

STANDARDNI KORISNIČKI INTERFEJSI

Predavanje broj: 07

Nastavna jedinica: CSS

Nastavne teme:

Background (clip, linear-gradient, radial-gradient). CSS3 senčenje. Text-overflow. Word-wrap. Word-break. Text-align, text-justify. @font-face. 2D transformacije (rotacija, transliranje, skaliranje, smicanje). 3D transformacije. Transform-origin, transform-style. Perspektiva. Backface-visibility. Tranzicije (timing-function, delay). Transform. Animacije, Višestruke kolone. Korisnički interfejs. Boxing.

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Literatura:

J. D. Gauchat, "Integrisane tehnologije za izradu WEB strana", Mikroknjiga, Beograd, 2014.

W3C Tutorials, Internet, 2014.

background-clip

```
<style>
#example1 {
  border: 10px dotted black;
  padding: 35px;
  background: yellow;
}

#example2 {
  border: 10px dotted black;
  padding: 35px;
  background: yellow;
  background-clip: padding-box;
}

#example3 {
  border: 10px dotted black;
  padding: 35px;
  background: yellow;
  background-clip: content-box;
}
</style>
```

No background-clip (border-box is default):



background-clip: padding-box:



background-clip: content-box:



background:linear-gradient

- Sintaksa je : background: linear-gradient(*direction, color-stop1, color-stop2, ...*);

```
<!DOCTYPE html>
<html><head><style>
#grad1 {
  height: 200px;
  background:
    -webkit-linear-gradient(red, blue);
    /* For Safari */
  background:
    -o-linear-gradient(red, blue);
    /* For Opera */
  background: -moz-linear-gradient(red, blue);
    /* For Firefox */
  background: linear-gradient(red, blue);
    /* Standard syntax (must be last) */
}
</style></head><body>
<h3>Linear Gradient - Top to Bottom</h3>
<p>This linear gradient starts at the top. It starts red,
transitioning to blue:</p><div id="grad1"></div></body></html>
```

Linear Gradient - Top to Bottom

This linear gradient starts at the top. It starts red, transitioning to blue:



background:linear-gradient

```
<!DOCTYPE html>
<html><head><style>
#grad1 {    height: 100px;
    background: linear-gradient(to right, red , blue);
}
#grad2 {    height: 100px;
    background: linear-gradient(to bottom right, red , blue);
}
</style></head><body>
<h3>Linear Gradient - Left to Right</h3>
<p>This linear gradient starts at the left.
It starts red, transitioning to blue:</p>
<div id="grad1"></div>
<h3>Linear Gradient - Diagonal</h3>
<p>This linear gradient starts at top left.
It starts red, transitioning to blue:</p>
<div id="grad2"></div>
</body>
</html>
```

Linear Gradient - Left to Right

This linear gradient starts at the left. It starts red, transitioning to blue:



Linear Gradient - Diagonal

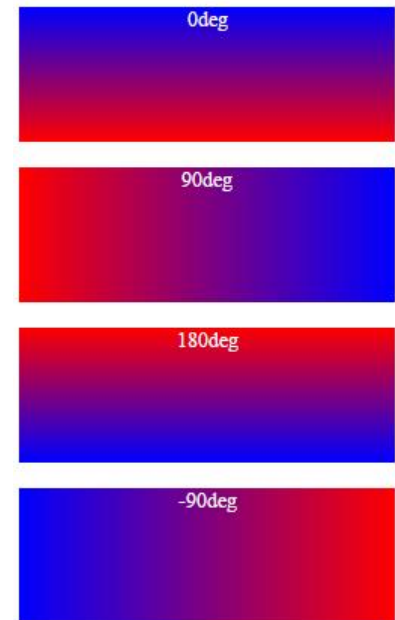
This linear gradient starts at top left. It starts red, transitioning to blue:



background:linear-gradient

```
<!DOCTYPE html>
<html><head><style>
#grad1 { height: 100px;
          background: linear-gradient(0deg, red, blue); }
#grad2 { height: 100px;
          background: linear-gradient(90deg, red, blue); }
#grad3 { height: 100px;
          background: linear-gradient(180deg, red, blue);}
#grad4 { height: 100px;
          background: linear-gradient(-90deg, red, blue);}
</style></head><body>
<h3>Linear Gradients - Using Different Angles</h3>
<div id="grad1" style="color:white;text-align:center;">0deg</div><br>
<div id="grad2" style="color:white;text-align:center;">90deg</div><br>
<div id="grad3" style="color:white;text-align:center;">180deg</div><br>
<div id="grad4" style="color:white;text-align:center;">-90deg</div>
</body></html>
```

Linear Gradients - Using Different Angles



background:linear-gradient

```
<!DOCTYPE html>
<html><head><style>
#grad1 {    height: 100px;
            background: linear-gradient(red, green, blue);}
#grad2 {    height: 100px;
            background: linear-gradient(red, orange, yellow,
            green, blue, indigo, violet); }
#grad3 {    height: 100px;
            background: linear-gradient(red 10%, green 85%,
                                         blue 90%);
}
```

```
</style></head><body>
<h3>3 Color Stops (evenly spaced)</h3>
<div id="grad1"></div>
<h3>7 Color Stops (evenly spaced)</h3>
<div id="grad2"></div>
<h3>3 Color Stops (not evenly spaced)</h3>
<div id="grad3"></div>
<p><strong>Note:</strong> Color stops are automatically spaced
evenly when no percents are specified.</p>
</body>
</html>
```

3 Color Stops (evenly spaced)



7 Color Stops (evenly spaced)



3 Color Stops (not evenly spaced)



Note: Color stops are automatically spaced evenly when no percents are specified.

background:linear-gradient

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
<style>
```

```
#grad1 {
```

```
    height: 55px;
```

```
    background: linear-gradient(to right, red, orange, yellow,  
green, blue, indigo, violet);
```

```
}
```

```
</style>
```

```
</head>
```

```
<body>
```

```
<div id="grad1" style="text-align:center;
```

```
margin:auto;
```

```
color:#888888;
```

```
font-size:40px;
```

```
font-weight:bold">
```

```
    Gradient Background
```

```
</div>
```

```
</body></html>
```



ako nije naveden height

background:linear-gradient

```
<!DOCTYPE html>
<html><head>
<style>
#grad1 {
  height: 200px;
  background: linear-gradient(
    to right,
    rgba(255,0,0,0),
    rgba(255,0,0,1));
}
</style>
</head><body>
```

Linear Gradient - Transparency

Transparentnost: 0 indicira potpunu providnost, 1 indicira neprovidnost.



