Web Scraping by Python feat. Beautiful Soup

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ACM – CSE Chapter

August 8, 2020
https://github.com/M4rqu1705/Web-Scraping-by-Python-feat-Beautiful-Soup

Web Scraping

Introduction & Applications

Web Scraping

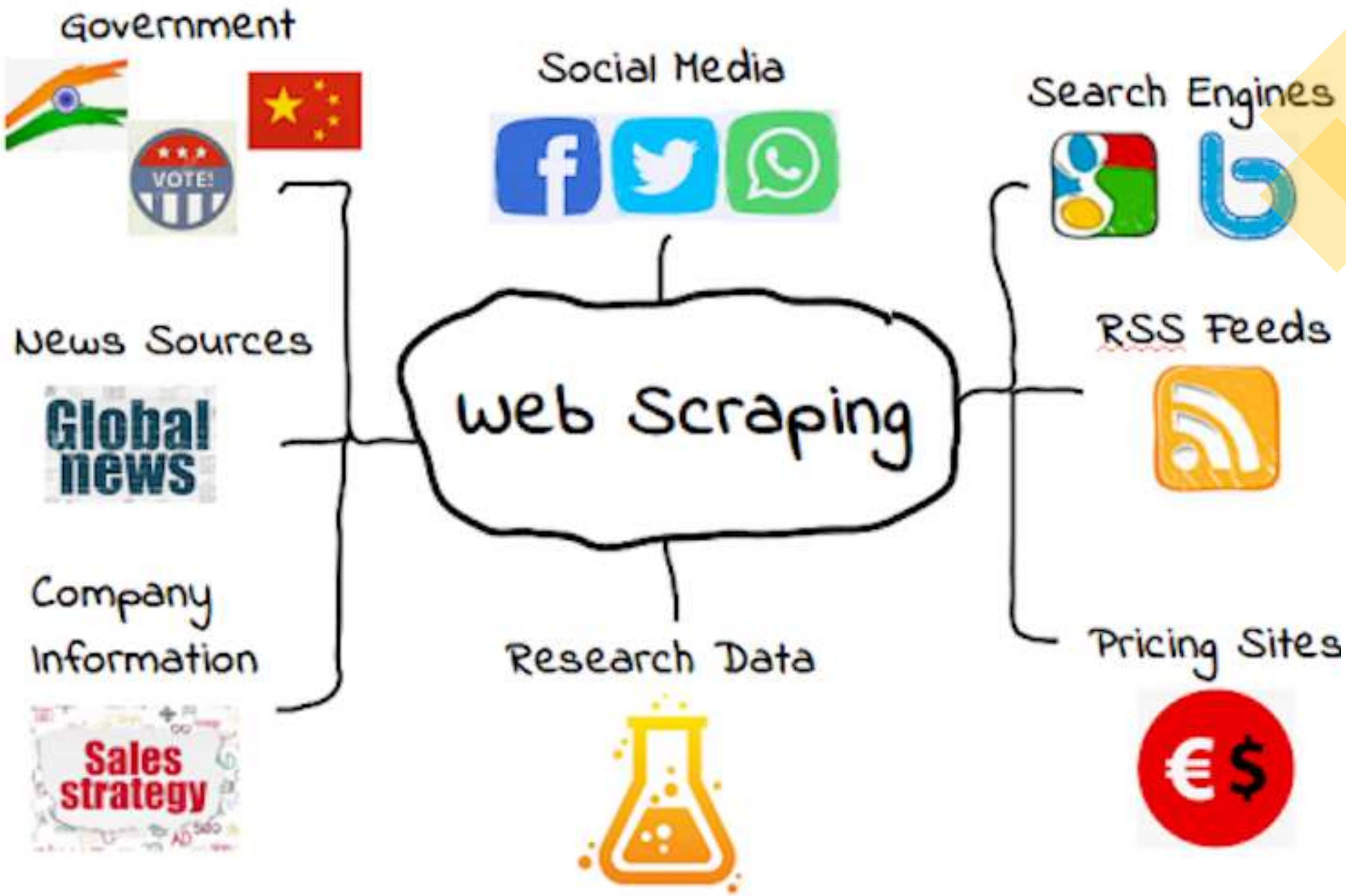
The extraction and copying of data from a website into a structured format using a computer program

https://www.dictionary.com/browse/web-scraping

* Useful for when you want to automate data extraction from a website and they do not provide APIs or other services with this object

