**University of Babylon**

**College of Information Technology**

**Department of Information Networks**

# Web Page Design

## Introduction to CSS3

## Part II

Lecturer

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## CSS3 Transitions

With CSS3, we can add an effect when changing from one style to another, without using Flash animations or JavaScripts.

## Browser Support

| Property | Browser Support | | | | |
|----------|-----------------|--|--|--|--|
| transition | | -moz- | -webkit- | -webkit- | -o- |

*Till the date of this lecture:*

- Internet Explorer does not yet support the transition property.

- Firefox 4 requires the prefix -moz-.

- Chrome and Safari requires the prefix -webkit-.

- Opera requires the prefix -o-.

## How does it work?

CSS3 transitions are effects that let an element gradually change from one style to another.

To do this, you must specify two things:

- Specify the CSS property you want to add an effect to
- Specify the duration of the effect.

Transition effect on the width property, duration: 2 seconds:

```
Example
div
{
transition: width 2s;
-moz-transition: width 2s; /* Firefox 4 */
-webkit-transition: width 2s; /* Safari and Chrome */
-o-transition: width 2s; /* Opera */
}
```

**Note:** If the duration is not specified, the transition will have no effect, because default value is 0.

The effect will start when the specified CSS property changes value. A typical CSS property change would be when a user mouse-over an element:

Specify :hover for <div> elements:

| Example |
| --- |
| ```<br><!DOCTYPE html><br><html><br><head><br><style><br>div<br>{<br>width:100px;<br>height:100px;<br>background:red;<br>transition:width 2s;<br>-moz-transition:width 2s; /* Firefox 4 */<br>-webkit-transition:width 2s; /* Safari and Chrome */<br>-o-transition:width 2s; /* Opera */<br>}<br><br>div:hover<br>{<br>width:300px;<br>}<br></style><br></head><br><body><br><br><p><b>Note:</b> This example does not work in Internet Explorer.</p><br><br><div></div><br><br><p>Hover over the div element above, to see the transition effect.</p><br><br></body><br></html><br>``` |

## Multiple changes

To add a transitional effect for more than one style, add more properties, separated by commas:

Add effects on the width, height, and the transformation:

| Example |
| --- |
| ```<br><!DOCTYPE html><br><html><br>``` |

```
<head>
<style>
div
{
width:100px;
height:100px;
background:red;
transition:width 2s, height 2s;
-moz-transition:width 2s, height 2s, -moz-transform 2s; /* Firefox 4 */
-webkit-transition:width 2s, height 2s, -webkit-transform 2s; /* Safari and Chrome */
-o-transition:width 2s, height 2s, -o-transform 2s; /* Opera */
}

div:hover
{
width:200px;
height:200px;
}
</style>
</head>
<body>

<p><b>Note:</b> This example does not work in Internet Explorer.</p>

<div>Hover over me to see the transition effect!</div>

</body>
</html>
```

## CSS3 Animations

With CSS3, we can create animations, which can replace animated images, Flash animations, and JavaScripts in many web pages.

## CSS3 @keyframes Rule

To create animations in CSS3, you will have to learn about the @keyframes rule.

The @keyframes rule is where the animation is created. Specify a CSS style inside the @keyframes rule and the animation will gradually change from the current style to the new style.

## Browser Support

| Property | Browser Support | | | | |
|---|---|---|---|---|---|
| @keyframes | | -moz- | -webkit- | -webkit- | -o- |
| animation | | -moz- | -webkit- | -webkit- | -o- |

*Till the date of this lecture:*

- Internet Explorer does not yet support the @keyframes rule or the animation property.

- Firefox requires the prefix -moz-, Chrome and Safari require the prefix -webkit-, and Opera require the prefix -o-.

**Example**

```
@keyframes myfirst
{
from {background: red;}
to {background: yellow;}
}

@-moz-keyframes myfirst /* Firefox */
{
from {background: red;}
to {background: yellow;}
}

@-webkit-keyframes myfirst /* Safari and Chrome */
{
from {background: red;}
to {background: yellow;}
}

@-o-keyframes myfirst /* Opera */
{
from {background: red;}
to {background: yellow;}
}
```

## CSS3 animation

When the animation is created in the @keyframe, bind it to a selector, otherwise the animation will have no effect.

