

# Web Design and Development

## ACS-1809

### Chapter 7

# Colors in WWW

# Colors in HTML

- 📁 Using color will make your web pages:
  - 🖱️ visually interesting
    - 🖨️ eye-catching for the reader
- 📁 HTML is a text-based language, requiring you to define your colors in textual terms.
- 📁 HTML identifies a color in one of two ways:
  - 🖱️ by the color value
  - 🖱️ by the color name

# Colors in HTML

- 📁 In the following format:
  - 🖱️ Hexadecimal values
  - 🖱️ Hexadecimal shorthand
  - 🖱️ RGB (Red, Green, Blue) values
  - 🖱️ RGB percentages
  - 🖱️ Color names

# Hexadecimal numbers

## Decimal:

$$2909 = 2 * 1000 + 9 * 100 + 0 * 10 + 9 * 1$$
$$= 2 * 10^3 + 9 * 10^2 + 0 * 10^1 + 9 * 10^0$$

## Hexadecimal:

$$255(\text{dec}) = (15 * 16) + 15 = \text{FF}$$

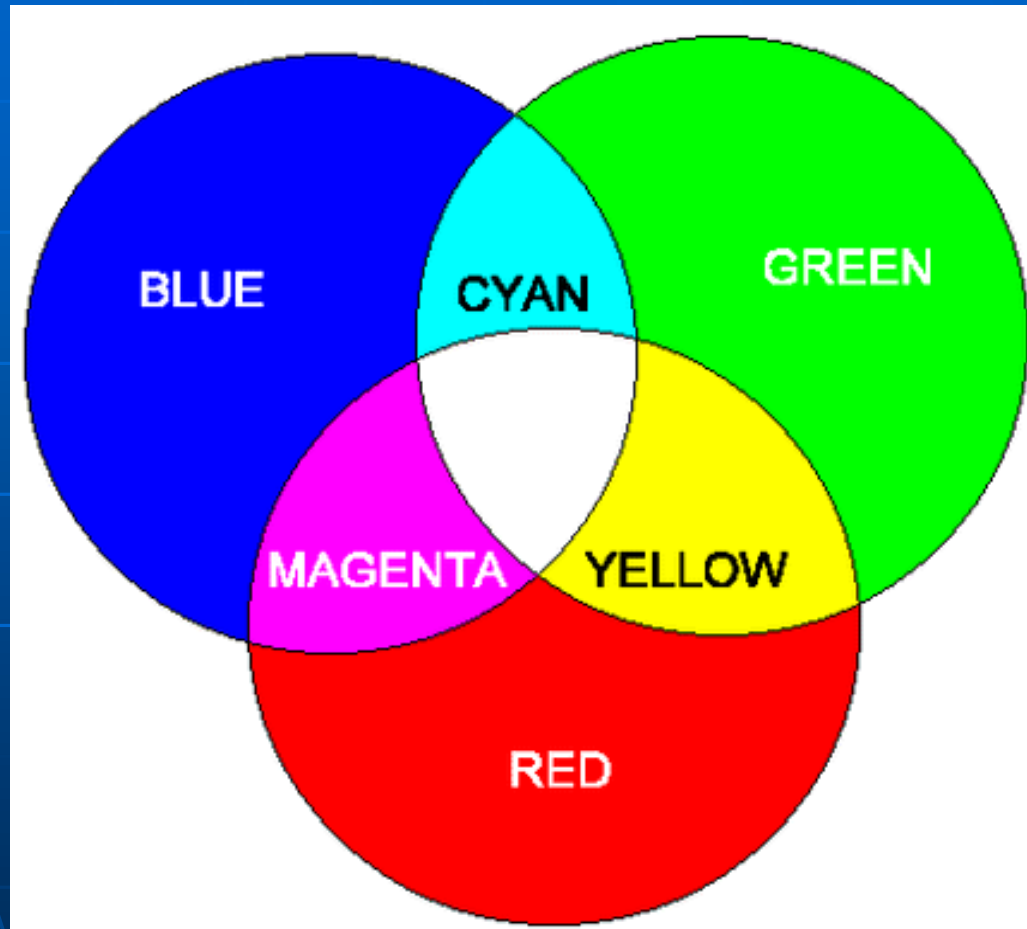
$$21(\text{dec}) = (1 * 16) + 5 = 15$$

Hex	Bin	Dec
0	0000	0
1	0001	1
2	0010	2
3	0011	3
4	0100	4
5	0101	5
6	0110	6
7	0111	7
8	1000	8
9	1001	9
A	1010	10
B	1011	11
C	1100	12
D	1101	13
E	1110	14
F	1111	15

