Web Scraping

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Stay in touch!

2 Methods

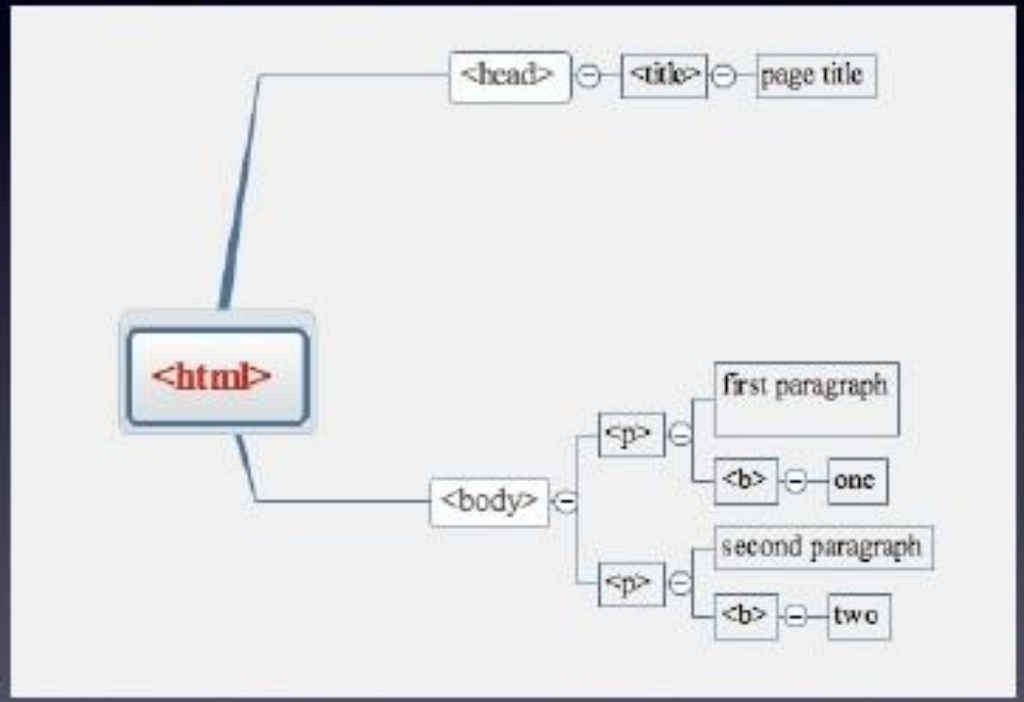
- Beautiful Soup
  - Used to pull data out of HTML and XML
  - Can get data from java or dynamically loaded pages
  - Easy to being with and short learning curve
  - Requires requests, urlib2, lxml
- Scrapy
  - Fast high-level web crawling and web scraping framework
  - It is used to crawl websites and extract structured data from their pages
  - Limitations: data from java script or loading dynamically
    - Overcome by using splash, selenium
  - Steep Learning curve
  - Self Sufficient, does not require other packgaes

Differences

Framework	BeautifulSoup	Scrapy
Learning Curve	Very easy to learn, beginner-friendly	Learning curve of `Scrapy` is much steeper, you need to read some Scrapy Tutorial or Scrapy Doc to get started, and work hard to become an Scrapy expert.
Ecosystem	Not many related projects or plugins	Many related projects, plugins on open source websites such as Github, and many discussions on StackOverflow can help you fix the potential issue.
Extensibility	Not very easy to extend the project	You can easily develop custom middleware or pipeline to add custom function, easy to maintain.
Performance	You need import `multiprocessing` to make it run quicker	Very efficient, web pages can be crawled in a short time, on the other hand, in many cases you need to set download_delay to avoid getting spider banned.

What is Parsing?

```
<html>
 <head>
  <title>
   page title
  </title>
 </head>
 <body>
  <p id="firstpara" align="center">
   first paragraph
   <b>
    one
   </b>
  </p>
  <p id="secondpara" align="blah">
   second paragraph
   <b>
    two
   </b>
  </p>
 </body>
</html>
```



BeautifulSoup

- Some Start up codes

```
8 from bs4 import BeautifulSoup
9 import requests
10
11 with open('samplesite.html') as html_file:
12     soup = BeautifulSoup(html_file, 'lxml')
13
```

- Extract all to a database

```
40 for article in soup.find_all('div', class_='article'):
41     headline = article.h2.a.text
42     print(headline)
43     summary = article.p.text
44     print(summary)
```