Bind the animation to a selector by specifying at least these two CSS3 animation properties:

- Specify the name of the animation
- Specify the duration of the animation

Binding the "myfirst" animation to a div element, duration: 5 seconds:

| Example |
|---|

```
<!DOCTYPE html>
<html>
<head>
<style>
div
{
width:100px;
height:100px;
background:red;
animation:myfirst 5s;
-moz-animation:myfirst 5s; /* Firefox */
-webkit-animation:myfirst 5s; /* Safari and Chrome */
-o-animation:myfirst 5s; /* Opera */
}

@keyframes myfirst
{
from {background:red;}
to {background:yellow;}
}

@-moz-keyframes myfirst /* Firefox */
{
from {background:red;}
to {background:yellow;}
}

@-webkit-keyframes myfirst /* Safari and Chrome */
{
from {background:red;}
to {background:yellow;}
}

@-o-keyframes myfirst /* Opera */
{
from {background:red;}
to {background:yellow;}
}
```

```
</style>
</head>
<body>

<p><b>Note:</b> This example does not work in Internet Explorer.</p>

<div></div>

</body>
</html>
```

**Note:** You must define the name and the duration of the animation. If duration is omitted, the animation will not run, because the default value is 0.

## What are Animations in CSS3?

An animation is an effect that lets an element gradually change from one style to another.

You can change as many styles you want, as many times you want.

Specify when the change will happen in percent or the keywords "from" and "to", which is the same as 0% and 100%.

0% is the beginning of the animation, 100% is when the animation is complete.

For best browser support, you should always define both the 0% and the 100% selectors.

Change the background color when the animation is 25%, 50%, and again when the animation is 100% complete:

**Example**
```
<!DOCTYPE html>
<html>
<head>
<style>
div
{
width:100px;
height:100px;
background:red;
animation:myfirst 5s;
-moz-animation:myfirst 5s; /* Firefox */
-webkit-animation:myfirst 5s; /* Safari and Chrome */
-o-animation:myfirst 5s; /* Opera */
}
```

```
@keyframes myfirst
{
0%   {background:red;}
25%  {background:yellow;}
50%  {background:blue;}
100% {background:green;}
}

@-moz-keyframes myfirst /* Firefox */
{
0%   {background:red;}
25%  {background:yellow;}
50%  {background:blue;}
100% {background:green;}
}

@-webkit-keyframes myfirst /* Safari and Chrome */
{
0%   {background:red;}
25%  {background:yellow;}
50%  {background:blue;}
100% {background:green;}
}

@-o-keyframes myfirst /* Opera */
{
0%   {background:red;}
25%  {background:yellow;}
50%  {background:blue;}
100% {background:green;}
}
</style>
</head>
<body>

<p><b>Note:</b> This example does not work in Internet Explorer.</p>
<p><b>Note:</b> When an animation is finished, it changes back to its original style.</p>

<div></div>

</body>
</html>
```

Change the background color and position:

| Example |
| --- |
| ```
<!DOCTYPE html>
<html>
<head>
``` |

```
<style>
div
{
width:100px;
height:100px;
background:red;
position:relative;
animation:myfirst 5s;
-moz-animation:myfirst 5s; /* Firefox */
-webkit-animation:myfirst 5s; /* Safari and Chrome */
-o-animation:myfirst 5s; /* Opera */
}

@keyframes myfirst
{
0%   {background:red; left:0px; top:0px;}
25% {background:yellow; left:200px; top:0px;}
50% {background:blue; left:200px; top:200px;}
75% {background:green; left:0px; top:200px;}
100% {background:red; left:0px; top:0px;}
}

@-moz-keyframes myfirst /* Firefox */
{
0%   {background:red; left:0px; top:0px;}
25% {background:yellow; left:200px; top:0px;}
50% {background:blue; left:200px; top:200px;}
75% {background:green; left:0px; top:200px;}
100% {background:red; left:0px; top:0px;}
}

@-webkit-keyframes myfirst /* Safari and Chrome */
{
0%   {background:red; left:0px; top:0px;}
25% {background:yellow; left:200px; top:0px;}
50% {background:blue; left:200px; top:200px;}
75% {background:green; left:0px; top:200px;}
100% {background:red; left:0px; top:0px;}
}

@-o-keyframes myfirst /* Opera */
{
0%   {background:red; left:0px; top:0px;}
25% {background:yellow; left:200px; top:0px;}
50% {background:blue; left:200px; top:200px;}
75% {background:green; left:0px; top:200px;}
100% {background:red; left:0px; top:0px;}
}
</style>
</head>
<body>
```

