

Web Scraping With Python

WEB SCRAPING IN PYTHON



Thomas Laetsch
Data Scientist, NYU

Business Savvy

What are businesses looking for?

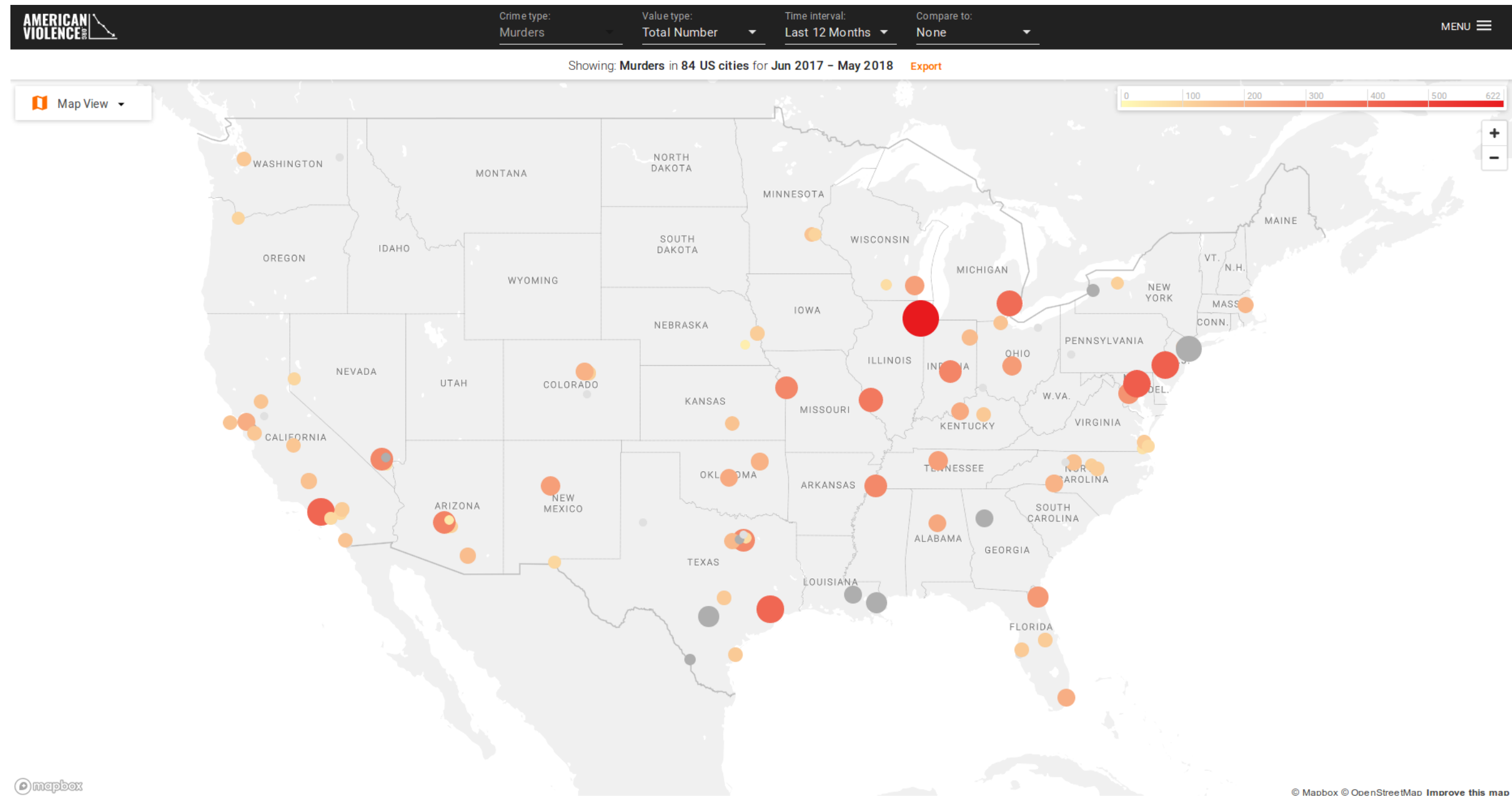
- Comparing prices
- Satisfaction of customers
- Generating potential leads
- ...and much more!

It's Personal

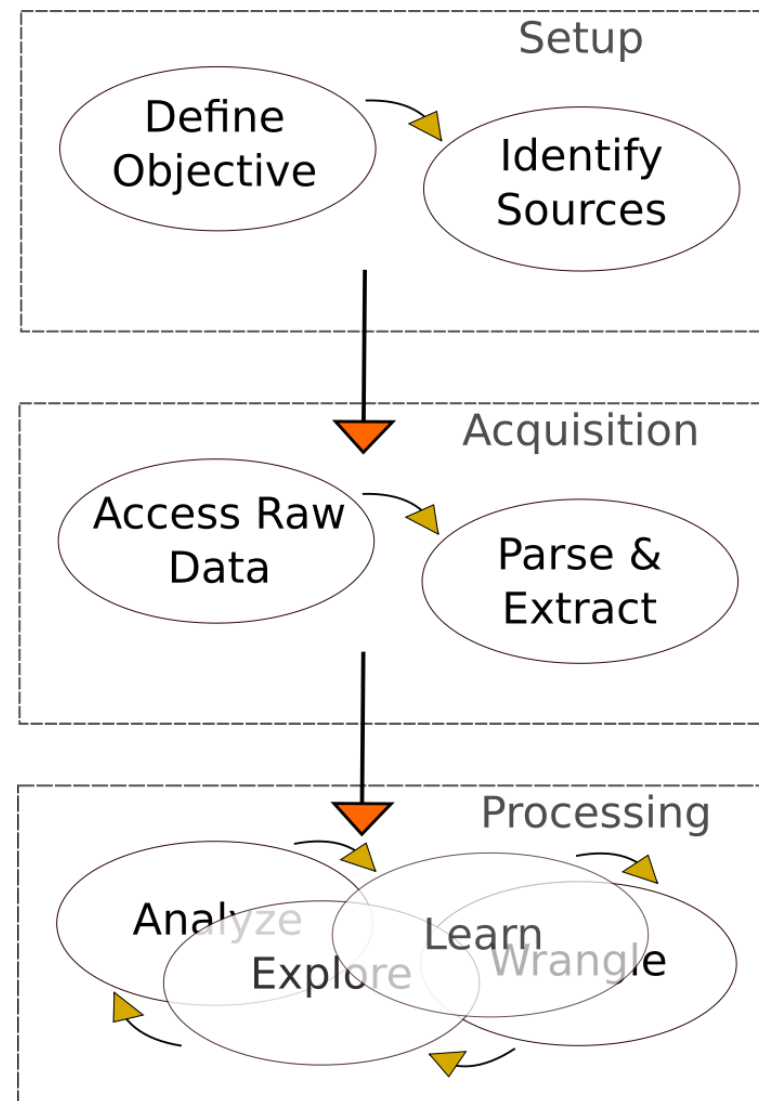
What could you do?