```
<h3>Linear Gradient - Transparency</h3>
<p>Transparentnost: 0 indicira potpunu providnost, 1 indicira
neprovidnost.</p>

<div id="grad1"></div>
</body></html>
```

background:linear-gradient

```
<!DOCTYPE html>
<html>
<head>
<style>
#grad1 {
    height: 200px;
    background: repeating-linear-gradient(red, yellow 10%, green
20%);
}
</style>
</head>
<body>

<h3>Repeating Linear Gradient</h3>

<div id="grad1"></div>

</body>
</html>
```

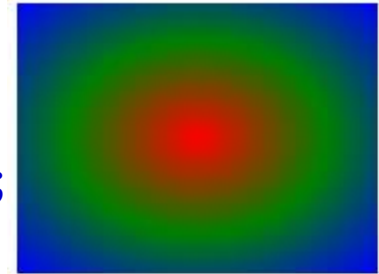
Repeating Linear Gradient



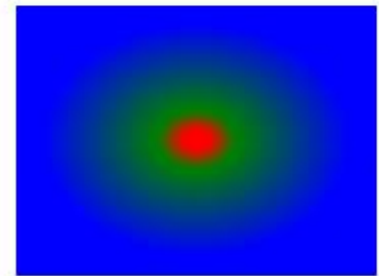
background:radial-gradient

```
<!DOCTYPE html>
<html><head><style>
#grad1 {
  height: 150px;
  width: 200px;
  background: radial-gradient(red, green, blue);
}
#grad2 {
  height: 150px;
  width: 200px;
  margin:10px;
  background: radial-gradient
              (red 5%, green 15%, blue 60%);
}
</style>
</head><body>
<h3>Radial Gradient - Evenly Spaced Color Stops</h3>
<div id="grad1"></div>
<h3>Radial Gradient - Differently Spaced Color Stops</h3>
<div id="grad2"></div>
</body></html>
```

Radial Gradient - Evenly Spaced Color Stops



Radial Gradient - Differently Spaced Color Stops

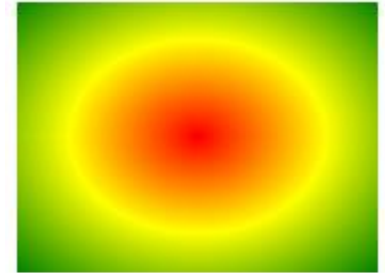


background:radial-gradient

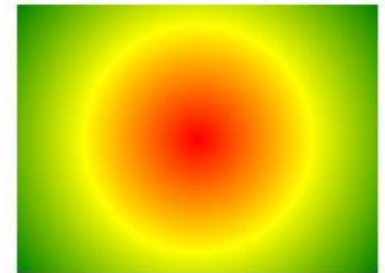
```
<!DOCTYPE html>
<html><head><style>
#grad1 {
  height: 150px;
  width: 200px;
  background: radial-gradient
    (red, yellow, green);
}
#grad2 {
  height: 150px;
  width: 200px;
  background: radial-gradient
    (circle, red, yellow, green);
}
</style></head><body>
<h3>Radial Gradient - Shapes</h3>
<p><strong>Ellipse (this is default):</strong></p>
<div id="grad1"></div>
<p><strong>Circle:</strong></p>
<div id="grad2"></div>
</body></html>
```

Radial Gradient - Shapes

Ellipse (this is default):



Circle:



background:radial-gradient

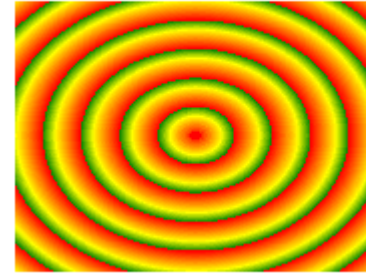
```
<!DOCTYPE html>
<html>
<head>
<style>
#grad1 {
  height: 150px;
  width: 200px;
  background: repeating-radial-gradient(red, yellow 10%, green
15%);
}
</style>
</head>
<body>

<h3>Repeating Radial Gradient</h3>

<div id="grad1"></div>

</body>
</html>
```

Repeating Radial Gradient

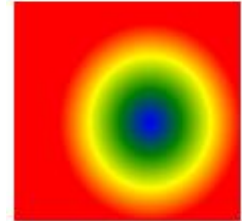


background:radial-gradient

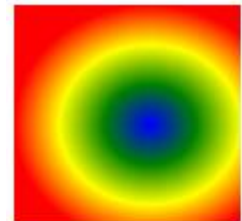
```
<!DOCTYPE html>
<html><head><style>
#grad1 { height: 150px; width: 150px;
background: radial-gradient(closest-side at 60%
55%,blue,green,yellow,red); }
#grad2 { height: 150px; width: 150px;
background: radial-gradient(farthest-side at 60%
55%,blue,green,yellow,red);
}
#grad3 { height: 150px; width: 150px;
background: radial-gradient(closest-corner at 60%
55%,blue,green,yellow,red);
}
#grad4 { height: 150px; width: 150px;
background: radial-gradient(farthest-corner at 60%
55%,blue,green,yellow,red);
}
</style></head><body>
<h3>Radial Gradients - Use of different size keywords</h3>
<p><strong>closest-side:</strong></p><div id="grad1"></div>
<p><strong>farthest-side:</strong></p><div id="grad2"></div>
<p><strong>closest-corner:</strong></p><div id="grad3"></div>
<p><strong>farthest-corner (this is default):</strong></p>
<div id="grad4"></div></body></html>
```

Radial Gradients - Use of different size keywords

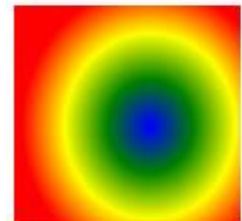
closest-side:



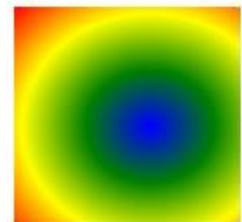
farthest-side:



closest-corner:



farthest-corner (this is default):



CSS3 senčenje

- Dva su oblika senčenja
 - text-shadow
 - box-shadow

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
<style>
```

```
h1.one { text-shadow: 2px 2px;}
```

```
h1.two { text-shadow: 2px 2px red;}
```

```
h1.three{ text-shadow: 2px 2px 5px red;}
```

```
h1.four { color: white; text-shadow: 2px 2px 4px #000000;}
```

```
</style>
```

```
</head>
```

```
<body>
```

```
<h1 class="one">Text-shadow effect!</h1>
```

```
<h1 class="two">Text-shadow effect!</h1>
```

```
<h1 class="three">Text-shadow effect!</h1>
```

```
<h1 class="four">Text-shadow effect!</h1>
```

```
</body>
```

```
</html>
```

Text-shadow effect!

