# Introduktion

# Today's schedule

- Syllabus
- Course Info
- Browsers! The Internet!
- A little bit about HTML and CSS

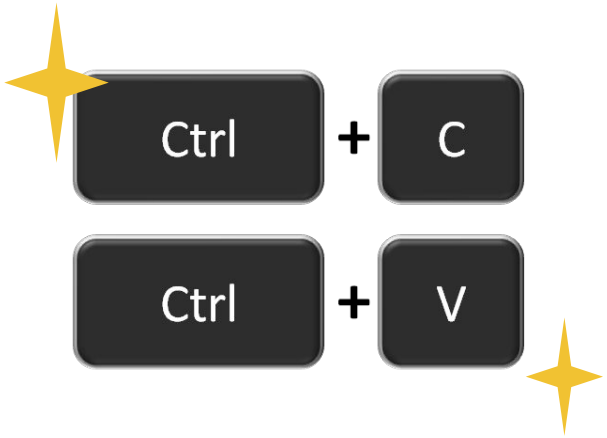
# Syllabus

# Who are you?

You are:

- A copy/paste programmer of JavaScript, HTML, CSS
  (or you've never used these languages)

- Whats your experience?



# Frustrated?

Every beginner CSS tutorial makes CSS look trivially easy:

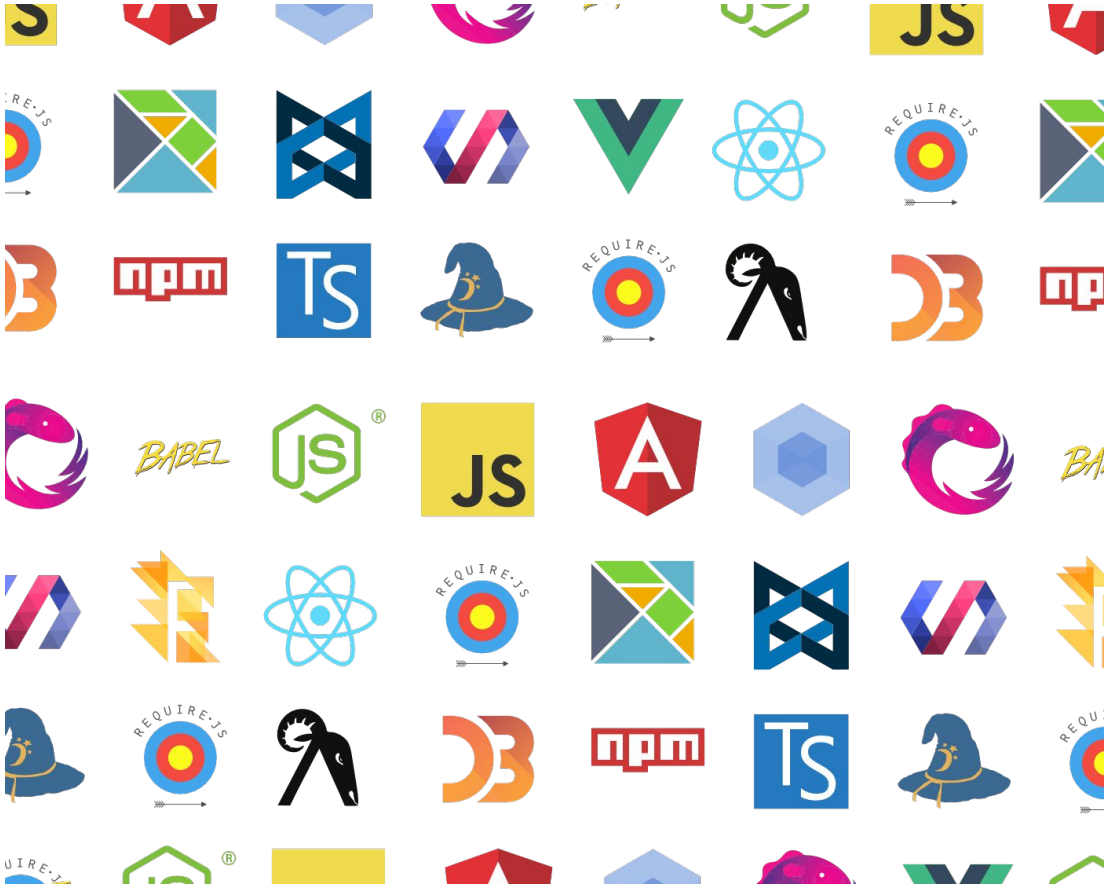
```
body {
  background-color: red;
}
```

But then when you try to write CSS, literally nothing works:

CSS
IS
AWESOME

# Frustrated?

You want to learn JavaScript...




...but you're overwhelmed by all the frameworks, libraries, tools, etc and have no idea where to start.

# What is Web programming I?

**Opinionated:**

- There are many ways to do things on the web: can't learn them all at once!
- What I think you need to know as a beginner

**Hopefully frustration-free:**

- We will go slowly through the essential concepts and speed through the obvious stuff
- You are **not** expected to fill in the gaps via Google and StackOverflow

# Course in detail

- HTML
- CSS
- (Javascript)

# Course Goals

My ambition is to have you will leave with the following skills:

- Create **attractive, small scale web sites or apps** that at least mostly work on phones
- Have the **vocabulary and background knowledge** to understand technical writing/discussions about the web (e.g. web API documentation; random blog posts)
- Have the **foundation** to pursue the areas of web programming that you're interested in (if you choose)

# (Course Non-goals)

**not** a class to take to learn how to code.

**not** a class that will turn you into a senior frontend/backend developer.

**not** a class that will teach you all there is to know about web programming.

- For example, we will **not** teach how to support old browsers, legacy devices, etc.