- 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!

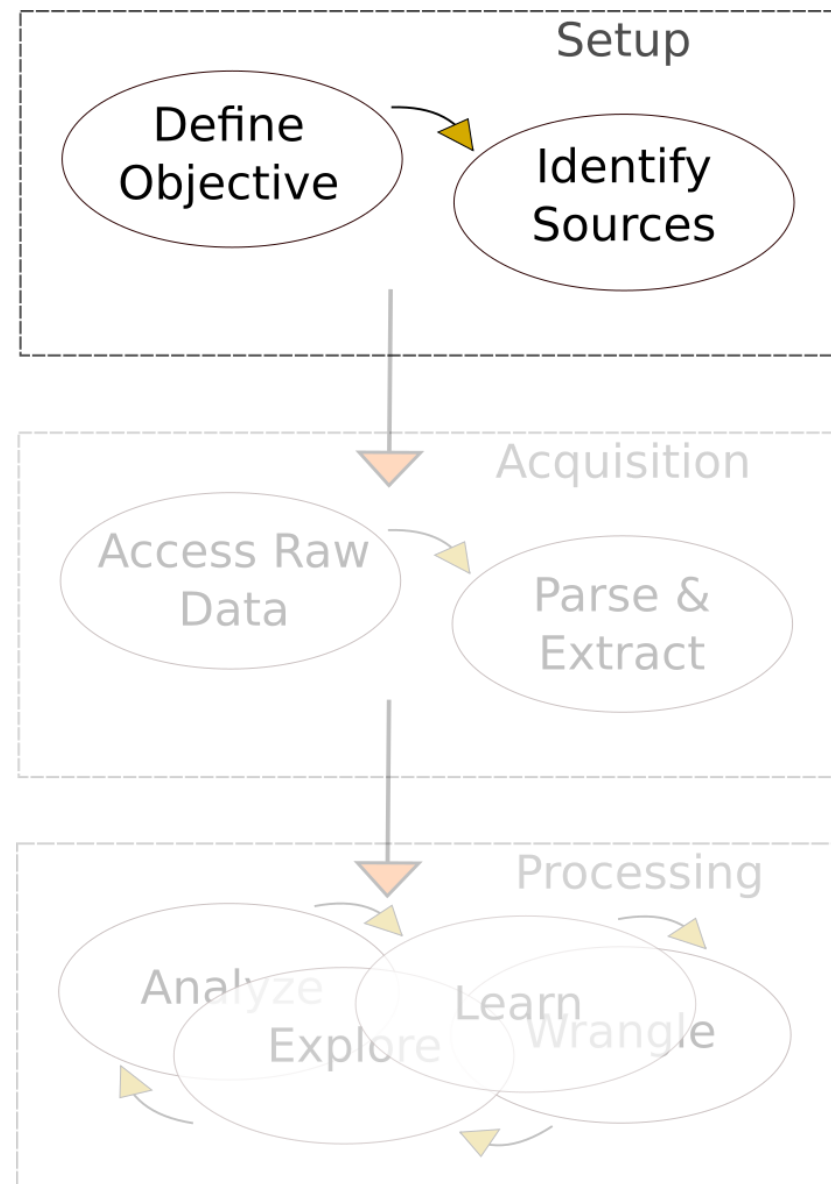
About My Work



Pipe Dream



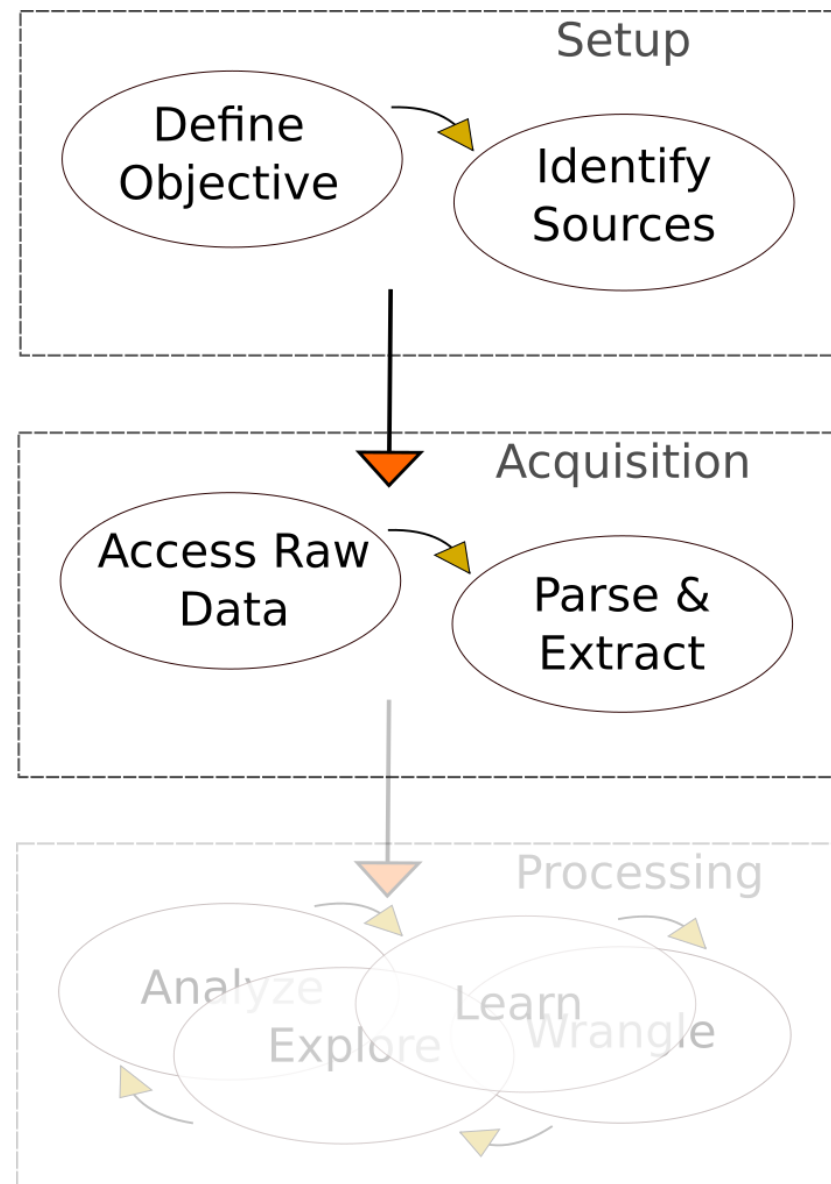
Pipe Dream: Setup



Setup

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

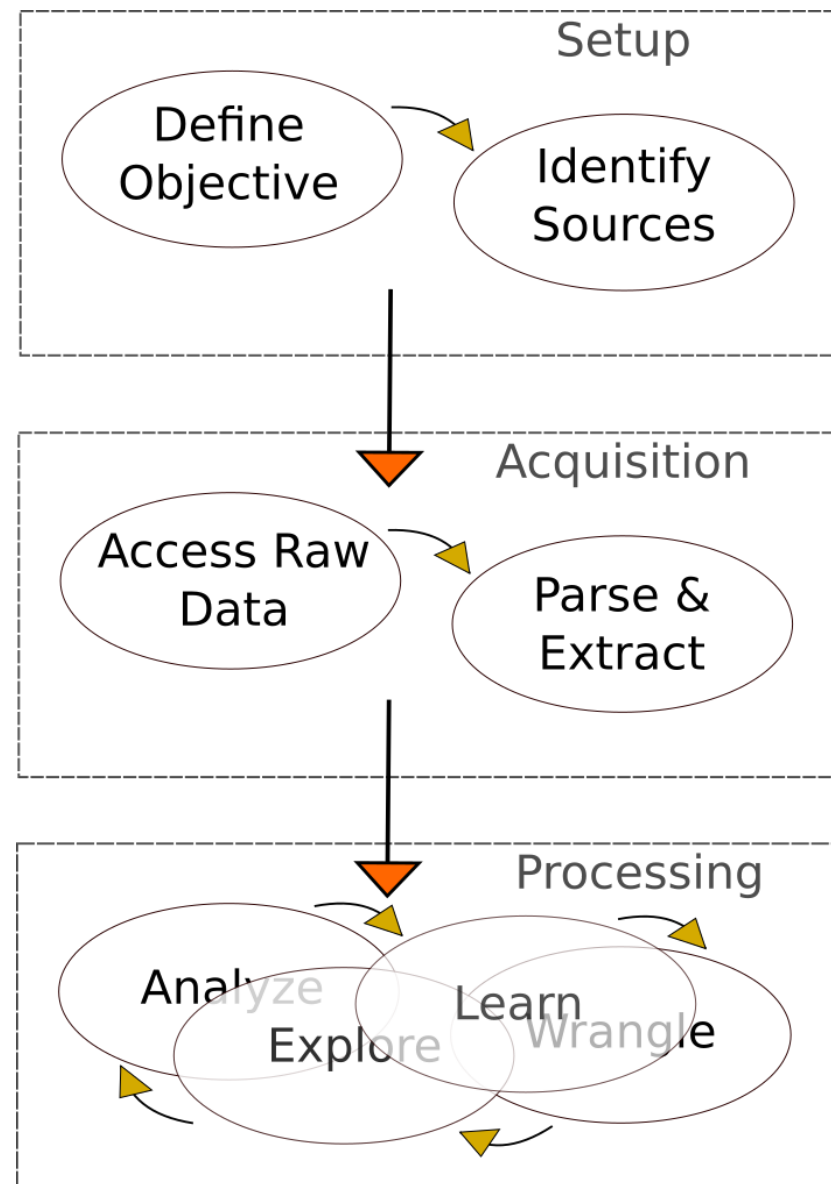
