CSS-3

Cascading Style Sheets

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What is CSS 3?

- Cascading Style Sheets level 3 is the most recent iteration of CSS
- It is divided into several separate documents called "modules"
- CSS 3 has not been approved as a specification, but there are already a lot of properties that are supported in various browsers.
- The earliest CSS 3 drafts were published in June 1999

Attribute Selectors

- `E[foo^="bar"]`
  - An E element whose "foo" attribute value begins exactly with the string "bar"
  - Example: `a[src^="https://"]`
- `E[foo$="bar"]`
  - An E element whose "foo" attribute value ends exactly with the string "bar"
- `E[foo*="bar"]`
  - An E element whose "foo" attribute value contains the substring "bar"

Attribute Selectors

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Structural Pseudo-classes

- `:root`
  - The root of the document
- `E:nth-child(n)`
  - An E element, the n-th child of its parent
- `E:nth-last-child(n)`
  - An E element, the n-th child of its parent, counting from the last on
- `E:nth-of-type(n)`
  - An E element, the n-th sibling of its type
- `E:nth-last-of-type(n)`
  - An E element, the n-th sibling of its type, counting from the last one
- `E:last-child`
  - An E element, last child of its parent
- `E:first-of-type`
  - An E element, first sibling of its type
- `E:last-of-type`
  - An E element, last sibling of its type

Structural Pseudo-classes (2)

- `E:only-child`
  - An E element, only child of its parent
- `E:only-of-type`
  - An E element, only sibling of its type
- `E:empty`
  - An E element that has no children (including text nodes)
- More detailed descriptions:

http://www.w3.org/TR/css3-selectors/#structural-pseudos

Structural Selectors

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The UI Element States Pseudo-classes

- `E:enabled`
  - A user interface element E which is enabled
- `E:disabled`
  - A user interface element E which is disabled
- `E:checked`
  - A user interface element E which is checked (for instance a radio-button or checkbox)
  - Currently supported only in Opera!

UI Selectors

Live Demo

Other CSS 3 Selectors

- `E:target`
  - An E element being the target of the referring URI
- `E:not(s)`
  - An E element that does not match simple selector
- `E ~ F`
  - An F element preceded by an E element

Other CSS 3 Selectors

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Font Embeds

- Use `@font-face` to declare font
- Point to font file on server
- Call font with font-family
- Currently not supported in IE
- Use font embedding instead of images

```
@font-face {
        font-family: SketchRockwell;
        src: url('SketchRockwell-Bold.ttf');
}
.my_CSS3_class {
        font-family: SketchRockwell;
        font-size: 3.2em;
}
```

Text Shadow

- Applies shadow to text
- Syntax: `text-shadow: <horizontal-distance> <vertical-distance> <blur-radius> <shadow-color>;`
- Do not alter the size of a box

Some shadowed text

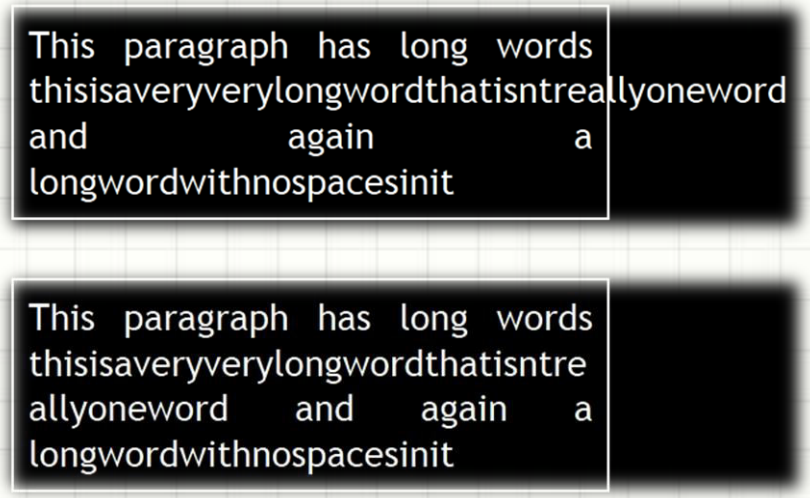
```
text-shadow: 2px 2px 7px #000000;
```

