-direction:

The animation-direction property can have the following values:

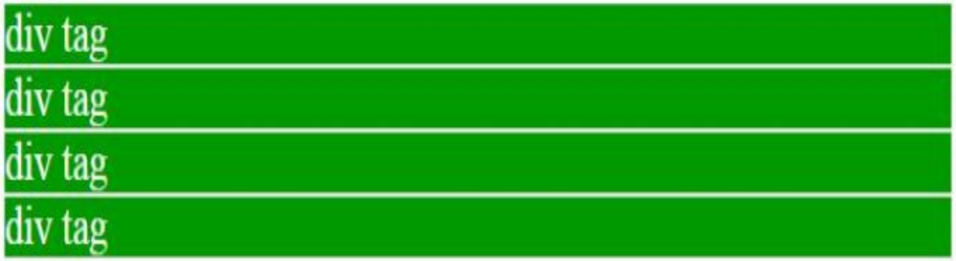
- normal - The animation is played as normal (forwards). This is default
- reverse - The animation is played in reverse direction (backwards)
- alternate - The animation is played forwards first, then backwards
- alternate-reverse - The animation is played backwards first, then forwards

<div> and <span>

Div tag is a block-level tag. In this example, the div tag contains the entire width. It will be displayed div tag each time on a new line, not on the same line.



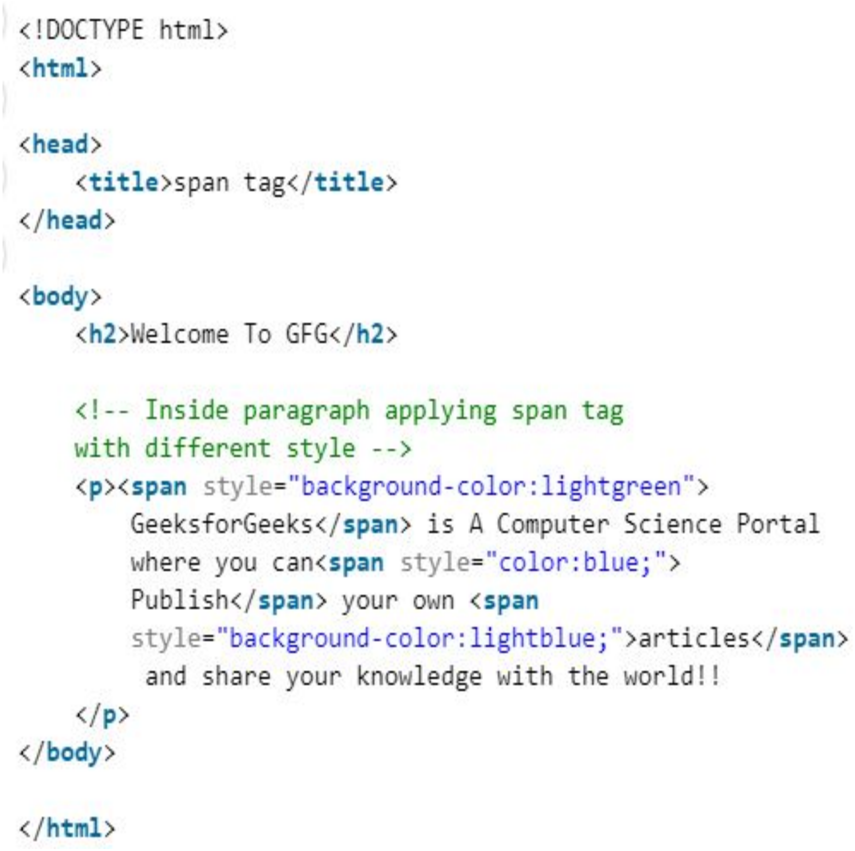
```
<!DOCTYPE html>
<html>

<head>
    <title>Div tag</title>

    <style>
        div {
            color: white;
            background-color: #009900;
            margin: 2px;
            font-size: 25px;
        }
    </style>
</head>

<body>
    <div> div tag </div>
    <div> div tag </div>
    <div> div tag </div>
    <div> div tag </div>
</body>
```



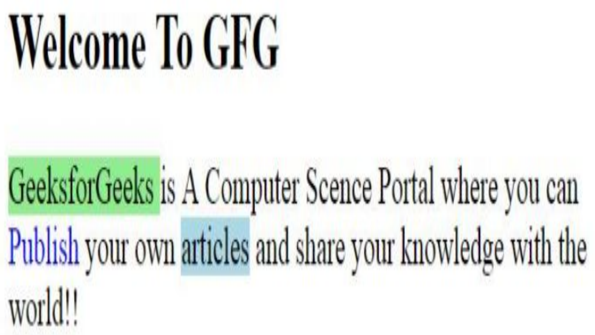
```
div tag
div tag
div tag
div tag
```

<div> and <span>

The span tag is very similar to the div tag, but div is a block-level tag and span is an inline tag.



```
<!DOCTYPE html>
<html>

<head>
    <title>span tag</title>
</head>

<body>
    <h2>Welcome To GFG</h2>

    <!-- Inside paragraph applying span tag
    with different style -->
    <p><span style="background-color:lightgreen">
        GeeksforGeeks</span> is A Computer Science Portal
        where you can<span style="color:blue;">
        Publish</span> your own <span
        style="background-color:lightblue;">articles</span>
         and share your knowledge with the world!!
    </p>
</body>

</html>
```



Welcome To GFG

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