# Course info

# Browser and Text editor/IDE

- **Text editor:** You can use whatever you want. We recommend (VS Code)

- **Browser:** Your code must work on Chrome, as that is what I will use when grading your homework. It will not be tested in any other browser.

# Honor code

- **DON'T** look at other people's solutions
- **DON'T** publish homework source code publicly on GitHub, StackOverflow, personal web page, etc.
- **OK** to look at other website's code for inspiration (though it should rarely be necessary in this class)
- **OK** to look at StackOverflow / Google / etc for help (though it should rarely be necessary in this class)

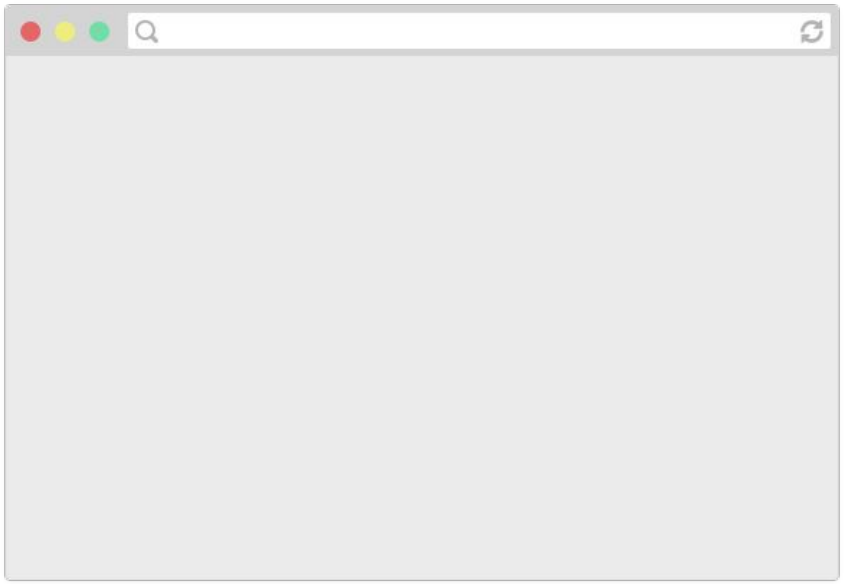
# Questions?

# Today's schedule

- ~~Syllabus~~
- ~~Course Info~~
- Browsers! The Internet!
- A little bit about HTML and CSS

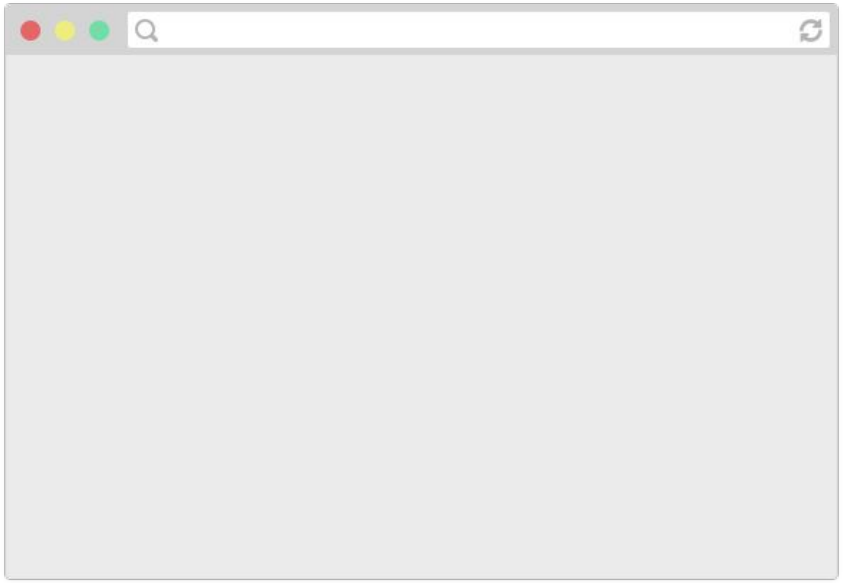
Browsers!
The Internet!
The web!

# How do web pages work?



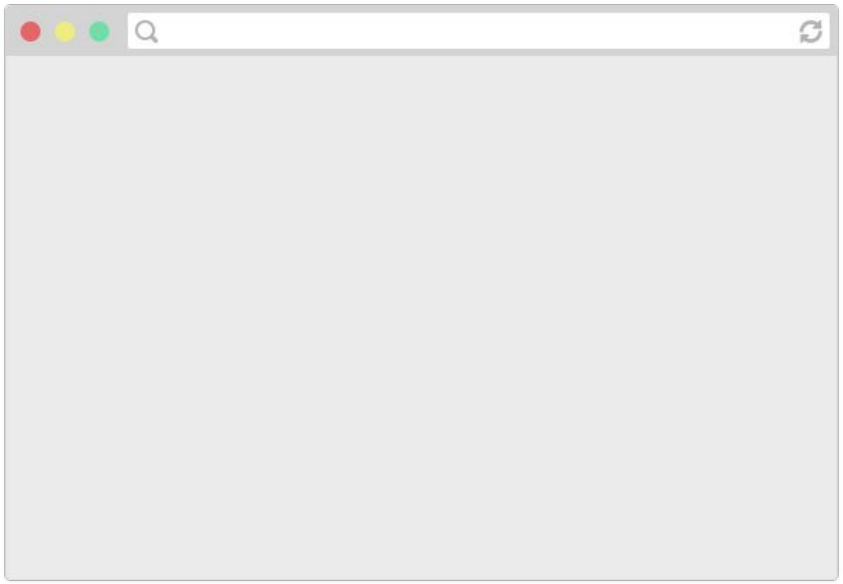
Browsers are applications that can display web pages.
E.g. Chrome, Firefox, Safari, Internet Explorer, Edge, etc.