Text-shadow effect!

Text-shadow effect!

Text-shadow effect!

CSS3 senčenje

```
<!DOCTYPE html>
<html>
<head>
<style>
h1.five { text-shadow: 0 0 3px #FF0000;}
h1.six {
    text-shadow: 0 0 3px #FF0000, 0 0 5px #0000FF;
}
h1.seven{ color: white;
    text-shadow: 1px 1px 2px black, 0 0 25px blue, 0 0 5px darkblue;}
</style>
</head>
<body>
<h1 class="five">Text-shadow effect!</h1>
<h1 class="six">Text-shadow effect!</h1>
<h1 class="seven">Text-shadow effect!</h1>
</body>
</html>
```

Text-shadow effect!

Text-shadow effect!

Text-shadow effect!

CSS3 senčenje

```
<!DOCTYPE html>
<html><head>
<style>
div.one {
  width: 300px;
  height: 100px;
  padding: 15px;
  background-color: yellow;
  box-shadow: 10px 10px;
}
div.two {
  width: 300px;
  height: 100px;
  padding: 15px;
  background-color: yellow;
  box-shadow: 10px 10px grey;
}
</style>
</head><body>
<div class="one">This is a div element with a box-shadow</div>
<br>
<div class="two">This is a div element with a box-shadow</div>
</body></html>
```

This is a div element with a box-shadow

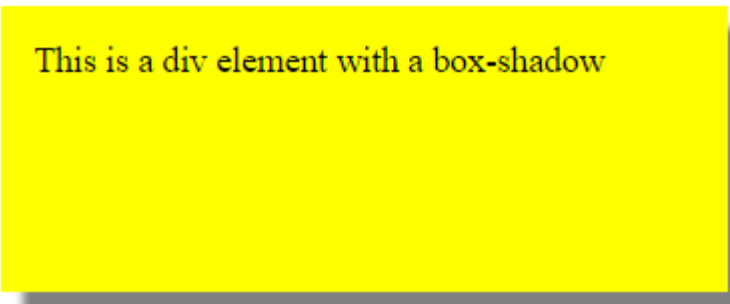
This is a div element with a box-shadow

CSS3 senčenje

```
<!DOCTYPE html>
<html>
<head>
<style>
div {
  width: 300px;
  height: 100px;
  padding: 15px;
  background-color: yellow;
  box-shadow: 10px 10px 5px grey;
}
</style>
</head>
<body>

<div>This is a div element with a box-shadow</div>

</body>
</html>
```



This is a div element with a box-shadow

Text, text-overflow

```
<!DOCTYPE html>
<html><head><style>
p.test1 {
  white-space: nowrap;
  width: 200px;
  border: 1px solid #000000;
  overflow: hidden;
  text-overflow: clip;
}
p.test2 {
  white-space: nowrap;
  width: 200px;
  border: 1px solid #000000;
  overflow: hidden;
  text-overflow: ellipsis;
}
</style></head><body>
<p>The following two paragraphs contains a long text that will not fit in
the box.</p>
<p>text-overflow: clip:</p>
<p class="test1">This is some long text that will not fit in the box</p>
<p>text-overflow: ellipsis:</p>
<p class="test2">This is some long text that will not fit in the box</p>
</body></html>
```

The following two paragraphs contains a long text that will not fit in the box.

text-overflow: clip:

This is some long text that will

text-overflow: ellipsis:

This is some long text that ...

text-overflow

```
<!DOCTYPE html>
<html><head>
<style>
div.test {
  width: 200px;
  height: 20px;
  overflow: hidden;
  border: 1px solid #000000;
}

div.test:hover {
  overflow: visible;
}
</style>
</head><body>
<p>Hover over the two divs below, to see the entire text.</p>
<div class="test" style="text-overflow:ellipsis;">This is some long text
that will not fit in the box</div>
<br>
<div class="test" style="text-overflow:clip;">This is some long text that
will not fit in the box</div>
</body></html>
```

Hover over the two divs below, to see the entire text.

This is some long text that ...

This is some long text that will

Hover over the two divs below, to see the entire text.

This is some long text that will not fit in the box

This is some long text that will

Hover over the two divs below, to see the entire text.

This is some long text that ...

This is some long text that will not fit in the box

word-wrap

```
<!DOCTYPE html>
<html>
<head>
<style>
p.test {
  width: 11em;
  border: 1px solid #000000;
  word-wrap: break-word;
}
</style>
</head>
<body>
```

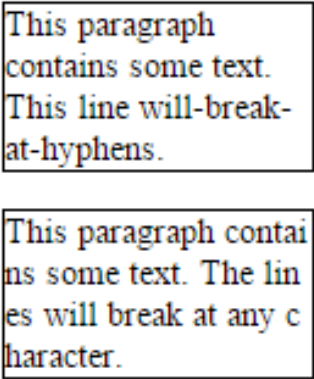
This paragraph contains a very long word:
thisisaveryveryveryveryveryverylongword. The long word will break and wrap to the next line.

```
<p class="test"> This paragraph contains a very long word:
thisisaveryveryveryveryveryveryverylongword. The long word will break and wrap
to the next line.</p>

</body>
</html>
```

word-break

```
<!DOCTYPE html>
<html>
<head>
<style>
p.test1 {
    width: 140px;
    border: 1px solid #000000;
    word-break: keep-all;
}
p.test2 {
    width: 140px;
    border: 1px solid #000000;
    word-break: break-all;
}
</style>
</head>
<body>
<p class="test1">This paragraph contains some text. This line will-break-
at-hyphens.</p>
<p class="test2">This paragraph contains some text. The lines will break at
any character.</p>
</body>
</html>
```



This paragraph contains some text. This line will-break-at-hyphens.

