

{ POWER.CODERS }

CSS Best Practice

AGENDA

Morning

- › Quiz CSS
- › CSS Cascade
- › Text formatting
- › Backgrounds
- › Online ressources

Afternoon

- › CSS in practice

CSS QUIZ

WHAT IS CSS?

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A brief history of web design

GIVE ME EXAMPLES OF AN CSS RULE

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```
p {  
    color: pink;  
    font-weight: bold;  
    margin-left: 2em;  
}
```

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`.warning {}` or `p.warning {}`
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CSS Selector Reference

BEST PRACTICE

Start with generic styles on elements and get more specific with classes and ids.

- › Find first the **similarities** in your design (=generic) and
- › afterwards the **differences** (=specific).

WHAT IS A DECLARATION?

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The block starts and ends with the opening and closing curly
brackets { }.

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Inside the block each declaration consists of the name of a **property**, a colon, and the **value** for the property. And at the end there is a semi-colon.

RECAP: CSS RULE

```
selector {  
    property_1: value_1;  
    property_2: value_2;  
    property_3: value_3;  
    ...  
}
```

The block { } is called declaration.

BEST PRACTICE

Always use the same structure / order inside a rule, e.g.

- › go by alphabet: `color` before `width`
- › go by type: group colors together, styles of font-styling, e.g. `font-size`, then block-styling, e.g. `height` and `width`
- › merge both or find your own structure

BEST PRACTICE

```
* {
    color: black;
    font-family: Arial, sans-serif;
    font-size: 1em;
}

h1 {
    color: pink;
    font-family: Georgia, serif;
    font-size: 3em;
}
```

WHAT DOES THAT MEAN?

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```
p, strong {  
  color: pink;  
  font-weight: bold;  
  margin-left: 2em;  
}
```

AND THIS?

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```
p strong {  
  color: pink;  
  font-weight: bold;  
  margin-left: 2em;  
}
```

WHAT IS THE BOX MODEL?

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- › content box
- › padding box
- › border box
- › margin box

MARGIN - LEFT

BORDER - LEFT

PADDING - LEFT

MARGIN - TOP

BORDER - TOP

PADDING - TOP

CONTENT

WIDTH

HEIGHT

PADDING - RIGHT

BORDER - RIGHT

MARGIN - RIGHT

PADDING - BOTTOM

BORDER - BOTTOM

MARGIN - BOTTOM

How CAN YOU BUILD A BASIC LAYOUT IN CSS?

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- › Flex
- › Grid
- › Multi columns
- › Float

EXAMPLE GRID

```
.parent {  
  display: grid;  
  place-items: center;  
}
```

EXAMPLE FLEX

```
.parent {  
  display: flex;  
}  
  
.child {  
  flex: 0 1 150px;  
}
```

TELL ME SOME PROPERTIES AND WHAT
THEY DO?

How DO YOU CONNECT YOUR CSS WITH YOUR HTML?

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In 3 ways

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How DO YOU CONNECT YOUR CSS WITH YOUR HTML?

In 3 ways

- › External
- › Embedded (or internal)
- › Inline

CONNECTING CSS TO HTML: EXTERNAL

```
<head>
  <link rel="stylesheet" href="style.css">
</head>
```

- › Can be referenced from multiple pages.
- › Reduced file size & bandwidth.
- › Easier to maintain in larger projects.

CONNECTING CSS TO HTML: EMBEDDED

```
<head>
  <style>
    p {
      color: blue;
      font-size: 12px;
    }
  </style>
</head>
```

- › Inside `<head>` element.
- › Uses `<style>` tag.
- › Only applies to that page.

CONNECTING CSS TO HTML: INLINE

```
<p style="color:red">Some text.</p>
```

- Uses the HTML `style` attribute.
- Only applies to one element at a time.
- Not recommended to use.

BEST PRACTICE

Use external css files.

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Use external css files.

- › order rules from **big** to **small**
- › order rules from the **outside** to the **inside**
- › add comments and whitespace

BEST PRACTICE

