HTML5 and CSS3
Complete

Creating Visual Effects and Animation

Objectives

- Assess responsive design

- Construct a multipart media query

- Test layouts with an emulator

- Add a column with a media query

- Create a widescreen layout

- Create responsive navigation

Objectives (continued)

- Implement adaptive content
- Use progressive enhancement

Add Generated Content

- **:before and :after pseudo-elements**: enable you to insert content into web page using style rules

  - Result known as *generated content*

  - Can be used for text, pictures, or other content

  - Must specify value for the content property

    - Can be text or path to an image

Add Generated Content (continued)

- `:before` pseudo-element code and result


```
195    /* label styles */
196    label, .reserveinfo p {
197        font-size: 1em;
198        line-height: 1.6em;
199        font-weight: bold;
200    }
201    label:before, .reserveinfo p:before {
202        content: "* ";
203        color: red;
204    }
205    .additionalinfo label:before {
206        content: "";
207    }
```

The `:before` pseudo-element specifies content displayed before the content specified for an element in its HTML code

Include a space after the asterisk to create white space between the asterisk and the element content

A pair of quotes with no content creates an empty string, which you use to remove any content created in other style rules

Asterisk and space displayed before the content of each `label` element and `p` element as the content of the `:before` pseudo-element

No asterisk or space displayed before `additionalinfo` label because content for `:before` pseudo-element set to an empty string (`""`)

* Name

* Email

* Start date

January ▾ 1 ▾ 2019 ▾

* Number of days   * Number of guests

Other information (hours, catering needs, etc.)

CSS3 vs HTML version of generated content

HTML way:

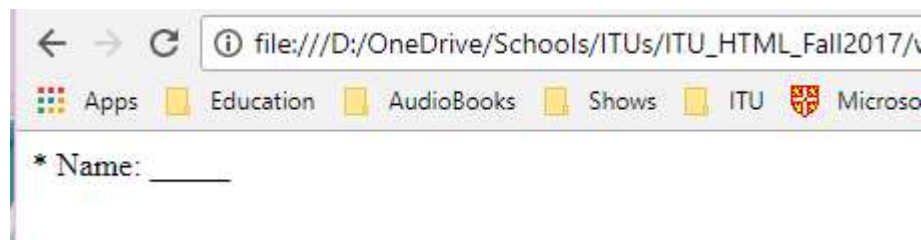CSS way:

```
<p>
<before>* </before> Name: <after>_____</after>
</p>
```

```
p:before {
    content:" * ";
}
p:after {
    content:"____";
}
```

```
←  →  C   ⓘ file:///D:/OneDrive/Schools/ITUs/ITU_HTML_Fall2017/

⠿ Apps   📙 Education   📙 AudioBooks   📙 Shows   📙 ITU   🏛 Microso

* Name: _____
```

Output

Note: content accepts different values.
- none, normal
- <string>
- url()
- Counter(),
- Attr
- Open quote
- Etc…

Add Generated Content
Demo: addgenerated.html

Mar's Pizza Place - Catering

```
<label for="nameinput">
    Name
    <input type="text" name="name" id="nameinput" required>
</label>
```

Catering

* indicates a required field

* **Name**

* **Email**

* **Event date**

January ∨ 1 ∨ 2019 ∨

* **Meal**

Please select ∨

* **Number of guests**

Other information (hours, catering needs, etc.)

Submit

150 St. Joseph St.
(416) 555-3337

```
#submit {
    border: none;
    border-bottom: 1px solid #666;
    border-right: 1px solid #777;
    padding: 0.4em 0.6em;
    margin: 0;
    display: inline-block;
    background-color: #ffcc66;
    font-size: 1.25em;
    border-radius: 10px;
}
```

```
label:before, .reserveinfo p:before {
    content: "* ";
    color: red;
}
```

Critical Thinking

- Consider a situation in which you have written a web page that includes many paragraphs. You now want to change the display of the web page so that each paragraph ends with an icon. How can you do this with pseudo-elements, without making any changes to the HTML code?

Add Visual Form Feedback

- CSS supports pseudo-classes specifically for use with forms:

pseudo-class	applies to	description
:active	buttons (button elements or input elements with type value of button, reset, or submit)	the element is in the process of being clicked or otherwise activated
:checked	check boxes, option buttons, or options in a drop-down list	the element is checked or otherwise selected
:focus	input, select, and textarea elements	the element has the focus
:invalid	input or textarea elements with type or other attributes that limit valid values	the content entered by a user does not meet the rules for the field
:optional	input, select, and textarea elements	the element does not have the required attribute, meaning that user entry in the field is optional
:required	input, select, and textarea elements	the element has the required attribute, meaning that user entry in the field is required
:valid	input or textarea elements with type or other attributes that limit valid values	the content entered by a user meets the rules for the field

Add Visual Form Feedback (continued)

- Code and result using :valid pseudo-class:


```
158   /* field styles */
159   input, textarea {
160       border: 1px solid #ccc;
161       padding: 0.2em;
162       font-size: 1em;
163       display: block;
164   }
165   input:valid {
166       background-color: #d1f4bd;
167   }
168   input:focus, textarea:focus {
169       background-color: #cce5ef;
170   }
```

The :valid pseudo-class applies to form elements with user input that meets the rules for the field

The :focus pseudo-class applies to the element that currently has the focus

The background color for each field changes to the green color specified with the :valid pseudo-class when the value entered meets the rules for the field

Faduma Egal

* Email
faduma@example.com

* Start date
January   1   2019

* Number of days
5

* Number of guests
15

Add Visual Form Feedback (continued)