This paragraph contains some text. The lines will break at any character.

text-align, text-justify

- Vrednost **inter-word** menja razmak između reči, Vrednost **distribute** menja razmak između i reči i slova.

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
<style>
```

```
div {  
    text-align: justify;  
    text-justify: inter-word;  
}
```

```
</style>
```

```
</head>
```

```
<body>
```

```
<h1>CSS text-justify Example</h1>
```

```
<div>In my younger and more vulnerable years my father gave me some advice  
that I've been turning over in my mind ever since. 'Whenever you feel like  
criticizing anyone,' he told me, 'just remember that all the people in this  
world haven't had the advantages that you've had.'</div>
```

```
<p><b>Tip:</b> Resize the browser window to see how the value "justify"  
works.</p>  
</body></html>
```

CSS text-justify Example

In my younger and more vulnerable years my father gave me some advice that I've been turning over in my mind ever since. 'Whenever you feel like criticizing anyone,' he told me, 'just remember that all the people in this world haven't had the advantages that you've had.'

Tip: Resize the browser window to see how the value "justify" works.

2D transformacije, translate

```
<!DOCTYPE html>
<html>
<head>
<style>
div {
  width: 300px;
  height: 100px;
  background-color: yellow;
  border: 1px solid black;
  transform: translate(50px,100px);
}
```

The translate() method moves an element from its current position. This div element is moved 50 pixels to the right, and 100 pixels down from its current position.

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

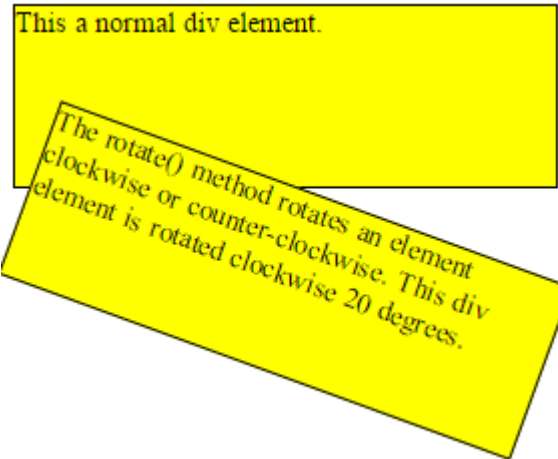
```
<div>
```

The translate() method moves an element from its current position. This div element is moved 50 pixels to the right, and 100 pixels down from its current position.

```
</div>
</body>
</html>
```

2D transformacije, rotate

```
<!DOCTYPE html>
<html><head>
<style>
div {
  width: 300px;
  height: 100px;
  background-color: yellow;
  border: 1px solid black;
}
div#myDiv {
  transform: rotate(20deg);
}
</style>
</head>
<body>
<div>
This a normal div element.
</div>
<div id="myDiv">
The rotate() method rotates an element clockwise or counter-clockwise. This
div element is rotated clockwise 20 degrees.
</div>
</body></html>
```



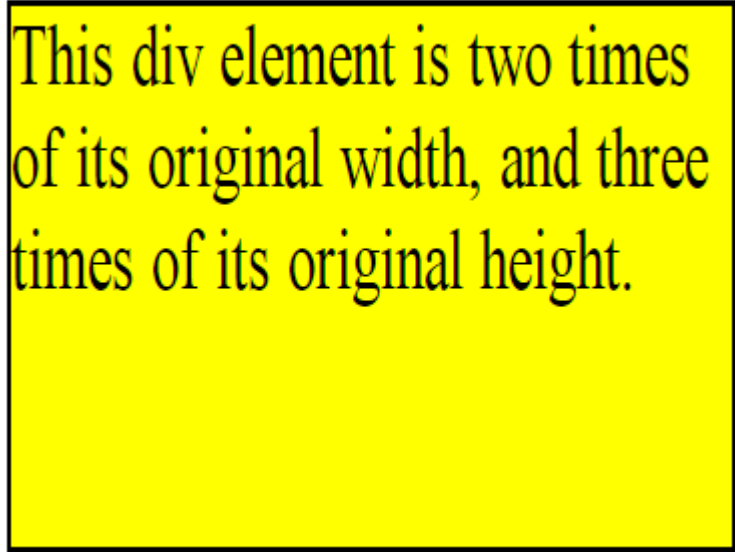
2D transformacije, scale

- Utiče i na debljinu okvira.

```
<!DOCTYPE html>
<html>
<head>
<style>
div {
  margin: 150px;
  width: 200px;
  height: 100px;
  background-color: yellow;
  border: 1px solid black;
  transform: scale(2,3);
}
</style>
</head>
<body>

<div>
This div element is two times of its original width, and three times of its
original height.
</div>

</body></html>
```



This div element is two times
of its original width, and three
times of its original height.

2D transformacije, skew

```
<!DOCTYPE html>
<html><head>
<style>
body{ margin:20px; }
div {
  width: 300px;
  height: 100px;
  background-color: yellow;
  border: 1px solid black;
```

```
}
div #myDiv {    transform: skewX(20deg); }
div #myDiv2 {  transform: skewY(20deg); }
```

```
</style>
```

```
</head>
```

```
<body>
```

```
<p>The skewX,skewY methods skew an element along the X-axis, Y-axis by the
given angle.</p>
```

```
<div>This a normal div element.</div>
```

```
<div id="myDiv">This div element is skewed 20 degrees along the X-axis.
```

```
</div>
```

```
<div id="myDiv2">
```

```
This div element is skewed 20 degrees along the Y-axis.
```

```
</div>
```

```
</body></html>
```

The skewX,skewY methods skew an element along the X-axis, Y-axis by the given angle.

This a normal div element.

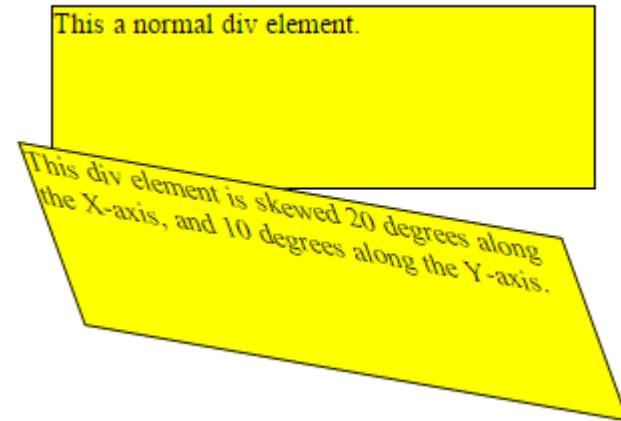
This div element is skewed 20 degrees along the X-axis.

This div element is skewed 20 degrees along the Y-axis.

2D transformacije, skew