Pipe Dream: Acquisition



Acquisition

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

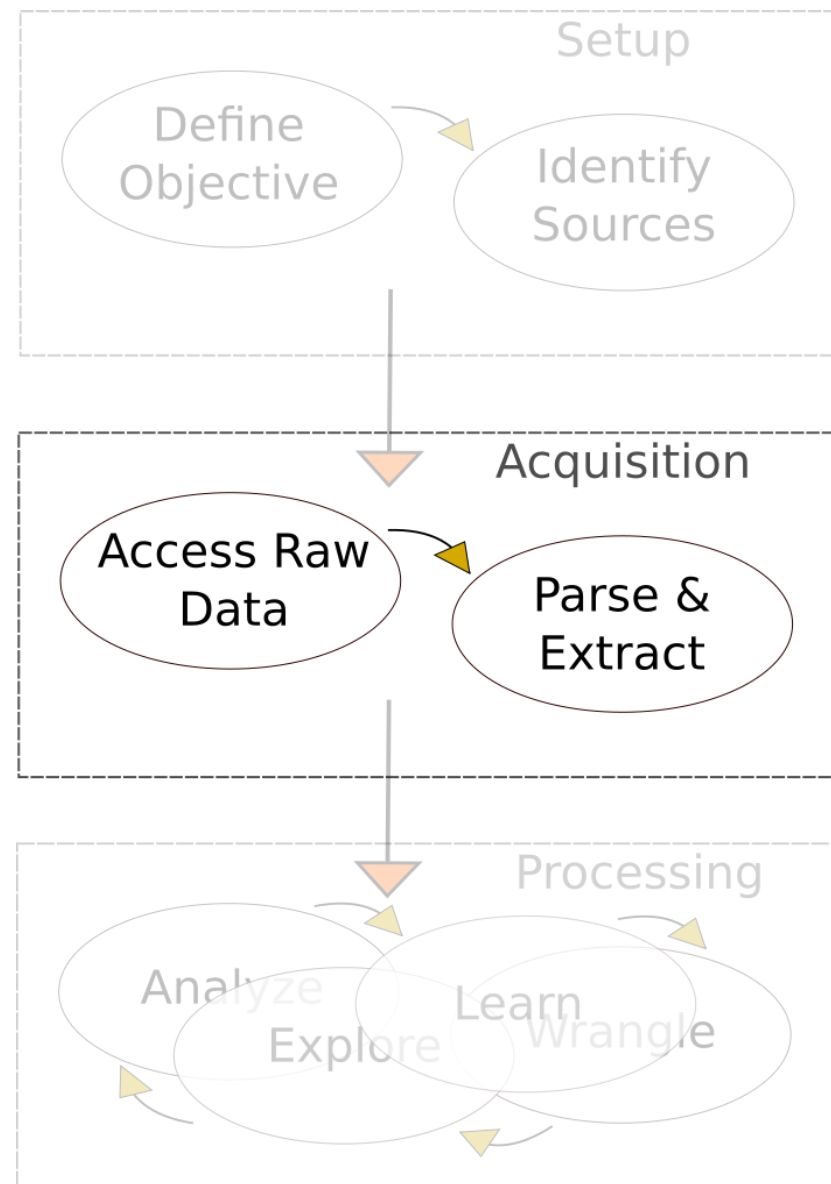
Pipe Dream: Processing



Processing

- Many options!

How do you do?



Our Focus

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

Are you in?