- Code and result using `:focus` pseudo-class:

```
158    /* field styles */
159    input, textarea {
160        border: 1px solid #ccc;
161        padding: 0.2em;
162        font-size: 1em;
163        display: block;
164    }
165    input:valid {
166        background-color: #d1f4bd;
167    }
168    input:focus, textarea:focus {
169        background-color: #cce5ef;
170    }
```

The `:valid` pseudo-class applies to form elements with user input that meets the rules for the field

The `:focus` pseudo-class applies to the element that currently has the focus

The background color for a text box or text area changes to the blue color specified with the `:focus` pseudo-class when the field has the focus

Request a Quote

* indicates a required field

* **Name**

* **Email**

Add Visual From Feedback
Demo - visualeffects.html

Uploaded to EMS

```html
<label for="nameinput">
  Name
  <input type="text" name="name" id="nameinput" required>
</label>
<label for="emailinput">
  Email
  <input type="email" name="email" id="emailinput" required>
</label>
```

```css
input:valid {
    background-color: green;
}
input:focus, textarea:focus {
    background-color: red;
}

input:invalid {
    background-color: yellow;
}
```

Unit K

Request a Quote
Mar's Bed & Breakfast - Request a Quote
$1000/day

* indicates a required field

* Name

sdf

* Email

dfadyahoo.co

* Start date

| January ∨ | 1 ∨ | 2019 ∨ |

* Number of days   * Number of guests

Other information (hours, catering needs, etc.)

Submit

45 Marsh Grass Ln • Monterey, CA 95764 • (831) 555-5253

Create a Gradient

- **gradient**: a visual effect in which an area starts as a single color on one edge/corner and transitions to one or more other colors
  - Modern browsers support gradients as backgrounds
  - Use the `linear-gradient` keyword with values describing the gradient
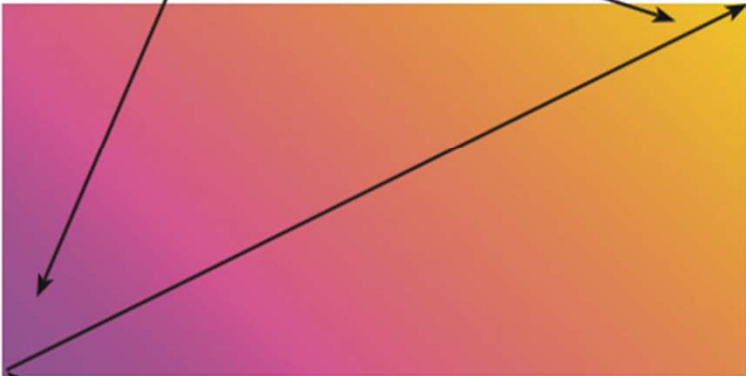
Create a Gradient (continued) Unit K

- Examples of linear gradients:

Two-color gradient at 45°

`background-image: linear-gradient(45deg, #d823c5, #edd010);`

The first color stop (0%, the default when not specified) identifies the starting color

The final color stop (100%, the default when not specified) identifies the ending color
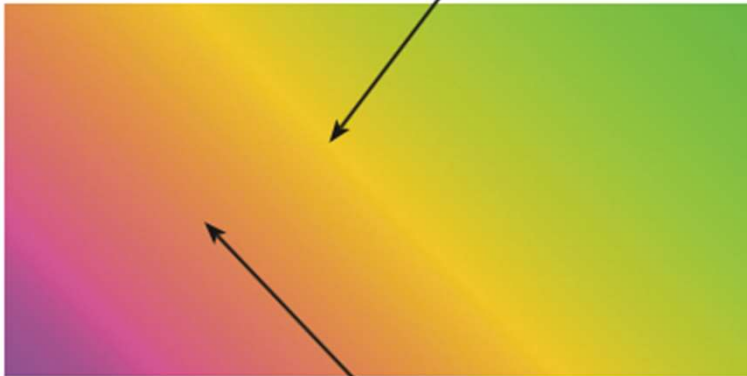
Because of the way gradient angles are defined, a 45° angle creates a gradient that starts at the bottom left corner and ends at the top right corner

Three-color gradient at 45°

`background-image:`
`    linear-gradient(45deg, #d823c5, #edd010 50%, #2dc30a);`

The middle color stop specifies an intermediate color, along with its position within the gradient

Two adjacent colors are gradually transitioned, creating a gradient

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Create a Gradient (continued)

- Gradient applied to page background:

```
29    /* document-wide styles */
30    body {
31        margin: 0 auto;
32        font-family: Arial, Helvetica, sans-serif;
33        background: #7eccec;
34        background: linear-gradient(#7eccec, white) no-repeat;
35    }
```

Page background gradient starts as sky blue at the top and ends as white at the bottom

Home   About Us   Reservations   Events   Contact Us

Request a Quote

* indicates a required field

* Name

* Email

* Start date

January ▾   1 ▾   2019 ▾

* Number of days   * Number of guests

Other information (hours, catering needs, etc.)

Submit

45 Marsh Grass Ln. • Marble, MN 55764 • (218) 555-5253

Demo Page Background: Gradient

```css
/* document-wide styles */
body {
    margin: 0 auto;
    font-family: Arial, Helvetica, sans-serif;
    background: #7eccec;
    background: linear-gradient(to right, violet,red,purple, orange,yellow,green,blue,indigo,violet);
}
```

Request a Quote
Mar's Bed & Breakfast - Request a Quote
$1000/day

* indicates a required field

* **Name**

* **Email**

* **Start date**
[January ∨] [1 ∨] [2019 ∨]

* **Number of days**   * **Number of guests**

Other information (hours, catering needs, etc.)

