

Christian Campbell - Milestone 3

```
In [1]: ▶ import requests
import re
import ssl
from bs4 import BeautifulSoup
import urllib.request, urllib.parse
from urllib.error import HTTPError, URLError
import socket
import pandas as pd
import numpy as np
```

```
In [2]: ▶ crime_rate = "https://en.wikipedia.org/wiki/List_of_U.S._states_and_territories_by_violent_crime_rate"
response = requests.get(crime_rate)
```

```
In [3]: ▶ def status_check(r):
        if r.status_code==200:
            print("success!")
            return 1
        else:
            print("Failed!")
            return -1
```

```
In [4]: ▶ status_check(response)
```

success!

Out[4]: 1

```
In [5]: ► def encoding_check(r):  
         return (r.encoding)  
  
encoding_check(response)
```

Out[5]: 'UTF-8'

```
In [6]: ► def decode_content(r, encoding):  
         return (r.content.decode(encoding))  
  
contents = decode_content(response, encoding_check(response))  
soup = BeautifulSoup(contents, "html.parser")
```

```
In [7]: ► crime_rate = soup.find("table", {"class": "wikitable"})  
crime_rate
```

```
Out[7]: <table class="wikitable sortable sticky-header static-row-numbers sort-under collleft" style="text-align:right">
<tbody><tr>
<th>Location</th>
<th>Violent <br/> crime</th>
<th>Homicide</th>
<th>Rape</th>
<th>Robbery</th>
<th><abbr title="Aggravated assault">Ag. <br/> Assault</abbr>
</th></tr>
<tr class="static-row-numbers-norank">
<td><span class="flagicon" style="padding-left:25px;"> </span><b>United States</b></td>
<td>380.7</td>
<td>6.3</td>
<td>40.0</td>
<td>66.1</td>
<td>268.2
</td></tr>
<tr class="static-row-numbers-norank">
<td style="text-align:left"><span class="flagicon" style="display:inline-block;width:25px;text-align:left"><span class="mw-image-border" typeof="mw:File"><span></span></span> <a href="/wiki/Crime_in_Washington,_D.C." title="Crime in Washington, D.C.">District of Columbia</a></td>
<td>812.3</td>
<td>29.3</td>
<td>41.5</td>
<td>357.5</td>
<td>383.9
</td></tr>
<tr>
<td style="text-align:left"><span class="flagicon" style="display:inline-block;width:25px;text-align:left"><span class="mw-image-border" typeof="mw:File"><span></span></span></span> <a href="/wiki/Crime_in_New_Mexico" title="Crime in New Mexico">New Mexico</a></td>
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<td>780.5</td>
<td>12.0</td>
<td>54.6</td>
<td>110.6</td>
<td>603.3
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<td>758.9</td>
<td>9.5</td>
<td>134.0</td>
<td>75.1</td>
<td>540.2
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<td>645.3</td>
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<td>519.4
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<td>499.5</td>
<td>5.7</td>
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></span></span></span> <a href="/wiki/Crime_in_Colorado" title="Crime in Colorado">Colorado</a></td>
