Designing a Web Page with CSS

Creating a Web Site for a Rural Farm

Case: *Sunny Acres*

- Tammy Nielsen and her husband, Brent, live and work at Sunny Acres, a 200-acre farm near Council Bluffs, Iowa.

- Tammy created a Web site for Sunny Acres several years ago to make information about the farm easily accessible to her customers. The Web site has become outdated, so Tammy would like to enliven it with a new design based on the latest elements and styles from HTML and CSS. Tammy's knowledge of HTML and Web styles is limited, so she's come to you for help in creating a new look for the Sunny Acres Web site.

Sunny Acres

Tammy and Brent Nielsen
1973 Hwy G
Council Bluffs, IA 51503

Navigation

- HOME
- Autumn Fun
- Scary Good
- Meet the Animals
- For your Tastebuds

Welcome

THERE'S ALWAYS SOMETHING HAPPENING at Sunny Acres. With the coming of fall, we're gearing up for our big AutumnFest and Farm Show. If you haven't visited our famous Corn Maze, be sure to do so before it gets torn down on November 5. This year's maze is bigger and better than ever.

Farms can be educational and Sunny Acres is no exception. Schools and home-schooling parents, spend an afternoon with us at our Petting Barn. We have over 100 friendly farm animals in a clean environment. Kids can bottle feed the baby goats, lambs, and calves while they learn about nature and the farming life. Please call ahead for large school groups.

When the sun goes down this time of year, we're all looking for a good fright. Sunny Acres provides that too with another year of the Haunted Maze. Please plan on joining us during weekends in October or on Halloween for our big Halloween Festival.

Of course, Sunny Acres is, above all, a *farm*. Our Farm Shop is always open with reasonable prices on great produce. Save even more money by picking your own fruits and vegetables from our orchards and gardens.

We all hope to see you soon, down on the farm.
– Tammy & Brent Nielsen

Hours

- Farm Shop: 9 am - 5 pm Mon - Fri; 9 am - 3 pm Sat
- The Corn Maze: 11 am - 9 pm Sat; 11 am - 5 pm Sun
- The Haunted Maze: 5 pm - 9 pm Fri & Sat
- Petting Barn: 9 am - 4 pm Mon - Fri; 11 am - 3 pm Sat & Sun

Directions

- From Council Bluffs, proceed east on I-80
- Take Exit 38 North to the Drake Frontage Road
- Turn right on Highway G
- Proceed east for 2.5 miles
- Sunny Acres is on your left; watch for the green sign

Introduction

Pages that you will work with:

- **home.htm** – the home page, describing the operations and events sponsored by the farm

- **maze.htm** – a page describing the farm's corn maze

- **haunted.htm** – a page describing the farm's annual Halloween Festival and haunted maze

- **petting.htm** – a page describing the farm's petting barn

- **produce.htm** – a page describing the Sunny Acres farm shop and the pick-your-own produce garden
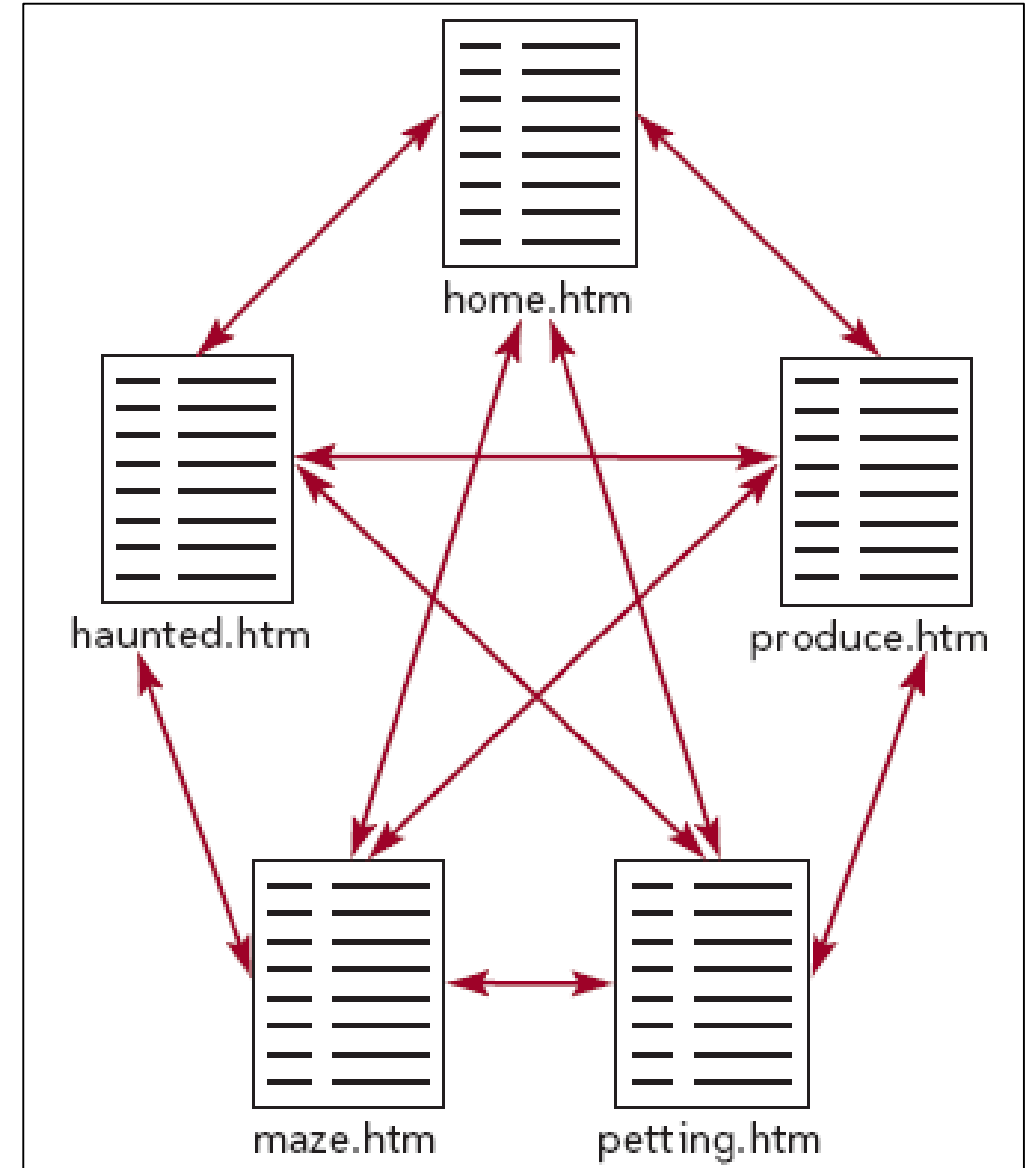
- Use your text editor to open the haunttxt.htm, hometxt.htm, mazetxt.htm, pettingtxt.htm, and producetxt.htm files, located in the tutorial.03\tutorial folder included with your Data Files. Within each file, go to the comment section at the top of the file and add your name and the date in the space provided. Save the files as **haunted.htm**, **home.htm**, **maze.htm**, **petting.htm**, and **produce.htm**, respectively, in the same folder.