# Basic Principles of Color Theory

- Any color can be thought of as a combination of three primary colors: **red, green, and blue**
- This principle allows a computer monitor to combine pixels of red, green, and blue to create the array of colors you see on your screen

# Primary Color Model for Light

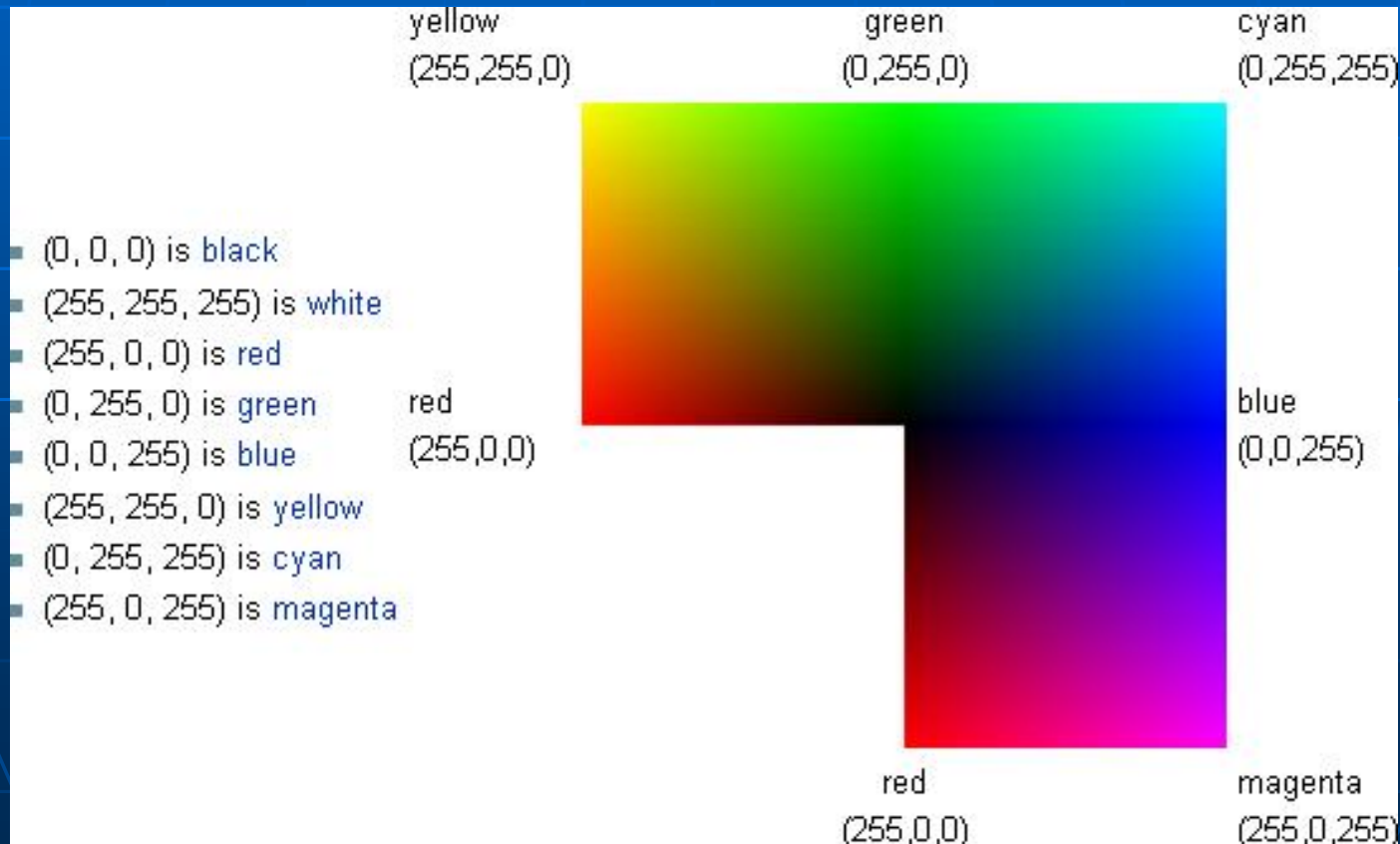


# RGB (Red, Green, and Blue) Triplets

- ❏ Software programs, such as your Web browser, define color mathematically
- ❏ The intensity of each of three colors (RGB) is assigned a number from 0 (darkest) to 255 (lightest)
- ❏ In this way,  $255^3$ , or more than 16.7 million, distinct colors can be defined
- ❏ Each color is represented by a triplet of numbers, called an **RGB triplet**, based on the strength of its **R**ed, **G**reen, and **B**lue components