Text Overflow

- Specifies what should happen when text overflows the containing element
- Syntax: `text-overflow: <value>;`
- Possible values:
  - `ellipsis` - Display ellipses to represent clipped text
  - `clip` - Default value, clips text
- Currently not supported in Firefox and IE

Word Wrapping

- Allows long words to be able to be broken and wrap onto the next line
- Syntax: `word-wrap: <value>;`
- Possible values:
  - `normal`
  - `break-word`
- Supported in all major browsers



CSS 3 Fonts

Live Demo

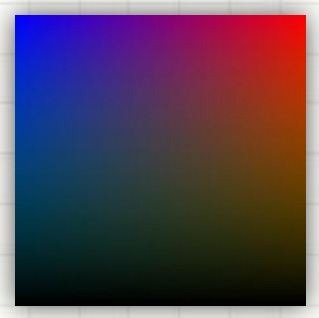
Opacity

- Sets the opacity level for an element
- Syntax: `opacity: <value>;`
- Value from `0.0` (fully transparent) to `1.0`
- The opacity is supported in all major browsers.
- Note: IE8 and earlier supports an alternative, the filter property: filter: Alpha(opacity=50).
- Example:

```
<img src="img.jpg" style= "
opacity: 0.4;
filter: alpha(opacity=40)" />
```

RGBA Colors

- Standard RGB colors with an opacity value for the color (alpha channel)
- Syntax: `rgba(<red>, <green>, <blue>, <alpha>)`
- The range for `red`, `green` and `blue` is between integers `0` and `255`
- The range for the alpha channel is between `0.0` and `1.0`
- Example: `rgba(255, 0, 0, 0.5)`

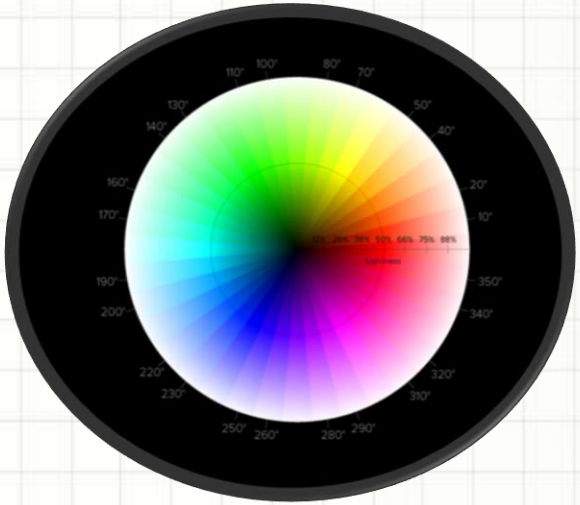


HSL Colors

- Hue is a degree on the color wheel
  - `0` (or `360`) is red, `120` is green, `240` is blue
- Saturation is a percentage value
  - `100%` is the full color
- Lightness is also a percentage
  - `0%` is dark (black)
  - `100%` is light (white)
  - `50%` is the average

HSLA Colors

- HSLA allows a fourth value, which sets the Opacity (via the Alpha channel) of the element.
- As RGBA is to RGB, HSLA is to HSL
- Supported in IE9+, Firefox 3+, Chrome, Safari, and in Opera 10+
- Example:
  - `hsla(0, 100%, 50%, 0.5)`
  - Result:



CSS 3 Colors

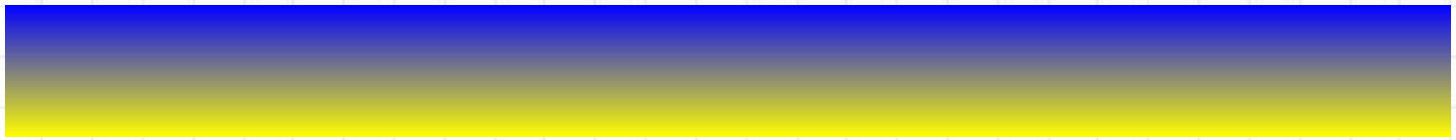
Live Demo

Gradient Backgrounds

- Gradients are smooth transitions between two or more specified colors
- Use of CSS gradients can replace images and reduce download time
- Create a more flexible layout, and look better while zooming
- Supported in all major browsers via different keywords
- This is still an experimental feature