WEB SCRAPING IN PYTHON

HyperText Markup Language

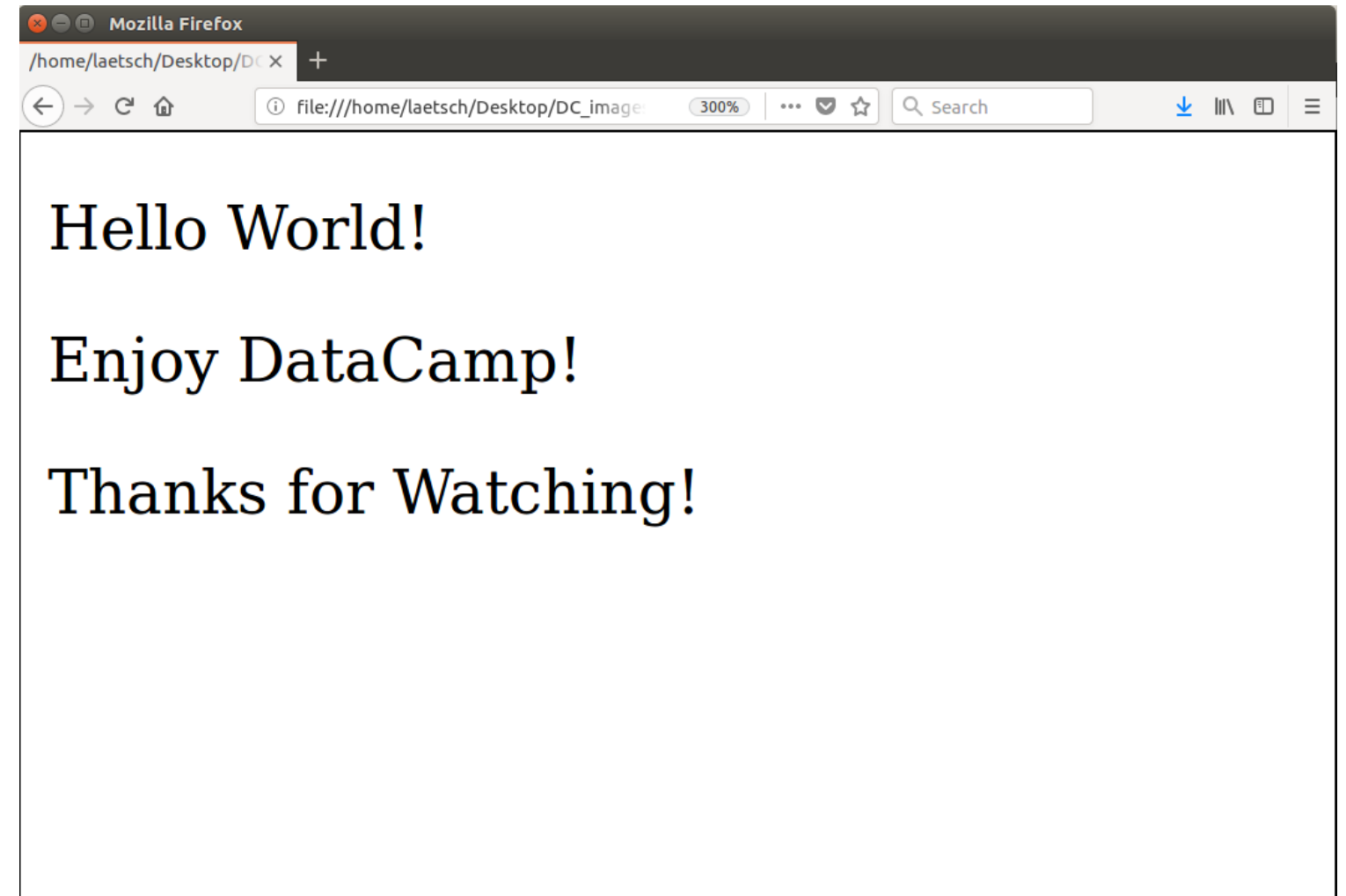
WEB SCRAPING IN PYTHON



Thomas Laetsch