[Submit]

45 Marsh Grass Ln. • Monterey, CA 95764 • (831) 555-5253

Application Type: Using Gradient: Weather Maps
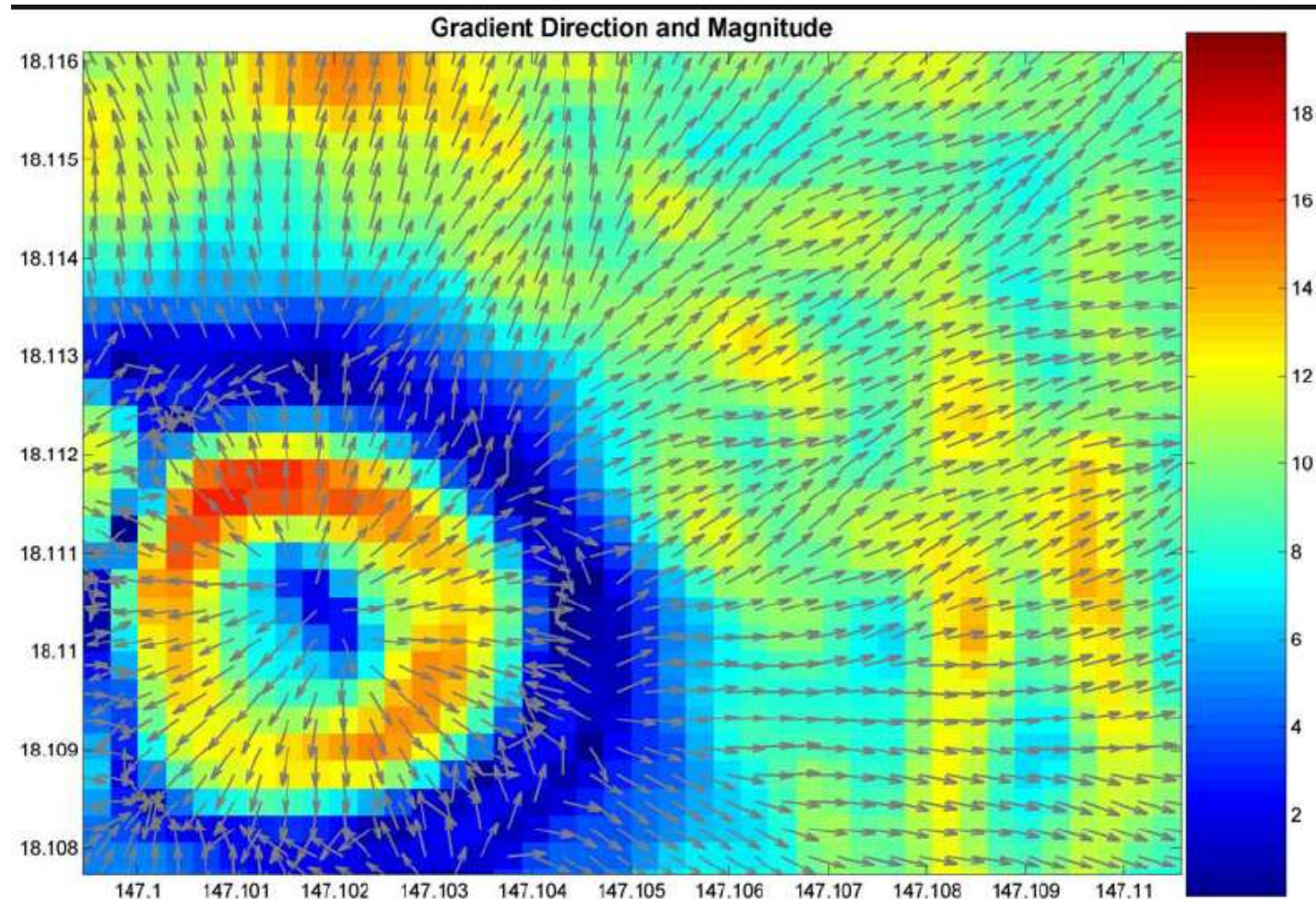
Quick Quiz

- (T/F)You use the background-color property to specify a gradient.

- (T/F)You specify a gradient with the linear-gradient keyword.
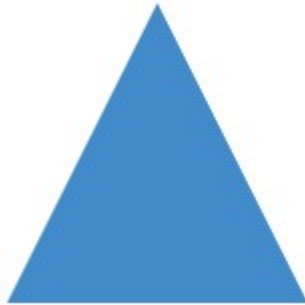
Please read your book :>)

Create a CSS Shape

- Can use CSS properties to change shapes of HTML elements
  - Enhance visual design
  - Replace shapes that would otherwise require an image file, reducing page size
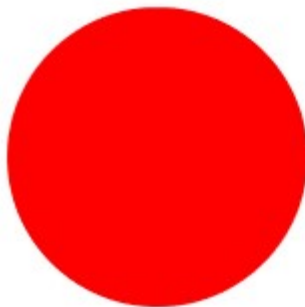
Make CSS shapes

Triangle

Circle

Oval

```
<style>

.triangle{
    height: 0px;
    width: 0px;
    border-left: 100px solid transparent;
    border-right: 100px solid transparent;
    border-bottom: 200px solid #428bca;
    }
.circle{
    width: 200px; height: 200px;
    background: red;
    border-radius: 100px; /*make it circle*/
}

.oval{
    width: 200px; height: 100px;
    background: green;
    border-radius: 100px / 50px;
}

</style>

<p> Triangle</p>
<div class="triangle"></div>
<br><br>
<p> Circle </p>
<div class="circle"></div>
<p> Oval </p>
<div class="oval"></div>
```

Create a CSS Shape (continued)

- CSS circle code and result:


```
42    .background-art {
43        position: absolute;
44    }
45    .sun-shape {
46        width: 200px;
47        height: 200px;
48        background-color: rgb(253,148,42);
49        border-radius: 50%;
50        position: absolute;
51        left: -80px;
52        top: -80px;
53        z-index: -2;
54        box-shadow: 0 0 25px rgb(254,230,55),
55                    0 0 50px rgb(254,230,55) inset;
56    }
```