- Take some time to review the HTML code within each document so that you understand the structure and content of the files.

- Open the **home.htm** file in your Web browser, and then click the links at the top of the page to view the current appearance of the **haunted.htm**, **maze.htm**, **petting.htm**, and **produce.htm** files.

The History of CSS

- You learned in Tutorial 1 that HTML specifies a document's content and structure, but not how that document should be rendered. To render a document, the device displaying the page needs a style sheet that specifies the appearance of each page element. The style sheet language used on the Web is the Cascading Style Sheets language, also known as CSS.

- The specifications for CSS are maintained by the World Wide Web Consortium (W3C); and as with HTML and XHTML, several versions of CSS exist with varying levels of browser support.

- With CSS, as with HTML, Web page designers need to be aware of compatibility issues that arise not just among different versions of the language, but also among different versions of the same browser. Although it's tempting to always apply the latest and most exciting features of CSS, you should not create a situation where users of older browsers will not be able to view your Web pages.

Defining a Style Rule

- The general syntax of a CSS style rule is

    selector {

        property1: *value1*;

        property2: *value2*;

        property3: *value3*;

        …

    }

    h1 {

        color: blue;

        text-align: center;

    }

    h1, h2, h3, h4, h5, h6 {

        color: blue;

        text-align: center;

    }

Link to the layout style sheet

- Return to the **home.htm** file in your text editor.
- Directly above the closing **</head>** tag, insert the following link element

  <link href="sa_layout.css" rel="stylesheet" type="text/css" />
- Save your changes to the file.
- Reopen the **home.htm** file in your browser. The layout of the page has been altered using the design styles present in the **sa_layout.css** file.

Start creating the sa_styles.css style sheet

- Use your text editor to open the blank text file **sa_stylestxt.css** from the tutorial.03/tutorial folder. Save the file as **sa_styles.css**.

- At the top of the file, insert the following style comments:

  /*

  Sunny Acres Style Sheet

  Author: your name

  Date: the date

  */

- Return to the **home.htm** file in your text editor.

- Directly below the link element for the sa_layout.css file, insert the following:

  <link href="sa_styles.css" rel="stylesheet" type="text/css" />

- Save your changes to the file.

RGB Color Values

- A color value is a numerical expression that describes the properties of a color. To better understand how numbers can represent colors, it can help to review some of the basic principles of color theory and how they relate to the way colors are rendered in a browser.

- In classical color theory, all colors are based on adding three primary colors – red, green, and blue – at different levels of intensity.

