Web scraping with Python

```python
import requests
```

```python
import bs4
```

```python
URL = 'https://web.archive.org/web/20031202214318/http://www.tdcj.state.tx.us:80/stat/finalmeals.htm'
```

```python
req = requests.get(URL)
```

```python
req.status_code
```

```
200
```

```python
req.text
```

```
'<html dir="LTR">\n<head><script type="text/javascript" src="//web-static.archive.org/_static/js/bundle-playback.js?v=6otLFMce" charset="utf-8"></script>\n<script type="text/j
avascript" src="//web-static.archive.org/_static/js/wombat.js?v=txqj7nKC" charset="utf-8"></script>\n<script>window.RufflePlayer=window.RufflePlayer||{};window.RufflePlayer.co
nfig={"autoplay":"on","unmuteOverlay":"hidden"};</script>\n<script type="text/javascript" src="//web-static.archive.org/_static/js/ruffle.js"></script>\n<script type="text/jav
ascript">\n  __wm.init("https://web.archive.org/web");\n  __wm.wombat("http://www.tdcj.state.tx.us:80/stat/finalmeals.htm","20031202214318","https://web.archive.org/","we
b","//web-static.archive.org/_static/",\n\t    "1070401398");\n</script>\n<link rel="stylesheet" type="text/css" href="//web-static.archive.org/_static/css/banner-styles.cs
s?v=S1zqJCYt" />\n<link rel="stylesheet" type="text/css" href="//web-static.archive.org/_static/css/iconochive.css?v=qtvMKcIJ" />\n<…'
```

```python
soup = bs4.BeautifulSoup(req.text, 'html.parser')
```

```python
soup
```

```
<td align="LEFT" dir="LTR" width="77"><font face="Arial" size="2">Brooks, Jr.</font></td>
<td align="LEFT" dir="LTR" width="68"><font face="Arial" size="2">Charlie</font></td>
<td align="LEFT" dir="LTR" width="58"><font face="Arial" size="2">592</font></td>
<td dir="LTR" width="76"><font face="Arial" size="2">12/07/1982</font></td>
<td align="LEFT" dir="LTR" width="285"><font face="Arial" size="2">T-bone steak, french fries, catsup, Worcestershire sauce, rolls, peach cobbler, and ice tea</font></td>
</tr>
</thead></table>
<p><font face="Arial" size="2">Last Updated:
<!--webbot bot="Timestamp"
S-Type="EDITED" S-Format="%B %d, %Y" startspan -->September 12, 2003<!--webbot bot="Timestamp" i-checksum="37961" endspan -->
</font></p>
</body>
</html><!--
        FILE ARCHIVED ON 21:43:18 Dec 02, 2003 AND RETRIEVED FROM THE
        INTERNET ARCHIVE ON 03:08:50 Nov 10, 2023.
        JAVASCRIPT APPENDED BY WAYBACK MACHINE, COPYRIGHT INTERNET ARCHIVE.

        ALL OTHER CONTENT MAY ALSO BE PROTECTED BY COPYRIGHT (17 U.S.C.
        SECTION 108(a)(3)).
-->
<!--
playback timings (ms):
  captures_list: 287.834
  exclusion.robots: 0.101
  exclusion.robots.policy: 0.093
  cdx.remote: 0.051
  esindex: 0.009
  LoadShardBlock: 253.642 (3)
  PetaboxLoader3.datanode: 86.519 (4)
  load_resource: 103.45
  PetaboxLoader3.resolve: 66.248
-->
```

```python
# the `str` type means a string, or text
type(req.text)
```

```
    str
```

```python
# the `bs4.BeautifulSoup` type means we successfully created the object
type(soup)
```

```
    bs4.BeautifulSoup
```

```python
table = soup.find_all('table')[-1]
```

```python
table
```

```html
<td align="LEFT" dir="LTR" width="68"><font face="Arial" size="2">Doyle</font></td>
<td align="LEFT" dir="LTR" width="58"><font face="Arial" size="2">518</font></td>
<td dir="LTR" width="76"><font face="Arial" size="2">01/16/1985</font></td>
<td align="LEFT" dir="LTR" width="285"><font face="Arial" size="2">T-bone steak, baked potato, butter, sweet green peas, rolls, banana pudding, coffee</font></td>
</tr>
<tr>
<td align="RIGHT" dir="LTR" width="63"><font face="Arial" size="2">4</font></td>
<td align="center" dir="LTR" width="65"><a href="https://web.archive.org/web/20031202214318/http://www.tdcj.state.tx.us/statistics/deathrow/executed/barefoot.jpg"><font face="Arial" size="2">Offender Information</font></a></td>
<td align="LEFT" dir="LTR" width="77"><font face="Arial" size="2">Barefoot</font></td>
<td align="LEFT" dir="LTR" width="68"><font face="Arial" size="2">Thomas</font></td>
