

### Import Resources

```
import requests
from bs4 import BeautifulSoup
```

### Make a soup object out of a website

```
// 1. The HTTP request
webpage = requests.get(URL, 'html.parser');
// 2. Turn the website into a soup object
soup = BeautifulSoup(webpage.content);
```

"html.parser" is one option for parsers we could use. There are other options, like "lxml" and "html5lib" that have different advantages and disadvantages.

### Object Types

```
//1. Tags correspond to HTML tags
Example Code:
soup = BeautifulSoup(' <div id="example">An example p tag</div>');
print(soup.div);
--> <div id="example">An example div</div>
--> gets the first tag of that type on the page
print(soup.div.name)
print(soup.div.attrs)
--> div
--> {'id': 'example'}
//2. Navigable Strings: Piece of text inside of HTML Tags
print(soup.div.string)
--> An example div
```

### Navigating by Tags

```
Example Code:
<h1>World's Best Chocolate Chip Cookies</h1>
<div class="banner">
  <h1>Ingredients</h1>
</div>
<ul>
  <li>1 cup flour</li>
  <li>1/2 cup sugar</li>
  <li>2 tbsp oil</li>
  <li>1/2 tsp baking soda</li>
  <li>1/2 cup chocolate chips</li>
  <li>1/2 tsp vanilla</li>
  <li>2 tbsp milk</li>
```

### Navigating by Tags (cont)

```
> </ul>
//1. Get the children of a tag:
for child in soup.ul.children:
    print(child)
--> <li> 1 cup flour</li>
--> <li> 1/2 cup sugar</li>
...
//2. Get the parent of a tag:
for parent in soup.li.parents:
    print(parent)
```

### Find All

```
//1. find_all()
print(soup.find_all("h1"))
--> Outputs all <h1>...</h1> on the website
//1.1. find_all() with regex
import re
soup.find_all(re.compile("[ou]l"))
--> Outputs all <ul>...</ul> and <ol>...</ol>
soup.find_all(re.compile("h[1-9]"))
--> Outputs all headings
//1.2. find_all() with lists
soup.find_all(['h1', 'a', 'p'])
//1.3 find_all() with attributes
soup.find_all(attrs={'class': 'banner', 'id': 'jumbotron'});
//1.4 find_all() with functions
def has_banner_class_and_hello_world(tag):
    return tag.attrs.get("class") == "banner" and tag.string == "Hello world"
soup.find_all(has_banner_class_and_hello_world)
```

### CSS Selectors

```
//1. grab CSS classes with .select("class_name")
soup.select(".recipeLink")
//2. grab CSS IDs with .select("#id_name")
soup.select("#selected")
//3. using a loop
for link in soup.select(".recipeLink a"):
    webpage = requests.get(link)
    new_soup = BeautifulSoup(webpage)
```

