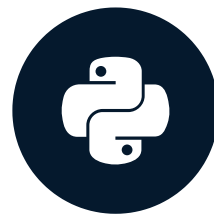


Web Scraping With Python

WEB SCRAPING IN PYTHON



Thomas Laetsch
Data Scientist, NYU

Business Savvy

What are businesses looking for?

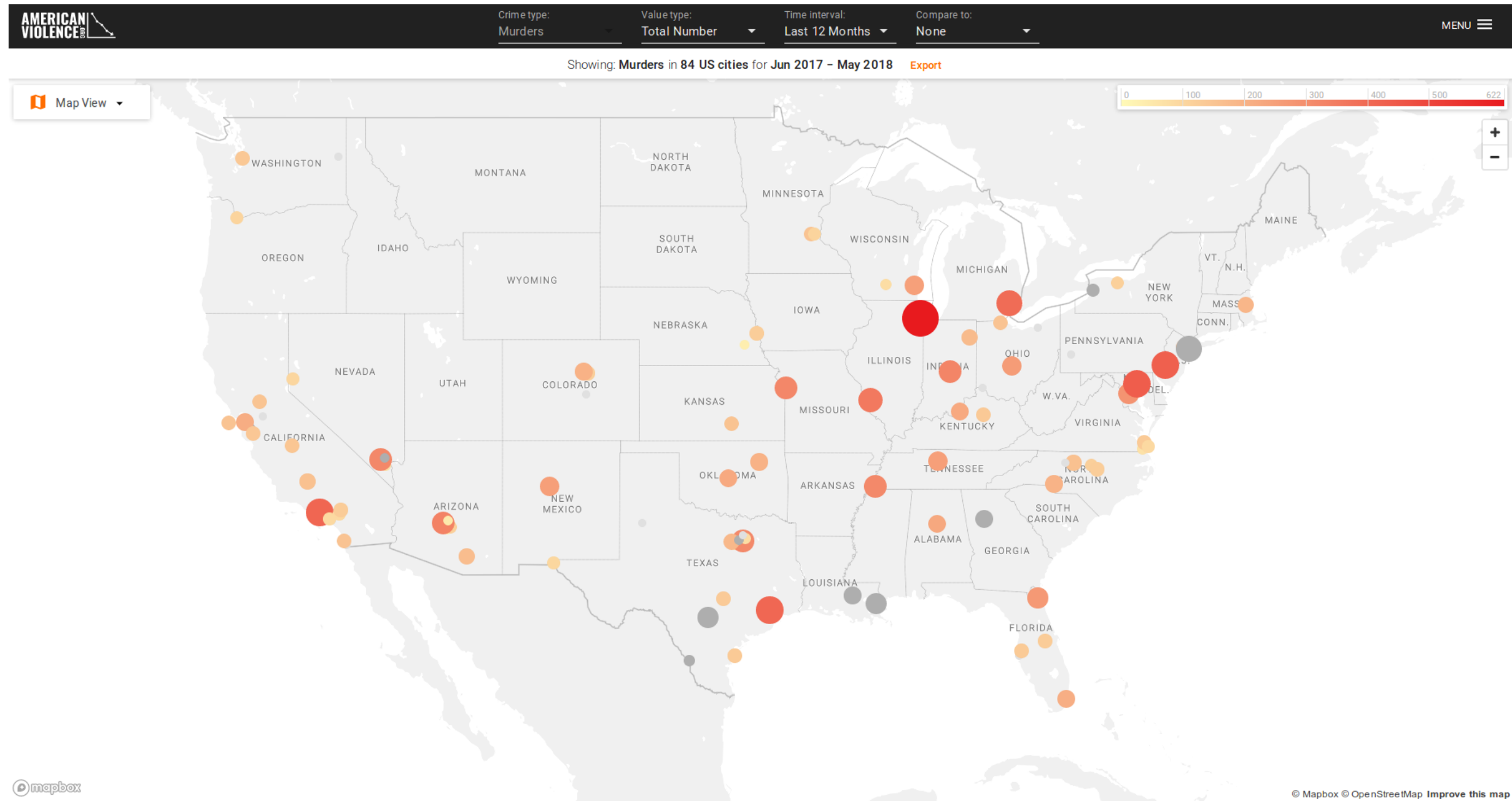
- Comparing prices
- Satisfaction of customers
- Generating potential leads
- ...and much more!