- CSS represents these intensities mathematically as a set of numbers called an **RGB triplet**, which has the format rgb(red, green, blue)
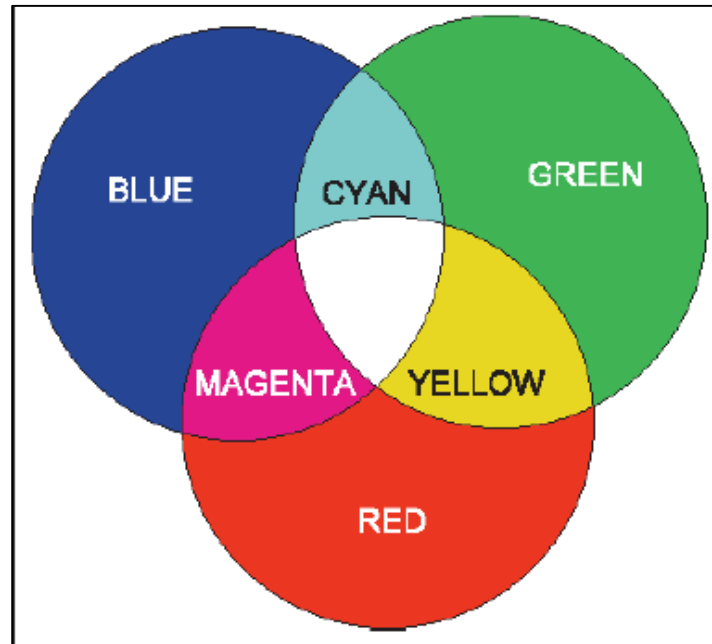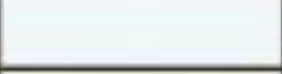
Using Color Names

- If you don't want to use color values, you can also specify colors by name. CSS supports the 16 basic color names

- Sixteen colors are not a lot, so most browsers support an extended list of 140 color names, including such colors as orange, crimson, khaki, and brown. Although this extended color list was not part of the CSS specification until CSS3, most browsers support it.

The 16 basic CSS2 color names

Color Name	RGB Triplet	Hexadecimal	Color Name	RGB Triplet	Hexadecimal
Aqua	(0, 255, 255)	00FFFF	Navy	(0, 0, 128)	000080
Black	(0, 0, 0)	000000	Olive	(128, 128, 0)	808000
Blue	(0, 0, 255)	0000FF	Purple	(128, 0, 128)	FF0000
Fuchsia	(255, 0, 255)	FF00FF	Red	(255, 0, 0)	C0C0C0
Gray	(128, 128, 128)	808080	Silver	(192, 192, 192)	008080
Green	(0, 128, 0)	008000	Teal	(0, 128, 128)	FFFFFF
Lime	(0, 255, 0)	00FF00	White	(255, 255, 255)	FFFF00
Maroon	(128, 0, 0)	800000	Yellow	(255, 255, 0)	

A partial list of extended color names

Sample	Name	RGB	Hexadecimal
	aliceblue	(240,248,255)	#F0F8FF
	antiquewhite	(250,235,215)	#FAEBD7
	aqua	(0,255,255)	#00FFFF
	aquamarine	(127,255,212)	#7FFFD4
	azure	(240,255,255)	#F0FFFF
	beige	(245,245,220)	#F5F5DC
	bisque	(255,228,196)	#FFE4C4
	black	(0,0,0)	#000000
	blanchedalmond	(255,235,205)	#FFEBCD
	blue	(0,0,255)	#0000FF
	blueviolet	(138,43,226)	#8A2BE2
	brown	(165,42,42)	#A52A2A
	burlywood	(222,184,135)	#DEB887

Format the text and background colors

- Return to the **sa_styles.css** file in your text editor

- Directly below the style comments, insert the following style rules

```
/* Body styles */
    body {
    background-color: white;
}
/* Heading styles */
h2 {
    background-color: rgb(0, 165, 0);
    color: white;
}
```

Hours

- Farm Shop: 9 am - 5 pm Mon - Fri; 9 am - 3 pm Sat
- The Corn Maze: 11 am - 9 pm Sat; 11 am - 5 pm Sun
- The Haunted Maze: 5 pm - 9 pm Fri & Sat
- Petting Barn: 9 am - 4 pm Mon - Fri; 11 am - 3 pm Sat & Sun