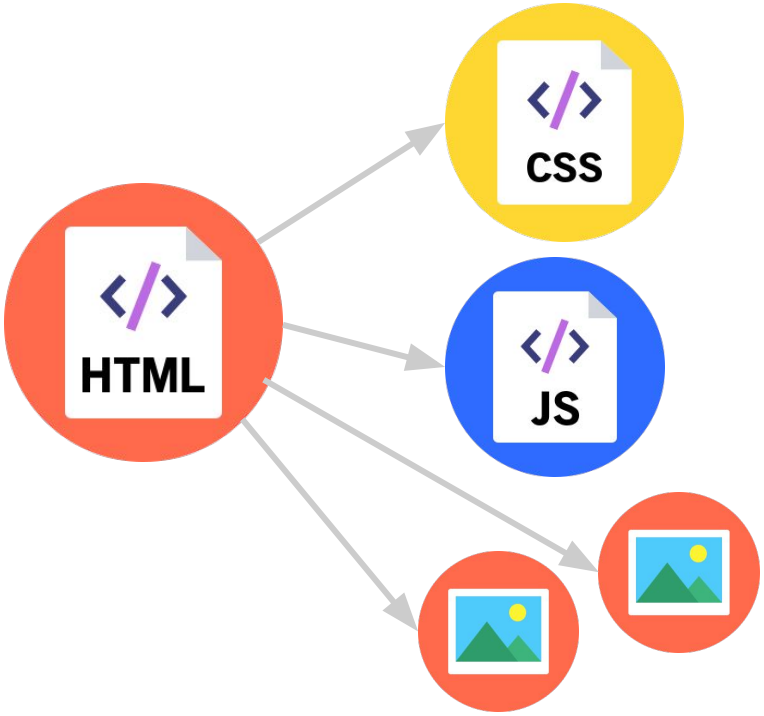
# How do web pages work?




Web pages are written in a markup language called **HTML**, so browsers display a web page by reading and interpreting its HTML.

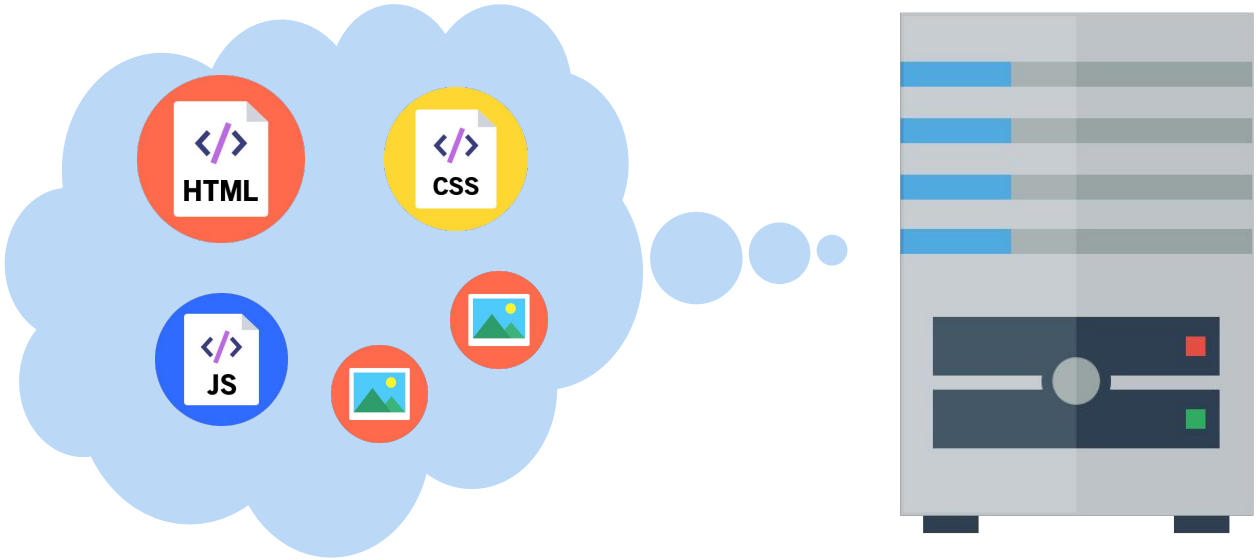
# How do web pages work?






The HTML file might link to other resources, like images, videos, as well as **JavaScript** and **CSS** (stylesheet) files, which the browser then also loads.