Minimal properties needed to create a circle using CSS

Additional declarations to change the appearance of the circle

Circle created using a `div` element and the `border-radius` property, and positioned partly off of the web page

Request a Quote
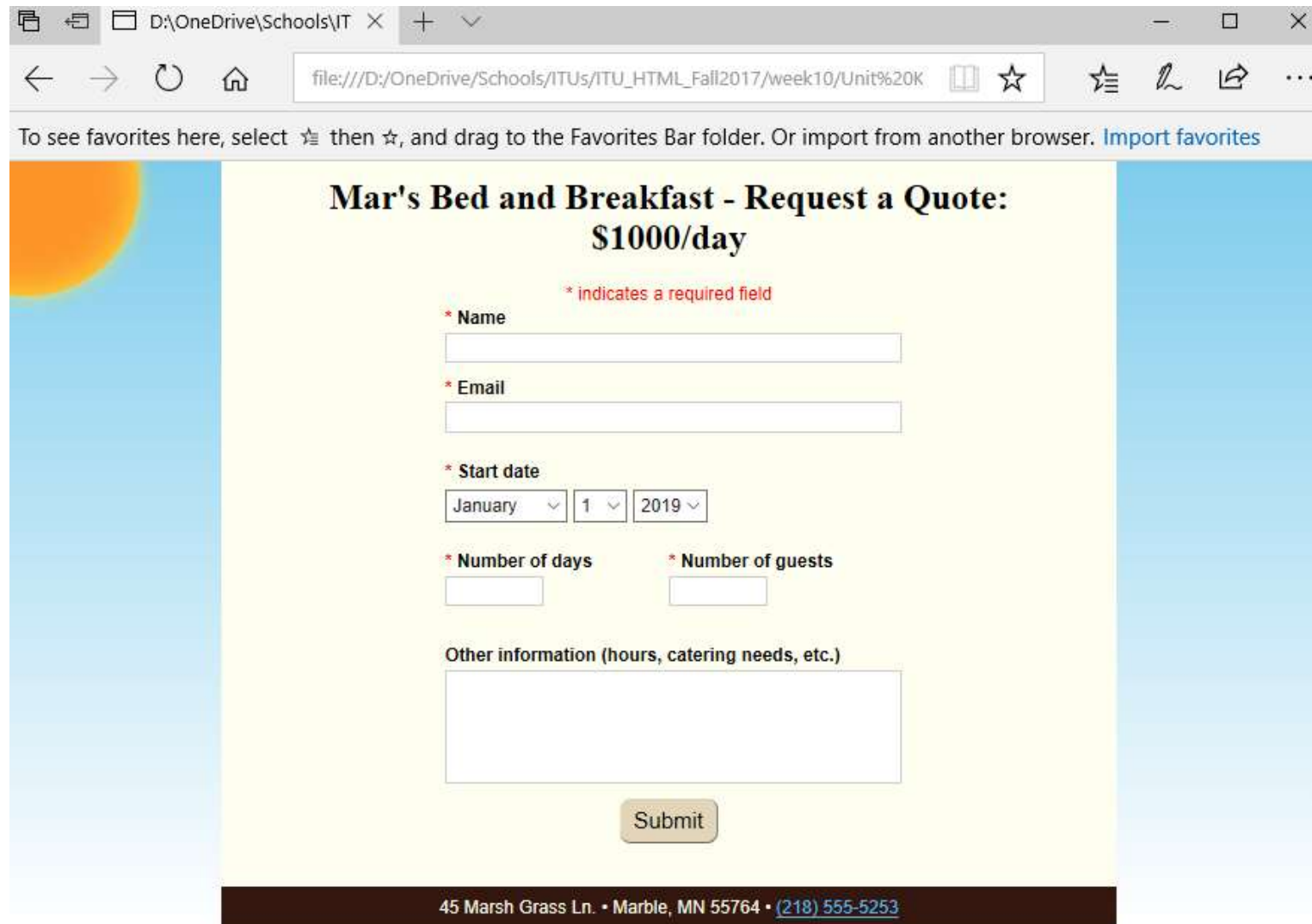
* indicates a required field

* Name

* Email

* Start date

January ▾ | 1 ▾ | 2019 ▾

* Number of days   * Number of guests

CSS Shapes Demo
cssshapes.html

Critical Thinking: making shapes. Makingcssshapes.html

What are the drawbacks of using CSS shapes? How would make the decision whether or not to use one.
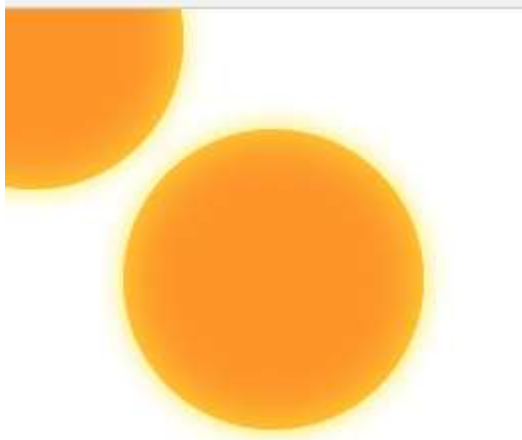
```
1    <style>
2    .sun-shape {
3        width: 200px;
4        height: 200px;
5        background-color: rgb(253,148,42);
6        border-radius: 50%;
7        position: absolute;
8        left: -80px;
9        top: -80px;
10       box-shadow: 0 0 25px rgb(254,230,55),
11                   0 0 50px rgb(254,230,55) inset;
12   }
13
14
15   .full-sun-shape {
16       width: 200px;
17       height: 200px;
18       background-color: rgb(253,148,42);
19       border-radius: 50%;
20       position: absolute;
21       left: 80px;
22       top: 80px;
23       box-shadow: 0 0 25px rgb(254,230,55),
24                   0 0 50px rgb(254,230,55) inset;
25   }
26
27   </style>
28
29   <div class="sun-shape"></div>
30
31   <div class="full-sun-shape"></div>
```