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="Crime in South Carolina">South Carolina</a></td>
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<td>10.1</td>
<td>48.9</td>
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<td>374.2
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ft"><span class="mw-image-border" typeof="mw:File"><span></s

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pan></span></span> <a href="/wiki/Crime_in_Michigan" title="Crime in Michigan">Michigan</a></td>
<td>461.0</td>
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<td>64.8</td>
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ef="/wiki/Crime_in_Iowa" title="Crime in Iowa">Iowa</a></td>
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a/commons/thumb/e/ef/Flag_of_Hawaii.svg/23px-Flag_of_Hawaii.svg.png" srcset="//upload.wikimedia.org/wikip

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edia/commons/thumb/e/ef/Flag_of_Hawaii.svg/35px-Flag_of_Hawaii.svg.png 1.5x, //upload.wikimedia.org/wik
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<tr>
<td style="text-align:left"><span class="flagicon" style="display:inline-block;width:25px;text-align:left"><span class="mw-image-border" typeof="mw:File"><span></span>
</span></span> <a href="/wiki/Crime_in_Wyoming" title="Crime in Wyoming">Wyoming</a></td>
<td>201.9</td>
<td>2.6</td>
<td>62.8</td>
<td>7.9</td>
<td>128.7
</td></tr>
<tr>
<td style="text-align:left"><span class="flagicon" style="display:inline-block;width:25px;text-align:left"
ft"><span class="mw-image-border" typeof="mw:File"><span></span></span></span> <a href="/wiki/Crime_in_Rhode_Island" title="Crime in Rhode
Island">Rhode Island</a></td>
<td>172.3</td>
<td>1.5</td>
<td>38.0</td>
<td>24.6</td>
<td>108.3
</td></tr>
<tr>
<td style="text-align:left"><span class="flagicon" style="display:inline-block;width:25px;text-align:left"
ft"><span class="mw-image-border" typeof="mw:File"><span></span></span></span> <a href="/wiki/Crime_in_Connecticut" title="Crime in Connecticut">
Connecticut</a></td>
<td>150.0</td>
<td>3.8</td>
<td>18.1</td>
<td>44.9</td>
<td>83.3
</td></tr>
<tr>
<td style="text-align:left"><span class="flagicon" style="display:inline-block;width:25px;text-align:left"
ft"><span class="mw-image-border" typeof="mw:File"><span></span></span></span> <a href="/wiki/New_Hampshire" title="New Hampshire">New
Hampshire</a></td>
<td>125.6</td>
<td>1.8</td>
<td>39.6</td>
<td>16.1</td>
<td>68.1
</td></tr>
<tr>
<td style="text-align:left"><span class="flagicon" style="display:inline-block;width:25px;text-align:le
ft"><span class="mw-image-border" typeof="mw:File"><span></span></span></sp
an> <a href="/wiki/Maine" title="Maine">Maine</a></td>
<td>103.3</td>
<td>2.2</td>
<td>32.0</td>
<td>10.0</td>
<td>59.0
</td></tr></tbody></table>