# How do web pages work?

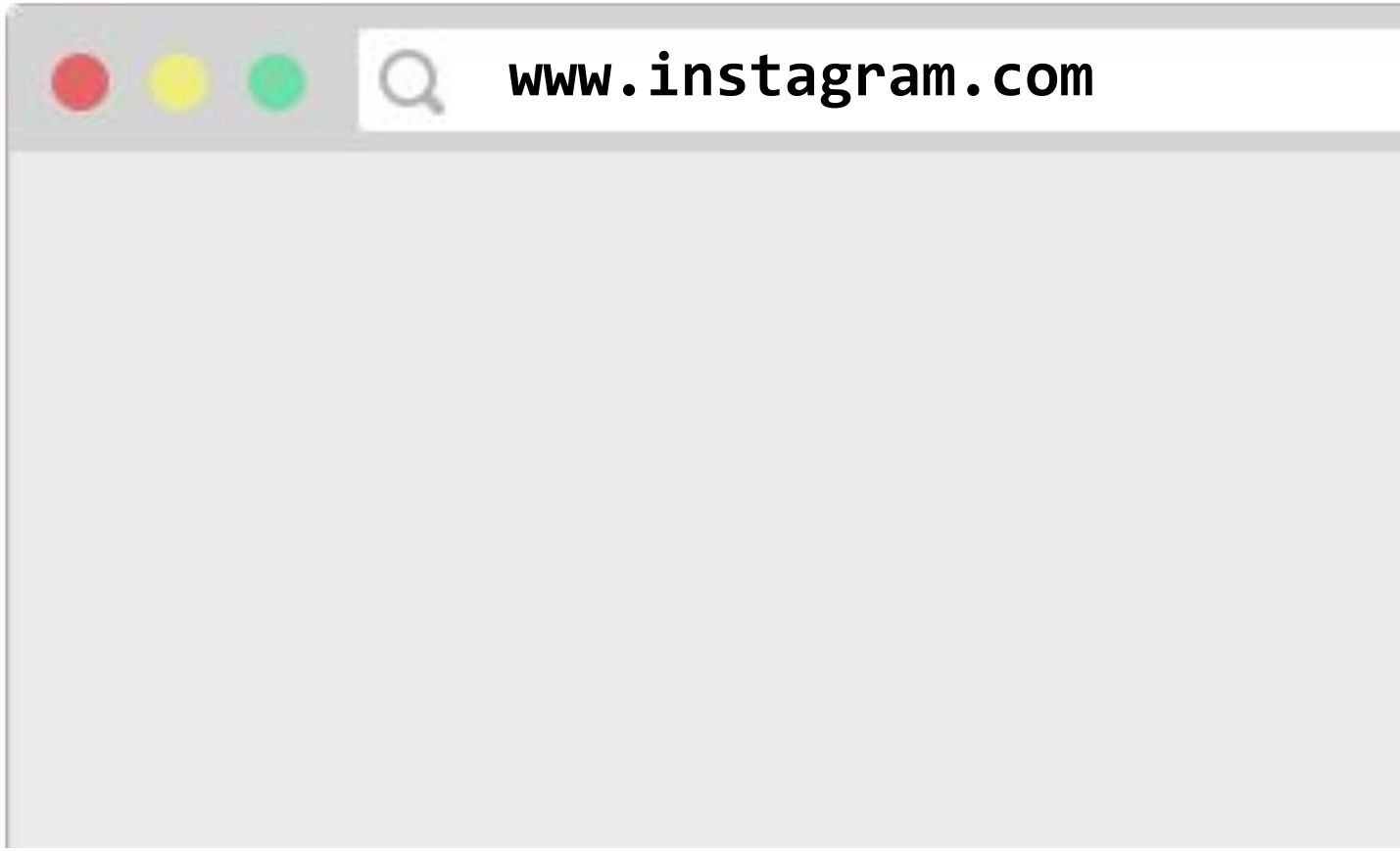



A **web server** is a program running on a computer that delivers web pages in response to requests.

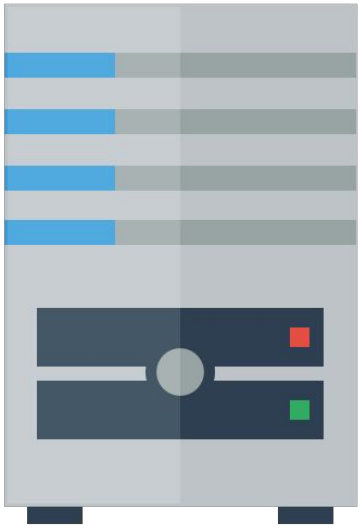
It either stores or generates the web page returned.

# How do web pages work?

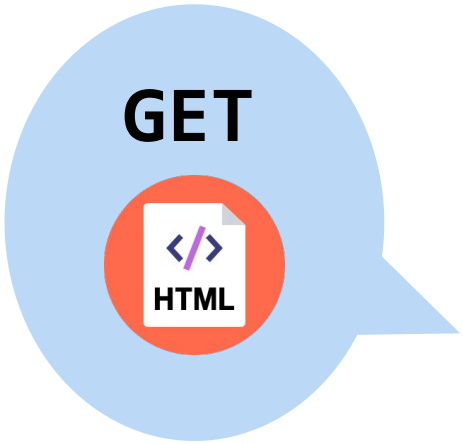
1. You type in a URL, which is the address of the HTML file on the internet.