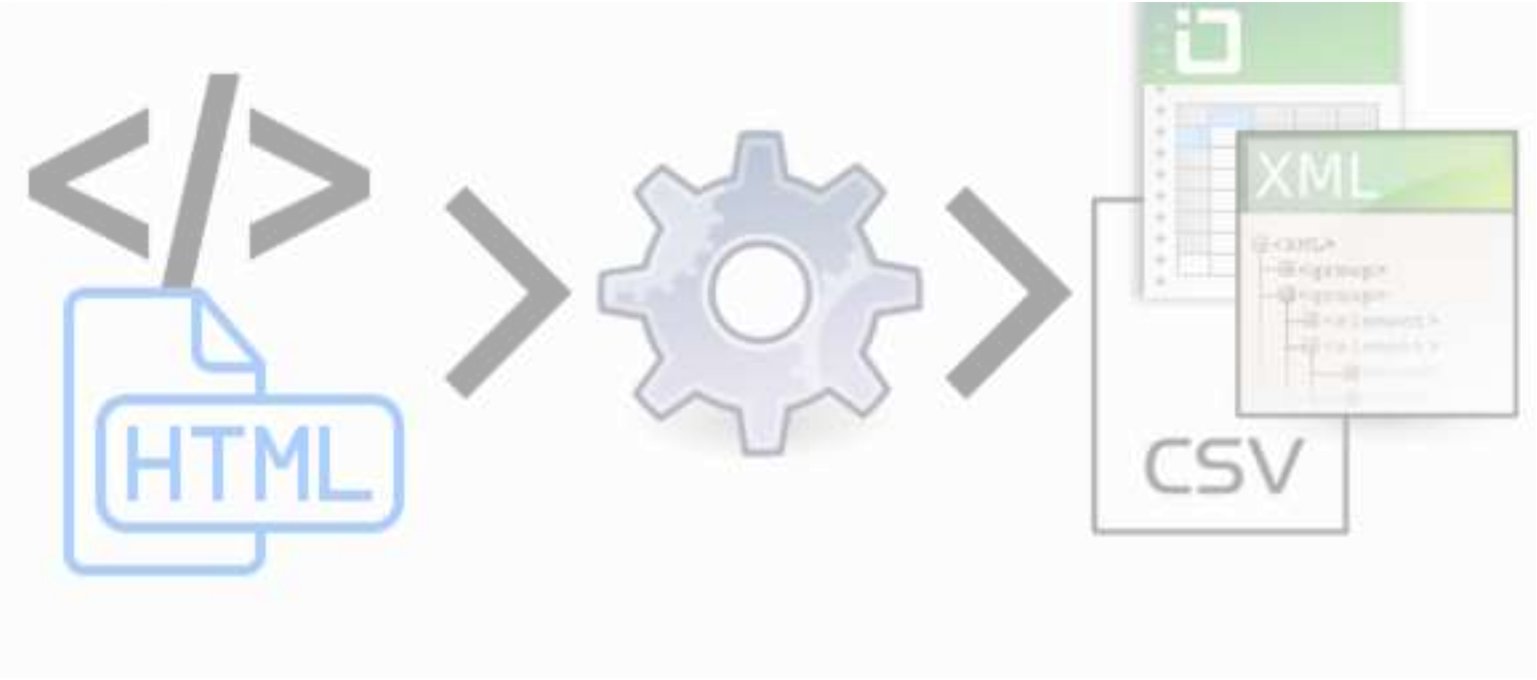
Applications

- Google Web Crawling to find new websites
- Social Media Sentiment Analysis
- Price monitoring
- Obtain Data to feed Machine Learning Models