# Primary Color Model for Light

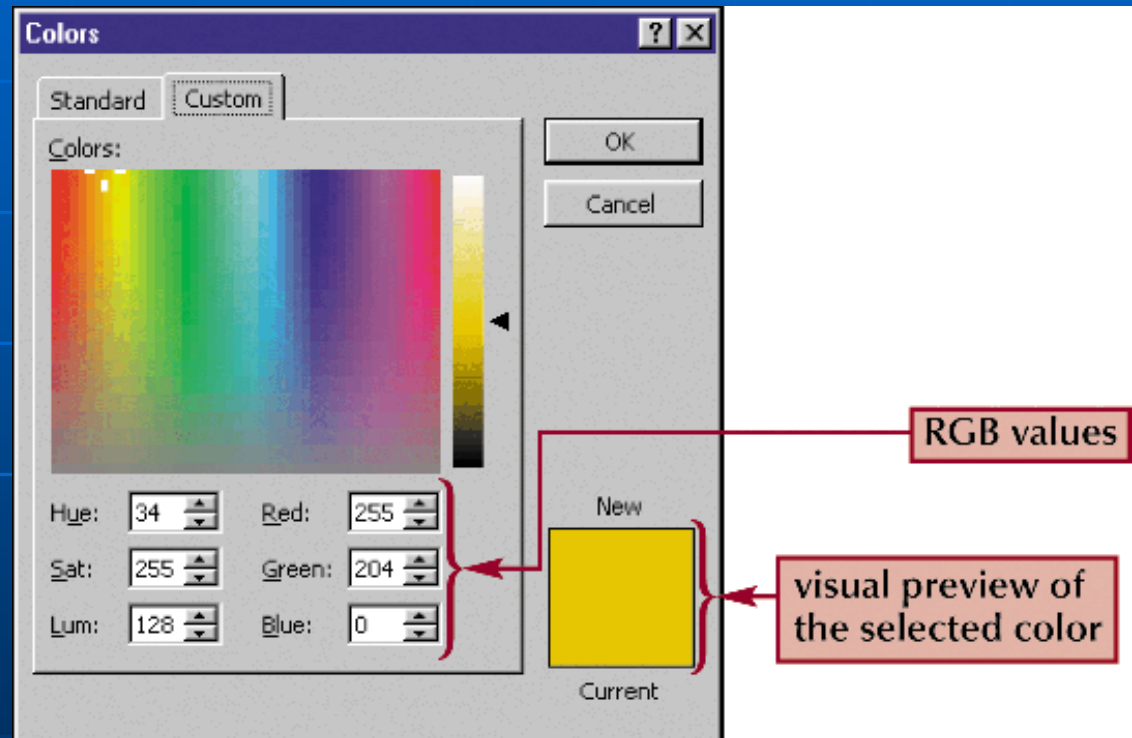
rgb (red, green, blue)





# A Typical Colors Dialog Box

- In most programs, you make your color choices with visual clues, usually without being aware of the underlying RGB triplet
- This figure shows a typical dialog box in which you would make color selections based on the appearance of the color, rather than on the RGB values



# Hexadecimal Shorthand

- When referencing a color that has value pairs, you can use a bit of shorthand to reduce the amount of typing

☞ #003366 → #036

☞ #0000FF → #00F


☞ #002277 → #027

☞ #003466 → ? (No Shorthand)









# RGB values and Percentages









```
<p style=" color: rgb(0,0,255);">
```

```
<p style=" color: rgb(0%,0%,100%);">
```

-  RGB values and percentages are only used to describe color in style sheets, not the older HTML tags

# 16 Basic Color Names + Orange

<b>Color</b>								
<b>Name</b>	Aqua	Black	Blue	Fuchsia	Gray	Green	Lime	Maroon
<b>RGB</b>	#00FFFF	#000000	#0000FF	#FF00FF	#808080	#008000	#00FF00	#800000