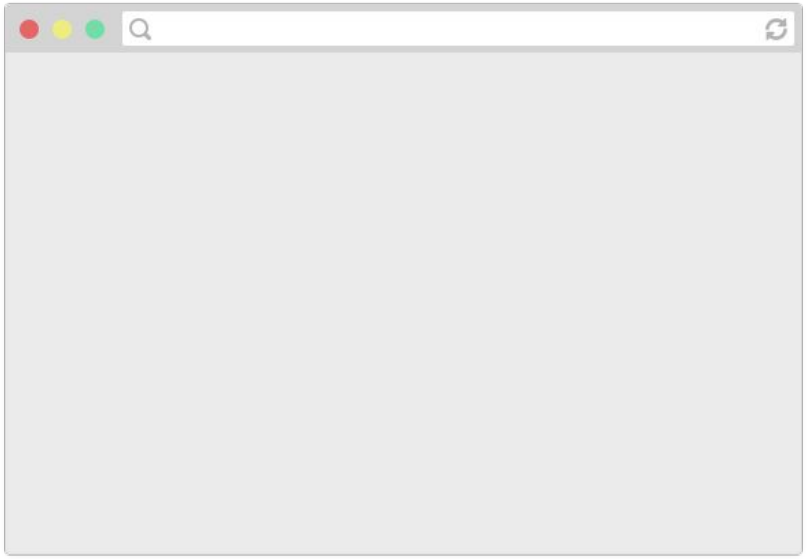


# How do web pages work?

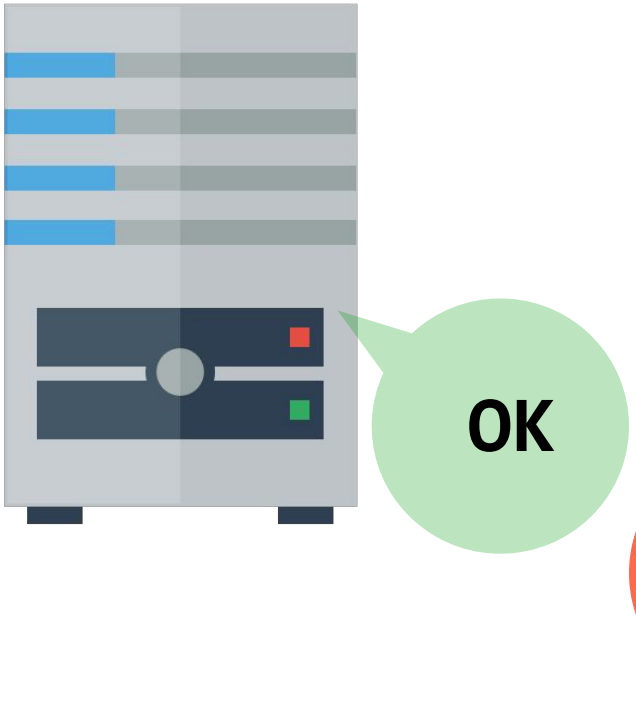


2. The browser asks the web server that hosts the document to send that document.

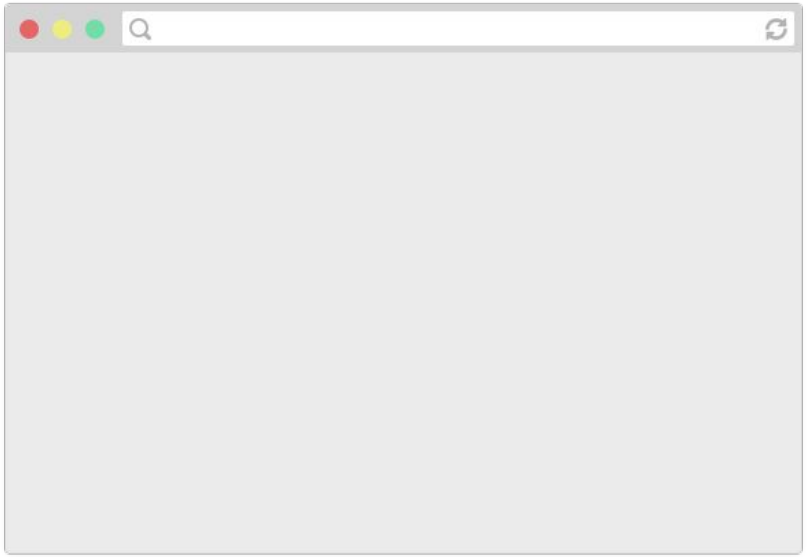


# How do web pages work?

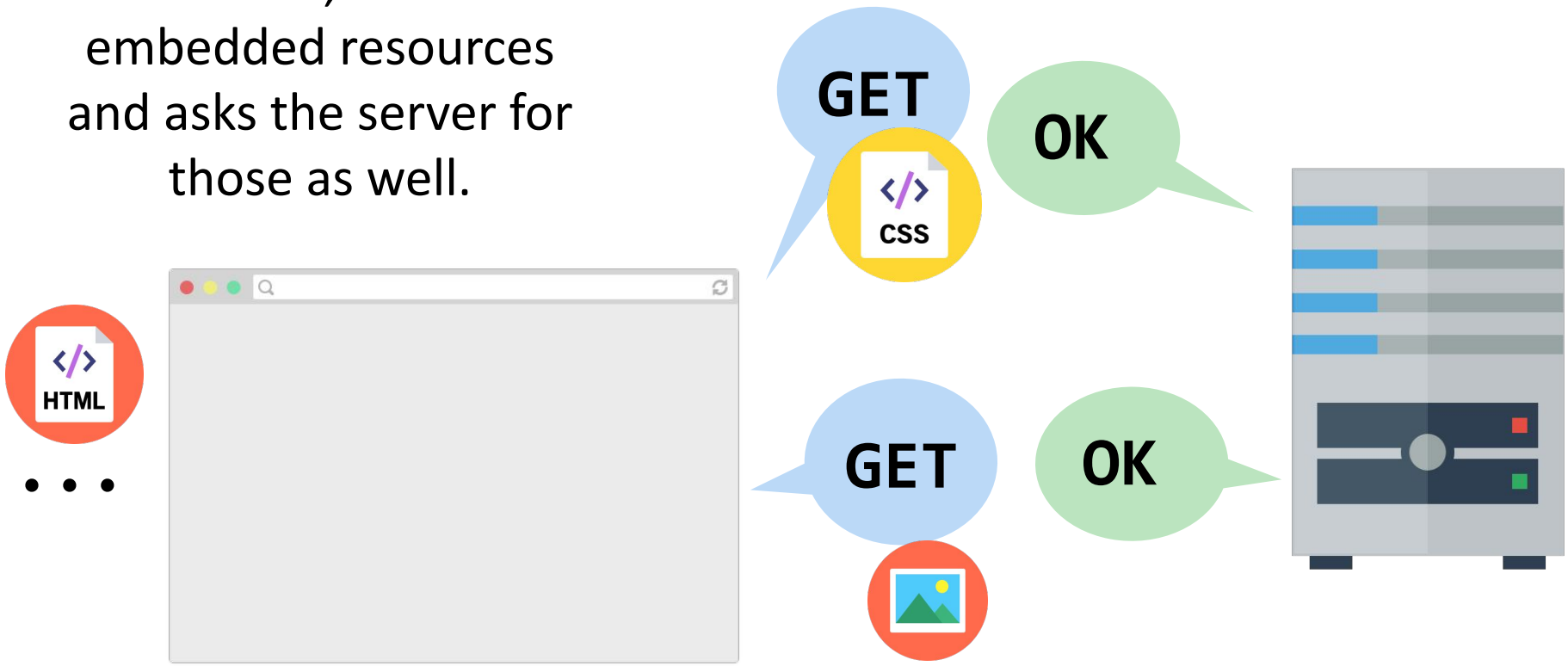



3. The web server responds to the browser with HTML file that was requested.



# How do web pages work?

4. The browser reads the HTML, sees the embedded resources and asks the server for those as well.



# How do web pages work?

5. The web page is loaded when all the resources are fetched and displayed.

# HTML and CSS

# What is HTML?

**HTML** (**H**yper**t**ext **M**arkup **L**anguage)

- Describes the **content** and **structure** of a web page; not a programming language.
- Made up of building blocks called **elements**.

```
<p>
  HTML is <em>awesome!!!</em>
  <img src="puppy.png" />
</p>
```

# Basic HTML page structure

(i.e. copy/paste boilerplate)

```
<!DOCTYPE html>
<html>
  <head>
   <title>My website</title>
  </head>

  <body>
   ... contents of the page...
  </body>
</html>
```

Saved in a *filename*`.html` file.

# Basic HTML page structure

(i.e. copy/paste boilerplate)

# HTML elements

```
<p>
  HTML is <em>awesome!!!</em>
  <img src="puppy.png" />
</p>
```

- An element usually has start and ending tags (** ** and ** **)
  - **content**: stuff in between start and end tags
- An element can be self-closing (**img**)
- An element can have attributes (**src="puppy.jpg"**)
- Elements can contain other elements (**p** contains **em** and **img**)

# Some HTML elements

(to place within **<body>**)

| | |
|---|---|
| Top-level heading<br>**h1, h2, … h6** | `<h1>Moby Dick</h1>` |
| Paragraph | `<p>Call me Ishmael.</p>` |
| Line break | `since feeling is first<br/>`<br>`who pays any attention` |
| Image | `<img src="cover.png" />` |