```
/* always declare html element first - it's the biggest */
html {
    background : #ffffff;
    box-sizing: border-box;
    font-size : 10px;
    /*font-size : 0.75vw;*/
    line-height : 1;
    height : 100%;
    scroll-behavior: smooth;
    overflow-x : hidden;
    width : 100%;
}

/* This selects ALL elements. Add it AFTER the html selector */
* {
    ~~~~ - 4000000000 ~~~~
```

CSS CASCADE

```
#first .blue h1 {  
    color: red;  
}
```

```
#second .red .bold h1 {  
    color: red;  
}
```

```
<div style="font-family: monospace;  
color: red;">  
    <p>inheritance  
</div>      can be superceded
```

```
div {  
    background-color: initial;  
    color: inherit;  
}
```

1
2
3
4
5
6
7
8

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2. **!important**: When we add !important to the end of our declaration, it jumps to this level of the Cascade. Ideally, you reserve this to override styles from third-party libraries.

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2. **!important**: When we add !important to the end of our declaration, it jumps to this level of the Cascade. Ideally, you reserve this to override styles from third-party libraries.
3. **animation**: Rules that apply to an active animation jump up a level in the Cascade
4. **normal**: It is at this level that most of the rules are found

WHICH RULE WOULD WIN?

```
p {  
  color: orchid !important;  
}  
  
... [many rules in between] ...  
  
p {  
  color: sandybrown;  
}
```

WHICH RULE WOULD WIN?

```
p {  
  color: orchid !important;  
}  
  
... [many rules in between] ...  
  
p {  
  color: sandybrown;  
}
```

The color of the p-tags would be orchid.

Remember that **!important** declarations fall on the second level, while normal declarations fall on the fourth level.

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2. **id**: Targeting elements based on their **id**, using the syntax `#id`
3. **class, attribute or pseudo-class**: Targeting elements based on their **class**, using the syntax `.class`

This level also includes **attribute selectors** that target HTML attributes, like `[checked]` and `[href="https://powercoders.org"]`, and **pseudo-selectors**, like `:hover` and `:first-of-type`

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4. **type or pseudo-element**: Targeting elements based on their **tag type**, using the syntax `type`, e.g. `p {}`
This level also includes **pseudo-elements**, like `::before` and `::selection`

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Reference

FIGHT TIME: WHICH RULE WINS?

A

```
<p style="color: sandybrown">...</p>
```

B

```
p {color: orchid;}
```

FIGHT TIME: WHICH RULE WINS?

A

```
<p style="color: sandybrown">...</p>
```

B

```
p {color: orchid;}
```

A wins! Remember that **inline** styles fall on the first level, while **type rules** fall on the fourth level.

FIGHT TIME: WHICH RULE WINS?

A

```
.paragraph {color: sandybrown;}
```

B

```
#paragraph {color: orchid;}
```

FIGHT TIME: WHICH RULE WINS?

A

```
.paragraph {color: sandybrown;}
```

B

```
#paragraph {color: orchid;}
```

B wins! Remember that rules with a **class** selector fall on the third level, while rules with an **id** selector fall on the second level.

THE NUMBER OF HITS MATTER

A

```
.paragraph:first-of-type {color: sandybrown;}
```

B

```
p.paragraph {color: orchid;}
```

THE NUMBER OF HITS MATTER

A

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.paragraph:first-of-type {color: sandybrown;}
```

B

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p.paragraph {color: orchid;}
```

Rule A has two "hits" on the **third level** (1 **class** and 1 **pseudo-class**), whereas Rule B has only one "hit" on the **third level** - its "hit" on a lower (fourth) level doesn't come into play.

LOWER LEVEL COUNTS IF NUMBER OF HITS MATCH

A