It's Personal

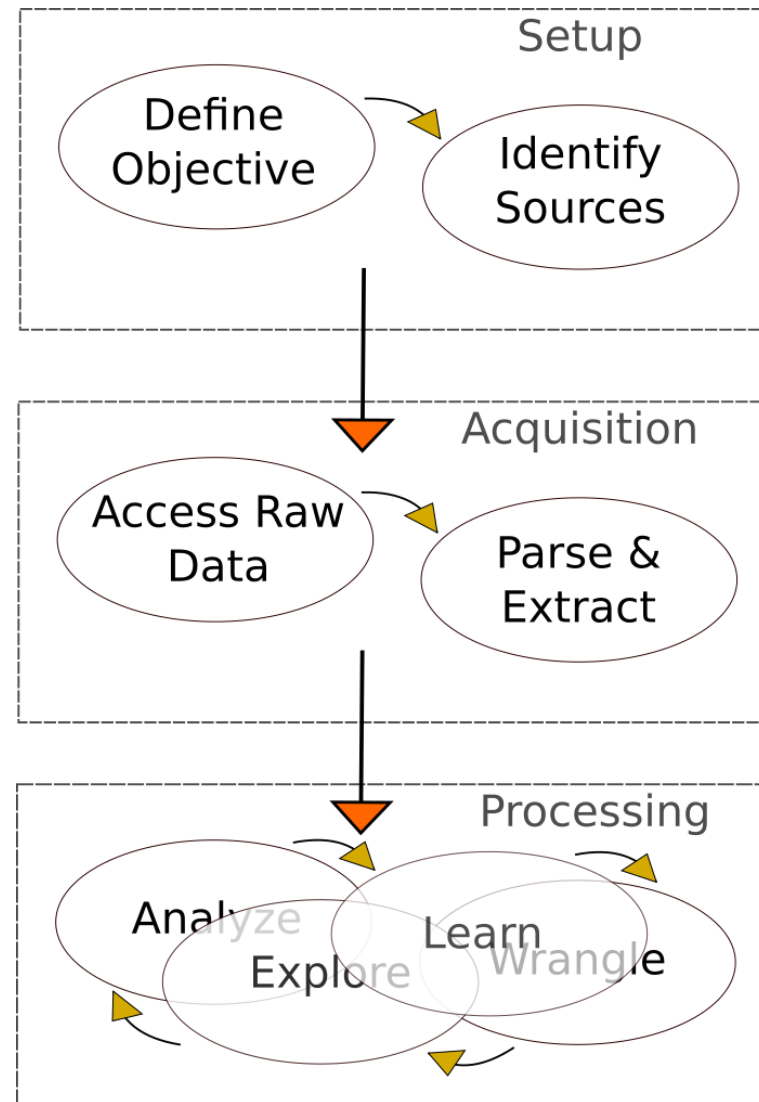
What could you do?

- Search for your favorite memes on your favorite sites.
- Automatically look through classified ads for your favorite gadgets.
- Scrape social site content looking for hot topics.
- Scrape cooking blogs looking for particular recipes, or recipe reviews.
- ...and much more!