```
<p><b>Note:</b> This example does not work in Internet Explorer.</p>

<div></div>

</body>
</html>
```

Run an animation called myfirst, with all the animation properties set:

| Example |
|---|
| ```
<!DOCTYPE html>
<html>
<head>
<style>
div
{
width:100px;
height:100px;
background:red;
position:relative;
animation-name:myfirst;
animation-duration:5s;
animation-timing-function:linear;
animation-delay:2s;
animation-iteration-count:infinite;
animation-direction:alternate;
animation-play-state:running;
/* Firefox: */
-moz-animation-name:myfirst;
-moz-animation-duration:5s;
-moz-animation-timing-function:linear;
-moz-animation-delay:2s;
-moz-animation-iteration-count:infinite;
-moz-animation-direction:alternate;
-moz-animation-play-state:running;
/* Safari and Chrome: */
-webkit-animation-name:myfirst;
-webkit-animation-duration:5s;
-webkit-animation-timing-function:linear;
-webkit-animation-delay:2s;
-webkit-animation-iteration-count:infinite;
-webkit-animation-direction:alternate;
-webkit-animation-play-state:running;
/* Opera: */
-o-animation-name:myfirst;
-o-animation-duration:5s;
-o-animation-timing-function:linear;
-o-animation-delay:2s;
-o-animation-iteration-count:infinite;
-o-animation-direction:alternate;
``` |

```
-o-animation-play-state:running;
}

@keyframes myfirst
{
0%   {background:red; left:0px; top:0px;}
25% {background:yellow; left:200px; top:0px;}
50% {background:blue; left:200px; top:200px;}
75% {background:green; left:0px; top:200px;}
100% {background:red; left:0px; top:0px;}
}

@-moz-keyframes myfirst /* Firefox */
{
0%   {background:red; left:0px; top:0px;}
25% {background:yellow; left:200px; top:0px;}
50% {background:blue; left:200px; top:200px;}
75% {background:green; left:0px; top:200px;}
100% {background:red; left:0px; top:0px;}
}

@-webkit-keyframes myfirst /* Safari and Chrome */
{
0%   {background:red; left:0px; top:0px;}
25% {background:yellow; left:200px; top:0px;}
50% {background:blue; left:200px; top:200px;}
75% {background:green; left:0px; top:200px;}
100% {background:red; left:0px; top:0px;}
}

@-o-keyframes myfirst /* Opera */
{
0%   {background:red; left:0px; top:0px;}
25% {background:yellow; left:200px; top:0px;}
50% {background:blue; left:200px; top:200px;}
75% {background:green; left:0px; top:200px;}
100% {background:red; left:0px; top:0px;}
}
</style>
</head>
<body>

<p><b>Note:</b> This example does not work in Internet Explorer.</p>

<div></div>

</body>
</html>
```

## CSS3 Multiple Columns

With CSS3, you can create multiple columns for laying out text - like in newspapers!

In this chapter you will learn about the following multiple column properties:

- column-count
- column-gap
- column-rule

## Browser Support

| Property | Browser Support | | | | |
|---|---|---|---|---|---|
| column-count | X | -moz- | -webkit- | -webkit- | O |
| column-gap | X | -moz- | -webkit- | -webkit- | O |
| column-rule | X | -moz- | -webkit- | -webkit- | O |

Till the date of this lecture:

Internet Explorer does not yet support the multiple columns properties.

Firefox requires the prefix -moz-.

Chrome and Safari require the prefix -webkit-.

## CSS3 Create Multiple Columns

The column-count property specifies the number of columns an element should be divided into:

Divide the text in a div element into three columns:

| Example |
|---|
| ```
<!DOCTYPE html>
<html>
<head>
<style>
.newspaper
{
-moz-column-count:3; /* Firefox */
-webkit-column-count:3; /* Safari and Chrome */
column-count:3;
}
</style>
</head>
``` |

```
<body>

<p><b>Note:</b> Internet Explorer does not support the column-count property.</p>

<div class="newspaper">
Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy nibh euismod
tincidunt ut laoreet dolore magna aliquam erat volutpat. Ut wisi enim ad minim veniam, quis
nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat.
Duis autem vel eum iriure dolor in hendrerit in vulputate velit esse molestie consequat, vel
illum dolore eu feugiat nulla facilisis at vero eros et accumsan et iusto odio dignissim qui
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placerat facer possim assum. Typi non habent claritatem insitam; est usus legentis in iis qui
facit eorum claritatem. Investigationes demonstraverunt lectores legere me lius quod ii
legunt saepius.
</div>