Data Scientist, NYU

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>
```

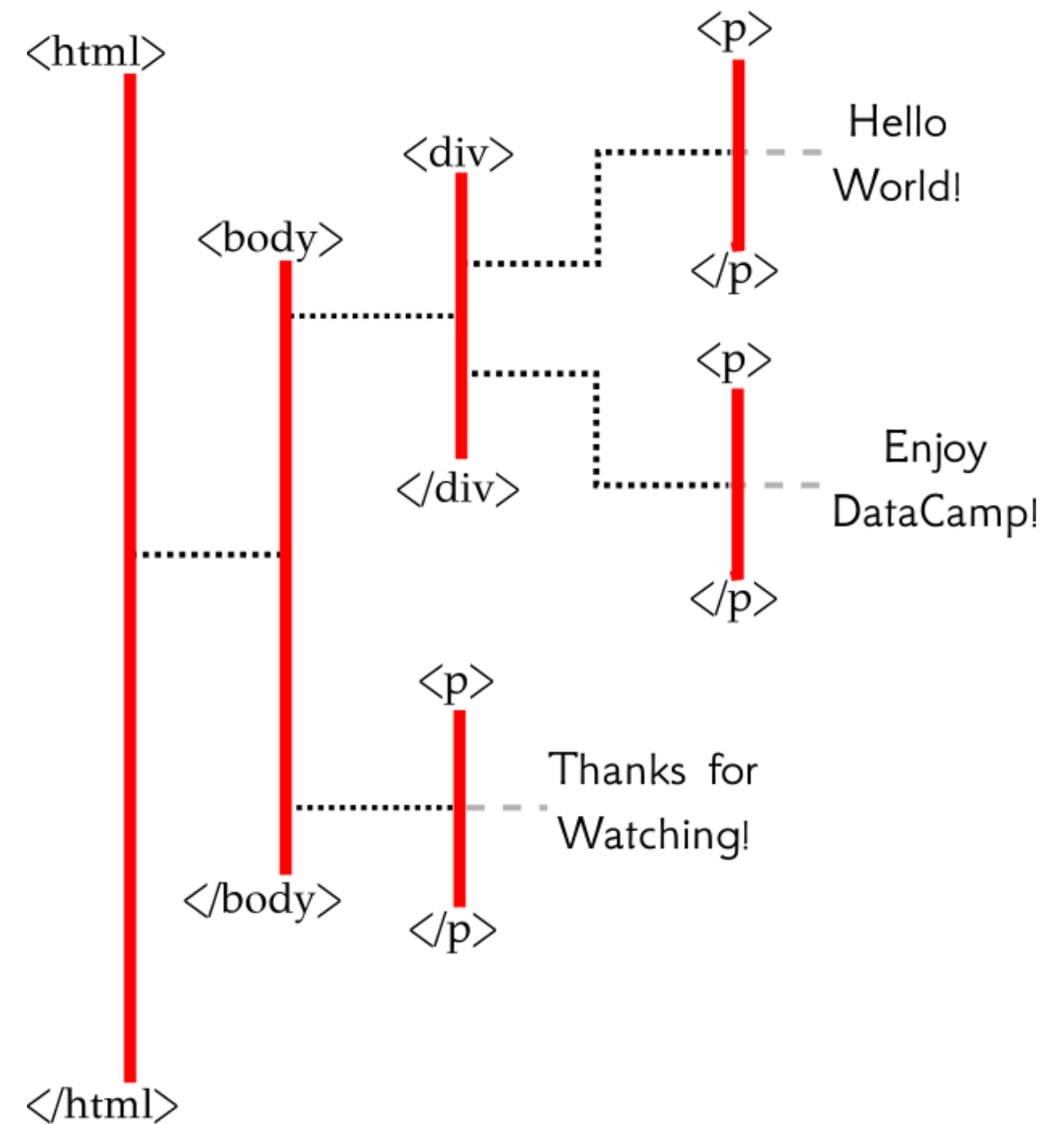
```
  </body>
```