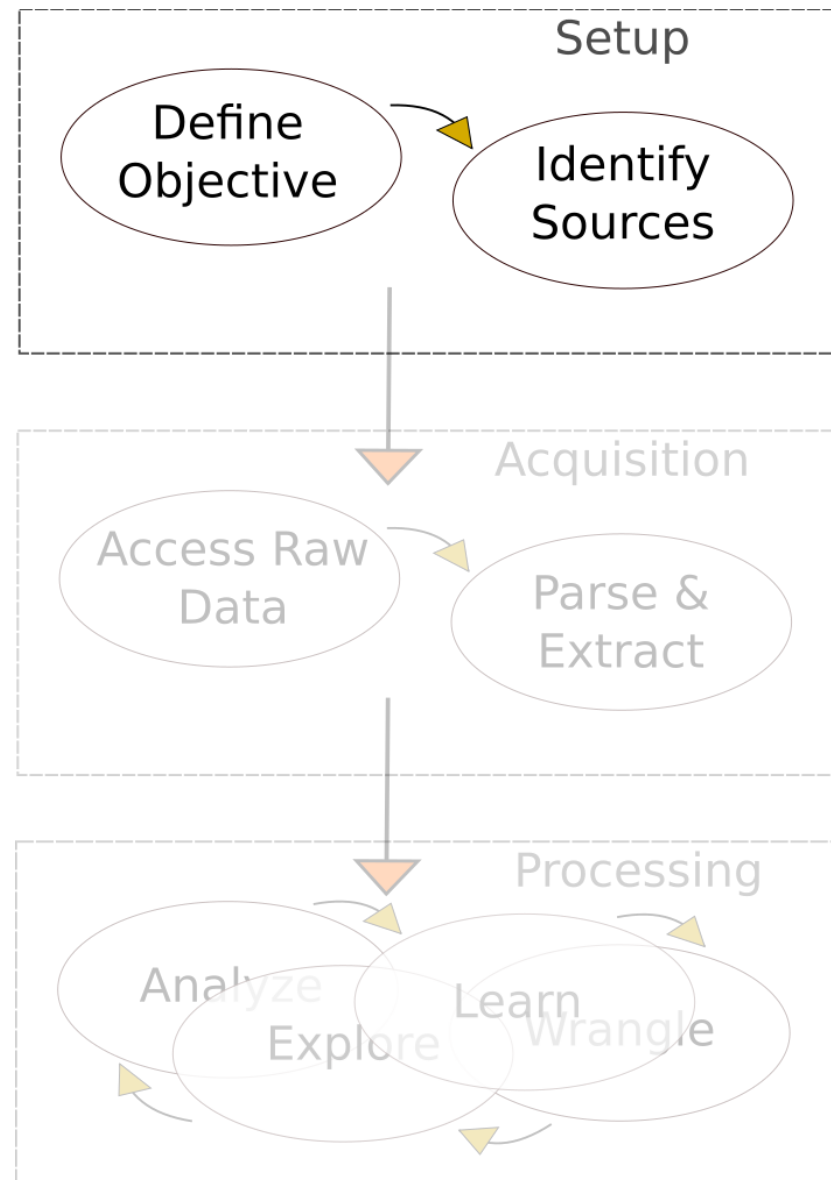
About My Work



Pipe Dream



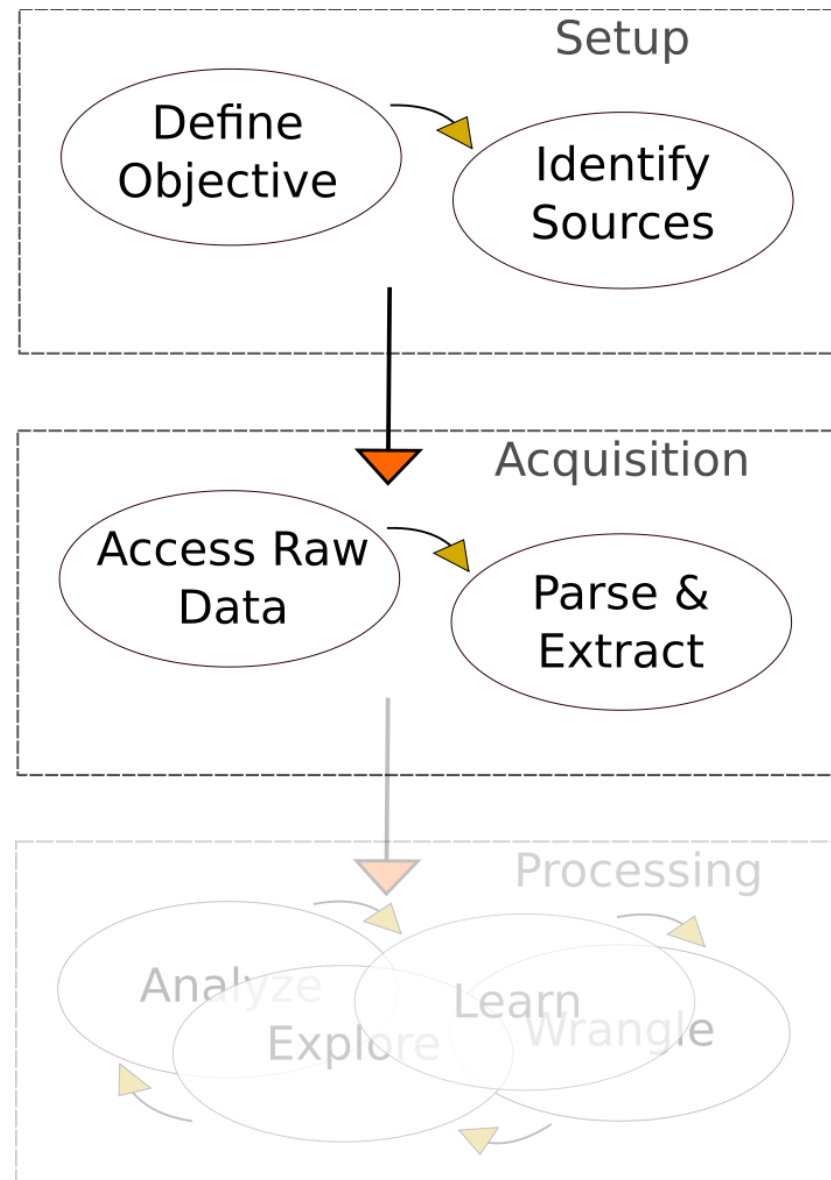
Pipe Dream: Setup



Setup

- Understand what we want to do.
- Find sources to help us do it.