```
p#paragraph {color: sandybrown;}
```

B

```
#paragraph.paragraph {color: orchid;}
```

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Rules **A** and **B** both have 1 hit on the **second level** (1 id), but Rule **B** additionally has 1 hit on the **third level** (1 class), which beats Rule **A**'s hit on the **fourth level** (1 tag).

POSITION

The fourth and final tier looks at the order that the rules were defined in.

Rules lower in the file overwrite rules higher in the file

```
p {  
  color: sandybrown;  
}  
p {  
  color: orchid;  
  color: black;  
}
```

CSS CASCADE: SUMMARY

There are four tiers in the cascade. The further down the cascade a declaration falls, the less likely it will end up as the final style.

1. Importance
2. Origin
3. Specificity
4. Position

CSS RESET / NORMALIZE

In order to deal with different browser styles people came up with stylesheets which would **reset** these styles or **normalize** them.

- › <https://elad2412.github.io/the-new-css-reset/>
- › <https://byby.dev/normalize-css>

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Even with reset or normalizing stylesheets in place, browser testing is mandatory.

CSS colors

CSS Color Values

Your browser can accept colors in many different ways:

Color name: red

Hexadecimal value: #FF0000

RGB value: rgb(255, 0, 0)

RGBA value: rgba(255 0 0 / 1)

HSL value: hsl(0°, 100%, 100%)

HSLA value: hsla(0° 100% 100% / 1)

W3Schools Color Picker

CSS Color Names

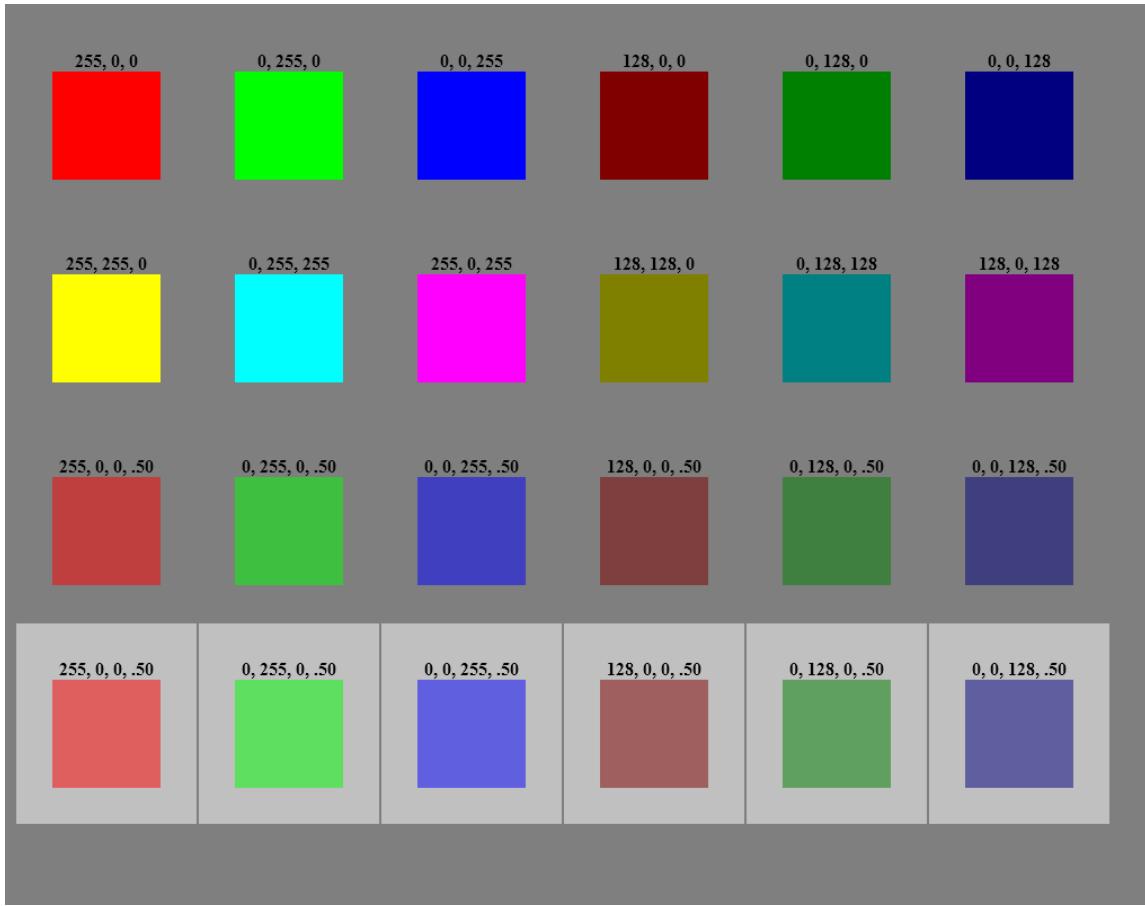