| Link | `<a href="google.com">click here!</a>` |
| Strong (bold) | `<strong>Be BOLD</strong>` |
| Emphasis (italic) | `He's my <em>brother</em> and all` |

# Exercise: Course web page

Let's write some HTML to make the following page:

## Multimedia och interaktion

First name
Password
Choose file Välj fil Ingen fil har valts
Choose color
Skicka

| Country | Population |
| --- | --- |
| Sweden | 10 miljoner |
| Uganda | 30 miljoner |

# Exercise: Course web page

**HTML boilerplate**

```
<!DOCTYPE html>
<html>
  <head>
    <title>My website</title>
  </head>

  <body>
   ...
  </body>
</html>
```

**Plaintext contents of the page**

```
CS 193X: Web Fun

Announcements
4/3: Homework 0 is out! Due Friday.
4/3: Office hours are now posted.

View Syllabus
```

JSBin

# Solution

```
<!DOCTYPE html>
<html>
  <head>
    <title>CS 193X</title>
  </head>
  <body>
    <h1>CS 193X: Web Fun</h1>
    <strong>Announcements</strong><br/>
    4/3: Homework 0 is out!<br/>
    4/3: Office hours are now posted.<br/>
    <br/>
    <a href="http://cs193x.stanford.edu/syllabus">
      View Syllabus
    </a>
  </body>
</html>
```

# That was weird

- We saw that HTML whitespace collapses into one space…

```
<h1>CS 193X: Web Fun</h1>
<strong>Announcements</strong><br/>
4/3: Homework 0 is out!<br/>
```

- Except weirdly the **<h1>** heading was on a line of its own, and **** was not.

Hmmm… strange…
Oh well, it works! Let's move on!!!

# CSS

# CSS

**CSS**: **C**ascading **S**tyle Sheets

- Describes the **appearance** and **layout** of a web page
- Composed of CSS **rules**, which define sets of styles

```
selector {
  property: value;
}
```

# CSS

A CSS file is composed of **style rules**:

```
selector {
  property: value;
}
```

*selector*: Specifies the HTML element(s) to style.
*property*: The name of the CSS style.
*value*: The value for the CSS style.

Saved in a *filename*`.css` file.