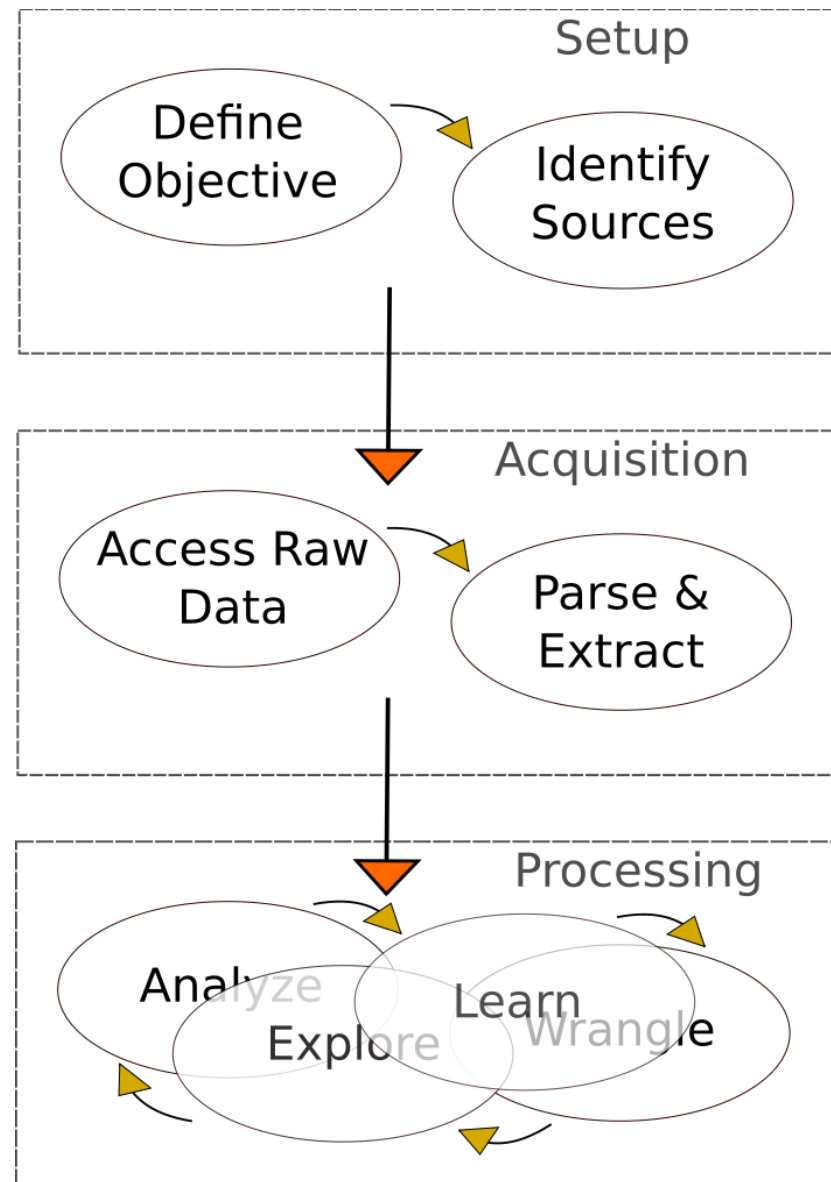
Pipe Dream: Acquisition



Acquisition

- Read in the raw data from online.
- Format these data to be usable.

Pipe Dream: Processing



Processing

- Many options!

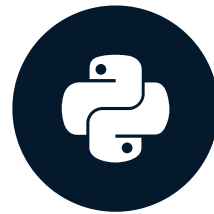
How do you do?

Our Focus

- Acquisition!
- (Using `scrapy` via `python`)