<td align="LEFT" dir="LTR" width="58"><font face="Arial" size="2">621</font></td>
<td dir="LTR" width="76"><font face="Arial" size="2">10/30/1984</font></td>
<td align="LEFT" dir="LTR" width="285"><font face="Arial" size="2">Chef soup with crackers, chili with beans, steamed rice, seasoned pinto beans, corn, seasoned mustard greens, hot spiced beets, and iced tea</font></td>
</tr>
<tr>
<td align="RIGHT" dir="LTR" width="63"><font face="Arial" size="2">3</font></td>
<td align="center" dir="LTR" width="65"><a href="https://web.archive.org/web/20031202214318/http://www.tdcj.state.tx.us/statistics/deathrow/executed/obryan.jpg"><font face="Arial" size="2">Offender Information</font></a></td>
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<td align="LEFT" dir="LTR" width="77"><font face="Arial" size="2">Autry</font></td>
<td align="LEFT" dir="LTR" width="68"><font face="Arial" size="2">James</font></td>
<td align="LEFT" dir="LTR" width="58"><font face="Arial" size="2">670</font></td>
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<tr>
<td align="RIGHT" dir="LTR" width="63"><font face="Arial" size="2">1</font></td>
<td align="center" dir="LTR" width="65"><a href="https://web.archive.org/web/20031202214318/http://www.tdcj.state.tx.us/stat/brookscharlie.htm"><font face="Arial" size="2">Offender Information</font></a></td>
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</tr>
</thead></table>
```

```python
rows = table.find_all('tr')
```

```python
rows
```

```
    <td align="RIGHT" dir="LTR" width="63"><font face="Arial" size="2">5</font></td>
    <td align="center" dir="LTR" width="65"><a href="https://web.archive.org/web/20031202214318/http://www.tdcj.state.tx.us/statistics/deathrow/executed/skillern.jpg"><font
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    <td align="LEFT" dir="LTR" width="285"><font face="Arial" size="2">T-bone steak, baked potato, butter, sweet green peas, rolls, banana pudding, coffee</font></td>
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    </tr>]
```

```
len(rows)
```

```
311
```

```
for row in rows:
    print(row)
    print()
```

```
<td align="LEFT" dir="LTR" width="77"><font face="Arial" size="2">Morin</font></td>
<td align="LEFT" dir="LTR" width="68"><font face="Arial" size="2">Stephen</font></td>
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</tr>
```

```
for row in rows[1:]:
    print(row)
```

```
print(row)
print()
```

```
    <td align="LEFT" dir="LTR" width="77"><font face="Arial" size="2">Morin</font></td>
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  </tr>
```

```
for row in rows[1:]:
    cells = row.find_all('td')
    print(cells)
    print()
```

```
for row in rows[1:]:
    cells = row.find_all('td')
    instructor_type = cells[0]
    print(instructor_type)
    print()
```

```
<td align="RIGHT" dir="LTR" width="63"><font face="Arial" size="2">3</font></td>

<td align="RIGHT" dir="LTR" width="63"><font face="Arial" size="2">2</font></td>

<td align="RIGHT" dir="LTR" width="63"><font face="Arial" size="2">1</font></td>
```

This is returning the entire `Tag` object -- we just want the contents inside it. You can access the `.text` attribute of the tag to get the text inside:

```
for row in rows[1:]:
    cells = row.find_all('td')
    instructor_type = cells[0].text
    print(instructor_type)
    print()
```

```
7
6
5
4
3
2
1
```

```python
for row in rows[1:]:
    cells = row.find_all('td')
    instructor_type = cells[0].text.strip()
    name = cells[1].text.strip()
    address = cells[2].text.strip()
    print(instructor_type, name, address)
    print()
```

```
10 Offender Information Rumbaugh

 9 Offender Information Porter

 8 Offender Information Milton

 7 Offender Information De La Rosa

 6 Offender Information Morin

 5 Offender Information Skillern

 4 Offender Information Barefoot

 3 Offender Information O'Bryan

 2 Offender Information Autry