```
</html>
```

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

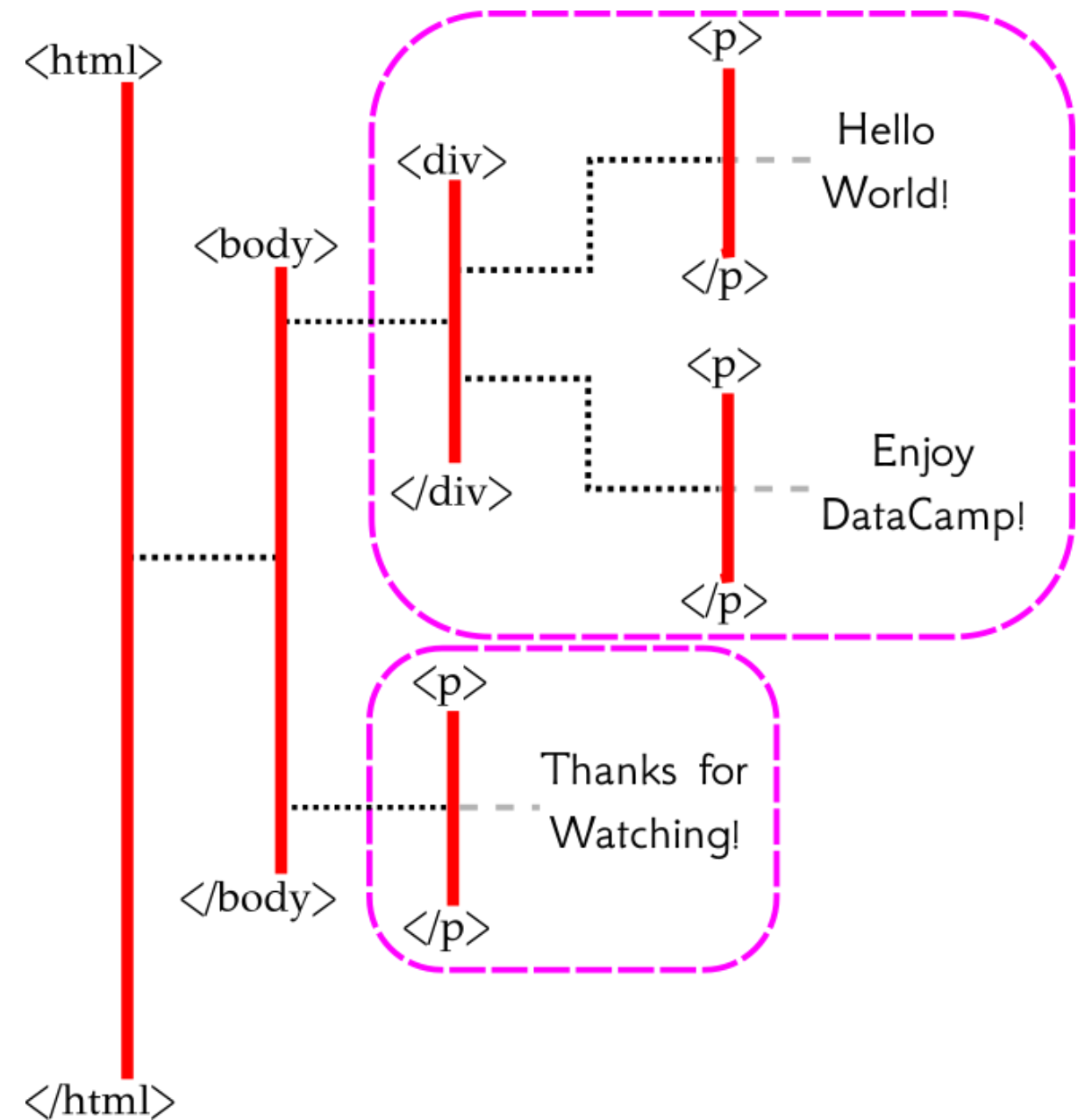
The HTML tree

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



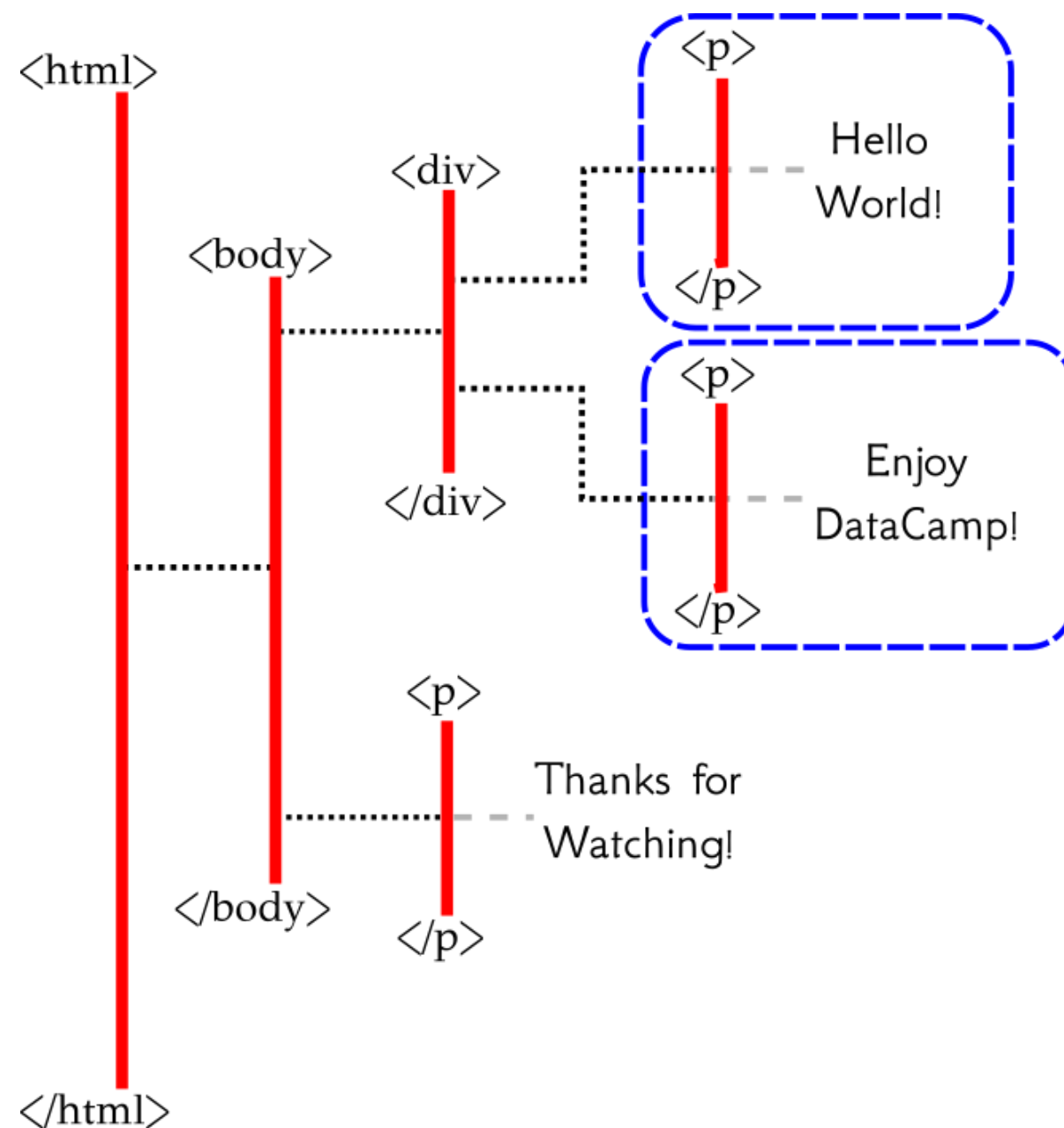
The HTML tree: Example 1