Directions

- From Council Bluffs, proceed east on I-80
- Take Exit 38 North to the Drake Frontage Road
- Turn right on Highway G
- Proceed east for 2.5 miles
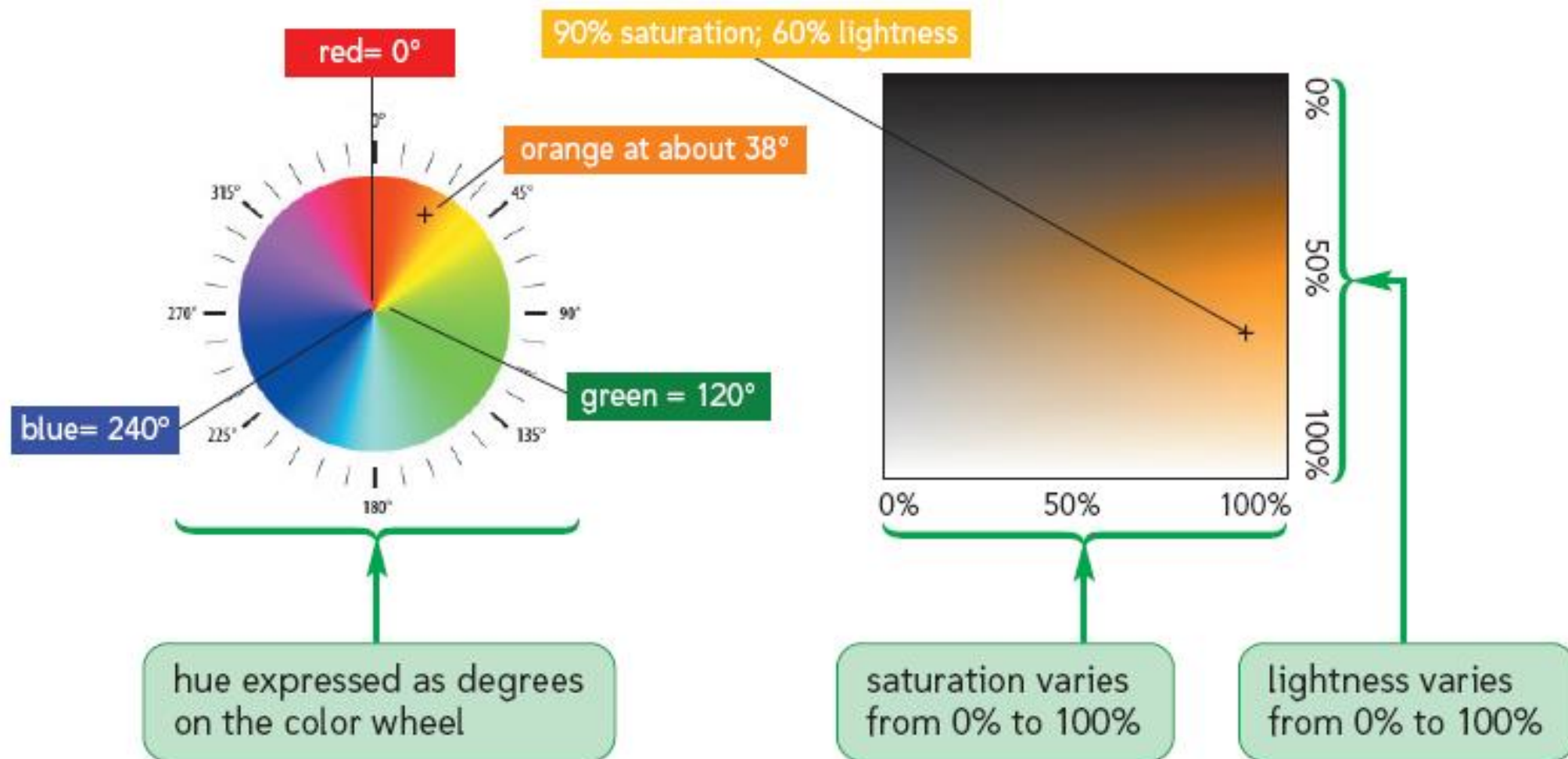- Sunny Acres is on your left; watch for the green sign

HSL Color Values

- The RGB color model is only one way of describing colors. CSS3 also supports the Hue Saturation Lightness (HSL) model that describes colors based on hue, saturation, and lightness. Hue is the tint of the color and is based on the color's location on the color wheel. Hue values range from 0° up to 360°, where 0° matches the location of red on the color wheel, 120° matches green, and 240° matches blue. Saturation measures the intensity of the chosen color and ranges from 0% (no color) up to 100% (full color). Finally, lightness measures the brightness of the color and ranges from 0% (black) up to 100% (white). Color values using the HSL model are described in CSS3 using

  hsl(hue, saturation, lightness)

- where hue is the tint of the color in degrees, saturation is the intensity of the color in percent, and lightness is the brightness of the color in percent. Next figure shows how setting the hue to 38°, the saturation to 90%, and the lightness to 60% results in a medium shade of orange.

hsl(38, 90%, 60%)

red= 0°

90% saturation; 60% lightness

orange at about 38°

green = 120°

blue= 240°

315°

270°

225°

180°

135°

90°

45°

0°

0%

50%

100%

0%   50%   100%

hue expressed as degrees on the color wheel

saturation varies from 0% to 100%

lightness varies from 0% to 100%

Opacity Values in CSS3

- CSS3 also allows page designers to augment RGB and HSL color values by specifying a color's opacity. Opacity defines how much of the colors below the surface of the current object show through to affect its appearance. The opacity of a color can be specified using either of the following rgba and hsla color values