```
<!DOCTYPE html>
<html><head>
<style>
body{ margin: 30px;}
div {
    width: 300px;
    height: 100px;
    background-color: yellow;
    border: 1px solid black;
}
div#myDiv {
    transform: skew(20deg,10deg);
}
</style>
</head><body>
<p>The skew() method skews an element into a given angle.</p>
<div>This a normal div element.</div>
<div id="myDiv">
This div element is skewed 20 degrees along the X-axis, and 10 degrees
along the Y-axis.
</div>
</body></html>
```

The skew() method skews an element into a given angle.



- Ako se koristi skew(ugao), imaće isto značenje kao i skewX.

2D matrica transformacija

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
<style>
```

```
div {  
    width: 300px;  
    height: 100px;  
    background-color: yellow;  
    border: 1px solid black;  
}
```

```
div#myDiv1 {  
    transform: matrix(1, -0.3, 0, 1, 0, 0); /* Standard syntax */  
}
```

```
div#myDiv2 {  
    transform: matrix(1, 0, 0.5, 1, 150, 0); /* Standard syntax */  
}
```

```
</style>
```

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

```
<p>The matrix() method combines all the 2D transform methods into one.</p>
```

```
<div>This a normal div element.</div>
```

```
<div id="myDiv1">Using the matrix() method.</div>
```

```
<div id="myDiv2">Another use of the matrix() method.</div>
```

```
</body></html>
```

The matrix() method combines all the 2D transform methods into one.

This a normal div element.

Using the matrix() method.

Another use of the matrix() method.

3D transformacije, rotate

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
<style>
```

```
div {  
    width: 300px;  
    height: 100px;  
    background-color: yellow;  
    border: 1px solid black;  
}
```

This a normal div element.

```
div#myDiv {  
    transform: rotateX(150deg);  
}
```

```
</style>
```

```
</head>
```

```
<body>
```

```
<div>This a normal div element.</div>
```

```
<div id="myDiv">
```

The rotateX() method rotates an element around its X-axis at a given degree. This div element is rotated 150 degrees.

```
</div>
```

```
</body>
```

```
</html>
```

element is rotated 150 degrees
around its X-axis at a given degree. This div
The rotateX() method rotates an element

3D transformacije, rotate

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
<style>
```

```
div {  
    width: 300px;  
    height: 100px;  
    background-color: yellow;  
    border: 1px solid black;  
}
```

```
div#myDiv {  
    transform: rotateY(150deg);  
}
```

```
</style>
```

```
</head>
```

```
<body>
```

```
<div>This a normal div element.</div>
```

```
<div id="myDiv">
```

The rotateY() method rotates an element around its Y-axis at a given degree. This div element is rotated 150 degrees.

```
</div>
```

```
</body>
```

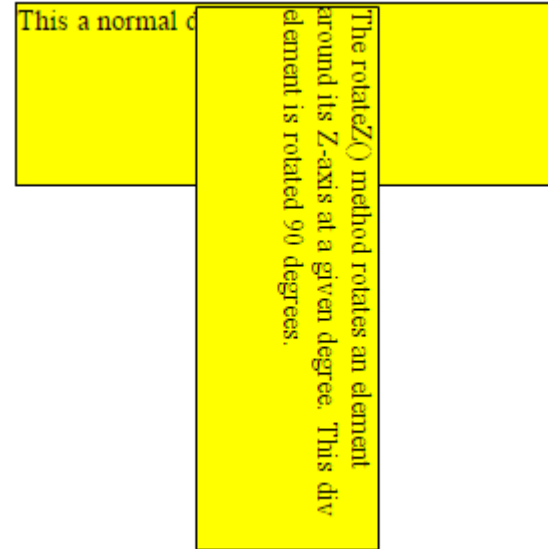
```
</html>
```

This a normal div element.

The rotateY() method rotates an element around its Y-axis at a given degree. This div element is rotated 150 degrees.

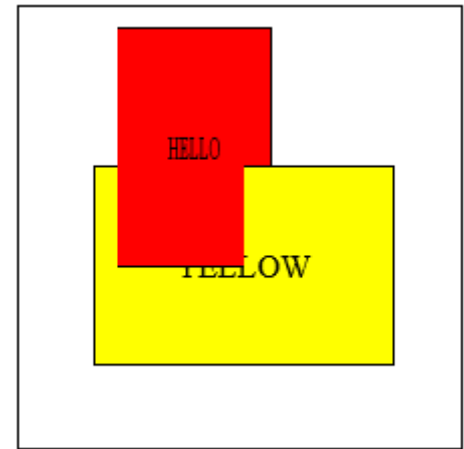
3D transformacije, rotate

```
<!DOCTYPE html>
<html>
<head>
<style>
div {
    width: 300px;
    height: 100px;
    background-color: yellow;
    border: 1px solid black;
}
div#myDiv {
    transform: rotateZ(90deg);
}
</style>
</head>
<body>
<div>This a normal div element.</div>
<div id="myDiv">
The rotateZ() method rotates an element around its Z-axis at a given
degree. This div element is rotated 90 degrees.
</div>
</body>
</html>
```