BEST PRACTICE

- › hex codes
- › rgba
- › **hsla**

QUICK COLOR THEORY

- › RGBA = Red, Green, Blue, Alpha
- › R, G, B in range [0 - 255]
 - › 0 = none of that color
 - › 255 = maximum amount of that color
- › Alpha in range [0.0 - 1.0]
 - › 0.0 = completely transparent, 0% of the color
 - › 1.0 = completely opaque, 100% of the color
 - › 0.5 = 50% of the color
 - › 0.25 = 25% of the color, etc

COLOR EXAMPLES



QUICK COLOR THEORY

- › Hexadecimal codes are also based on RGB
- › RGB in range [00 - FF]
 - › 00 = none of that colour
 - › FF = maximum amount of that color
- › There is no transparency possible with hex codes

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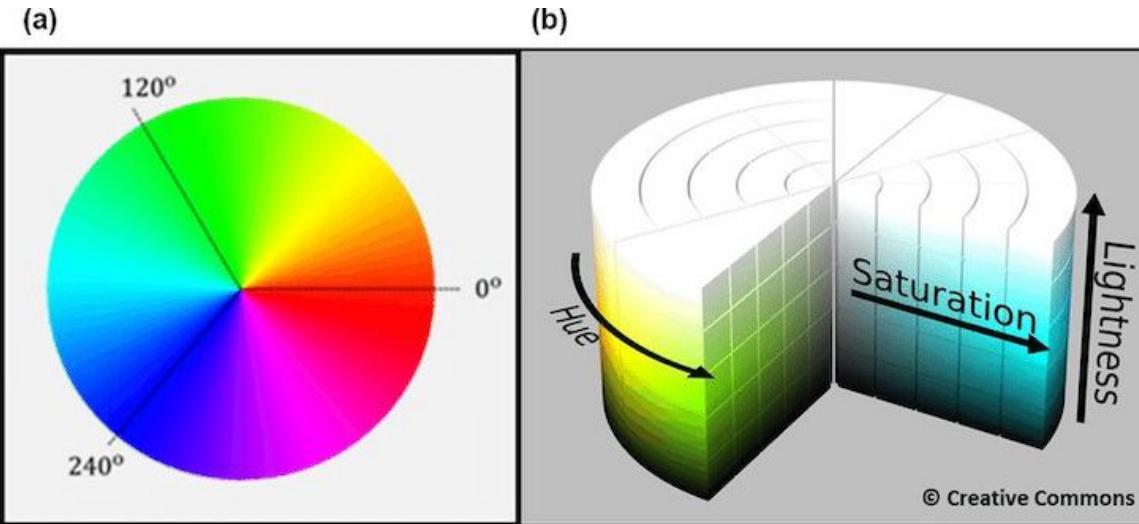
Examples:

- › #FFFFFF - white
- › #0000FF - blue
- › #FF0000 - red
- › #00FF00 - green
- › #000000 - black

QUICK COLOR THEORY

- › HSLA = Hue, Saturation, Lightness, Alpha
- › H in range [0 - 360deg]
- › S and L in range [0 - 100%]
- › Alpha in range [0.0 - 1.0]
 - › 0.0 = completely transparent, 0% of the color
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 - › 0.5 = 50% of the color
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HSL DIAGRAM



HSL(A) IS MOST FLEXIBLE

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```
--clr-accent-hue: 34;  
--clr-primary: hsl(var(--clr-accent-hue) 88% 54%);  
--clr-primary-light: hsl(var(--clr-accent-hue) 88% 75%);
```

CSS COLOR PROPERTIES

- > color
- > background-color
- > border-color
- > text-decoration-color
- > ...