    rgba(red, green, blue, opacity)
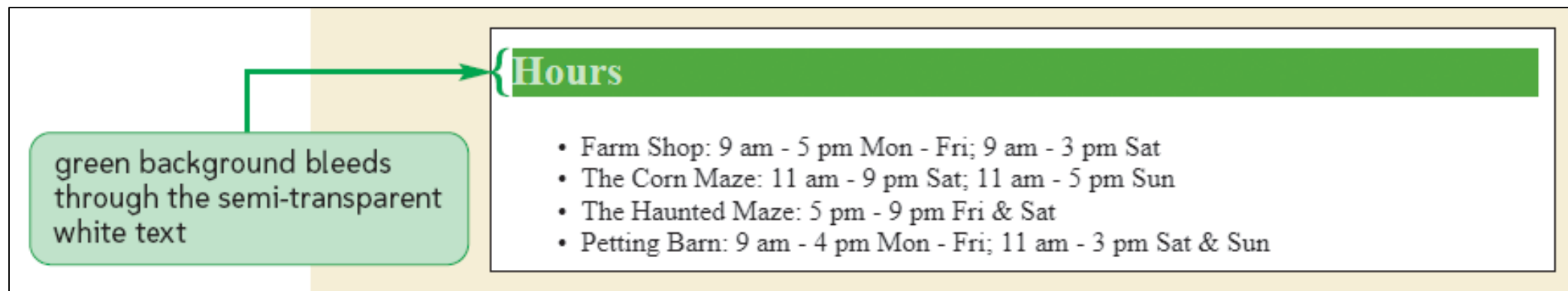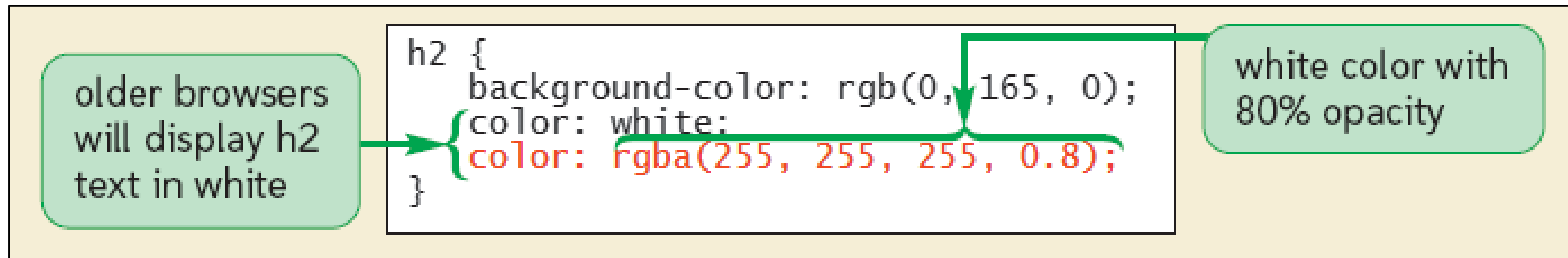
    hsla(hue, saturation, lightness, opacity)

- where opacity sets the transparency of the color as a decimal ranging from 0 (completely transparent) up to 1.0 (completely opaque). For example, the following style displays the text of h1 headings in a medium shade of orange at 70% opacity:

    hsla(38, 90%, 60%, 0.7)

Make the heading text semi-transparent

- Return to the **sa_styles.css** file in your text editor.
- Within the style rule for the h2 selector, insert the following color property: **color: rgba(255, 255, 255, 0.8);**

older browsers will display h2 text in white

```
h2 {
    background-color: rgb(0, 165, 0);
    color: white;
    color: rgba(255, 255, 255, 0.8);
}
```

white color with 80% opacity

green background bleeds through the semi-transparent white text

Hours

- Farm Shop: 9 am - 5 pm Mon - Fri; 9 am - 3 pm Sat
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- Petting Barn: 9 am - 4 pm Mon - Fri; 11 am - 3 pm Sat & Sun

Format h1 headings

- Return to the **sa_styles.css** file in your text editor.
- Directly above the style rule for h2 headings, insert the following style rule, as :

```
h1 {
    background-color: rgb(125, 186, 240);
    color: white;
}
```


sky blue background added to the company logo

formatted h1 heading

Sunny Acres

Tammy and Brent Nielson
1973 Hwy G
Council Bluffs, IA 51503

- Home
- Autumn Fun
- Scary Good

Welcome

Contextual Selectors

- So far, the only selectors you've studied involve either single elements or groups of elements in a comma-separated list. However, this approach doesn't take into account that Web pages are structured documents in which elements are nested within other elements, forming a hierarchy of elements.

- Contextual selectors take advantage of the general rule that the more specific style is applied in preference to the more general. For instance, the styles

      section h1 {color: red;}
      h1 {color: blue;}

  would result in any h1 heading text nested within a section element appearing in red, even though the last style sets the text color to blue. The more specific style using the contextual selector takes precedence over the general style in which no context has been given.

Contextual selectors

Selector	Description
*	Matches any element in the hierarchy
e	Matches any element, e, in the hierarchy
e1, e2, e3, ...	Matches the group of elements e1, e2, e3, ...
e f	Matches any element, f, that is a descendant of an element, e
e>f	Matches any element, f, that is a direct child of an element, e
e+f	Matches any element, f, that is immediately preceded by a sibling element, e
e~f	Matches any element, f, that is a sibling to an element, e

For example, the style rule

      * {color: blue;}

uses the asterisk (*) selector—also known as the **wildcard selector**—to select all elements in the document. The result is that the text of all elements in the document appears in blue. On the other hand, the rule

      p > em {color: blue;}

applies the blue text color only to emphasized text placed as a direct child of a paragraph.

Revise the style sheet

- Return to the **sa_styles.css** file in your text editor.

- Change the selector for the h1 heading rule to **section h1**

- Save your changes to the style sheet and then reload the **home.htm** file in your Web browser. Verify that the sky blue background is applied only to the Welcome heading.