<b>Color</b>								
<b>Name</b>	Navy	Olive	Purple	Red	Silver	Teal	White	Yellow
<b>RGB</b>	#000080	#808000	#800080	#FF0000	#C0C0C0	#008080	#FFFFFF	#FFFF00

# New and Notable Color Options

## RGBA

 you can specify the “alpha value” with RGBA

 It is the transparency of a color

 The transparency is defined by a number between 0.0 (completely transparent) and 1.0 (fully opaque).

```
h1 {color: rgba (255, 68, 253, 0.5);}
```


 Safari, Firefox, and Google Chrome have all supported RGBA color specification for a while

 Internet Explorer only started supporting it with version 9

# New and Notable Color Options

## Opacity

 Similar to the RGBA

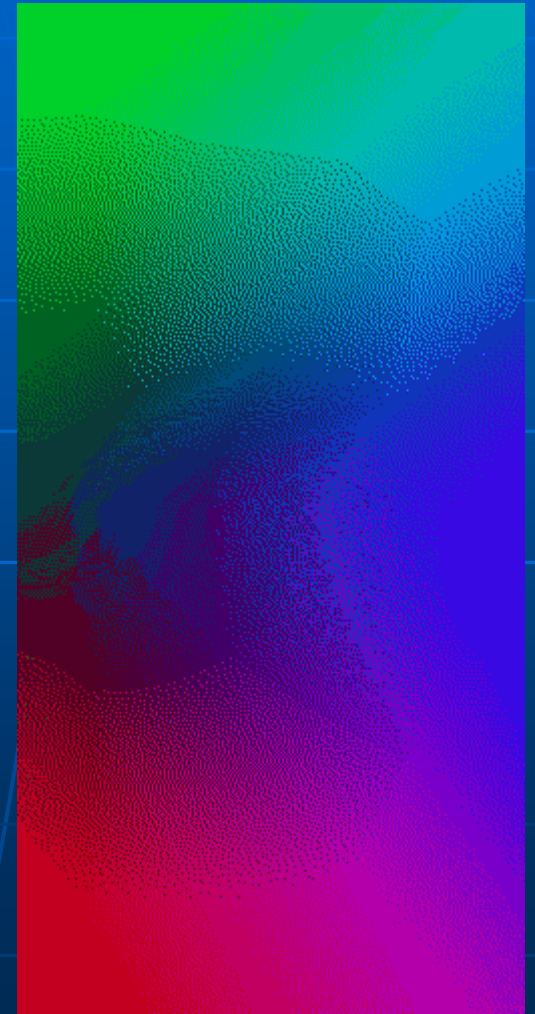
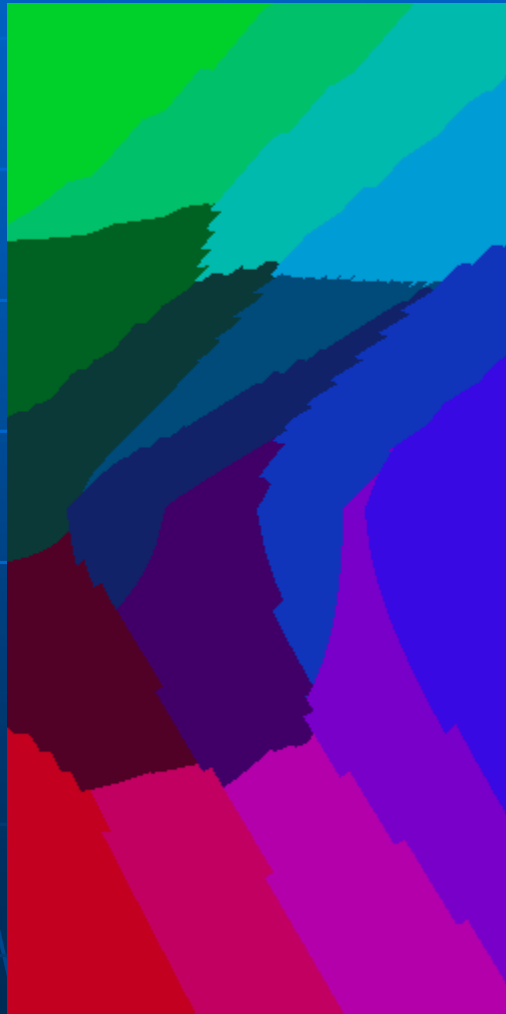
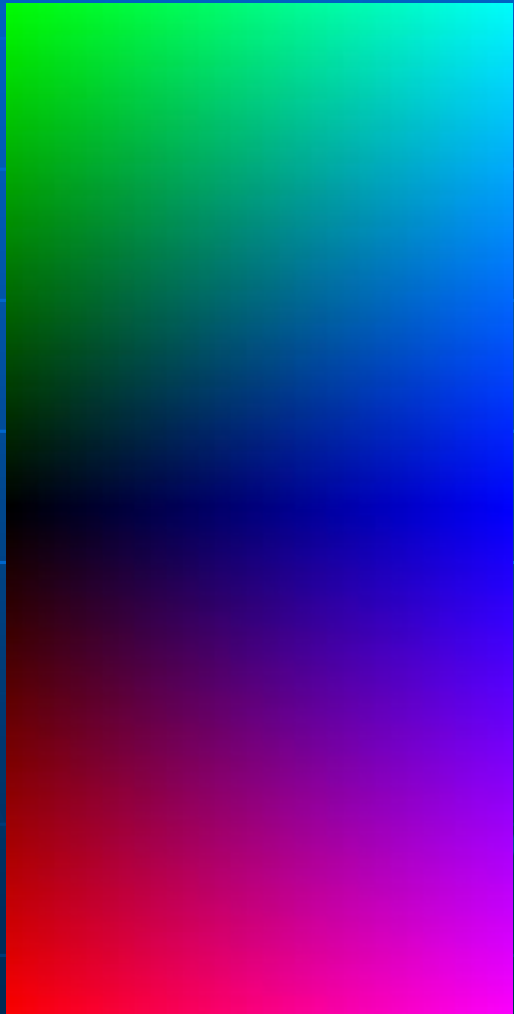
 Opacity values are defined between 0.0 (completely transparent) and 1.0 (fully opaque).

```
h1 {color: rgb(255, 68, 253); opacity: 0.5;}
```