Gradient Backgrounds Example

```
/* Firefox 3.6+ */
background: -moz-linear-gradient(100% 100% 90deg,
  #FFFF00, #0000FF);
/* Safari 4-5, Chrome 1-9 */
background: -webkit-gradient(linear, 0% 0%, 0%
  100%, from(#0000FF), to(#FFFF00));
/* Safari 5.1+, Chrome 10+ */
background: -webkit-linear-gradient(#FFFF00,
  #0000FF);
/* Opera 11.10+ */
background: -o-linear-gradient(#2F2727, #0000FF);
```



Multiple Backgrounds

- CSS3 allows multiple background images
- Simple comma-separated list of images
- Supported in Firefox (3.6+), Chrome (1.0/1.3+), Opera (10.5+) and Internet Explorer (9.0+)
- Comma separated list for the other properties

```
background-image: url(sheep.png), url(grass.png);
```

Backgrounds

Live Demo

Border color

- Allows you to create cool colored borders
- Only Firefox supports this type of coloring

```
border: 8px solid #000;
-moz-border-bottom-colors: #555 #666 #777 #888 #999 #aaa #bbb #ccc;
-moz-border-top-colors: #555 #666 #777 #888 #999 #aaa #bbb #ccc;
-moz-border-left-colors: #555 #666 #777 #888 #999 #aaa #bbb #ccc;
-moz-border-right-colors: #555 #666 #777 #888 #999 #aaa #bbb #ccc;
```

Border image

- Defines an image to be used instead of the normal border of an element
- Split up into a couple of properties
- Example:
  - The border-image property has 3 parts:

```
border-image: url(border-image.png) 25% repeat;
```

- More detailed description:
  - http://css-tricks.com/6883-understanding-border-image/

Border radius

- Allows web developers to easily utilize rounder corners in their design elements
- Widespread browser support
- Syntax:

```
border-*-*-radius: [<length>|<%>][<length>|<%>]?
```

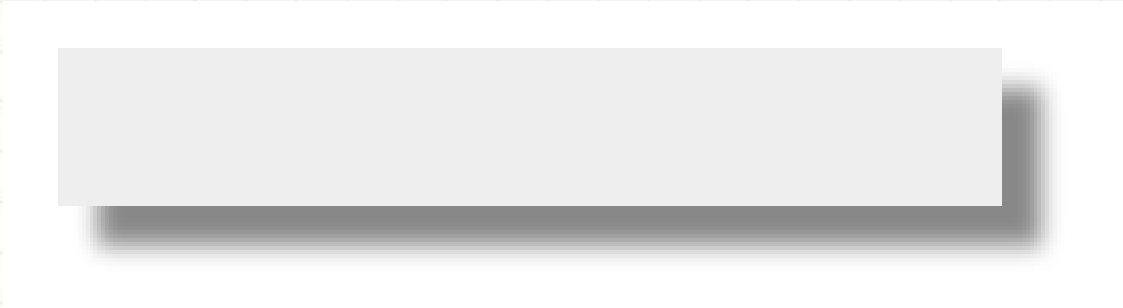
- Example:

```
-moz-border-radius: 15px;
border-radius: 15px;
background-color: #FF00FF;
```

Box shadow

- Allows to easily implement multiple drop shadows (outer or inner) on box elements
- Specifying values for color, size, blur and offset
- Example:

```
-moz-box-shadow: 10px 10px 5px #888;
-webkit-box-shadow: 10px 10px 5px #888;
box-shadow: 10px 10px 5px #888;
```