Apply Styles Based on Feature Detection

- Newer styles not recognized by older browsers (like IE8)

- **Graceful degradation**: when a site uses newer styles in modern browsers while displaying useable layout and all page content in older browsers
  - Modernizr is a free script library that helps with this process
  - **Feature detection**: process of detecting which properties a browser supports

Apply Styles Based on Feature Detection (continued)

- Feature detection code and results:

The circle is displayed as a rectangle in IE8 because the `border-radius` property is not supported
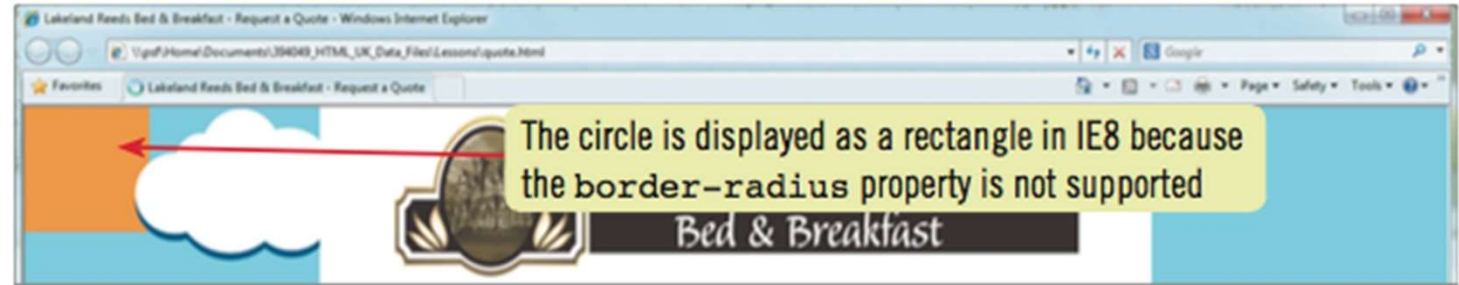
```
57    .no-borderradius .sun-shape {
58        background:↑url("images/sun.png");
59    }
60    .cloud-image {
```

Modernizr adds the `no-borderradius` class value to the `html` element in browsers that do not support the `border-radius` property

The background image is displayed in IE8 because the `html` element has the `no-borderradius` class value

```
<head>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width">
    <script src="featuredetection.custom.28018.js"></script>
    <link rel="stylesheet" href="featuredetection.css">
</head>
```
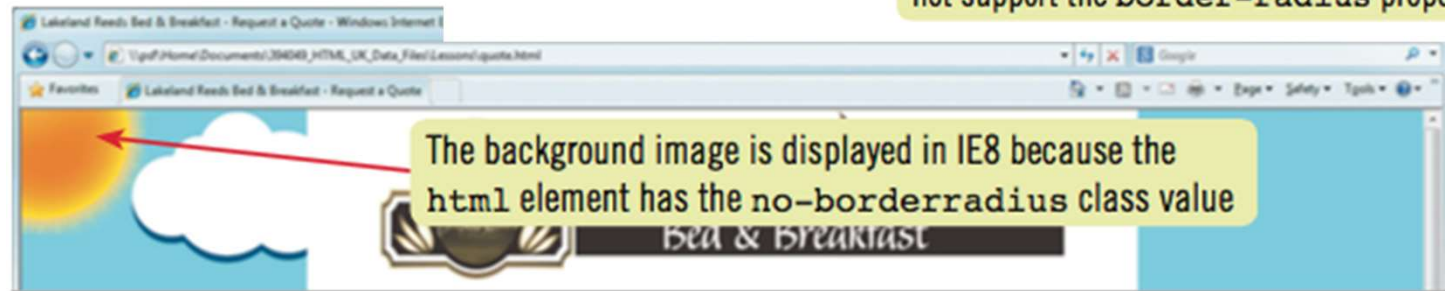
Differences between browser Sniffing vs Feature detection

- **Browser sniffing** – identify the brand and version of each user's browser.

- **Feature Detection** (Modernizr) – runs a series of test the browser supports.
  - ➤ - More reliable.