HyperText Markup Language

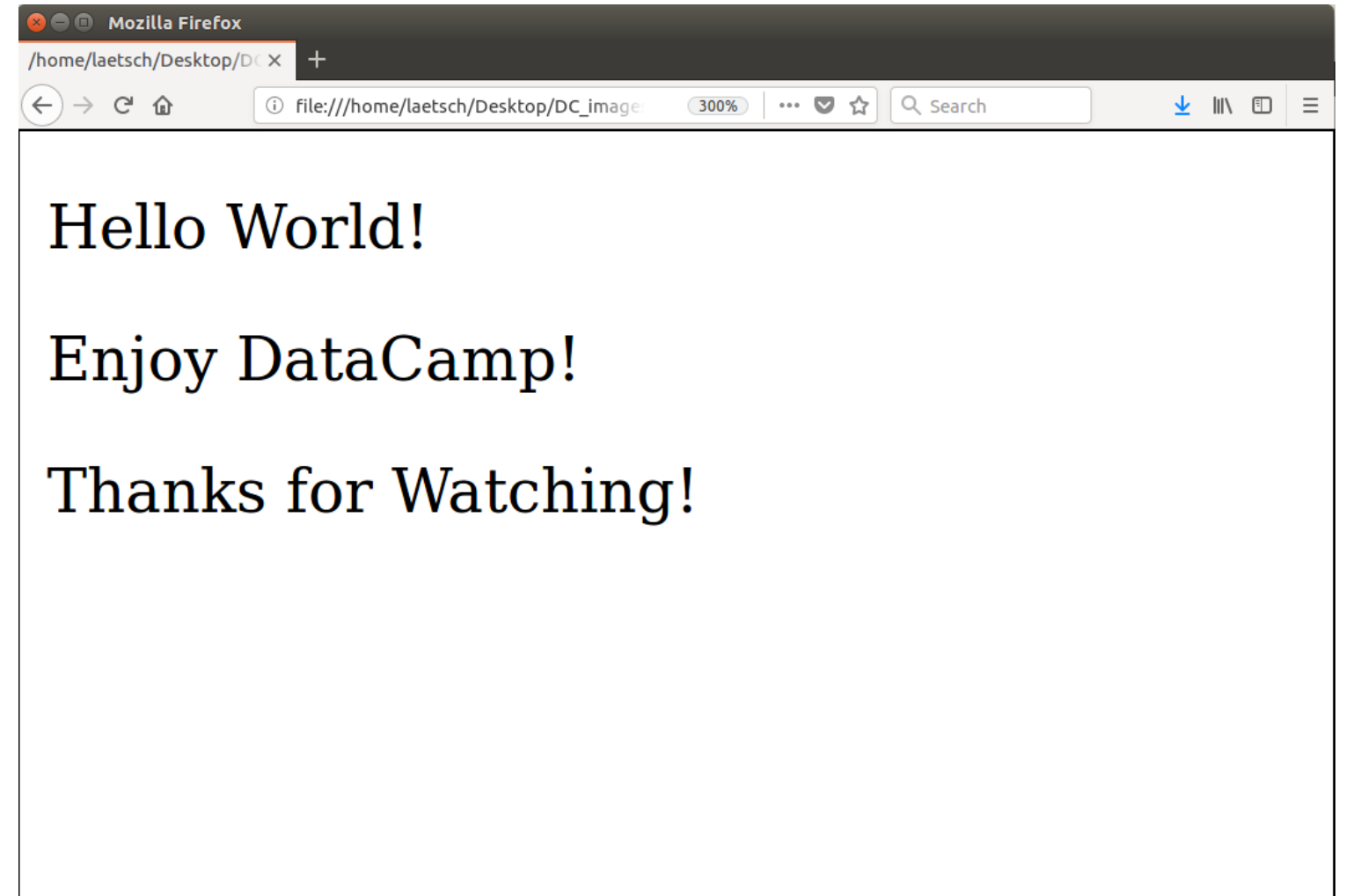
WEB SCRAPING IN PYTHON



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The main example

```
<html>
  <body>
    <div>
      <p>Hello World!</p>
      <p>Enjoy DataCamp!</p>
    </div>
    <p>Thanks for Watching!</p>
  </body>
</html>
```



HTML tags

```
<html>
```

```
  <body>
```

```
    <div>
```

```
      <p>Hello World!</p>
```

```
      <p>Enjoy DataCamp!</p>
```

```
    </div>
```

```
    <p>Thanks for Watching!</p>
```

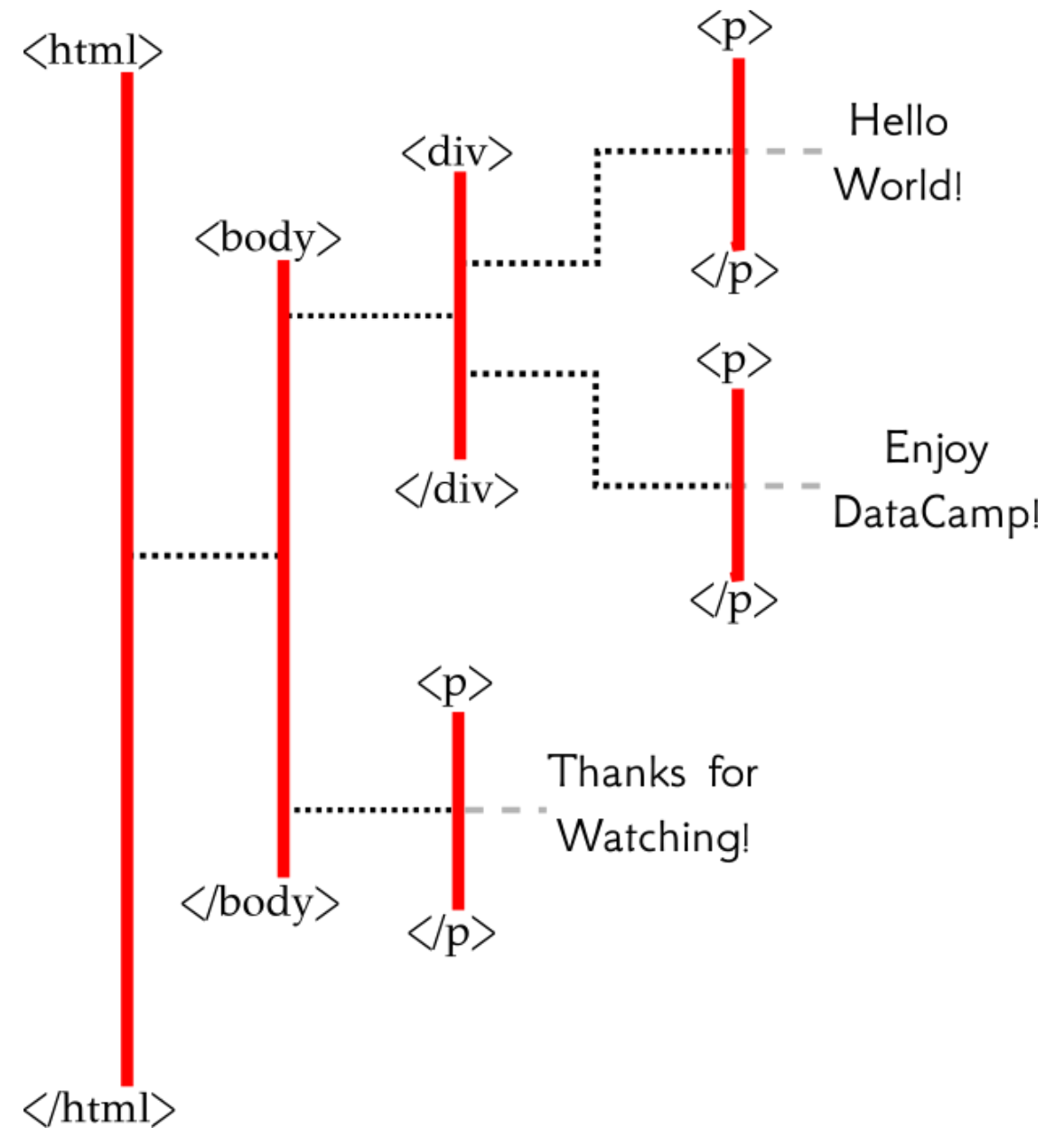
```
  </body>
```

```
</html>
```

- `<html> ... </html>`
- `<body> ... </body>`
- `<div> ... </div>`
- `<p> ... </p>`