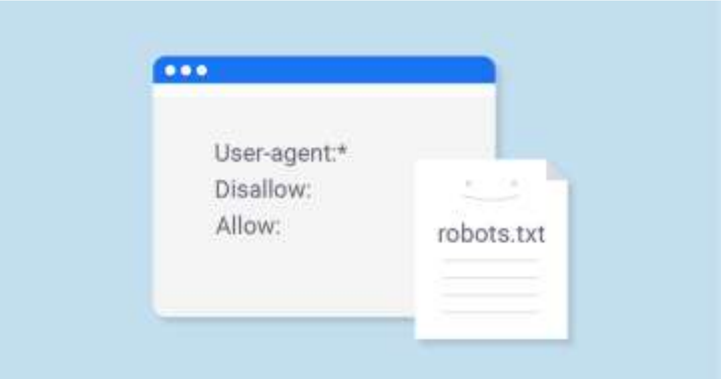
Before Beginning

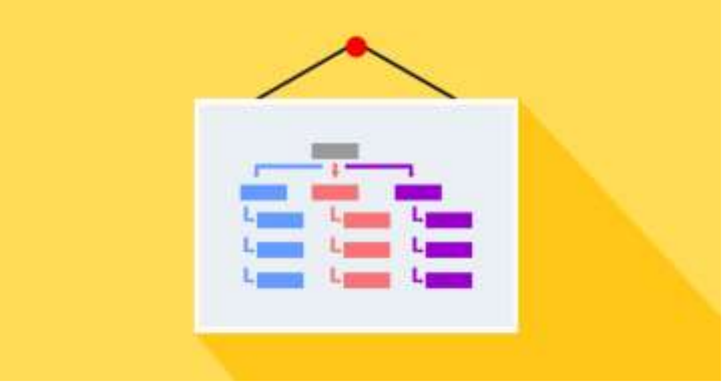
- Establishing goals
  1. What information do you want to extract?
  2. Who is going to use this data and how do they want it to be stored?
  3. How frequently will the data be "reset" ?



Before Beginning

- robots.txt
  - List of restricted parts of the website
  - You cannot scrape these parts of the website
    - https://moz.com/learn/seo/robotstxt
- sitemap.xml
  - List of most, if not all, of the links in a website
  - Sometimes can even refer to even more sitemaps





HTML

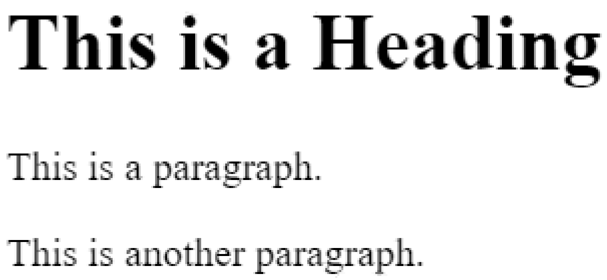
Introduction / Review

HTML

- Hyper Text Markup Language
- Standard language to create and **structure** Web Pages
- Accomplishes this through the use of nested tags
    - <h1></h1>
    - <p></p>
    - <img>
    - <a href=“#”></a>

Example

```
<!DOCTYPE html>
<html lang="en">
    <head>
        <meta charset="utf-8" />
        <title>Page Title</title>
    </head>
    <body>
        <h1>This is a Heading</h1>
        <p>This is a paragraph.</p>
        <p>This is another paragraph.</p>
    </body>
</html>
```



This is a Heading

This is a paragraph.

This is another paragraph.