Attribute Selectors

Attribute selectors

Selector	Description	Example	Matches
`#id`	The element with the id value, `id`	`#intro`	The element with the id *intro*
`.class`	All elements with the class value, `class`	`.main`	All elements belonging to the *main* class
`elem.class`	All *elem* elements with the class value `class`	`p.main`	All paragraphs belonging to the *main* class
`elem[att]`	All *elem* elements containing the *att* attribute	`a[href]`	All hypertext elements containing the `href` attribute
`elem[att="text"]`	All *elem* elements whose *att* attribute equals *text*	`a[href="gloss.htm"]`	All hypertext elements whose `href` attribute equals *gloss.htm*
`elem[att~="text"]`	All *elem* elements whose *att* attribute contains the word *text*	`a[rel~="glossary"]`	All hypertext elements whose `rel` attribute contains the word *glossary*
`elem[att|="text"]`	All *elem* elements whose *att* attribute value is a hyphen-separated list of words beginning with *text*	`p[id|="first"]`	All paragraphs whose `id` attribute starts with the word *first* in a hyphen-separated list of words
`elem[att^="text"]`	All *elem* elements whose *att* attribute begins with *text* (CSS3)	`a[rel^="prev"]`	All hypertext elements whose `rel` attribute begins with *prev*
`elem[att$="text"]`	All *elem* elements whose *att* attribute ends with *text* (CSS3)	`a[href$="org"]`	All hypertext elements whose `href` attribute ends with *org*
`elem[att*="text"]`	All *elem* elements whose *att* attribute contains the value *text* (CSS3)	`a[href*="faq"]`	All hypertext elements whose `href` attribute contains the text string *faq*

Create a style based on the class attribute

- Return to the **sa_styles.css** file in your text editor.

- Add the following style rule at the bottom of style sheet:

    /* Section styles */
    section p.closing {
    color: rgb(0, 165, 0);
    text-align: right;
    }

- Save your changes to the style sheet and then reload the **home.htm** file in your Web browser. Verify that the text of the last paragraph appears in green and is right-aligned on the page.

Of course, Sunny Acres is, above all, a *farm*. Our Farm Shop is always open with reasonable prices on great produce. Save even more money by picking your own fruits and vegetables from our orchards and gardens.

We all hope to see you soon, down on the farm.
— Tammy & Brent Nielsen

Hours

Apply a sans-serif font to the body text

- Return to the **sa_styles.css** file in your text editor.

- Add the following style to the body style rule at the top of the style sheet:

  font-family: Verdana, Geneva, sans-serif;

- Save your changes to the style sheet and then reload the **home.htm** file in your Web browser.

Set the font size of the h1 headings

- Return to the **sa_styles.css** file in your text editor.
- Add the following style to the style rule for h1 headings in the section element:

  font-size: 1.7em;

- Save your changes to the file and then reload the **home.htm** file in your Web browser. Verify that the font size of the h1 heading appears slightly smaller under the revised style sheet.

Change the spacing of the headings on the Web site

- Return to the **sa_styles.css** file in your text editor.

- Within the style rules for the section h1 selector and the h2 selector, insert the following style values:

    letter-spacing: 0.4em;

    text-indent: 1em;

- Save your changes to the file and then reload the **home.htm** file in your browser. The indent and the spacing between the letters have increased.

Change the style of the address element

- Return to the **sa_styles.css** file in your text editor. At the bottom of the style sheet, add the following style rule for the address element nested within the footer element:

    /* Footer styles */

    footer address {

    background-color: rgb(55, 102, 55);

    color: white;

    color: rgba(255, 255, 255, 0.8);

    font: normal small-caps 0.8em/4em 'Times New Roman', Times, serif;

    text-align: center;

    }

- Save your changes to the file and then reload the home.htm file in your Web browser. Scroll to the bottom of the page and verify that the style of the address element has been changed
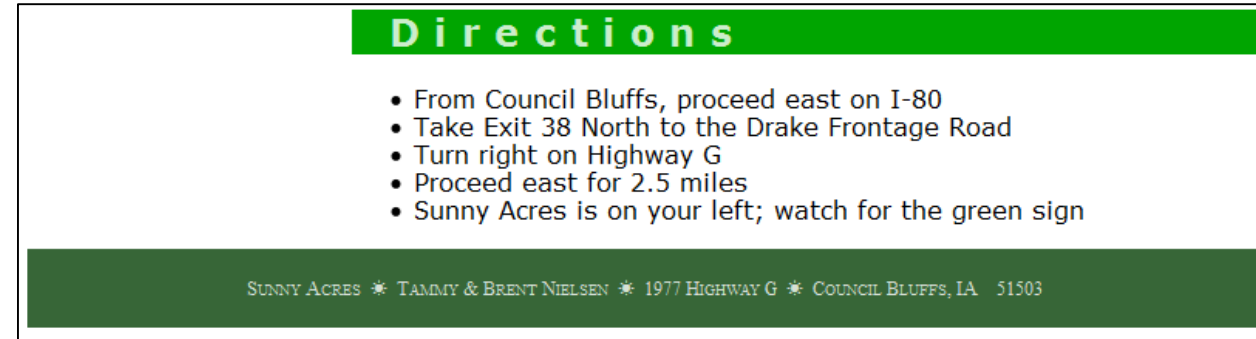
Working with Web Fonts

- Text design on the Web largely has been limited to a few Web safe fonts that are supported by all major browsers. It would be better if a browser would automatically download whatever fonts are required for a Web page in the same way it downloads images.

