Scraping Images ¶

Introduction

You've definitely started to hone your skills at scraping now! With that, let's look at another data format you're apt to want to pull from the web: images! In this lesson, you'll see how to save images from the web as well as display them in a Pandas DataFrame for easy perusal!

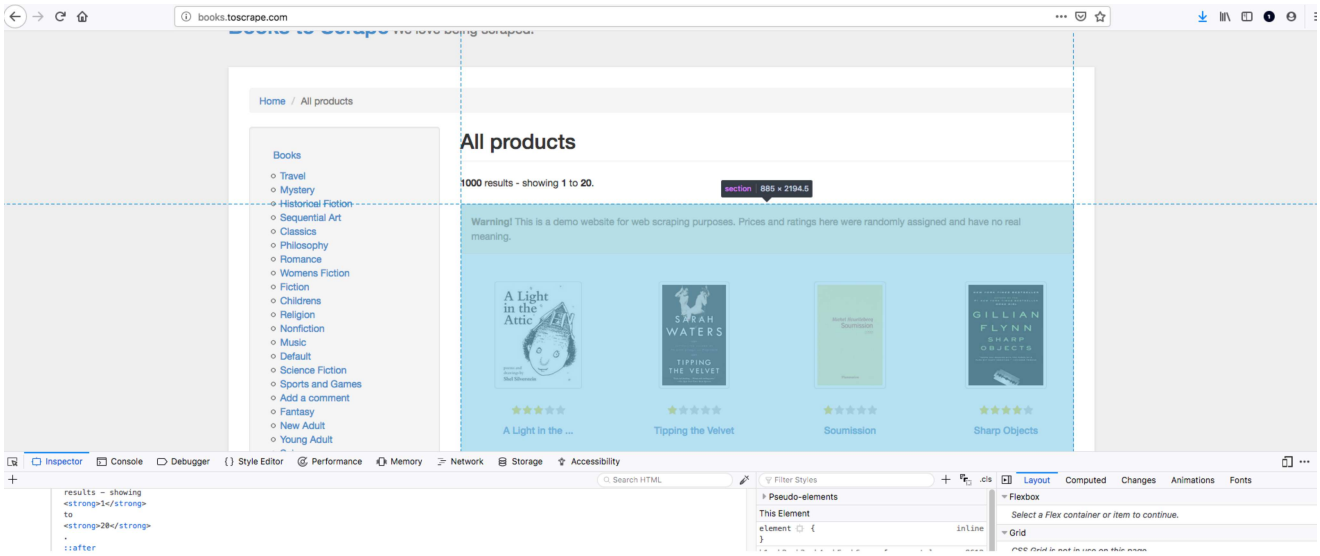
Objectives

You will be able to:

- Select specific elements from HTML using Beautiful Soup
- Identify and scrape images from a web page

Grabbing an HTML Page

Start with the same page that you've been working with: books.toscrape.com.



In [1]:
```
from bs4 import BeautifulSoup
import requests
```

In [2]:
```
html_page = requests.get('http://books.toscrape.com/') # Make a get request to retrieve the page
soup = BeautifulSoup(html_page.content, 'html.parser') # Pass the page contents to beautiful soup for parsing
warning = soup.find('div', class_="alert alert-warning")
book_container = warning.nextSibling.nextSibling
```

Finding Images

First, simply retrieve a list of images by searching for `img` tags with beautiful soup:

In [3]:
```
images = book_container.findAll('img')
ex_img = images[0] # Preview an entry
ex_img
```

Out[3]:
```
<img alt="A Light in the Attic" class="thumbnail" src="media/cache/2c/da/2cdad67c44b002e7ead0cc35693c0e8b.jpg"/>
```

In [4]:
```
# Use tab complete to preview what types of methods are available for the entry
# ex_img.
```

In [5]:
```
# While there's plenty of other methods to explore, simply select the url for the image for now.
ex_img.attrs['src']
```

Out[5]:
```
'media/cache/2c/da/2cdad67c44b002e7ead0cc35693c0e8b.jpg'
```

Saving Images

Great! Now that you have a URL (well, a URL extension to be more precise) you can download the image locally!