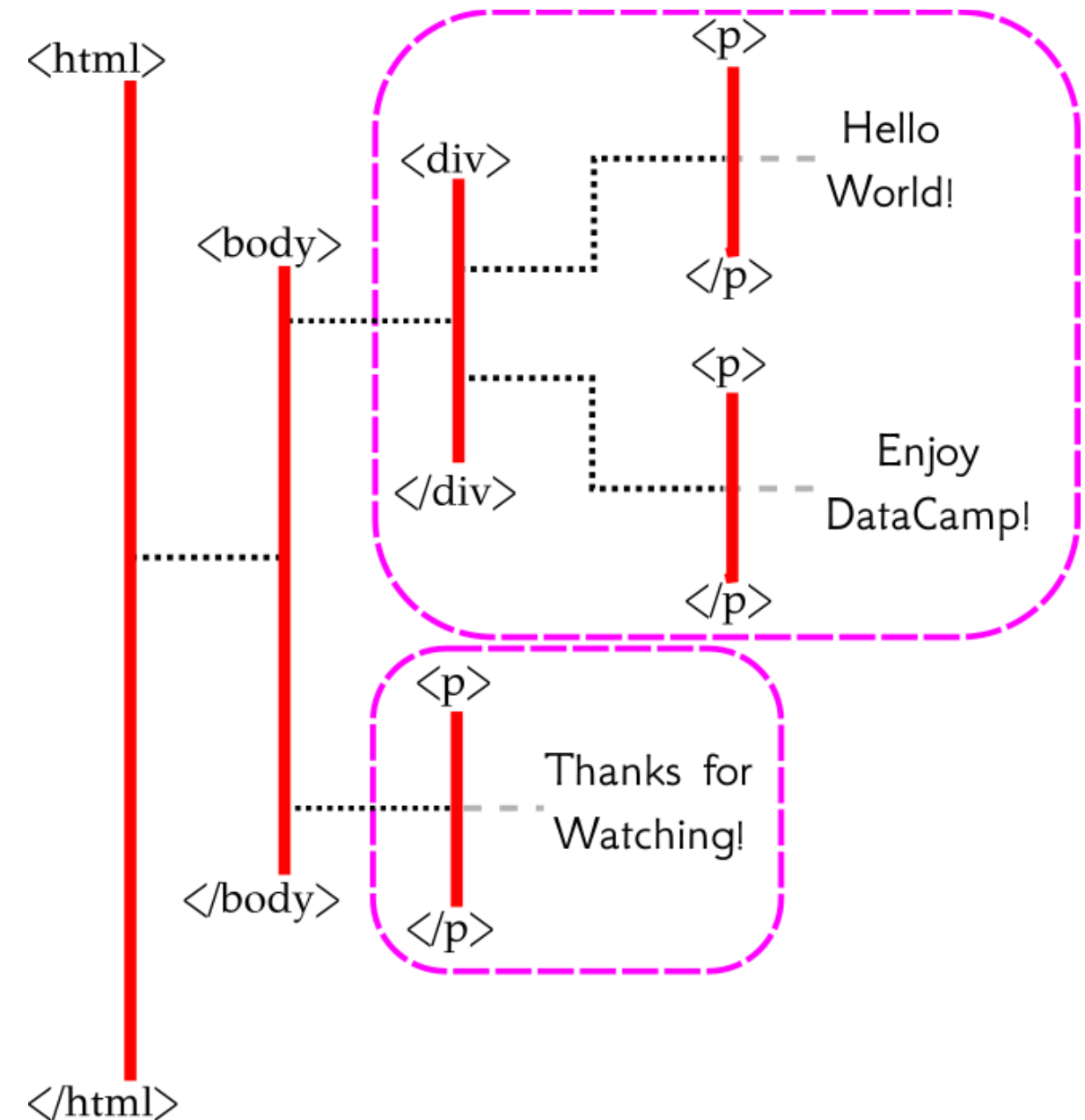
The HTML tree

```
<html>
  <body>
    <div>
      <p>Hello World!</p>
      <p>Enjoy DataCamp!</p>
    </div>
    <p>Thanks for Watching!</p>
  </body>
</html>
```