```
<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>
```



Introduction to HTML Outro

WEB SCRAPING IN PYTHON

HTML Tags and Attributes

WEB SCRAPING IN PYTHON



Thomas Laetsch
Data Scientist, NYU

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'

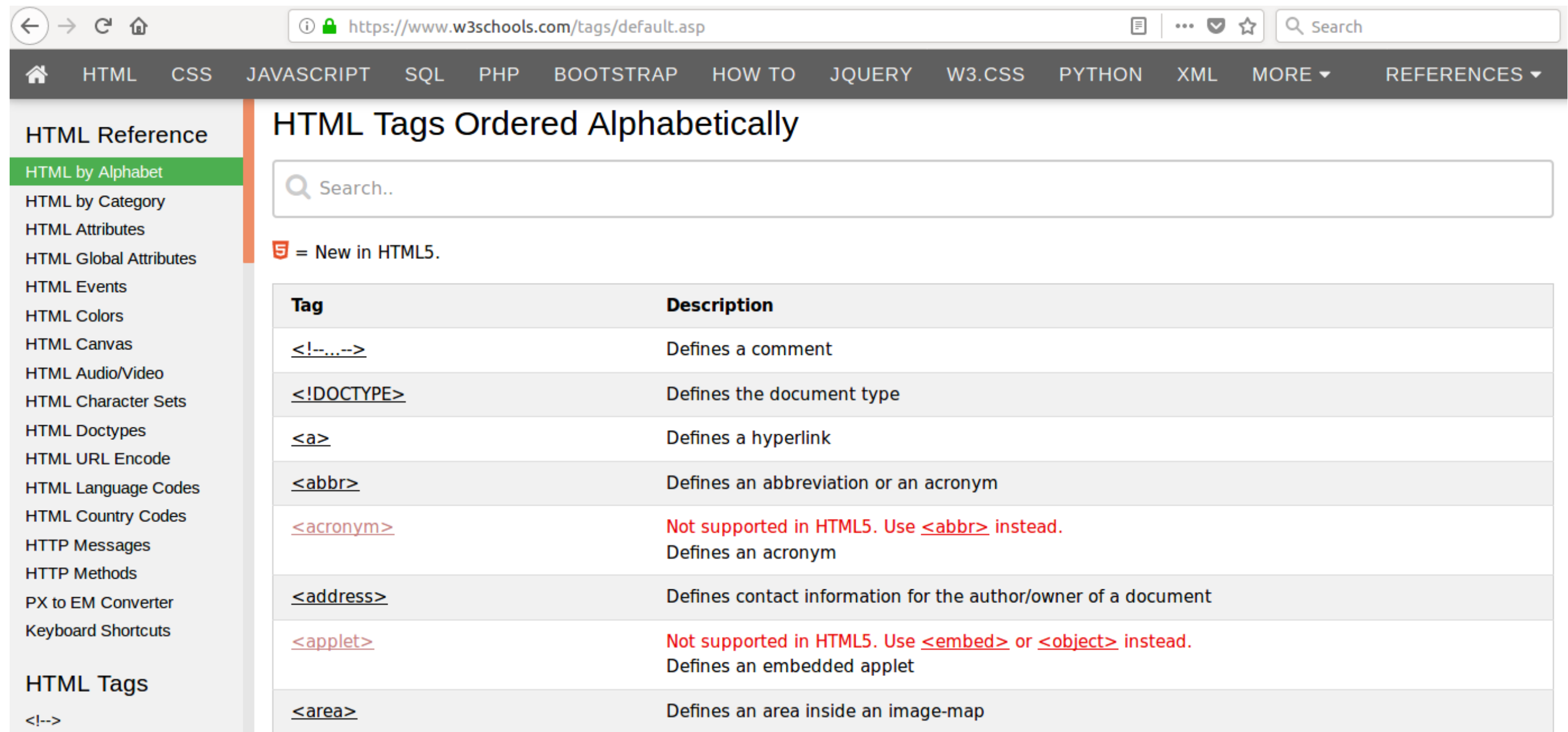
```
<a href="https://www.datacamp.com">
```

This text links to DataCamp!