Customizing and downloading the Modernizr library

- Free for download from modernizr.com

- Used for building and testing website.
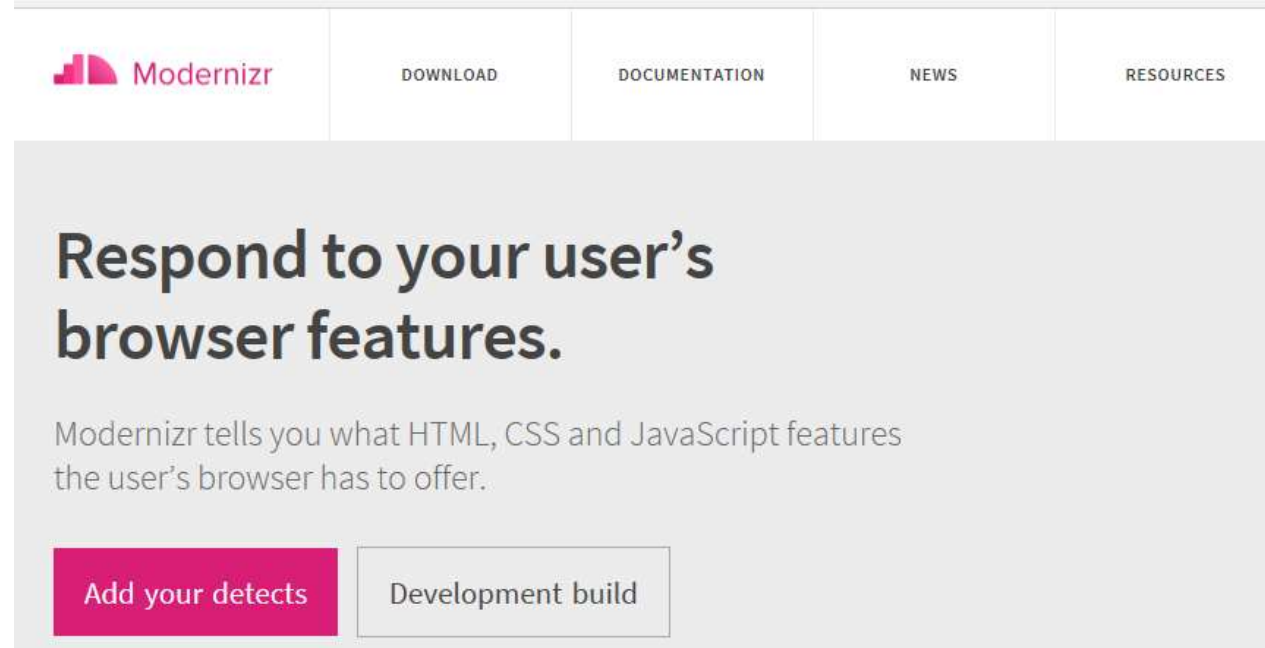
Quick Quiz

a. T/F: Modernizr automatically creates the alternative code required for each browser that does not support certain properties.

b. T/F: Modernizr creates class names that enable a browser to automatically skip style rules that cannot be implemented by the browser.

Apply a Transform

- **transform**: a change in the appearance of an element in one or more specific ways: rotating, scaling, skewing, and moving (translating)

Transformed element in green	Outline of original element in black		
rotate	scale	skewX/skewY	translate
transform: rotate(30deg);	transform: scale(0.5);	transform: skewY(10deg);	transform: translate(25px, -100px);

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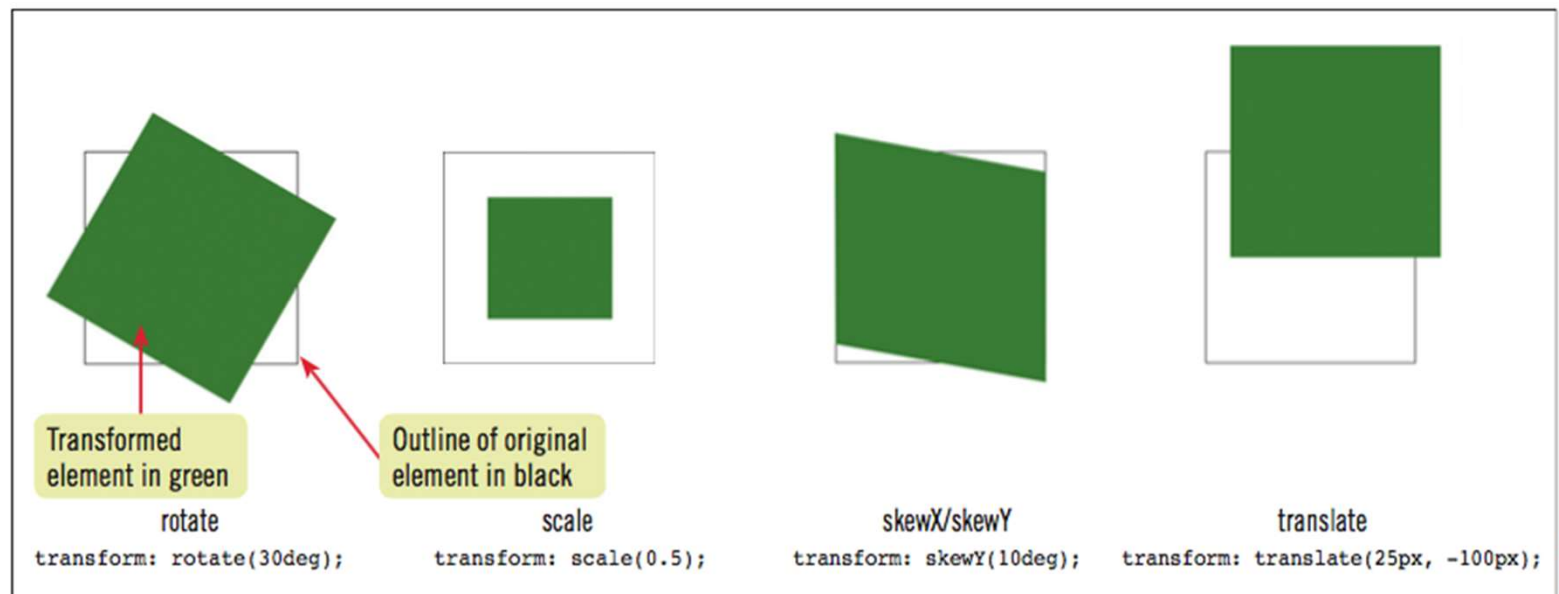
Transformation

transform.html

```css
.prof {
  transform: rotate(20deg);
}
.mar {
  transform: rotate(-55deg);
}
.castro {
  transform: rotate(360deg);
}
</style>
```

```html
<div class="original">
  <div class="spin">
    <figure class="spinme prof">Prof.</figure>
  </div>
</div>
<div><p> ---- </p><div>
<div class="original">
  <div class="spin">
    <figure class="spinme mar">Mar</figure>
  </div>
</div>
<div><p> ---- </p><div>
<div class="original">
  <div class="spin">
    <figure class="spinme castro">Castro</figure>
  </div>
</div>
```