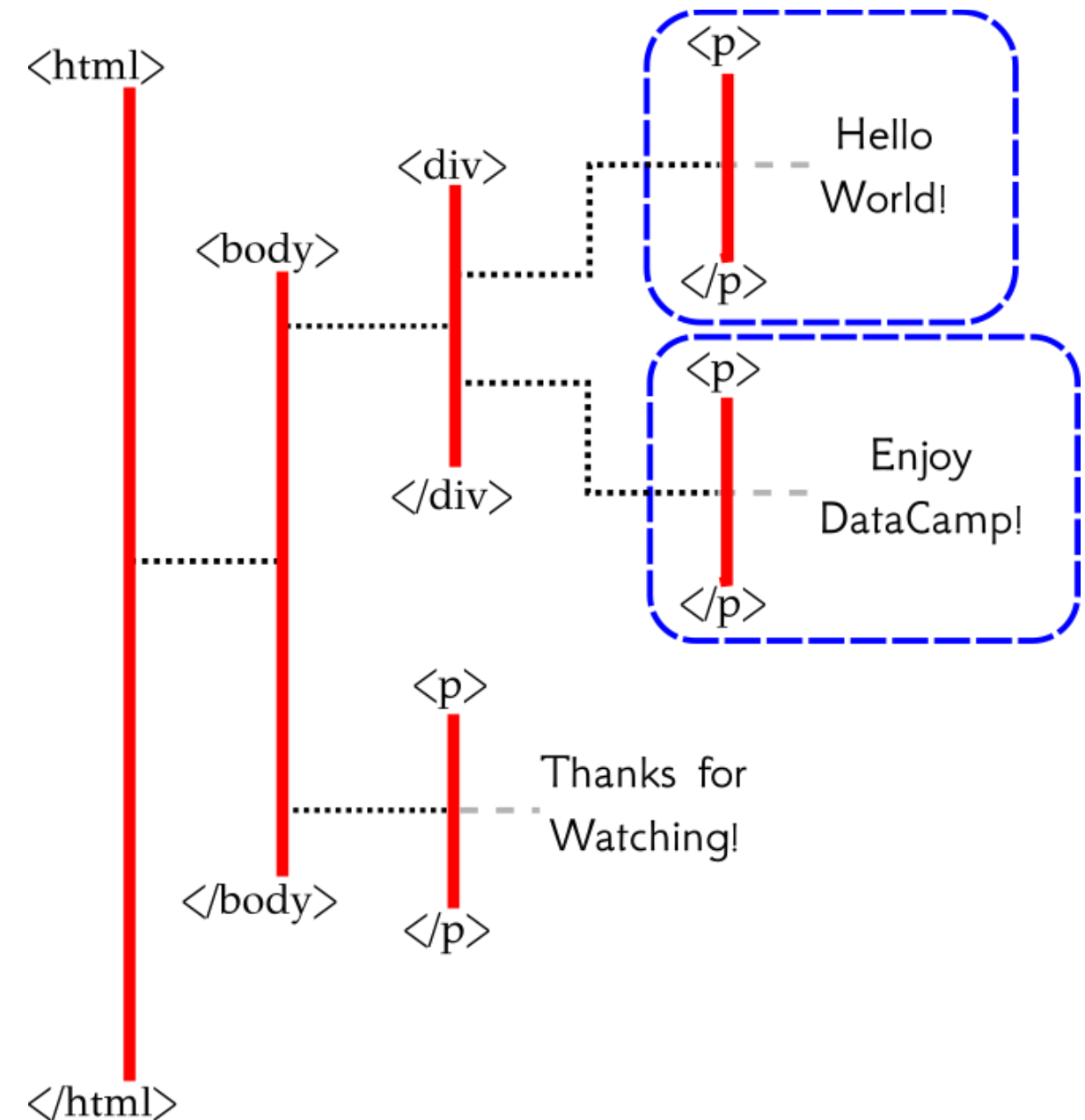
The HTML tree: Example 1

```
<html>
  <body>
    <div>
      <p>Hello World!</p>
      <p>Enjoy DataCamp!</p>
    </div>
    <p>Thanks for Watching!</p>
  </body>
</html>
```



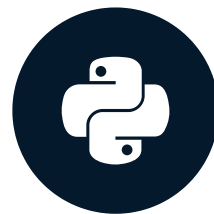
The HTML tree: Example 2

```
<html>
  <body>
    <div>
      <p>Hello World!</p>
      <p>Enjoy DataCamp!</p>
    </div>
    <p>Thanks for Watching!</p>
  </body>
</html>
```



HTML Tags and Attributes

WEB SCRAPING IN PYTHON



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Do we have to?

- Information within HTML tags can be valuable
- Extract link URLs
- Easier way to select elements

Tag, you're it!

`<tag-name attrib-name="attrib info">`

`..element contents..`

`</tag-name>`

- We've seen **tag names** such as **html**, **div**, and **p**.
- The **attribute name** is followed by **=** followed by information assigned to that attribute, usually quoted text.

Let's "div"vy up the tag

```
<div id="unique-id" class="some class">
```

..div element contents..

```
</div>
```

- **id** attribute should be unique
- **class** attribute doesn't need to be unique

"a" be linkin'

```
<a href="https://www.datacamp.com">
```

This text links to DataCamp!

```
</a>
```

- **a** tags are for **hyperlinks**
- **href** attribute tells what link to go to

Tag Traction

← → ↻ 🏠

🔒 https://www.w3schools.com/tags/default.asp

📄 ⋮ 📌 ⭐ 🔍 Search

🏠 HTML CSS JAVASCRIPT SQL PHP BOOTSTRAP HOW TO JQUERY W3.CSS PYTHON XML MORE ▾ REFERENCES ▾

HTML Reference

HTML by Alphabet

HTML by Category

HTML Attributes

HTML Global Attributes

HTML Events

HTML Colors

HTML Canvas

HTML Audio/Video

HTML Character Sets

HTML Doctypes

HTML URL Encode

HTML Language Codes

HTML Country Codes

HTTP Messages

HTTP Methods

PX to EM Converter

Keyboard Shortcuts

HTML Tags

<!-->

<!DOCTYPE>

<a>

HTML Tags Ordered Alphabetically

🔍 Search..