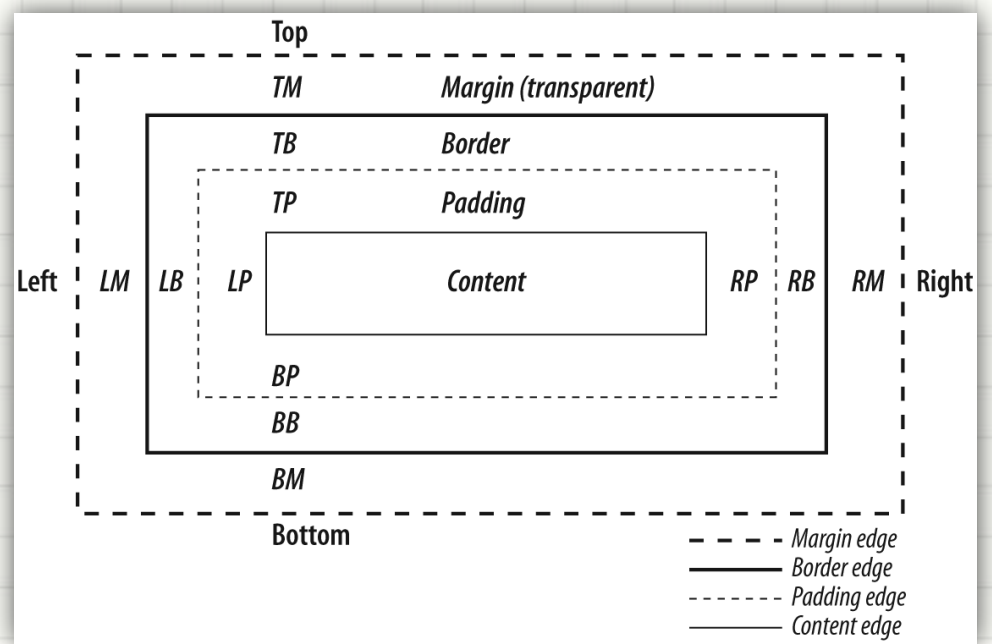


Borders

Live Demo

CSS3 box-sizing

- Determine whether you want an element to render it's borders and padding within its specified width, or outside of it.
- Possible values:
  - `box-sizing: content-box` (default)
    box width: 288 pixels + 10 pixels padding and 1 pixel border on each side = 300 pixels
  - `box-sizing: border-box`
    box width: 300 pixels, including padding and borders



CSS3 box-sizing (Example)

- Example: Box with total width of 300 px (including paddings and borders)

```
width: 300px;
border: 1px solid black;
padding: 5px;

/* Firefox */
-moz-box-sizing: border-box;
/* WebKit */
-webkit-box-sizing: border-box;
/* Opera 9.5+, Google Chrome */
box-sizing: border-box;
```

CSS 3 Flexible Box Model

- The flexible box model determines the way boxes are distributed inside other boxes and the way they share the available space.
- New values for "display" property:
  - flexbox
  - inline-flexbox
- This box model is still under development
- Still not supported in major browsers

CSS 3 Box Model Properties

- flex-direction
  - Specifies how flexbox items are placed
- flex-order
  - May be used to change the ordering of the elements. Elements are sorted by this value.
- flex-pack
  - Defines the flexibility of packing spaces
- flex-align
  - Changes the way free space is allocated

CSS 3 flex-direction

- The `flex-direction` property specifies how flexbox items are placed in the flexbox.
- Possible values:
  - lr – Displays elements from left to right
  - rl – Displays elements from right to left
  - tb – Displays elements from top to bottom
  - bt – Displays elements from bottom to top
  - inline and inline-reverse
  - block and block-reverse

Box Model

Live Demo

Animations

- Works in all webkit browsers
- Example: https://developer.mozilla.org/samples/cssref/animations/cssanim1.html

```
@keyframes resize {
        0% {...}
        50% {...}
        100% {...}
}
#box {
        animation-name: resize;
        animation-duration: 1s;
        animation-iteration-count: 4;
        animation-direction: alternate;  animation-timing-function:
ease-in-out;
}
```