- To access and load a Web font, you add the rule

```
@font-face {
    font-family: name;
    src: url(url) format(text);
    descriptor:value;
    descriptor:value;

    …
}
```

to the style sheet, where *name* is the name assigned to the Web font, *url* is the location of the font definition fi le, *text* is an optional text description of the font format, and the *descriptor:value* pairs are optional style properties that describe how and when the font should be used.

Insert and apply the NobileRegular font

- Using your text editor, open the **nobile.txt** text file located in the tutorial.03/tutorial folder.

- Copy the **@font-face** rule located at the top of the file.

- Return to the **sa_styles.css** file in your text editor.

- Paste the copied text of the **@font-face** rule into your style sheet directly above the style rule for the **body** element.
  Next, you'll revise the style rule for the body element so that it uses the NobileRegular font as the first option, if available and supported by the browser. You'll also set the line height of body text to 1.4 em and the line height of the page headings to 1.8 em to accommodate the metrics of this new font.

- Within the font-family property for the body element, insert NobileRegular followed by a comma and a space, at the beginning of the font list.

- Add the property **line-height: 1.4em;** to the style rule for the **body** element and **line-height: 1.8em;** to the style rules for the h1 and h2 elements.

```css
@font-face {
    font-family: 'NobileRegular';
    src: url('nobile-webfont.eot');
    src: local('☺'),
         url('nobile-webfont.woff') format('woff'),
         url('nobile-webfont.ttf') format('truetype'),
         url('nobile-webfont.svg#webfontsKo9tqe9') format('svg');
}

/* Body styles */

body {
    background-color: white;
    font-family: NobileRegular, Verdana, Geneva, sans-serif;
    line-height: 1.4em;
}

/* Heading styles */

section h1 {
    background-color: rgb(125, 186, 240);
    color: white;
    font-size: 1.7em;
    letter-spacing: 0.4em;
    line-height: 1.8em;
    text-indent: 1em;
}

h2 {
    background-color: rgb(0, 165, 0);
    color: white;
    color: rgba(255, 255, 255, 0.8);
    letter-spacing: 0.4em;
    line-height: 1.8em;
    text-indent: 1em;
}
```

Designing Styles for Lists

- To change the marker displayed in ordered or unordered lists, you apply the style

  list-style-type: type;

  where type is one of the markers discussed

list-style-type	Marker (s)
disc	●
circle	○
square	■
decimal	1, 2, 3, 4, …
decimal-leading-zero	01, 02, 03, 04, …
lower-roman	i, ii, iii, iv, …
upper-roman	I, II, III, IV, …
lower-alpha	a, b, c, d, …
upper-alpha	A, B, C, D, …
lower-greek	α, β, γ, δ, …
upper-greek	A, B, Γ, Δ, …
none	no marker displayed

Remove the bullets from the navigation links

- Return to the **sa_styles.css** file in your text editor.

- Directly below the style rule for the h2 element, insert the following :

      /* Navigation list styles */

          nav ul {

          list-style-type: none;

      }

- Save your changes to the file and then reload the home.htm file in your Web browser. Verify that the bullet markers have been removed from the items in the navigation list.
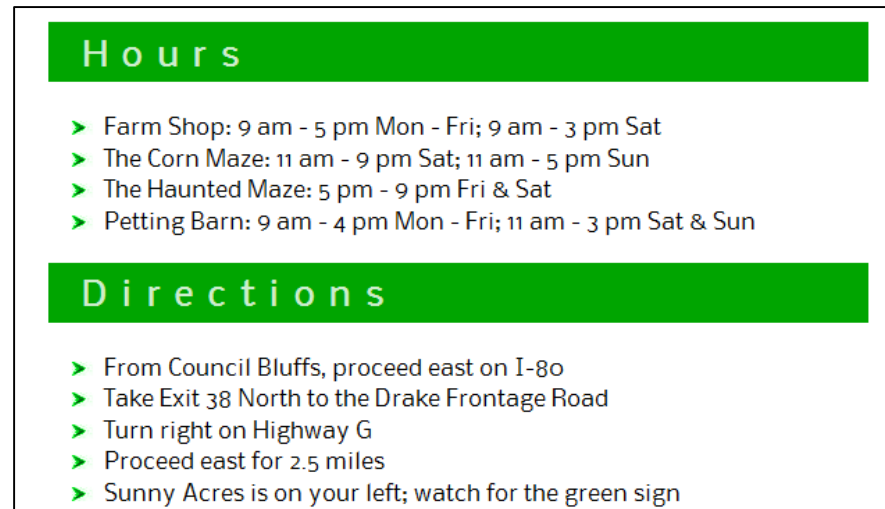
Home
Autumn Fun
Scary Good
Meet the Animals
For your Tastebuds

Use an image for a list bullet

- Return to the **sa_styles.css** file in your text editor.

- Directly below the style rule for the closing paragraph, insert the following:

```
section h2+ul {
    list-style-image: url(arrow.png);
}
```

- Save your changes to the file and then reload the **home.htm** file in your Web browser.

Move the navigation list to the left

- Return to the **sa_styles.css** file in your text editor.

- Within the style rule for the navigation list, insert the following style value: **padding-left: 0.5em;**

- Save your changes to the file and then reload the home.htm file in your Web browser. Verify that the entries in the navigation list have been shifted to the left, aligned roughly with the left edge of the Sunny Acres logo.