# Colors in HTML

- 🖥️ Not all monitors can display all the colors
  - 🖱️ Some are not capable of displaying all 255 levels of all 3 primary colors
    - 🖨️ True color -- 24bit
    - 🖨️ A lesser (often seen on hand-held devices) – 16bit
- 🖥️ Dithering – combining similar colors from available palette to approximate the original color's appearance

# Dithering







# Web Safe Colors in HTML

- 216 colors guaranteed not to be dithered by any web browser
- Values for each color are limited to
  - 0, 51, 102, 153, 204, 255
  - or 00, 33, 66, 99, CC, FF in hexadecimal

# Colors in HTML

Color Name	Color HEX	Color
AliceBlue	#F0F8FF	
AntiqueWhite	#FAEBD7	
Aqua	#00FFFF	
Aquamarine	#7FFFD4	
Azure	#F0FFFF	
Beige	#F5F5DC	
Bisque	#FFE4C4	
Black	#000000	
BlanchedAlmond	#FFEBCD	
Blue	#0000FF	
BlueViolet	#8A2BE2	
Brown	#A52A2A	
BurlyWood	#DEB887	
CadetBlue	#5F9EA0	
Chartreuse	#7FFF00	
Chocolate	#D2691E	
Coral	#FF7F50	
CornflowerBlue	#6495ED	
Cornsilk	#FFF8DC	
Crimson	#DC143C	
Cyan	#00FFFF	
DarkBlue	#00008B	
DarkCyan	#008B8B	


Color Name	Color HEX	Color
DarkGoldenRod	#B8860B	
DarkGray	#A9A9A9	
DarkGrey	#A9A9A9	
DarkGreen	#006400	
DarkKhaki	#BDB76B	
DarkMagenta	#8B008B	
DarkOliveGreen	#556B2F	
Darkorange	#FF8C00	
DarkOrchid	#9932CC	
DarkRed	#8B0000	
DarkSalmon	#E9967A	
DarkSeaGreen	#8FBC8F	
DarkSlateBlue	#483D8B	
DarkSlateGray	#2F4F4F	
DarkSlateGrey	#2F4F4F	
DarkTurquoise	#00CED1	
DarkViolet	#9400D3	
DeepPink	#FF1493	
DeepSkyBlue	#00BFFF	
DimGray	#696969	
DimGrey	#696969	
DodgerBlue	#1E90FF	
FireBrick	#B22222	