 1 Offender Information Brooks, Jr.
```

```python
for row in rows[1:]:
    cells = row.find_all('td')
    instructor_type = cells[0].text.strip()
    name = cells[1].text.strip()
    address = cells[2].text.strip()
    city = cells[3].text.strip()
    state = cells[4].text.strip()
    # city

    # state

    # zipcode

    # phone number

    # effective date

    # expiration date

    # region 1

    # region 2

    # region 3

    # region 4

    # region 5

    print(instructor_type, name, address)
    print()
```

```
27 Offender Information Streetman

26 Offender Information Starvaggi

25 Offender Information Thompson

24  Johnson

23 Offender Information Williams

22 Offender Information Moreno

21  Hernandez

20  Andrade

19 Offender Information Evans

18  Wicker

17 Offender Information Smith

16 Offender Information Woolls

15  Brock

14  Esquivel

13 Offender Information Pinkerton

12 Offender Information Barney

11 Offender Information Bass

10 Offender Information Rumbaugh

9 Offender Information Porter

8 Offender Information Milton

7 Offender Information De La Rosa

6 Offender Information Morin

5 Offender Information Skillern

4 Offender Information Barefoot

3 Offender Information O'Bryan

2 Offender Information Autry

1 Offender Information Brooks, Jr.
```

```
import csv
```

Now define a list of headers to match the data (each column header will be a string) -- run this cell:

```python
HEADERS = [
    'instructor_type',
    'instructor_name',
    'address',
    'city',
    'state',
    'zipcode',
    'phone_number',
    'effective_date',
    'expiration_date',
    'region_1',
    'region_2',
    'region_3',
    'region_4',
    'region_5'
]


# create a file called 'tx-burn-instructors.csv' in write ('w') mode
# specify that newlines are terminated by an empty string (this deals with a PC-specific problem)
# and use the `as` keyword to name the open file handler (the variable name `outfile` is arbitrary)
with open('tx-burn-instructors.csv', 'w', newline='') as outfile:
    # go to the csv module we imported and make a new .writer object attached to the open file
    # and save it to a variable
    writer = csv.writer(outfile)

    # write out the list of headers
    writer.writerow(HEADERS)

    # paste in the for loop you wrote earlier here -- watch the indentation!
    # it should be at this indentation level =>
    for row in rows[1:]:
        cells = row.find_all('td')
      #  for row in rows[1:]:
#cells = row.find_all('td')
        instructor_type = cells[0].text.strip()
        name = cells[1].text.strip()
        address = cells[2].text.strip()
        city = cells[3].text.strip()
        state = cells[4].text.strip()
        print(instructor_type, name, address,city,state)
        print()
#     etc. ...
# but at the end, instead of printing your list, create a list and write it to file
        data_out = [instructor_type, name, address,city,state]
        writer.writerow(data_out)
```

```
24  Johnson Elliot 06/24/1987

23 Offender Information Williams Anthony 05/28/1987

22 Offender Information Moreno Eliseo 03/04/1987

21  Hernandez Ramon 01/30/1987

20  Andrade Richard 12/18/1986

19 Offender Information Evans Michael 12/04/1986

18  Wicker Chester 08/26/1986

17 Offender Information Smith Larry 08/22/1986

16 Offender Information Woolls Randy 08/20/1986

15  Brock Kenneth 06/19/1986

14  Esquivel Rudy 06/09/1986

13 Offender Information Pinkerton Jay 05/15/1986

12 Offender Information Barney Jeffery 04/16/1986

11 Offender Information Bass Charles 03/12/1986

10 Offender Information Rumbaugh Charles 09/11/1985

9 Offender Information Porter Henry 07/09/1985

8 Offender Information Milton Charles 06/25/1985

7 Offender Information De La Rosa Jesse 05/15/1985

6 Offender Information Morin Stephen 03/13/1985

5 Offender Information Skillern Doyle 01/16/1985

4 Offender Information Barefoot Thomas 10/30/1984

3 Offender Information O'Bryan Ronald 03/31/1984

2 Offender Information Autry James 03/14/1984

1 Offender Information Brooks, Jr. Charlie 12/07/1982
```

```
from google.colab import files

files.download('tx-burn-instructors.csv')
```