Apply a Transform (continued)
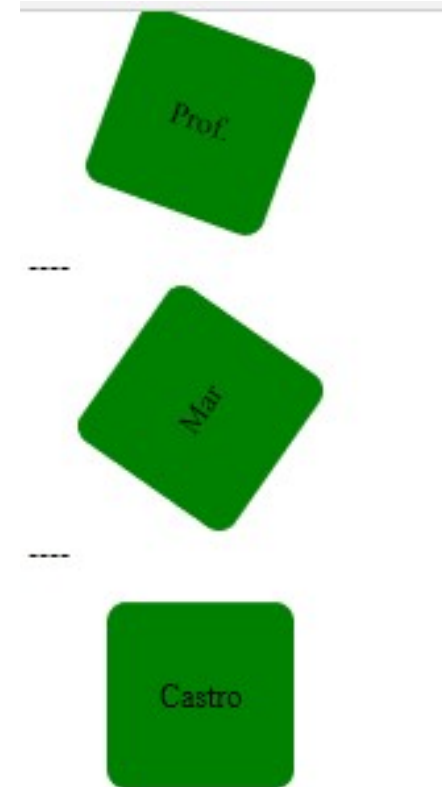
- Implemented in modern browsers with browser prefixes
  - Words or abbreviations added to start of property name and specific one or more browsers or rendering engines

- Create declaration using unprefixed form, then precede with declarations using all browser prefixes

Apply a Transform (continued)
DEMO: nav.html

- Transform code and result:

```
112   nav.sitenavigation li:hover {
113       background-color: #34180f;
114       -ms-transform: scale(1.2);
115       -webkit-transform: scale(1.2);
116       transform: scale(1.2);
117   }
```

Prefixed properties included before declaration using unprefixed property name

Lakeland Reeds Bed & Br ×

file:///C:/Users/sasha_000/Documents/394049_HTML_UK_Data_Files/Lessons/quote.html

Lakeland Reeds

li element scales up to 1.2 times its original size when it has the focus as a result of the transform: scale(1.2); declaration

Home   About Us   Reservations   Events   Contact Us

The CSS browser prefixes

You can use the following browser prefixes
which are specific to each browser:

- Android: -webkit-

- Chrome: -webkit-

- Firefox: -moz-

- Internet Explorer: -ms-

- iOS: -webkit-

- Opera: -o-

- Safari: -webkit-

```
.cloud-image {
    max-width: none;
    display: block;
    position: absolute;
    left: 100px;
    z-index: -1;
    -webkit-animation-duration: 3s;
    animation-duration: 3s;
    -webkit-animation-timing-function: linear;
    animation-timing-function: linear;
    -webkit-animation-name: reveal-sun;
    animation-name: reveal-sun;
}
```

browser fixes webkit w3c - Y ✕ | What Are CSS Vendor or Bro ✕ | Mar's Be

ⓘ file:///D:/OneDrive/Schools/ITUs/ITU_HTML_Fall2017/week10/Unit K/b
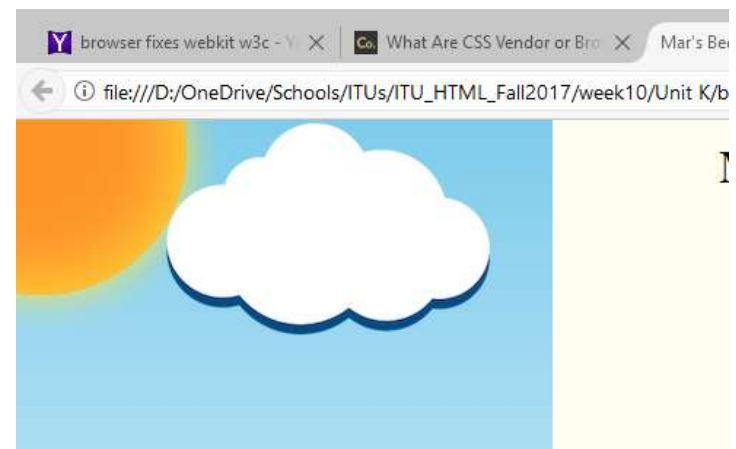
Webkit Demo: webprefixes.html

```
.cloud-image {
    max-width: none;
    display: block;
    position: absolute;
    left: 100px;
    z-index: -1;
    -webkit-animation-duration: 1s; /*speed */
    animation-duration: 1s; /*speed */
    -webkit-animation-timing-function: linear;
    animation-timing-function: linear;
    -webkit-animation-name: reveal-sun;
    animation-name: reveal-sun;
}
```
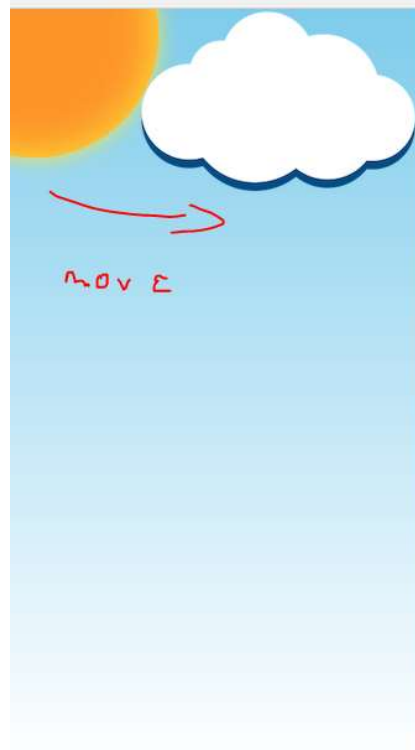
It is considered good practice to specify the vendor-prefixed version first and then the non-prefixed version, in order that the non-prefixed property will override the vendor-prefixed property-settings once it's implemented

Unit K

move

Mar's Bed & Breakfast - Request a Quote

* indicates a required field

* Name

* Email

* Start date

January   1   2019

* Number of days   * Number of guests

Other information (hours, catering needs, etc.)