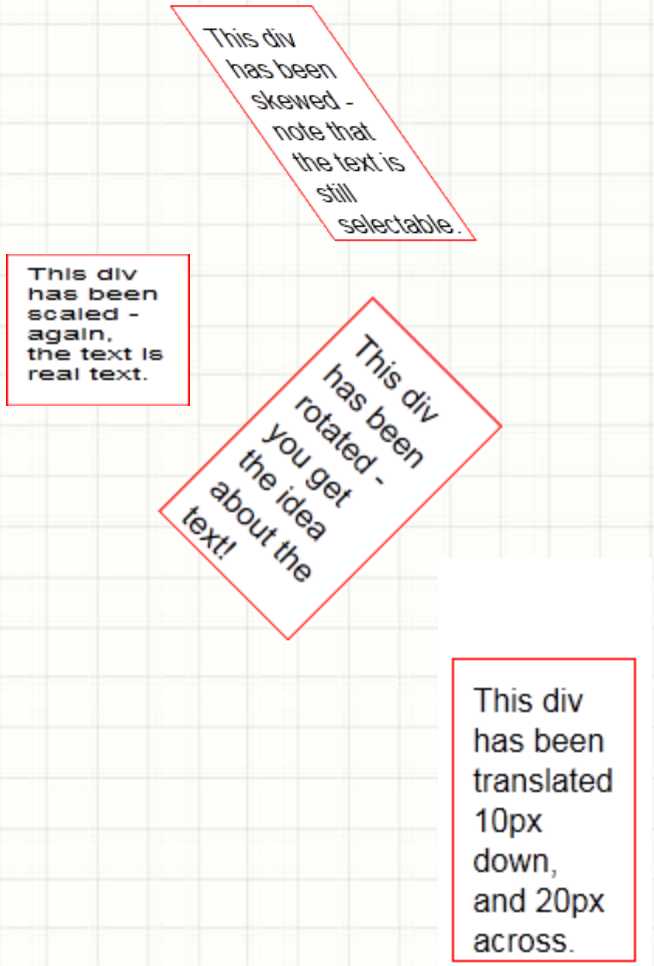
Transitions

- Add an effect when changing from one style to another
- Different timing functions:
  - ease, ease-in, ease-out, ease-in-out, linear
- Example:

```
#id_of_element {
        -webkit-transition: all 1s ease-in-out;  -moz-
        transition: all 1s ease-in-out;
        -o-transition: all 1s ease-in-out;
        -ms-transition: all 1s ease-in-out;      transition:
        all 1s ease-in-out;
}
```

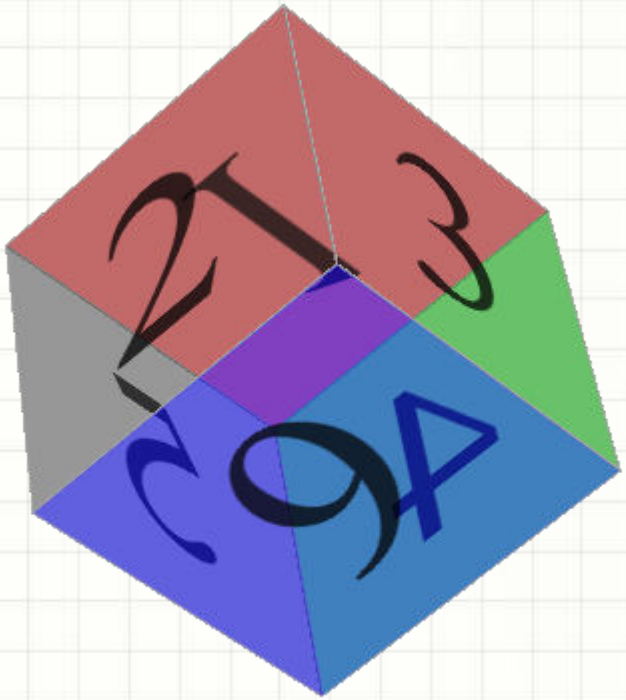
2D Transformations

- 2D transforms are widely supported
- Skew – skew element
  - transform: skew(35deg);
- Scale – scale element
  - transform: scale(1,0.5);
- Rotate – rotates element
  - transform: rotate(45deg);
- Translate – moves element
  - transform: translate(10px, 20px);