</body>
</html>
```

**The result of the above:**

**Note:** Internet Explorer does not support the column-count property.

Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Ut wisi enim ad minim veniam, quis nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat. Duis autem vel eum iriure dolor in hendrerit in vulputate velit esse molestie consequat, vel illum dolore eu feugiat nulla facilisis at vero eros et accumsan et iusto odio dignissim qui blandit praesent luptatum zzril delenit augue duis dolore te feugait nulla facilisi. Nam liber tempor cum soluta nobis eleifend option congue nihil imperdiet doming id quod mazim placerat facer possim assum. Typi non habent claritatem insitam; est usus legentis in iis qui facit eorum claritatem. Investigationes demonstraverunt lectores legere me lius quod ii legunt saepius.

## CSS3 Specify the Gap Between Columns

The column-gap property specifies the gap between the columns:

Specify a 40 pixels gap between the columns:

**Example**

```
<!DOCTYPE html>
<html>
<head>
<style>
```

```
.newspaper
{
-moz-column-count:3; /* Firefox */
-webkit-column-count:3; /* Safari and Chrome */
column-count:3;

-moz-column-gap:40px; /* Firefox */
-webkit-column-gap:40px; /* Safari and Chrome */
column-gap:40px;
}
</style>
</head>
<body>

<p><b>Note:</b> Internet Explorer does not support the column-gap property.</p>

<div class="newspaper">
Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy nibh euismod
tincidunt ut laoreet dolore magna aliquam erat volutpat. Ut wisi enim ad minim veniam, quis
nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat.
Duis autem vel eum iriure dolor in hendrerit in vulputate velit esse molestie consequat, vel
illum dolore eu feugiat nulla facilisis at vero eros et accumsan et iusto odio dignissim qui
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facit eorum claritatem. Investigationes demonstraverunt lectores legere me lius quod ii
legunt saepius.
</div>

</body>
</html>
```

**The result of the above:**

**Note:** Internet Explorer does not support the column-gap property.

Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Ut wisi enim ad minim veniam, quis nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat. Duis autem vel eum iriure dolor in hendrerit in vulputate velit esse molestie consequat, vel illum dolore eu feugiat nulla facilisis at vero eros et accumsan et iusto odio dignissim qui blandit praesent luptatum zzril delenit augue duis dolore te feugait nulla facilisi. Nam liber tempor cum soluta nobis eleifend option congue nihil imperdiet doming id quod mazim placerat facer possim assum. Typi non habent claritatem insitam; est usus legentis in iis qui facit eorum claritatem. Investigationes demonstraverunt lectores legere me lius quod ii legunt saepius.

## CSS3 Column Rules

The column-rule property sets the width, style, and color of the rule between columns.

Specify the width, style and color of the rule between columns:

| Example |
| --- |

```
<!DOCTYPE html>

<html>

<head>

<style>

.newspaper

{

-moz-column-count:3; /* Firefox */

-webkit-column-count:3; /* Safari and Chrome */

column-count:3;


-moz-column-gap:40px; /* Firefox */

-webkit-column-gap:40px; /* Safari and Chrome */
```

```
column-gap:40px;


-moz-column-rule:4px outset #ff00ff; /* Firefox */

-webkit-column-rule:4px outset #ff00ff; /* Safari and Chrome */

column-rule:4px outset #ff00ff;

}

</style>

</head>

<body>


<p><b>Note:</b> Internet Explorer does not support the column-rule property.</p>


<div class="newspaper">

Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy nibh euismod
tincidunt ut laoreet dolore magna aliquam erat volutpat. Ut wisi enim ad minim veniam, quis
nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat.
Duis autem vel eum iriure dolor in hendrerit in vulputate velit esse molestie consequat, vel
illum dolore eu feugiat nulla facilisis at vero eros et accumsan et iusto odio dignissim qui
blandit praesent luptatum zzril delenit augue duis dolore te feugait nulla facilisi. Nam liber
tempor cum soluta nobis eleifend option congue nihil imperdiet doming id quod mazim
placerat facer possim assum. Typi non habent claritatem insitam; est usus legentis in iis qui
facit eorum claritatem. Investigationes demonstraverunt lectores legere me lius quod ii
legunt saepius.