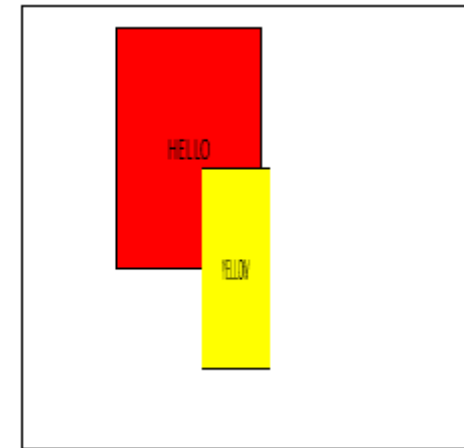


transform-style (flat, preserve-3d)

```
<!DOCTYPE html>
<html><head><style>
#div1 {
  position: relative;
  height: 200px;    width: 200px;
  padding: 10px;
  border: 1px solid black;
}
#div2 {
  padding: 50px; position: absolute;
  border: 1px solid black; background-color: red;
  transform: rotateY(60deg);
  transform-style: preserve-3d;
}
#div3 {
  padding: 40px;    position: absolute;
  border: 1px solid black;    background-color: yellow;
  transform: rotateY(-60deg);
}
</style></head><body>
<div id="div1">
  <div id="div2">HELLO    <div id="div3">YELLOW</div>    </div>
</div>
</body></html>
```



sa preserve-3d:zuti(60-60)



bez preserve-3d:kaskadno

backface-visibility

```
<!DOCTYPE html>
<html><head><style>
div {
  position: relative;
  height: 60px;
  width: 60px;
  background-color: red;
  transform: rotateY(180deg);
}
#div1 {
  backface-visibility: hidden;
}
#div2 {
  backface-visibility: visible;
}
</style></head><body>
<p>This example shows two div elements, rotated 180 degrees, facing away
from the user.</p>
<p>The first div element has the backface-visibility property set to
"hidden", and should therefore be invisible.</p>
<div id="div1">DIV 1</div>
<div id="div2">DIV 2</div>
</body></html>
```

This example shows two div elements, rotated 180 degrees, facing away from the user.

The first div element has the backface-visibility property set to "hidden", and should therefore be invisible.



3D transformacije

Funkcija	Opis
<code>matrix3d(<i>n,n,n,n, n,n,n,n, n,n,n,n, n,n,n,n</i>)</code>	3D transformacija preko matrice 4x4
<code>translate3d(<i>x,y,z</i>)</code>	3D translacija
<code>translateX(<i>x</i>)</code>	3D translacija po X-osi
<code>translateY(<i>y</i>)</code>	3D translacija po Y-osi
<code>translateZ(<i>z</i>)</code>	3D translacija po Z-osi
<code>scale3d(<i>x,y,z</i>)</code>	3D skaliranje
<code>scaleX(<i>x</i>)</code>	3D skaliranje po X-osi
<code>scaleY(<i>y</i>)</code>	3D skaliranje po Y-osi
<code>scaleZ(<i>z</i>)</code>	3D skaliranje po Z-osi
<code>rotate3d(<i>x,y,z,angle</i>)</code>	3D rotacija
<code>rotateX(<i>angle</i>)</code>	3D rotacija oko X-ose
<code>rotateY(<i>angle</i>)</code>	3D rotacija oko Y-ose
<code>rotateZ(<i>angle</i>)</code>	3D rotacija oko Z-ose
<code>perspective(<i>n</i>)</code>	Perspektiva za 3D transformisani element

transition

```
<!DOCTYPE html>
<html>
<head>
<style>
div {
  width: 100px;
  height: 100px;
  background: red;
  transition: width 2s;
}

div:hover {
  width: 300px;
}
</style>
</head>
<body>
<div></div>
<p>Hover over the div element above, to see the transition effect.</p>
</body>
</html>
```



Hover over the div element above, to see the transition effect.



Hover over the div element above, to see the transition effect.

transition

```
<!DOCTYPE html>
<html>
<head>
<style>
div {
  width: 100px;
  height: 100px;
  background: red;
  transition: width 2s, height 4s;
}
```

```
div:hover {
  width: 300px;
  height: 300px;
}
```

```
</style>
```

```
</head>
```

```
<body>
```

```
<div></div>
```

```
<p>Hover over the div element above, to see the transition effect.</p>
```

```
</body>
```

```
</html>
```



Hover over the div element above, to see the transition effect.



Hover over the div element above, to see the transition effect.

transition-timing-function

```
<!DOCTYPE html>
<html><head><style>
div {
  width: 100px;
  height: 100px;
  background: red;
  transition: width 2s;
}
#div1 {transition-timing-function: linear;      }
#div2 {transition-timing-function: ease;        }
#div3 {transition-timing-function: ease-in;     }
#div4 {transition-timing-function: ease-out;    }
#div5 {transition-timing-function: ease-in-out;}
div:hover { width: 300px; }
</style></head><body>
<div id="div1">linear</div><br>
<div id="div2">ease</div><br>
<div id="div3">ease-in</div><br>
<div id="div4">ease-out</div><br>
<div id="div5">ease-in-out</div><br>
<p>Hover over the div elements above, to see the different speed
curves.</p>
</body>
</html>
```

linear

ease

ease-in

ease-out

ease-in-out

Hover over the div elements above, to see the different speed curves.

transition-delay

```
<!DOCTYPE html>
<html>
<head>
<style>
div {
  width: 100px;
  height: 100px;
  background: red;
  transition: width 3s;
  transition-delay: 1s;
}
div:hover {
  width: 300px;
}
</style>
</head><body>
<div></div>
<p>Hover over the div element above, to see the transition effect.</p>
<p><b>Note:</b> The transition effect has a 1 second delay before
starting.</p>
</body>
</html>
```

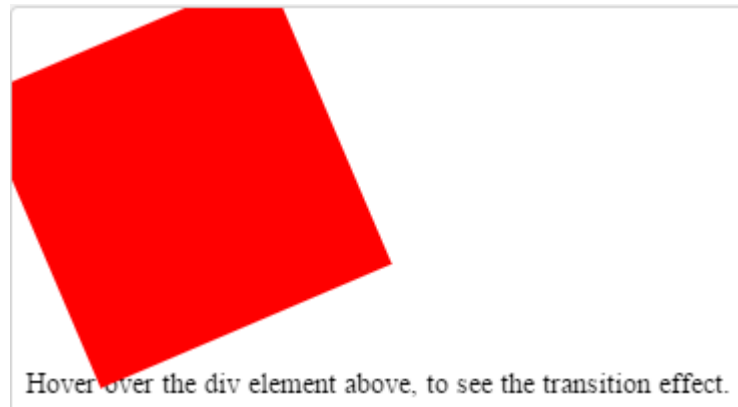


Hover over the div element above, to see the transition effect.