# CSS

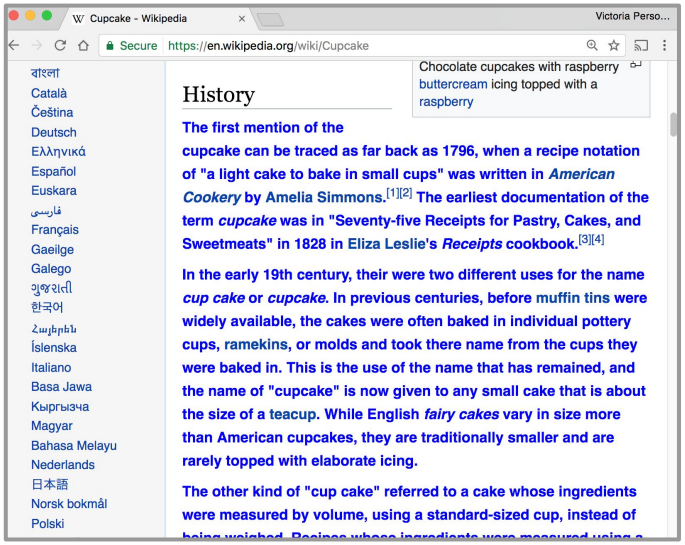
```
// NOT REAL CSS
fork {
   color: gold;
}
```

"All forks on the table should be gold"

# CSS

```
p {
    color: blue;
    font-weight: bold;
}
```

"All **<p>** elements on the page should be blue and bold"



# Linking CSS in HTML

(i.e. copy/paste boilerplate)

```
<!DOCTYPE html>
<html>
  <head>
    <title>CS 193X</title>
    <link rel="stylesheet" href="filename.css" />
  </head>

  <body>
   ... contents of the page...
  </body>
</html>
```

# Some CSS properties

There are over 500 CSS properties! Here are a few:

| | |
|---|---|
| Font face (mdn) | `font-family: Helvetica;` |
| Font color (mdn) | `color: gray;` |
| Background color (mdn) | `background-color: red;` |
| Border (mdn) | `border: 3px solid green;` |
| Text alignment (mdn) | `text-align: center;` |

Aside: Mozilla Developer Network (MDN) is the best reference for HTML elements and CSS properties

- The actual W3 spec is very hard to read (meant for browser developers, not web developers)

# Main ways to define CSS colors:

**140 predefined names (list)**

```
color: black;
```

**rgb() and rgba()**

```
color: rgb(34, 12, 64);
color: rgba(0, 0, 0, 0.5);
```

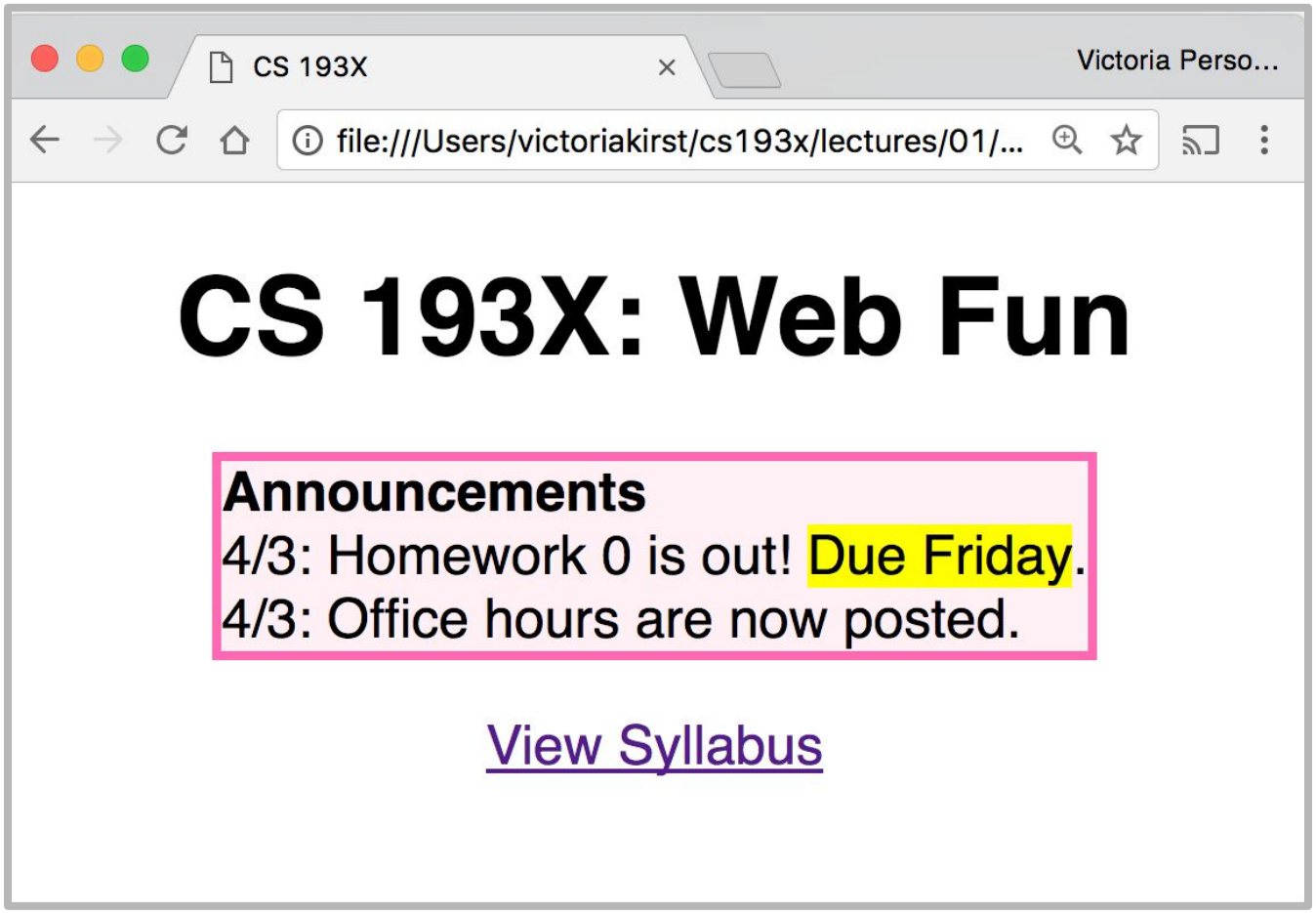
**Hex values**

```
color: #00ff00;
color: #0f0;
color: #00ff0080;
```