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CSS FONTS

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CSS fonts

font-family

```
<!DOCTYPE html>
<html>
<head>
<style>
  h1.serif { font-family: serif; }
  h1.sans { font-family: sans-serif; }
  h1.mono { font-family: monospace; }
</style>
</head>
<body>
  <h1 class="serif">This is serif</h1>
  <h1 class="sans">This is sans-serif</h1>
  <h1 class="mono">This is monospace</h1>
</body>
</html>
```

SERIF FONTS

Serif fonts are called that because they have the little sticking out bits at the ends of bits of the letters. For example, at the left and right ends of the top of the T.

SANS-SERIF FONTS

Sans-serif literally means "without serifs" – as you can see in the second heading these letters have no sticking out bits.

MONOSPACE FONTS

And monospace fonts might be serif or sans-serif. Their main characteristic is that all the letters are the same width.

DEFAULT FONTS

The browser defines the default fonts.

› chrome://settings/fonts

A FONT STACK

```
body {  
  font-family: 'DejaVu Serif', 'Times New Roman', Times, serif;  
}  
  
h1, h2, h3, h4, h5, h6 {  
  font-family: 'DejaVu Sans', Arial, Helvetica, sans-serif;  
}  
  
pre, code, tt {  
  font-family: 'DejaVu Sans Mono', monospace;  
}
```

WHAT IS A FONT STACK?

You can list multiple fonts for a **font-family** entry. This is called a **font stack**.

When the browser sees a font stack, it checks to see if the first font in the list is installed on the user's computer. If it is, it uses it.

If it's not, it moves on to the next font in the list. So you should list the fonts in the stack from most specific to least specific.

"WEB SAFE" FONTS

Names / Font stack

Type

Helvetica, Arial

sans-serif

Courier New, Courier

monospace

Georgia

serif

Times New Roman, Times

serif

Verdana

sans-serif

MDN Web Safe fonts

DOWNLOADABLE WEB FONTS

```
@font-face {  
    font-family: 'Open Sans';  
    src: local('OpenSans Regular'),  
        url('/fonts/OpenSans-Regular-webfont.woff2') format('woff2'),  
        url('/fonts/OpenSans-Regular-webfont.woff') format('woff');  
}
```

GOOGLE FONTS

<https://fonts.google.com>

One of several online repositories of free fonts that make it very easy to include them in web pages

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Try to find the Lato font & include it in your page

```
<link href="https://fonts.googleapis.com/css?family=Lato" rel="stylesheet">
```

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<https://fonts.googleapis.com>

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Try to find the Lato font & include it in your page

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```

[Get Started with the Google Fonts API](#)

FONTS BEST PRACTICE

- › Always use font stacks
- › Only use 1-2 different fonts per website
- › Use monospace for code

ICON FONTS

Icon fonts are text files that can be modified using CSS.

Pro:

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- › Scale better than images
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Con:

- › Additional request to server

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Pro:

- › Scale better than images
- › Change color, size etc. via CSS

Con:

- › Additional request to server
- › Flash of invisible icons while font is loading

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Pro:

- › Scale better than images
- › Change color, size etc. via CSS

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- › Additional request to server
- › Flash of invisible icons while font is loading
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ICON FONTS

Icon fonts are text files that can be modified using CSS.

