Day 2 Notes

#coding-intro

Creating Webpages

In this note, you'll learn about a language named HTML (**H**yper**T**ext **M**arkup **L**anguage). You might have heard about how HTML is used to create websites. But what exactly does it look like?
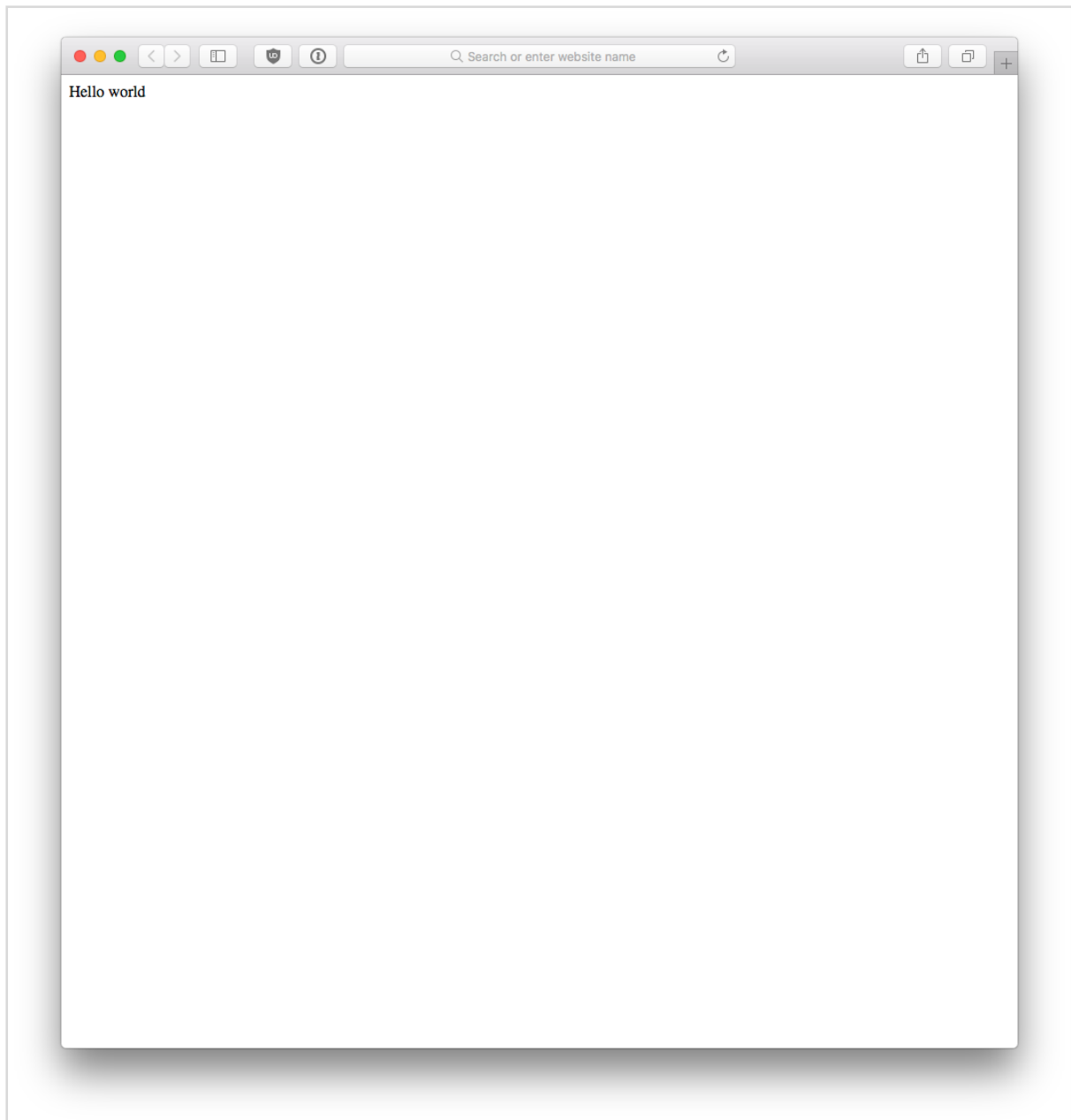
What is HTML?