- The "a" stands for **alpha channel** and is a **transparency** value
- Generally prefer more descriptive over less:
  1. Predefined name
  2. rgb / rgba
  3. Hex

# Exercise: Course web page

Let's write some CSS to style our page:



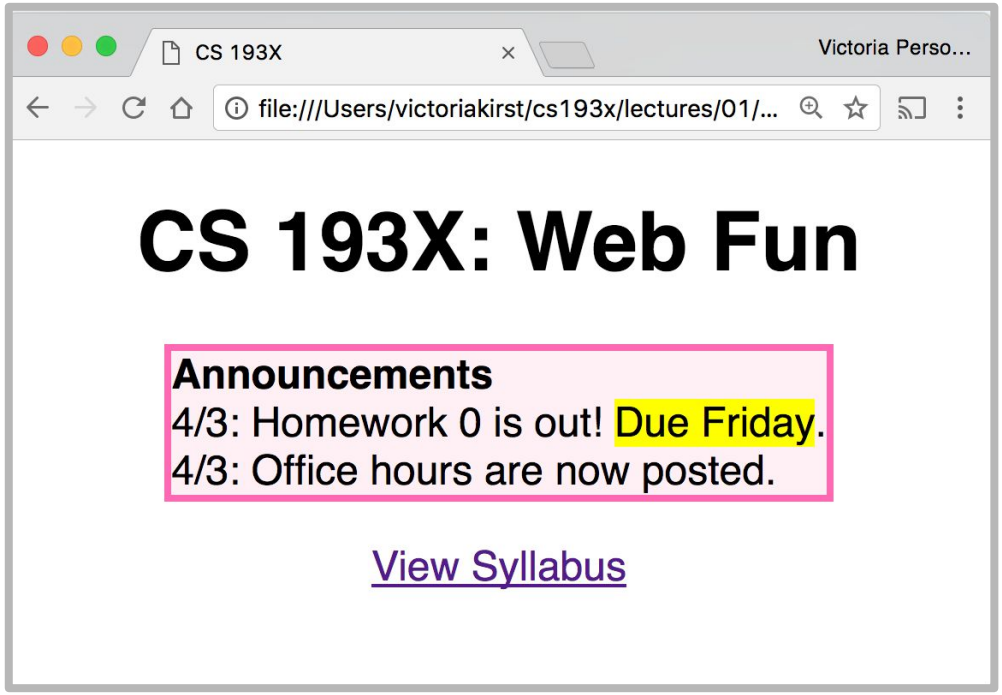
# Exercise: Course web page

Let's write some CSS to style our page:

**Font face**: Helvetica

**Border**: `hotpink 3px`
**Background color:** `lavenderblush`
**Highlight:** `yellow`

- Box is **centered**
- Header and link are **centered**
- Box contents are **left-aligned**




JSBin

# CSS exercise debrief

Some **key techniques:**

- Add invisible containers in HTML to select groups of elements in CSS.
- Apply styles to parent / ancestor element to style parent and all its children. (Will talk more about this later.)

But we encountered **more weirdness**...

- Couldn't set `text-align: center;` to the `<a>` or `<strong>` tags directly, but could center `<p>` and `<h1>`
- Had to set a `width` on the box to make it hug the text … any other way to do this?
- How to center the box?! How do you highlight?!

Q: Why is HTML/CSS so bizarre??

A: There is one crucial set of rules we haven't learned yet...

**block** vs **inline** display

# Homework

Code along with video (Great way to get started)
https://www.youtube.com/watch?v=HD13eq_Pmp8&ab_channel=BroCode

HTML
https://htmlandcssguidebook.com/html/html-intro/ (teori)
https://htmlandcssguidebook.com/quizzes/html-intro
(quizz)

# HTML Excercises

Comments (<!-- )
https://www.w3resource.com/html-css-exercise/basic/comment.php

Heading (h1 - h6)
https://www.w3resource.com/html-css-exercise/basic/heading.php

Hyperlinks (do only “2. Create a hyperlink with in a document”) (<a>)
https://www.w3resource.com/html-css-exercise/basic/a-tag.php

# HTML Excercises

Paragraph (<p>)
https://www.w3resource.com/html-css-exercise/basic/p.php

Emphasize ()
https://www.w3resource.com/html-css-exercise/basic/em.php

Image (<img>)
https://www.w3resource.com/html-css-exercise/basic/img-answer.php

# HTML Excercises

Strong ()
https://www.w3resource.com/html-css-exercise/basic/strong.php

Breakline (<br>)
https://www.w3resource.com/html-css-exercise/basic/br.php

Unordered list (<ul>)
https://www.w3resource.com/html-css-exercise/basic/ul.php

# CSS Excercises

Color
https://www.w3resource.com/html-css-exercise/css-properties/color.php

Font-weight
https://www.w3resource.com/html-css-exercise/css-properties/font-weight.php

Font-family
https://www.w3resource.com/html-css-exercise/css-properties/font-family.php

# CSS Excercises

Background-color
https://www.w3resource.com/html-css-exercise/css-properties/background-color.php

Border
https://www.w3resource.com/html-css-exercise/css-properties/border.php

Text-align
https://www.w3resource.com/html-css-exercise/css-properties/text-align.php

# HTML and CSS excercise

Make a simple website

https://www.w3resource.com/html-css-exercise/title-heading-paragraph-em-strong-list-image.php