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CSS tricks Icon Fonts

IMAGES FORMAT



VS





VS



When to use JPG, GIF, PNG, and SVG formats

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- › Best responsive image choice, as it can **infinitely scale**.
- › Possible to use CSS and Javascript (JS) to interact with SVG.
- › Mainly used for icons, logos and infographics.

It is both an image format and a document format. There's so much possible with it.

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- › superior scaling
- › faster rendering than icon fonts
- › smaller file size than jpg or png
- › better accessibility
- › extensive customization

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16px = 1em

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- > ... and more, e.g. `ch`

em versus rem

Try it yourself

- › Add a new section to a HTML file
- › Add several paragraphs within the section
- › Emphasise some text as `strong` or `em` into each paragraph
- › Set the section font-size to `1em`
- › Set each paragraph to a different font-size in `em`
- › What happens?

em versus rem

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- › What happens?

Now change `em` to `rem`. What changes?

font-weight

says how bold the text should be

```
strong {  
  font-weight: bold; /* Default */  
  font-weight: 700; /* Default */  
}
```

```
strong {  
  font-weight: normal; /* Disabled bold */  
  font-weight: 400; /* Disabled bold */  
}
```

font-weight

says how bold the text should be

```
.bolder {  
  font-weight: bolder; /* bolder than bold */  
  font-weight: 800; /* bolder than bold */  
}
```

```
.lighter {  
  font-weight: lighter; /* less bold */  
  font-weight: 200; /* less bold */  
}
```

font-style

used for italic variations, rare

```
em {  
  font-style: italic; /* Default */  
}
```

```
em {  
  font-style: normal; /* Disabled italic */  
}
```

```
em {  
  font-style: oblique; /* simulates italic */  
}
```

line-height

- › defines the extra space around each line
- › Gives the text some "breathing room"
- › Value is a multiplier of the font-size

```
body {  
  font-height: 1.45;  
}
```

font shorthand

```
p {  
  font: italic normal bold normal 3em/1.5 Helvetica, Arial, sans-serif;  
}
```

```
p {  
  font-style: italic;  
  font-variant: normal;  
  font-weight: bold;  
  font-stretch: normal;  
  font-size: 3em;  
  line-height: 1.5;  
  font-family: Helvetica, Arial, sans-serif;  
}
```

CSS BACKGROUND

BACKGROUND PROPERTIES

> `background-color: lightblue;`

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- > background-color: lightblue;
- > background-image: url("img_tree.gif");

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- > background-position: 0 0;

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- > `background-color: lightblue;`
- > `background-image: url("img_tree.gif");`
- > `background-position: 0 0;`
- > `background-size: cover;`

BACKGROUND PROPERTIES

- > background-color: lightblue;
- > background-image: url("img_tree.gif");
- > background-position: 0 0;
- > background-size: cover;
- > background-repeat: no-repeat;

BACKGROUND PROPERTIES

- > background-color: lightblue;
- > background-image: url("img_tree.gif");
- > background-position: 0 0;
- > background-size: cover;
- > background-repeat: no-repeat;
- > background-origin: content-box;

BACKGROUND PROPERTIES

- > background-color: lightblue;
- > background-image: url("img_tree.gif");
- > background-position: 0 0;
- > background-size: cover;
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- > background-clip: content-box;

BACKGROUND PROPERTIES

- > background-color: lightblue;
- > background-image: url("img_tree.gif");
- > background-position: 0 0;
- > background-size: cover;
- > background-repeat: no-repeat;
- > background-origin: content-box;
- > background-clip: content-box;
- > background-attachment: fixed;

BACKGROUND PROPERTIES

- > background-color: lightblue;
- > background-image: url("img_tree.gif");
- > background-position: 0 0;
- > background-size: cover;
- > background-repeat: no-repeat;
- > background-origin: content-box;
- > background-clip: content-box;
- > background-attachment: fixed;

```
background: lightblue url("img_tree.gif") no-repeat fixed center / cover;
```