Submit

Create a Transition

- **transitions**: CSS features that gradually apply changes to properties in response to user actions
  - Supported by modern browsers
  - Create simple animations
  - Example: create transform to rotate an element, then use transition to spin element into position over several seconds

Create a Transition (continued)

- Aspects of transitions that are configurable:

property	description	example
transition-delay	time in seconds after a transition is triggered and before the transition begins	transition-delay: 5s;
transition-duration	time in seconds from the start of transition to the end of transition	transition-duration: 3s;
transition-property	the name(s) of one or more properties to be transitioned	transition-property: transform;
transition-timing-function	a function expression or keyword that determines the rhythm of the animation; commonly used keywords include ease, ease-in, ease-in-out, ease-out, linear, step-end, and step-start	transition-timing-function: ease-in;
transition	shorthand property that takes space-separated values in the order *property duration timing-function delay*; values for multiple properties can be specified, separated by spaces	transition: transform 3s ease-in 5s;

Create a Transition (continued)
Demo nav.html

- Transition code and result:

```
104   nav.sitenavigation li {
105       margin: 0.3em 0.5em;
106       padding: 0.2em 0.4em;
107       display: inline-block;
108       font-size: 1.3em;
109       line-height: 1.4em;
110       border-radius: 10px;
111       -webkit-transition-duration: 0.2s;
112       transition-duration: 0.2s;
113       -webkit-transition-timing-function: ease-in;
114       transition-timing-function: ease-in;
115   }
116   nav.sitenavigation li:hover {
117       background-color: #34180f;
118       -ms-transform: scale(1.2);
119       -webkit-transform: scale(1.2);
120       transform: scale(1.2);
121   }
```

The **-webkit-transition-duration** and **transition-duration** properties set how long the transition takes

The **-webkit-transition-timing-function** and **transition-timing-function** properties determine how the transition is applied

The transition applies to all properties with values that change in response to user interaction

Lakeland Reeds

In the middle of the transition, the item is partially scaled up and has a background color that is between the starting and ending shades

Home   About Us   Reservations   Events   Contact Us

Animate Content

- **keyframe animation**: an animation created using animation properties and the `@keyframes` rule
  - Supported by modern browsers
  - Enable you to control what animation looks like at various points between start and end
  - `@keyframes` rule: name for rule, followed by nested rules in braces, with percentage selectors

Animate Content (continued)

- ## Animation-related CSS properties:

property	description
animation-delay	time in seconds after an animation is triggered and before the animation begins
animation-direction	whether the animation should play forward (normal) or in reverse (reverse)
animation-duration	time in seconds from the start of animation to the end of animation
animation-iteration-count	number of times the animation is played
animation-name	the name of the @keyframe rule to use
animation-timing-function	a function expression or keyword that determines the rhythm of the animation; commonly used keywords include ease, ease-in, ease-in-out, ease-out, linear, step-end, and step-start
animation	shorthand property that takes space-separated values in the order name duration timing-function delay iteration-count direction

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Animate Content (continued) Demo: webprefixes.html

- Components of keyframe animation:


```
67    @-webkit-keyframes reveal-sun {
68        0% {
69            left: -150px;
70        }
71        50% {
72            left: -50px;
73        }
74        100% {
75            left: 100px;
76        }
77    }
```

The @-webkit-keyframes rule is required by Chrome, Safari, Opera, and Android Browser

The content of the @-webkit-keyframes rule is identical to that of the @keyframes rule

@-webkit-keyframes rule

```
78    @keyframes reveal-sun {
79        0% {
80            left: -150px;
81        }
82        50% {
83            left: -50px;
84        }
85        100% {
86            left: 100px;
87        }
88    }
```

The name is any string you choose to identify the animation

The declarations in each percentage rule specify the state of the element at that point in the animation

@keyframes rule

```
60    .cloud-image {
61        max-width:
62        display: bl
63        position: a
64        left: 100px;
65        z-index: -1;
66        -webkit-animation-duration: 3s;
67        animation-duration: 3s;
68        -webkit-animation-timing-function: linear;
69        animation-timing-function: linear;
70        -webkit-animation-name: reveal-sun;
71        animation-name: reveal-sun;
72    }
```

The content of each -webkit-prefixed declaration is the same as its corresponding unprefixed property

The animation-duration property specifies the time the animation takes from start to finish

The animation-timing-function value is a keyword for the rhythm of the animation

The animation-name declaration references the name specified in the corresponding @keyframes rule

Summary

- The `:before` and `:after` pseudo-elements enable you to insert content -- known as generated content -- into web pages using style rules.

- CSS supports several pseudo-classes specifically for use with forms, which you can use to change properties in forms in response to user actions.

Summary (continued)

- A gradient is a visual effect in which an area starts as a single color on one edge or corner and transitions gradually to one or more other colors.

- You can use CSS properties to change the shapes of HTML elements to enhance your visual design.

Summary (continued)

- You can use Modernizr to implement graceful degradation, which describes a layout that uses newer styles in modern browsers while displaying a usable layout and all page content in older browsers.

- A transform is a change in the appearance of an element in one or more specific ways (rotating, scaling, skewing, or moving).

Summary (continued)

- Transitions are CSS features that gradually apply changes to properties in response to user actions over a number of seconds.

- A keyframe animation uses animation properties and the `@keyframes` rule and enables you to control what the animation looks like at various points between the start and end.