# Colors in HTML

Color Name	Color HEX	Color
FloralWhite	#FFFAF0	
ForestGreen	#228B22	
Fuchsia	#FF00FF	
Gainsboro	#DCDCDC	
GhostWhite	#F8F8FF	
Gold	#FFD700	
GoldenRod	#DAA520	
Gray	#808080	
Grey	#808080	
Green	#008000	
GreenYellow	#ADFF2F	
HoneyDew	#F0FFF0	
HotPink	#FF69B4	
IndianRed	#CD5C5C	
Indigo	#4B0082	
Ivory	#FFFFF0	
Khaki	#F0E68C	
Lavender	#E6E6FA	
LavenderBlush	#FFF0F5	
LawnGreen	#7CFC00	
LemonChiffon	#FFFACD	
LightBlue	#ADD8E6	
LightCoral	#F08080	







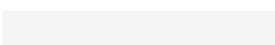


Color Name	Color HEX	Color
LightCyan	#E0FFFF	
LightGoldenRodYellow	#FAFAD2	
LightGray	#D3D3D3	
LightGrey	#D3D3D3	
LightGreen	#90EE90	
LightPink	#FFB6C1	
LightSalmon	#FFA07A	
LightSeaGreen	#20B2AA	
LightSkyBlue	#87CEFA	
LightSlateGray	#778899	
LightSlateGrey	#778899	
LightSteelBlue	#B0C4DE	
LightYellow	#FFFFE0	
Lime	#00FF00	
LimeGreen	#32CD32	
Linen	#FAF0E6	
Magenta	#FF00FF	
Maroon	#800000	
MediumAquaMarine	#66CDAA	
MediumBlue	#0000CD	
MediumOrchid	#BA55D3	
MediumPurple	#9370D8	
MediumSeaGreen	#3CB371	

# Colors in HTML

Color Name	Color HEX	Color
MediumSlateBlue	#7B68EE	
MediumSpringGreen	#00FA9A	
MediumTurquoise	#48D1CC	
MediumVioletRed	#C71585	
MidnightBlue	#191970	
MintCream	#F5FFFA	
MistyRose	#FFE4E1	
Moccasin	#FFE4B5	
NavajoWhite	#FFDEAD	
Navy	#000080	
OldLace	#FDF5E6	
Olive	#808000	
OliveDrab	#6B8E23	
Orange	#FFA500	
OrangeRed	#FF4500	
Orchid	#DA70D6	
PaleGoldenRod	#EEE8AA	
PaleGreen	#98FB98	
PaleTurquoise	#AFEEEE	
PaleVioletRed	#D87093	
PapayaWhip	#FFEFD5	
PeachPuff	#FFDAB9	
Peru	#CD853F	

Color Name	Color HEX	Color
Pink	#FFC0CB	
Plum	#DDA0DD	
PowderBlue	#B0E0E6	
Purple	#800080	
Red	#FF0000	
RosyBrown	#BC8F8F	
RoyalBlue	#4169E1	
SaddleBrown	#8B4513	
Salmon	#FA8072	
SandyBrown	#F4A460	
SeaGreen	#2E8B57	
SeaShell	#FFF5EE	
Sienna	#A0522D	
Silver	#C0C0C0	
SkyBlue	#87CEEB	
SlateBlue	#6A5ACD	
SlateGray	#708090	
SlateGrey	#708090	
Snow	#FFFAFA	
SpringGreen	#00FF7F	
SteelBlue	#4682B4	
Tan	#D2B48C	
Teal	#008080	

# Colors in HTML

Color Name	Color HEX	Color
Thistle	#D8BFD8	
Tomato	#FF6347	
Turquoise	#40E0D0	
Violet	#EE82EE	
Wheat	#F5DEB3	
White	#FFFFFF	
WhiteSmoke	#F5F5F5	
Yellow	#FFFF00	
YellowGreen	#9ACD32	


# Foreground and Background Color

- ❏ To set the foreground color use style:  
    ☞ `color: col`
- ❏ To set the background color use style:  
    ☞ `background-color: col`  
    where `col` is in the form: `color_name`, `#XXXXXX`

- Attributes:
- `bgcolor="col"`
- `text="col"`
- `<font color="col">text</font>`

**Deprecated**

# Example

```
 <style type="text/css">  
  body {background-color: white;  
        color: gray;}  
  a:link {color: blue;}  
  a:visited {color: purple;}  
  a:active {color: orange;}  
</style>
```