</div>


</body>

</html>
```

**The result of the above**

**Note:** Internet Explorer does not support the column-rule property.

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eum iriure dolor in hendrerit in vulputate velit esse molestie consequat, vel illum dolore eu feugiat nulla facilisis at vero eros et accumsan et iusto odio dignissim qui blandit praesent luptatum zzril delenit augue duis dolore te feugait nulla facilisi. Nam liber tempor cum soluta

nobis eleifend option congue nihil imperdiet doming id quod mazim placerat facer possim assum. Typi non habent claritatem insitam; est usus legentis in iis qui facit eorum claritatem. Investigationes demonstraverunt lectores legere me lius quod ii legunt saepius.

## CSS3 User Interface

In CSS3, some of the new user interface features are resizing elements, box sizing, and outlining.

In this chapter you will learn about the following user interface properties:

- resize
- box-sizing
- outline-offset

## Browser Support

| Property | Browser Support | | | | |
|---|---|---|---|---|---|
| resize | | | | | |
| box-sizing | | -moz- | | -webkit- | |
| outline-offset | | | | | |

*Till the date of this lecture:*

- The resize property is supported in Firefox 4+, Chrome, and Safari.

- The box-sizing is supported in Internet Explorer, Chrome, and Opera. Firefox requires the prefix -moz-. Safari requires the prefix -webkit-.

- The outline property is supported in all major browsers, except Internet Explorer.

## CSS3 Resizing

In CSS3, the resize property specifies whether or not an element should be resizable by the user.

Specify that a div element should be resizable by the user:

| Example |
|---|
| ```<br><!DOCTYPE html><br><html><br><head><br><style><br>div<br>{<br>border:2px solid;<br>padding:10px 40px;<br>width:300px;<br>resize:both;<br>overflow:auto;<br>}<br></style><br></head><br><body><br><br><p><b>Note:</b> Firefox 4+, Safari, and Chrome support the resize property.</p><br><br><div>The resize property specifies whether or not an element is resizable by the user.</div><br><br></body><br></html><br>``` |

## CSS3 Box Sizing

The box-sizing property allows you to define certain elements to fit an area in a certain way:

Specify two bordered boxes side by side:

| Example |
|---|
| ```<br><!DOCTYPE html><br><html><br><head><br><style><br>div.container<br>``` |

```
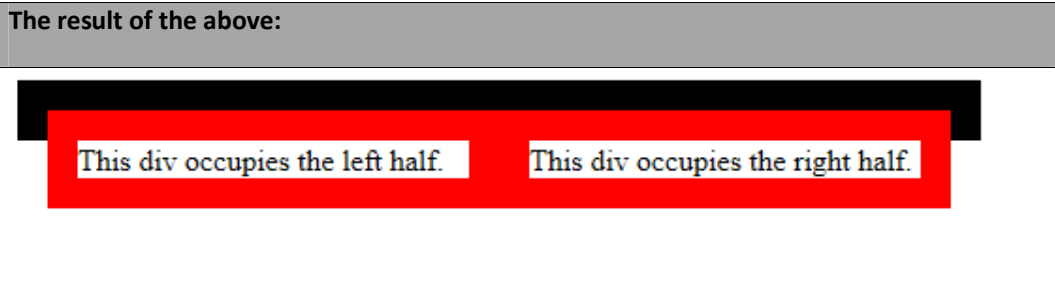{
width:30em;
border:1em solid;
}
div.box
{
box-sizing:border-box;
-moz-box-sizing:border-box; /* Firefox */
-webkit-box-sizing:border-box; /* Safari */
width:50%;
border:1em solid red;
float:left;
}
</style>
</head>
<body>

<div class="container">
<div class="box">This div occupies the left half.</div>
<div class="box">This div occupies the right half.</div>
</div>

</body>
</html>
```

**The result of the above:**



## CSS3 Outline Offset

The outline-offset property offsets an outline, and draws it beyond the border edge.

Outlines differ from borders in two ways:

- Outlines do not take up space
- Outlines may be non-rectangular

Specify an outline 15px outside the border edge:

**Example**

```
<!DOCTYPE html>

<html>

<head>

<style>

div

{

margin:20px;

width:150px;

padding:10px;

height:70px;

border:2px solid black;

outline:2px solid red;

outline-offset:15px;

}

</style>

</head>

<body>


<p><b>Note:</b> Internet Explorer and Opera does not support the outline-offset
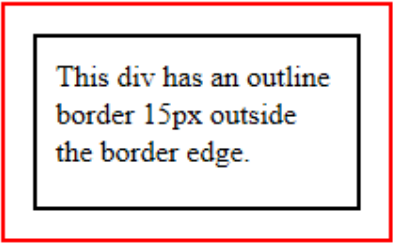property.</p>


<div>This div has an outline border 15px outside the border edge.</div>


</body>

</html>
```

**The result of the above:**

**Note:** Internet Explorer and Opera does not support the outline-offset property.

This div has an outline
border 15px outside
the border edge.