Note: The transition effect has a 1 second delay before starting.

transition, transform

```
<!DOCTYPE html>
<html>
<head>
<style>
div {
  width: 100px;
  height: 100px;
  background: red;
  transition: width 2s, height 2s, transform 2s;
}
div:hover {
  width: 300px;
  height: 300px;
  transform: rotate(180deg);
}
</style>
</head>
<body>
<div></div>
<p>Hover over the div element above, to see the transition effect.</p>
</body>
</html>
```



transition(property,duration,timing-function,delay)

```
<!DOCTYPE html>
<html><head>
<style>
div {
  width: 100px;
  height: 100px;
  background: red;
  transition-property: width;
  transition-duration: 2s;
  transition-timing-function: linear;
  transition-delay: 1s;
}
div:hover {
  width: 300px;
}
</style>
</head><body>
<div></div>
<p>Hover over the div element above, to see the transition effects.</p>
<p><b>Note:</b> The transition effect has a 1 second delay before
starting.</p>
</body>
</html>
```



Hover over the div element above, to see the transition effects.

Note: The transition effect has a 1 second delay before starting.

transition

```
<!DOCTYPE html>
<html>
<head>
<style>
div {
    width: 100px;
    height: 100px;
    background: red;
    transition: width 2s linear 1s;
}
div:hover {
    width: 300px;
}
</style>
</head>
<body>
<div></div>
<p>Hover over the div element above, to see the transition effect.</p>
<p><b>Note:</b> The transition effect has a 1 second delay before
starting.</p>
</body>
</html>
```



Hover over the div element above, to see the transition effect.

Note: The transition effect has a 1 second delay before starting.

transition-timing-function: cubic-bezier

```
<!DOCTYPE html>
<html><head><style>
div {
  width: 100px;    height: 50px;
  background: red;  color: white;
  font-weight: bold;
  -webkit-transition: width 2s; /* COS */
  transition: width 2s;
}
```

```
#div1 {transition-timing-function: cubic-bezier(0,0,1,1);}
#div2 {transition-timing-function: cubic-bezier(0.25,0.1,0.25,1);}
#div3 {transition-timing-function: cubic-bezier(0.42,0,1,1);}
#div4 {transition-timing-function: cubic-bezier(0,0,0.58,1);}
#div5 {transition-timing-function: cubic-bezier(0.42,0,0.58,1);}
```

```
div:hover { width: 300px; }
```

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

```
<div id="div1">linear</div>
```

```
<div id="div2">ease</div>
```

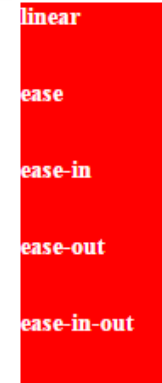
```
<div id="div3">ease-in</div>
```

```
<div id="div4">ease-out</div>
```

```
<div id="div5">ease-in-out</div>
```

```
<p>Hover over the div elements above, to see the different transition effects.</p>
```

```
</body></html>
```



Hover over the div elements above, to see the different transition effects.

Tabela tranzicija

Vrednost	Opis
ease	Podrazumevano. Startuje sporo, ubrzava, završava sporo tranziciju. (kao cubic-bezier(0.25, 0.1, 0.25, 1))
linear	Ista brzina od početka do kraja tranzicije (kao cubic-bezier(0,0,1,1))
ease-in	Sporo startuje tranziciju (kao cubic-bezier(0.42, 0, 1, 1))
ease-out	Sporo završava tranziciju (kao cubic-bezier(0, 0, 0.58, 1))
ease-in-out	Sporo startuje i sporo završava tranziciju (kao cubic-bezier(0.42, 0, 0.58, 1))
cubic-bezier(n, n, n, n)	Definisanje korisničke cubic-bezier funkcije (normalizovani su parametri od 0 do 1)

CSS animacije

```
<!DOCTYPE html>
<html><head><style>
div {
    width: 100px;    height: 100px;    background-color: red;
    -webkit-animation-name: example; /* Chrome, Safari, Opera */
    -webkit-animation-duration: 4s; /* Chrome, Safari, Opera */
    animation-name: example;
    animation-duration: 4s;
}
/* Chrome, Safari, Opera */
@-webkit-keyframes example {
    from {background-color: red;}
    to {background-color: yellow;}
}
/* Standard syntax */
@keyframes example {
    from {background-color: red;}
    to {background-color: yellow;}
}
</style></head><body>
<div></div>
<p><b>Note:</b> When an animation is finished, it changes back to its
original style.</p></body></html>
```



Note: When an animation is finished, it changes back to its original style.

CSS3 animacije

```
<!DOCTYPE html>
<html><head><style>
div {
    width: 100px;    height: 100px;    background-color: red;
    -webkit-animation-name: example; /* Chrome, Safari, Opera */
    -webkit-animation-duration: 4s; /* Chrome, Safari, Opera */
    animation-name: example;
    animation-duration: 4s;
}
/* Chrome, Safari, Opera */
@-webkit-keyframes example {
    0%    {background-color: red;}
    25%   {background-color: yellow;}
    50%   {background-color: blue;}
    100%  {background-color: green;}
}
/* Standard syntax */
@keyframes example {
    0%    {background-color: red;}
    25%   {background-color: yellow;}
    50%   {background-color: blue;}
    100%  {background-color: green;}
}
</style></head><body><div></div></body></html>
```



CSS3 animacije

```
<!DOCTYPE html>
<html><head><style>
div {
  width: 100px;    height: 100px;    background-color: red;
  position: relative;
  -webkit-animation-name: example; /* Chrome, Safari, Opera */
  -webkit-animation-duration: 4s; /* Chrome, Safari, Opera */
  -webkit-animation-delay: 2s; /* Chrome, Safari, Opera */
  -webkit-animation-iteration-count: 3; /* Chrome, Safari, Opera */
  animation-name: example;
  animation-duration: 4s;
  animation-delay: 2s;
  animation-iteration-count: 3;
}
/* Chrome, Safari, Opera */
@-webkit-keyframes example {
  0%   {background-color:red; left:0px; top:0px;}
  25%  {background-color:yellow; left:200px; top:0px;}
  50%  {background-color:blue; left:200px; top:200px;}
  75%  {background-color:green; left:0px; top:200px;}
  100% {background-color:red; left:0px; top:0px;}
}
</style></head><body><div></div></body></html>
```

za neprekidno ponavljanje vrednost
iteracije je infinite



CSS animacije

- Za obrnut redosled animacije

```
-webkit-animation-direction: reverse; /* Chrome, Safari, Opera */  
animation-direction: reverse; /* standardna sintaksa */
```