Example

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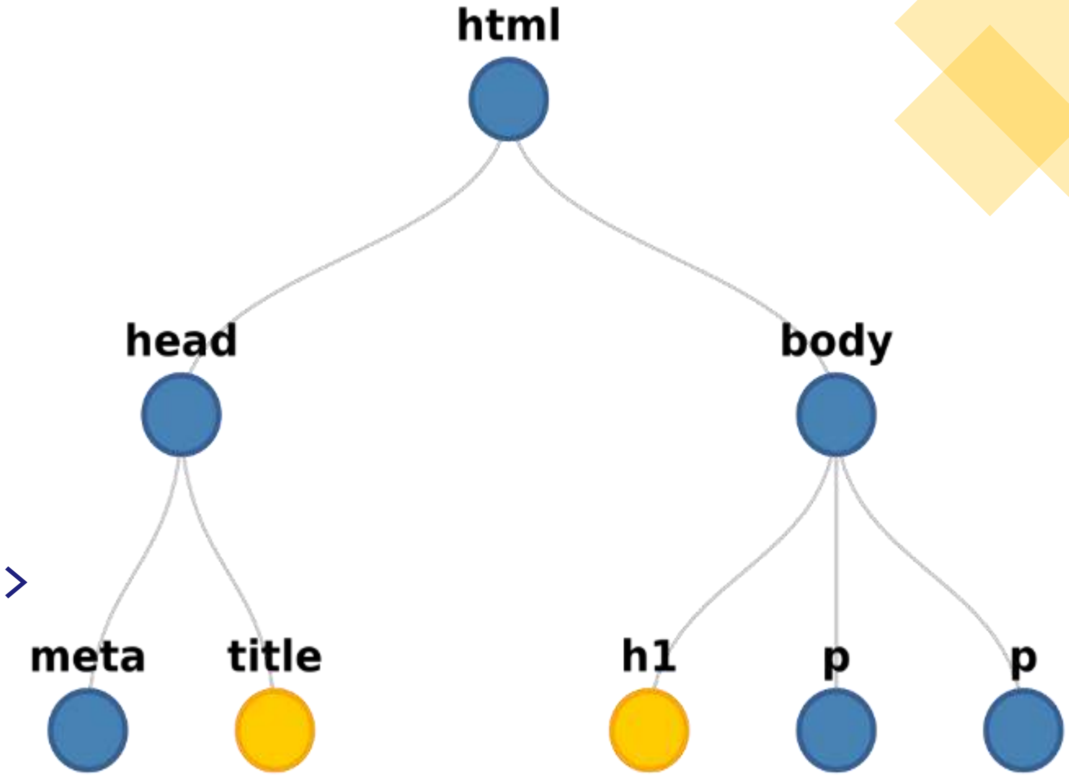

Codepen

Being picky about our HTML

CSS Selectors

CSS Selectors

- While HTML only indicates structure of a website’s content, CSS decorates and styles it through assignment of colors and animations to specific elements
- Elements must be selected through the use of ***ids***, ***classes***, and other criteria such as attributes

CSS Selectors Reference

w3schools.com

Examples

- **Duck Duck Go** -Select all search titles using CSS
- **Merriam-Webster** - Select all definitions using CSS

Where Python Comes In

Using Requests and Beautiful Soup

Requests
http for humans

BeautifulSoup

Links to Images Used

- https://qph.fs.quoracdn.net/main-qimg-7dffea772ea85c4918a186073201e4ea
- https://roboticsandautomationnews.com/wp-content/uploads/2020/04/web-scraping-2.png
- https://www.antevenio.com/usa/wp-content/uploads/2019/12/web-scraping-service.png
- https://cdn.searchenginejournal.com/wp-content/uploads/2019/09/7-reasons-why-an-html-sitemap-is-a-must-have-1520x800.png
- https://sitechecker.pro/wp-content/uploads/2017/12/robots.txt.png
- https://upload.wikimedia.org/wikipedia/commons/thumb/6/61/HTML5_logo_and_wordmark.svg/512px-HTML5_logo_and_wordmark.svg.png
- https://blog.codepen.io/wp-content/uploads/2012/06/Button-Fill-Black-Large.png
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