In [6]:
```
import shutil
```

In [7]:
```
url_base = "http://books.toscrape.com/"
url_ext = ex_img.attrs['src']
full_url = url_base + url_ext
r = requests.get(full_url, stream=True)
if r.status_code == 200:
    with open("images/book1.jpg", 'wb') as f:
        r.raw.decode_content = True
        shutil.copyfileobj(r.raw, f)
```

Showing Images in the File Directory

You can also run a simple bash command in a standalone cell to preview that the image is indeed there:

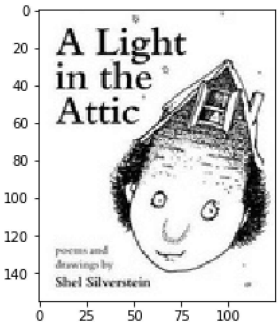
In [8]:
```
ls images/
```

```
book-section.png  book14.jpg  book2.jpg  book7.jpg
book1.jpg         book15.jpg  book20.jpg book8.jpg
book10.jpg        book16.jpg  book3.jpg  book9.jpg
book11.jpg        book17.jpg  book4.jpg
book12.jpg        book18.jpg  book5.jpg
book13.jpg        book19.jpg  book6.jpg
```

Previewing an Individual Image

In [9]:
```
import matplotlib.pyplot as plt
import matplotlib.image as mpimg
```

In [10]:
```
img = mpimg.imread('images/book1.jpg')
imgplot = plt.imshow(img)
plt.show()
```



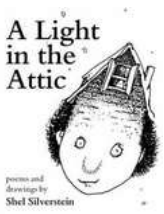
Displaying Images in Pandas DataFrames

You can even display images within a pandas DataFrame by using a little HTML yourself!

In [11]:
```
import pandas as pd
from IPython.display import Image, HTML
```

In [12]:
```
row1 = [ex_img.attrs['alt'], '<img src="images/book1.jpg"/>']
df = pd.DataFrame(row1).transpose()
df.columns = ['title', 'cover']
HTML(df.to_html(escape=False))
```

Out[12]:

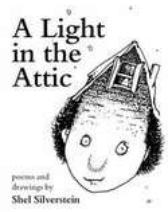
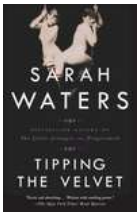
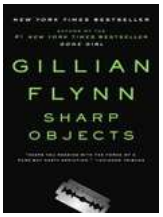
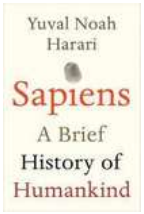
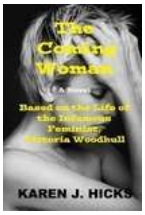
	title	cover
0	A Light in the Attic	

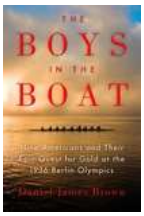
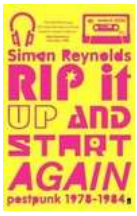
All Together Now

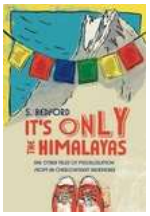
In [13]:
```
data = []
for n, img in enumerate(images):
    url_base = "http://books.toscrape.com/"
    url_ext = img.attrs['src']
    full_url = url_base + url_ext
    r = requests.get(full_url, stream=True)
    path = "images/book{}.jpg".format(n+1)
    title = img.attrs['alt']
    if r.status_code == 200:
        with open(path, 'wb') as f:
            r.raw.decode_content = True
            shutil.copyfileobj(r.raw, f)
        row = [title, '<img src="{}"/>'.format(path)]
        data.append(row)
df = pd.DataFrame(data)
print('Number of rows: ', len(df))
df.columns = ['title', 'cover']
HTML(df.to_html(escape=False))
```

```
Number of rows:  20
```

Out[13]:

	title	cover
0	A Light in the Attic	
1	Tipping the Velvet	
2	Soumission	
3	Sharp Objects	
4	Sapiens: A Brief History of Humankind	
5	The Requiem Red	
6	The Dirty Little Secrets of Getting Your Dream Job	
7	The Coming Woman: A Novel Based on the Life of the Infamous Feminist, Victoria Woodhull	

	title	cover
8	The Boys in the Boat: Nine Americans and Their Epic Quest for Gold at the 1936 Berlin Olympics	
9	The Black Maria	
10	Starving Hearts (Triangular Trade Trilogy, #1)	
11	Shakespeare's Sonnets	
12	Set Me Free	
13	Scott Pilgrim's Precious Little Life (Scott Pilgrim #1)	
14	Rip it Up and Start Again	
15	Our Band Could Be Your Life: Scenes from the American Indie Underground, 1981-1991	

	title	cover
16	Olio	
17	Mesaerion: The Best Science Fiction Stories 1800-1849	
18	Libertarianism for Beginners	
19	It's Only the Himalayas	

Summary

Voila! You now know how to use your knowledge of HTML and Beautiful Soup to scrape images. You really are turning into a scraping champion! Now, go get scraping!