

Lecture 1: Introduction to CS106AX

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Welcome! 🙌

Hi, I'm Ben, your TA for the quarter, and so excited that you've enrolled in, or thinking about enrolling in CS106AX! I hope your first week is off to an electric start, and I look forward to getting to know you!

Please feel free to reach out to me at any point! ☺ I have office hours, am available over email at either bbyan@stanford.edu or judobenlingyan@stanford.edu, and always happy to chat after class.

↳ *Got a little too invested in the World Cup oops...*

HTML, CSS, JavaScript

Modern web applications rely on a triangle of programming technologies: HTML, CSS, and JavaScript.

- **HTML** is the bones and skeleton of a webpage, defining its basic content and structure hierarchy.
- **CSS** is used to regulate color, appearance, and formatting, i.e. making the HTML fashionable.
- **JavaScript (JS)** makes the components above truly interactive, enabling it to operate like a fully-fledged desktop application that just happens to run in a browser. Over 90% of websites use **JS**!

The server that delivers the webpage content is often implemented in **Python**; hence, we learn it later!

HTML File

HTML is short for **Hypertext Markup Language**, and you've likely heard of it if you're chronically online like me, or spent any time in school computer lab vandalizing websites with the ***Inspect Element*** tool ☺.

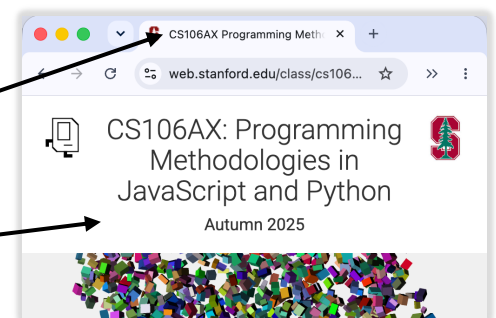
An **HTML file** consists of the **raw text to be displayed on the webpage**, interspersed with various formatting directives that are enclosed in angle brackets, called **HTML tags**, e.g., `<body>`, `<title>`.

HTML tags generally occur in pairs #twinning. The opening tag begins with the name of the tag. The corresponding closing tag has the same name, but preceded with a slash, e.g., `</body>`, `</title>`. The effect of the tag applies to everything between the opening and closing tags. For instance,

```
<title> CS106AX Autumn 2026 </title>
```

Here's a template of what a standard `index.html` file looks like. **This is the naming convention for the homepage of a website**. For instance, when you search up `www.cs106ax.stanford.edu`, you're actually transported to the webpage at the URL `www.cs106ax.stanford.edu/index.html`.

```
<!DOCTYPE HTML>
<html>
  <head>
    <title> title of the page </title>
    Script tags to load JavaScript code
  </head>
  <body>
    Contents of the page, if any.
  </body>
</html>
```



This template features the only HTML tags you'll need for now. Here are standard HTML principles:

- Every file begins with a `<!DOCTYPE html>` tag. This is their way of saying, *"Hello world, I'm an HTML file! ☺"*, just like me saying, especially often this week,
- The entire content is enclosed in `<html>` and `</html>` tags.
- The file begins with a `<head>` section that specifies the **title** (which appears in the browser tab, not on the page), **JavaScript files to load**, and other details not directly visible on the page itself.
- The file includes a `<body>` section that specifies what's physically on the page.

Hello world, my name is Ben!



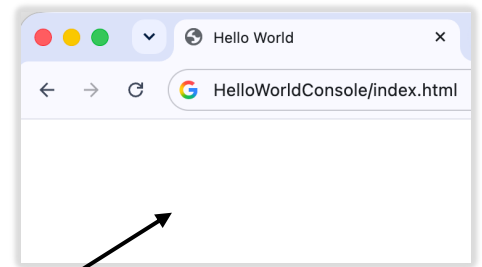
One way of involving JavaScript code in an HTML file is by executing a function (from our script tags) once the HTML content is fully loaded onto the page. To do this, we can revise the `<body>` tag as

```
<body onload="function()"> </body>
```

JavaScript: Hello World!

Here's a compact HTML file that loads JavaScript code from a file called `HelloWorld.js`.

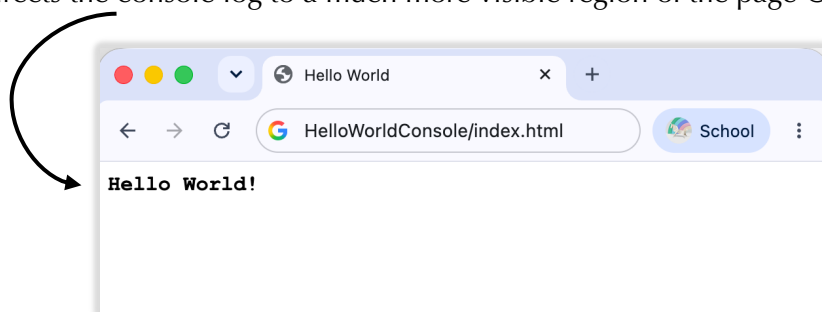
```
<!DOCTYPE html>
<html>
  <head>
    <title>Hello World</title>
    <script text="text/javascript"
      src="HelloWorld.js"></script>
  </head>
  <body onload="HelloWorld()"> </body>
</html>
```



The body of the webpage is initially empty. But once the HTML is loaded, the file asks the browser, through `onload`, to call the function `HelloWorld`. What does this function do? Glad you asked ☺.

```
function HelloWorld() {
  console.log("Hello World!"); // inspired by the first ever C program
}
```

This displays the text `"Hello World!"` on the console log, which appears in different places in different browsers, and can be troublesome to find. For now, we provide a short and sweet library called `JSConsole.js`, which redirects the console log to a much more visible region of the page ☺. That is,



And ta-da, we're done! 🎉