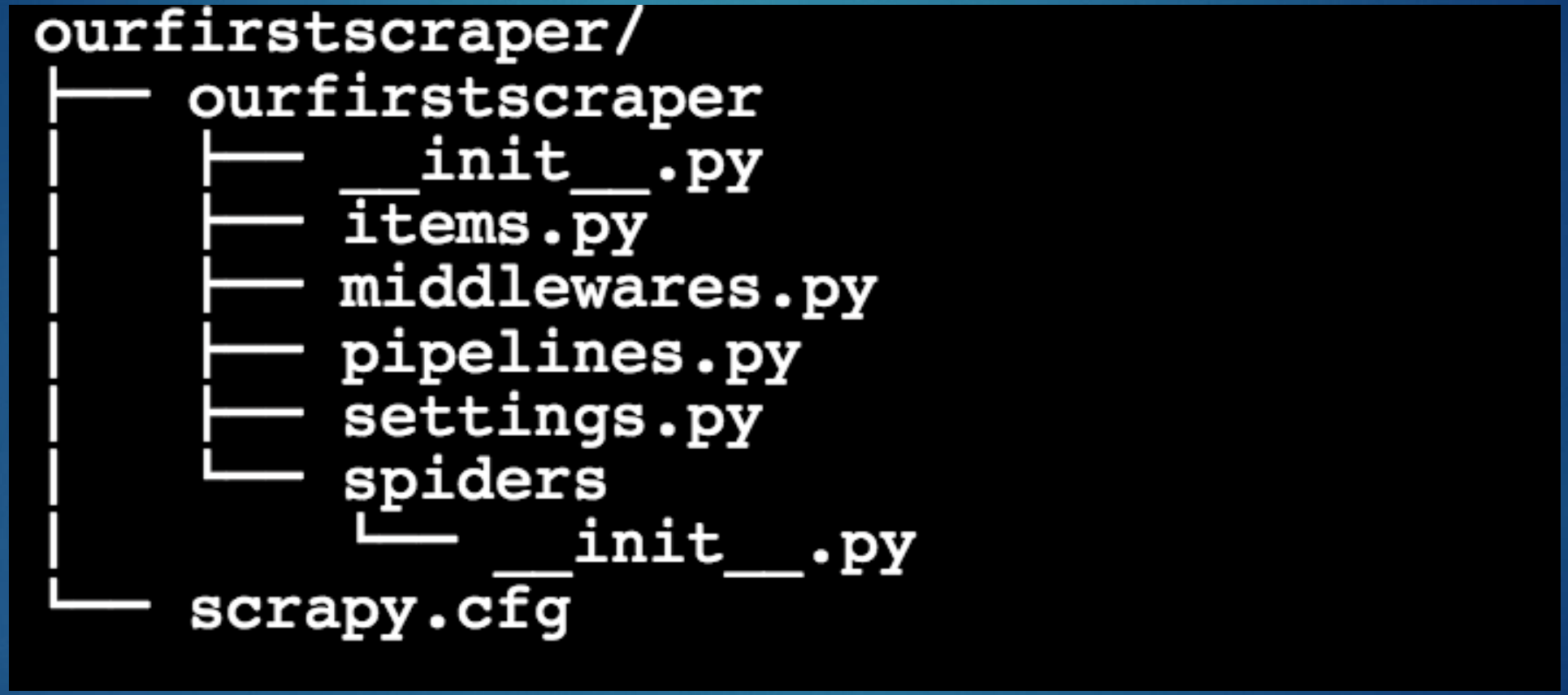
Scrapy – Exploring Shell

- To experiment
  - scrapy shell
- Fetch content of site
  - fetch("http://quotes.toscrape.com/")
- Check response
  - view(response), print(response.text)
- Extraction using css method(other is xpath)
  - repsonse.css(".title::text").extract()
- Exit Shell
  - exit()

Scrapy – Scraping Codes

- Start Project
  - scrapy startproject quotes
- Create Spider
  - scrapy genspider quoteBot http://quotes.toscrape.com/
- Run Spider
  - scrapy crawl quoteBot
- Run Spider with export commany
  - scrapy crawl quoteBot –o exp2.json
  - scrapy crawl quoteBot –o exp2.csv

Scrapy – Scraping Codes



Example

- BeautifulSoup
  - Basic: webscrape_bs4.py
  - CSV Extract: bs4example.py
- Scrapy
  - Shell demo
  - extractQuotes.py
  - extractQuoteswTags.py