3D Transformations

- 3D transforms are similar to 2D transforms
- Only work in Safari and Chrome
- X, Y and Z transformation
  - transform: rotateX(180deg);
  - transform: rotateY(180deg);
  - transform: rotateZ(180deg);
  - perspective: 800;
  - perspective-origin: 50% 100px;
  - translate3d, scale3d

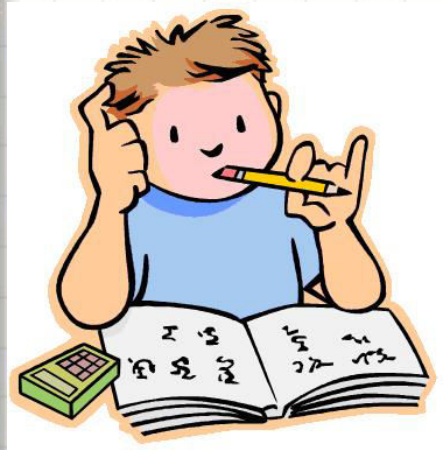


Animations

Live Demo

Questions

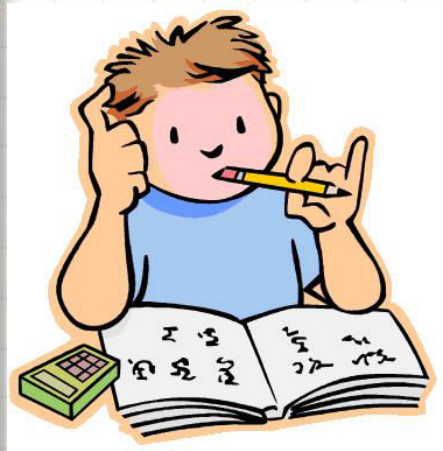
Exercises



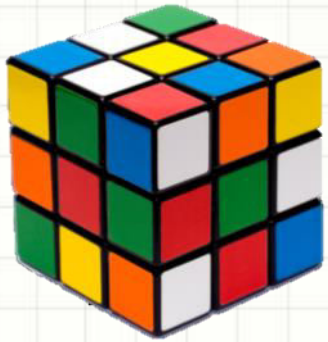
- Using your knowledge of CSS 3 style, the given HTML code and approximate the end result (shown in the image below:

```
<div id="example_form">
  <h1>Example form</h1>
  Your name:
  <input value="Mark DuBois"/>
  Your email:
  <input value="Mark@...." />
  <input value="Subscribe"
         type="submit" />
</div>
```

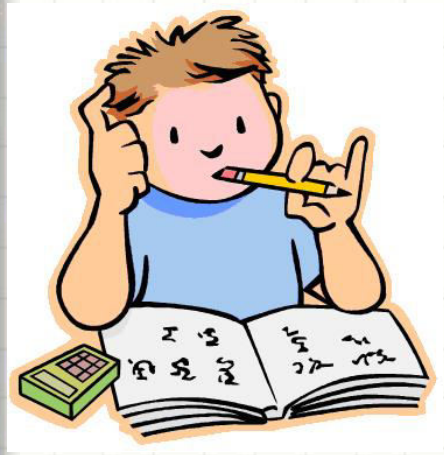
Exercises (2)



2. Using CSS3 make a rotating 3D Rubik Cube.
3. Using CSS3 make a text that is pulsing, i.e. gets bigger, then smaller, etc. while blinking with different colors.
4. Using CSS3 make a text bouncing around the screen (the browser).
   - Hint: the text should change its position



Exercises (3)



- Using CSS3 make a landscape with a lake/sea with ships moving in it.