📌 = New in HTML5.

Tag	Description
<u><!--...--></u>	Defines a comment
<u><!DOCTYPE></u>	Defines the document type
<u><a></u>	Defines a hyperlink
<u><abbr></u>	Defines an abbreviation or an acronym
<u><acronym></u>	Not supported in HTML5. Use <u><abbr></u> instead. Defines an acronym
<u><address></u>	Defines contact information for the author/owner of a document
<u><applet></u>	Not supported in HTML5. Use <u><embed></u> or <u><object></u> instead. Defines an embedded applet
<u><area></u>	Defines an area inside an image-map
<u><article></u>	📌 Defines an article

Et Tu, Attributes?

WEB SCRAPING IN PYTHON

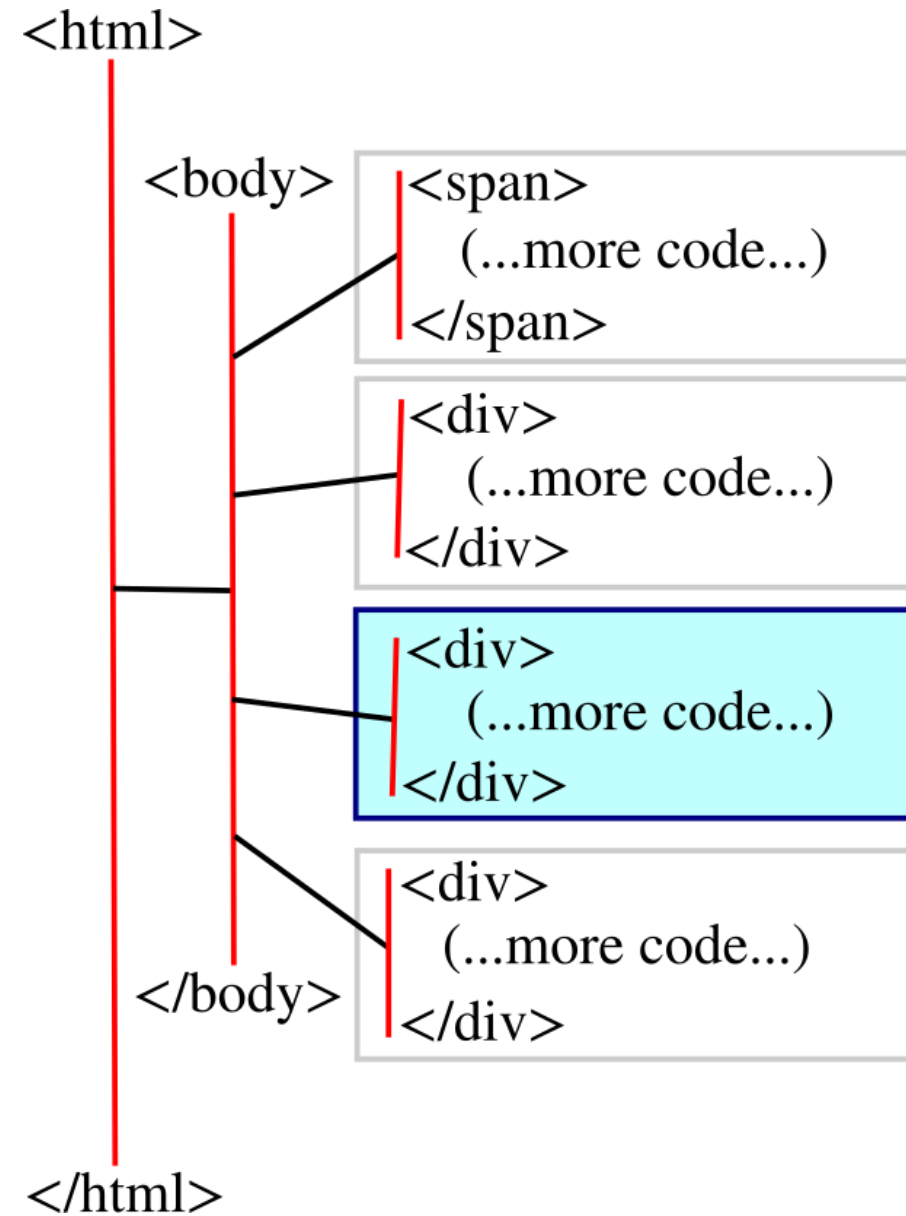
Another Slasher Video?

```
xpath = '/html/body/div[2]'
```

Simple XPath:

- Single forward-slash `/` used to move forward one generation.
- tag-names between slashes give direction to which element(s).
- Brackets `[]` after a tag name tell us which of the selected siblings to choose.

Another Slasher Video?



```
xpath = '/html/body/div[2]'
```


Slasher Double Feature?

- Direct to all `table` elements within the entire HTML code:

```
xpath = '//table'
```

- Direct to all `table` elements which are descendants of the 2nd `div` child of the `body` element:

```
xpath = '/html/body/div[2]//table'
```