```
</a>
```

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

Tag Traction



The screenshot shows the W3Schools website's 'HTML Tags Ordered Alphabetically' page. The browser's address bar displays 'https://www.w3schools.com/tags/default.asp'. The navigation menu at the top includes links for HTML, CSS, JAVASCRIPT, SQL, PHP, BOOTSTRAP, HOW TO, JQUERY, W3.CSS, PYTHON, XML, MORE, and REFERENCES. On the left sidebar, 'HTML Reference' is expanded, and 'HTML by Alphabet' is selected. The main content area features a search bar, a legend indicating that a red 'S' icon denotes 'New in HTML5', and a table of HTML tags. The table lists tags from <!--> to <area>, with descriptions and notes on HTML5 support for certain tags like <acronym> and <applet>.

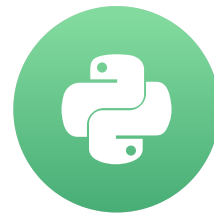
Tag	Description
<u><!--...--></u>	Defines a comment
<u><!DOCTYPE></u>	Defines the document type
<u><a></u>	Defines a hyperlink
<u><abbr></u>	Defines an abbreviation or an acronym
<u><acronym></u>	Not supported in HTML5. Use <u><abbr></u> instead. Defines an acronym
<u><address></u>	Defines contact information 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

Et Tu, Attributes?

WEB SCRAPING IN PYTHON

Crash Course X

WEB SCRAPING IN PYTHON



Thomas Laetsch
Data Scientist, NYU

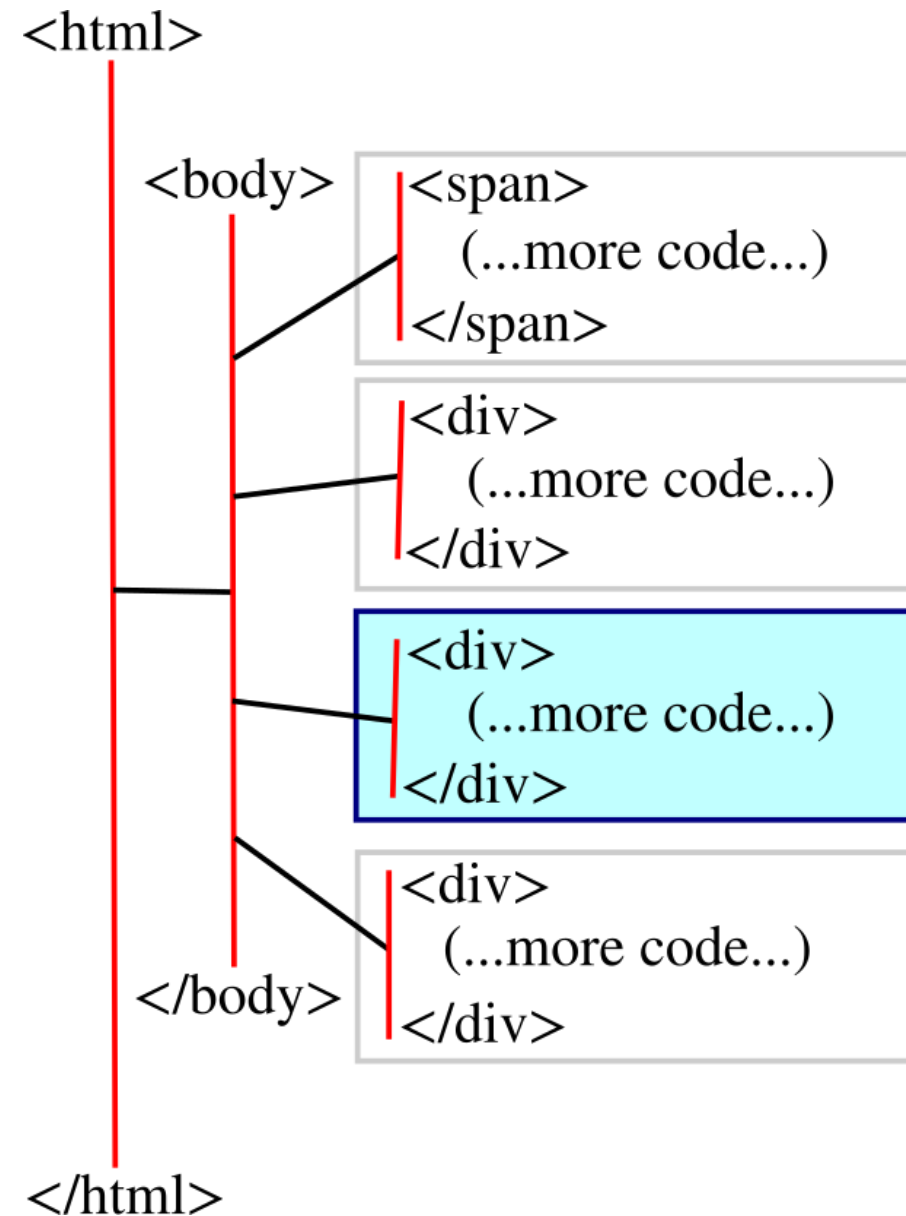
Another Slasher Video?

```
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'
```

Ex(path)celent

WEB SCRAPING IN PYTHON