HTML is very different from Python since it's not a programming language. A programming language is used for general purpose computing, like solving a math problem or editing some photos. A markup language such as HTML describes how information should be presented. The simplest possible HTML file looks like this. Make a file named `index.html` with these contents:

```
<!DOCTYPE html>
<html>
<body>
<p>Hello world</p>
</body>
</html>
```

Unlike Python, you don't need to install anything special in order to "run" HTML. All (modern) web browsers can open HTML files.
If you open it from your file explorer, you'll see a webpage that looks like this:

Note that unlike Python, you're not putting in any expressions that need to be evaluated to a result. You're simply stating what you want (the text "Hello world").

Some additional setup

The mechanics of how web servers work are out of scope of this note, but you can read about it here if you're interested. For now, you just need to follow the instructions to get set up.

Before we move on, we'll setup a local Python web server using pyserve. Run the following command in your terminal. Don't type the `$`. Any time you see `$` it just means that I'm typing the stuff after it in the terminal:

```
$ pip install pyserve
```

If that completed successfully, use `cd` to move to the folder containing your `index.html` file. Use `ls` to make sure it's there.

```
$ ls
index.html
```

Your output might look slightly different, but as long as `index.html` is there, you're good to go. Finally, run the `pyserve` command:

```
$ pyserve
Bottle v0.12-dev server starting up (using WSGIRefServer())...
Listening on http://127.0.0.1:5000/
Hit Ctrl-C to quit.
```

The line you want to pay attention to is the second line of output (that begins with "Listening"). Copy everything beginning with "http" and paste it into your web browser.

By the way, `127.0.0.1:5000` is an IP address and port number. You don't need to worry about what that means for this note, but if you want to learn more, here is a very detailed guide. Here is another article that covers similar information. You might want to do some of your own research too.

How to Write HTML

Let's take another look at the HTML example. The very first line is:

```
<!DOCTYPE html>
```

This just tells the web browser that you are indeed writing HTML code. Just include this in

every HTML file once at the top.

The rest of the file is a bunch of matching tags. For example, there's `<html>` on line 2 and `</html>` on line 6. The first is the **opening** tag, and the second is the **closing** tag. Everything in between those tags is part of the HTML webpage. If you forget a tag, bad things will happen (most likely your webpage will look funny or not appear at all).

Another tag pair is `<body>` and `</body>`. Everything between those is part of the body of the webpage. The webpage **body** is the stuff you actually see on the webpage, like text and graphics.

One last tag pair is `<p>` and `</p>`. Everything between those is **paragraph text**, which you will actually see on the webpage.

Customizing further

It's easy to add new stuff to an HTML page, as long as you keep your tags organized. If you want to add more stuff to the body, it should be between the opening and closing body tag. For example, we can add a header using the `<h1>` tag and bold text by wrapping it in `<b>` tags.

```
<!DOCTYPE html>
<html>
<body>
<h1>Hello world</h1>
<p>Hello <b>world</b></p>
</body>
</html>
```

A note on formatting

Your browser does not care about the spacing for your HTML tags. Most people prefer to indent each additional level of tags to keep things easy to read. For the example above, we would make it look like this:

```
<!DOCTYPE html>
<html>
  <body>
```

```
    <h1>Hello world</h1>

    <p>Hello <b>world</b></p>

  </body>

</html>
```

The following is also valid HTML code, but it is infinitely harder for a human to understand:

```
<!DOCTYPE html> <html> <body> <h1>Hello world</h1> <p>Hello <b>world</b></p> </
body> </html>
```

Resources

- W3Schools has an extensive set of tutorials and HTML documentation (think of it as an HTML instruction manual)
- Codecademy gives you some HTML lessons for free, though you must create a free account first.