MULTIPLE BACKGROUNDS

You can add multiple backgrounds as layers on top of each other by adding them in one line, separated by comma.

```
background-color: white;  
background-image:  
    linear-gradient(45deg, black 25%, transparent 25%, transparent 75%, black 75%),  
    linear-gradient(45deg, black 25%, transparent 25%, transparent 75%, black 75%);  
background-size:100px 100px;  
background-position: 0 0, 50px 50px;
```

ANIMATED BACKGROUNDS

```
body {  
    width: 100%;  
    height: 100vh;  
    background: linear-gradient(-45deg, #ee7752, #e73c7e, #23a6d5, #23d5ab);  
    background-size: 400% 400%;  
    animation: gradientBG 15s ease infinite;  
}  
  
@keyframes gradientBG {  
    0% {  
        background-position: 0% 50%;  
    }  
    50% {  
        background-position: 100% 50%;  
    }  
    100% {  
        background-position: 0% 50%;  
    }  
}
```

COMMENTS

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HTML comment

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CSS comment

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Comments can be used to organize your code into sections so you (or someone else) can easily understand your code. It can also be used to 'comment out' large chunks of code to hide it from the browser.

ONLINE RESSOURCES

- › <https://www.cssbasics.com/>
- › CSS Browser Support Reference
- › <https://tiny.cc/w53ycz>
- › <https://alistapart.com/article/journey/>
- › <https://ypespiration.com/>
- › <https://contrastchecker.com/>
- › Modern CSS upgrades to improve accessibility
- › https://developer.mozilla.org/en-US/docs/Learn/CSS/Styling_text

ONLINE RESSOURCES: IMAGES AND PATTERNS

- › UNSPLASH - Free images
- › Subtle background patterns
- › More background patterns
- › Gradient Pattern Gallery by Lea Verou
- › Ultimate CSS3 Gradient Generator

ONLINE RESSOURCES: WEB FONTS

- › Free icon font: Font awesome
- › Icon font generator: Icon Moon
- › Icon font generator: Glypther

EXERCISES

EXERCISES: CASCADE

1. Look at the source code and try to find out how the paragraph in each exercise will look like.
2. Explain in the group why? What rules apply, how does the cascade work in the specific case.
3. Copy the code to your Visual Studio Code and see if you are right.

CASCADE 1

What color is the paragraph?

```
<!DOCTYPE html>
<html>
  <head>
    <style>
      body p { color: rgb(0, 128, 0); } /*green*/
      html p { color: rgb(128, 0, 128); } /*purple*/
    </style>
  </head>
  <body>
    <p>Here is a paragraph</p>
  </body>
</html>
```

CASCADE 2

How does the paragraph look like?

```
<!DOCTYPE html>
<html>
  <head>
    <style>
      p {
        color: rgb(255, 255, 255);
        background-color: rgb(0, 0, 0);
      }
      p.info {
        background-color: rgba(0, 0, 255, 0.5);
      }
    </style>
  </head>
  <body>
    <p class="info">Here is a paragraph</p>
  </body>
```

CASCADE 3

What will the paragraph look like?

```
<!DOCTYPE html>
<html>
  <head>
    <style>
      p {
        color: rgb(255, 255, 255);
        background-color: rgb(0, 0, 0);
        text-decoration: none;
        border: 1px solid rgb(0, 0, 0);
      }
      p.info {
        background-color: rgba(0, 0, 255, 0.5);
        text-decoration: underline;
        padding: 1em;
      }
    </style>
  </head>
  <body>
    <p>A paragraph</p>
    <p class="info">Information</p>
  </body>
</html>
```

GOOGLE FONTS

Choose three fonts from Google Fonts

- › One sans-serif, for headings
- › One serif, for almost everything else
- › One monospace

Add some content, so you can see the 3 different fonts in action.

PLAY A GAME

CSS Diner

WORK ON SAMPLE SHOP

Can you already add the first styles to our sample shop?

On repl.it

Try to implement the new elements you learned this morning.