- Za alternirajući redosled animacije

```
-webkit-animation-direction: alternate; /* Chrome, Safari, Opera */  
animation-direction: alternate; /* standardna sintaksa */
```

- Za vremensku funkciju animacije

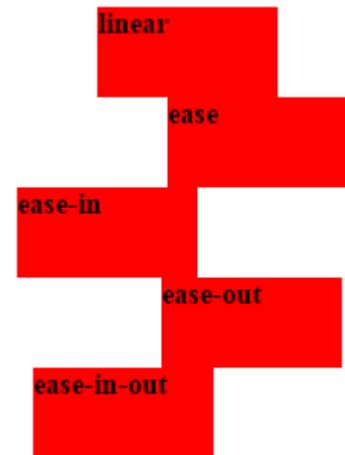
```
-webkit-animation-timing-function: linear; /*Chrome,Safari,Opera */  
animation-timing-function: linear; /*standardna sintaksa */
```

- Skraćeno pisanje svojstava animacije

```
-webkit-animation: myfirst 5s linear 2s infinite alternate; /*CS0*/  
animation: myfirst 5s linear 2s infinite alternate; /*st. sint. */
```

CSS animacije

```
<!DOCTYPE html>
<html><head><style>
div {
    width: 100px;    height: 50px;    background-color: red;
    font-weight: bold;
    position: relative;
    -webkit-animation: mymove 5s infinite; /* CSO */
    animation: mymove 5s infinite;
}
/* Chrome, Safari, Opera */
#div1 {-webkit-animation-timing-function: linear;}
#div2 {-webkit-animation-timing-function: ease;}
#div3 {-webkit-animation-timing-function: ease-in;}
#div4 {-webkit-animation-timing-function: ease-out;}
#div5 {-webkit-animation-timing-function: ease-in-out;}
/* Chrome, Safari, Opera */
@-webkit-keyframes mymove { from {left: 0px;} to {left: 300px;} }
/* Standard syntax */
</style>
</head><body><div id="div1">linear</div><div id="div2">ease</div>
<div id="div3">ease-in</div><div id="div4">ease-out</div>
<div id="div5">ease-in-out</div>
</body></html>
```



CSS3 keriranje višestrukih kolona

```
<!DOCTYPE html>
<html><head>
<style>
.newspaper {
  -webkit-column-count: 3; /* CSO */
  column-count: 3;
  -webkit-column-gap: 40px; /* CSO */
  column-gap: 40px;
  -webkit-column-rule-style: solid; /* CSO */
  column-rule-style: solid;
  -webkit-column-rule-width: 4px; /* CSO */
  column-rule-width: 4px;
  -webkit-column-rule-color: lightblue; /* CSO */
  column-rule-color: lightblue;
  -webkit-column-width: 100px;
  column-width: 100px;
}
</style></head><body>
<div class="newspaper">Lorem ipsum dolor sit amet, consectetur 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.</div>
</body></html>
```

>Lorem ipsum dolor sit
amet, consectetur
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.

CSS3 keriranje višestrukih kolona

```
<!DOCTYPE html>
<html><head><style>
.newspaper {
  -webkit-column-count: 3; /* CS0 */
  column-count: 3;
  -webkit-column-gap: 40px; /* CS0 */
  column-gap: 40px;
  -webkit-column-rule: 1px solid lightblue; /* CS0 */
  column-rule: 5px solid lightblue;
```

```

}
h2 {
  -webkit-column-span: all; /* CS0 */
  column-span: all;
  text-align:center;
}
```

Lorem Ipsum Dolor Sit Amet

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

```
<div class="newspaper">
```

```
<h2>Lorem Ipsum Dolor Sit Amet</h2>
```

Lorem ipsum dolor sit amet, consectetur 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.

```
</div>
```

```
</body></html>
```

Lorem ipsum dolor sit
amet, consectetur
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.

CSS3 korisnički interfejs

```
<!DOCTYPE html>
<html><head><style>
div { border: 2px solid; padding: 20px; width: 100px; }
div.prvi { resize: horizontal; overflow: auto;}
div.drugi { resize: vertical; overflow: auto;}
div.treci { resize: both; overflow: auto;}
div.cetvrti {
    margin: 20px;
    height: 100px;
    outline: 1px solid red;
    outline-offset: 15px;
}
</style>
</head><body>
<div class="prvi">Let the user resize the width
of this div element.</div><br>
<div class="drugi">Let the user resize the height
of this div element.</div><br>
<div class="treci">Let the user resize both the height
and the width of this div element.</div>
<div class="cetvrti">This div has an outline 15px
outside the border edge.</div>
</body></html>
```

Let the user
resize the width
of this div
element.

Let the user
resize the
height of this
div element.

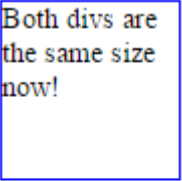
Let the user
resize both the
height and the
width of this
div element.

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

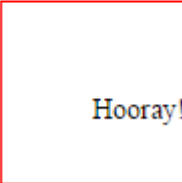
CSS3 boxing

- Podrazumevano je
 - širina elementa = width + padding + border
 - visina elementa = height + padding + border
 - ako se koristi **box-sizing: border-box** onda je širinom i visinom data dimenzija kutije elementa

```
<!DOCTYPE html>
<html><head><style>
.div1 {
    width: 100px; height: 100px; border: 1px solid blue;
    box-sizing: border-box;
}
.div2 {
    width: 100px; height: 100px; border: 1px solid red;
    padding: 50px;
    box-sizing: border-box;
}
</style></head><body>
<div class="div1">Both divs are the same size now!</div>
<br>
<div class="div2">Hooray!</div>
</body>
</html>
```



Both divs are
the same size
now!



Hooray!

CSS3 boxing

```
<!DOCTYPE html>
<html><head>
<style>
* {
    box-sizing: border-box;
}
input, textarea {
    width: 100%;
}
</style>
</head><body>
<form action="action_page.php">
First name:<br>
<input type="text" name="firstname" value="Mickey"><br>
Last name:<br>
<input type="text" name="lastname" value="Mouse"><br>
Comments:<br>
<textarea name="message" rows="3" cols="30">
</textarea>
<br><br>
<input type="submit" value="Submit">
</form>
</body>
</html>
```

First name:

Last name:

Comments:

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