Reformat the navigation list

- Return to the **sa_styles.css** file in your text editor.

- Add the following style properties to the nav ul style rule

    background-color: rgb(125, 186, 240);

    line-height: 3.5em;

- Directly below the nav ul style rule, add the following rule for navigation hypertext links:

    nav ul li a {

        color: white;

        text-decoration: none;

    }

```css
/* Navigation list styles */
nav ul {
    list-style-type: none;
    padding-left: 0.5em;
    background-color: rgb(125, 186, 240);
    line-height: 3.5em;
}

nav ul li a {
    color: white;
    text-decoration: none;
}
```

Home

Autumn Fun

Scary Good

Meet the Animals

For your Tastebuds
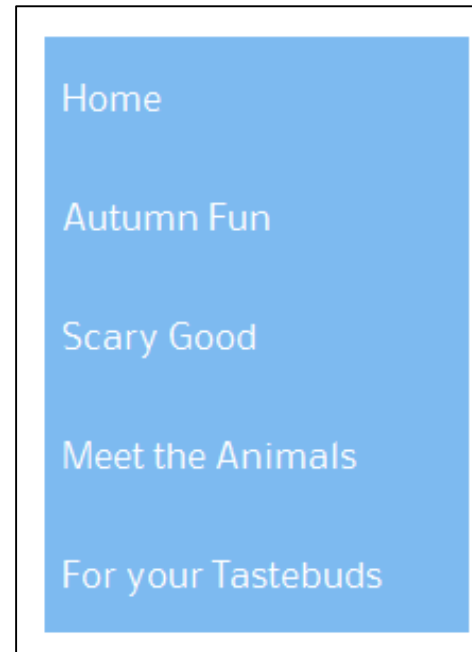
Using Pseudo-Classes and Pseudo-Elements

- Without underlines, there is no visual clue that the links in the navigation list act as hypertext. Web sites in which links are underlined or highlighted only when the mouse pointer hovers over the linked text. This type of effect is called a rollover effect because it is applied only when a user "rolls" the mouse pointer over an element.

Pseudo-Class	Description	Example
link	The link has not yet been visited by the user.	a:link {color: red;}
visited	The link has been visited by the user.	a:visited {color: green;}
active	The element is in the process of being activiated or clicked by the user.	a:active {color: yellow;}
hover	The mouse pointer is hovering over the element.	a:hover {color: blue;}
focus	The element has received the focus of the keyboard or mouse pointer.	input:focus {background-color: yellow;}

Apply the hover pseudo-class

- Return to the **sa_styles.css** file in your text editor.
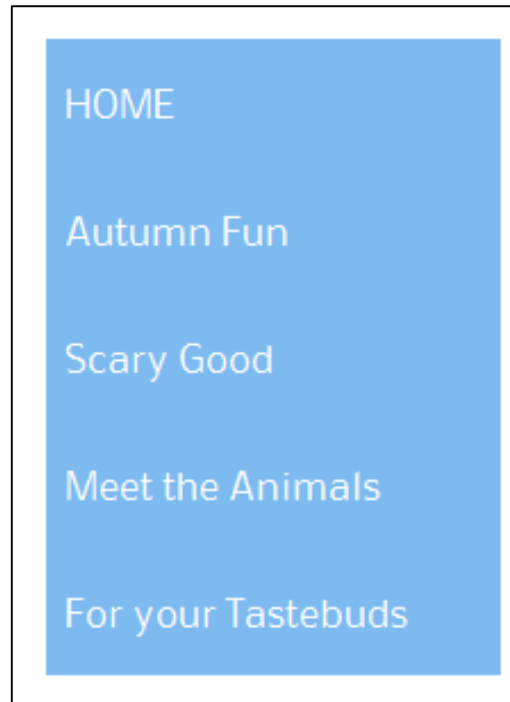   Add the following style rule:
    nav ul li:hover {
    background-color: rgb(83, 142, 213);
    }

Transform the text of the first navigation list element

- Return to the **sa_styles.css** file in your text editor.
- Add the following style rule:

nav ul li:first-of-type {

    text-transform: uppercase;

}

Create the initial cap and first line styles

- Go to the **home.htm** file in your text editor.
- Directly above the closing </head> tag, insert the following code:

  ```
  <style type="text/css">
      section > p:first-of-type:first-line {
      text-transform: uppercase;
      }
      section > p:first-of-type:first-letter {
      font-size: 250%;
      font-family: 'Times New Roman', Times, serif;
      }
  </style>
  ```

Apply the style sheet to the other pages on the site

- Go to the **maze.htm** file in your text editor.

- Directly above the closing **</head>** tag, insert the following link elements and embedded style sheet:

  <link href="sa_layout.css" rel="stylesheet" type="text/css" />
  <link href="sa_styles.css" rel="stylesheet" type="text/css" />
  <style type="text/css">
      section h1 {
      background-color: rgb(191, 141, 101);
      }
  </style>

- Repeat Step 2 for the **haunted.htm**, **petting.htm**, and **produce.htm** files. Set the **h1** background colors for these three files to **rgb(0, 0, 0)**, **rgb(133, 109, 85)**, and **rgb(50, 69, 99)**, respectively.