```

```

In [8]: ► row_headers = []
for x in crime_rate.find_all("tr"):
    for y in x.find_all("th"):
        row_headers.append(y.text)
row_headers

```

```
Out[8]: ['Location', 'Violent crime', 'Homicide', 'Rape', 'Robbery', 'Ag. Assault\n']
```

```
In [9]: ► table_values = []  
        for x in crime_rate.find_all("tr")[1:]:  
            td_tags = x.find_all("td")  
            td_val = [y.text for y in td_tags]  
            table_values.append(td_val)  
        table_values
```

```

Out[9]: [['\xa0United States', '380.7', '6.3', '40.0', '66.1', '268.2\n'],
['\xa0District of Columbia', '812.3', '29.3', '41.5', '357.5', '383.9\n'],
['\xa0New Mexico', '780.5', '12.0', '54.6', '110.6', '603.3\n'],
['\xa0Alaska', '758.9', '9.5', '134.0', '75.1', '540.2\n'],
['\xa0Arkansas', '645.3', '10.2', '76.0', '39.7', '519.4\n'],
['\xa0Louisiana', '628.6', '16.1', '43.0', '67.3', '502.1\n'],
['\xa0Tennessee', '621.6', '8.6', '38.2', '67.1', '507.6\n'],
['\xa0California', '499.5', '5.7', '37.4', '123.5', '332.8\n'],
['\xa0Colorado', '492.5', '6.4', '63.4', '72.6', '350.1\n'],
['\xa0South Carolina', '491.3', '11.2', '38.2', '40.6', '401.3\n'],
['\xa0Missouri', '488.0', '10.1', '48.9', '54.8', '374.2\n'],
['\xa0Michigan', '461.0', '6.9', '64.8', '36.6', '352.7\n'],
['\xa0Nevada', '454.0', '6.8', '58.9', '86.1', '302.3\n'],
['\xa0Texas', '431.9', '6.7', '50.0', '70.5', '304.7\n'],
['\xa0Arizona', '431.5', '6.8', '44.1', '70.1', '310.5\n'],
['\xa0New York', '429.3', '4.0', '29.5', '112.0', '283.8\n'],
['\xa0Oklahoma', '419.7', '6.7', '57.5', '40.6', '314.8\n'],
['\xa0Montana', '417.9', '4.5', '54.4', '23.3', '335.7\n'],
['\xa0Kansas', '414.6', '4.6', '45.5', '29.2', '335.4\n'],
['\xa0Alabama', '409.1', '10.9', '29.6', '34.5', '334.1\n'],
['\xa0North Carolina', '405.1', '8.1', '30.5', '54.9', '311.6\n'],
['\xa0Maryland', '398.5', '8.5', '30.6', '114.2', '245.2\n'],
['\xa0Delaware', '383.5', '4.8', '22.0', '57.0', '299.8\n'],
['\xa0South Dakota', '377.4', '4.3', '55.8', '25.3', '292.0\n'],
['\xa0Washington', '375.6', '5.0', '39.2', '86.8', '244.7\n'],
['\xa0Georgia', '367.0', '8.2', '36.4', '43.6', '278.8\n'],
['\xa0Oregon', '342.4', '4.5', '40.6', '68.6', '228.7\n'],
['\xa0Massachusetts', '322.0', '2.1', '29.1', '37.7', '253.1\n'],
['\xa0Indiana', '306.2', '6.2', '32.8', '43.0', '224.2\n'],
['\xa0Wisconsin', '297.0', '5.3', '38.6', '39.4', '213.7\n'],
['\xa0Ohio', '293.6', '6.1', '48.4', '53.1', '185.9\n'],
['\xa0Illinois', '287.3', '7.8', '48.1', '84.7', '146.7\n'],
['\xa0Iowa', '286.5', '1.7', '42.5', '21.6', '220.7\n'],
['\xa0Nebraska', '282.8', '3.2', '55.3', '29.1', '195.2\n'],
['\xa0Minnesota', '280.6', '3.2', '40.7', '57.0', '179.7\n'],
['\xa0Pennsylvania', '279.9', '7.9', '29.5', '68.1', '174.5\n'],
['\xa0North Dakota', '279.6', '3.5', '56.7', '27.6', '191.8\n'],
['\xa0West Virginia', '277.9', '4.6', '44.4', '10.0', '218.9\n'],
['\xa0Hawaii', '259.6', '2.1', '37.9', '66.1', '153.5\n'],
['\xa0Florida', '258.9', '5.0', '30.2', '33.6', '190.1\n'],
['\xa0Mississippi', '245.0', '7.8', '33.7', '25.6', '178.0\n'],
['\xa0Utah', '241.8', '2.0', '59.5', '29.6', '150.7\n'],
['\xa0Idaho', '241.4', '2.7', '48.7', '8.2', '181.7\n'],

```

```
['\xa0Virginia', '234.0', '7.3', '30.2', '38.4', '158.1\n'],  
['\xa0Vermont', '221.9', '3.4', '36.8', '13.3', '168.5\n'],  
['\xa0Kentucky', '214.1', '6.8', '33.8', '38.1', '135.4\n'],  
['\xa0New Jersey', '202.9', '3.1', '16.8', '47.6', '135.4\n'],  
['\xa0Wyoming', '201.9', '2.6', '62.8', '7.9', '128.7\n'],  
['\xa0Rhode Island', '172.3', '1.5', '38.0', '24.6', '108.3\n'],  
['\xa0Connecticut', '150.0', '3.8', '18.1', '44.9', '83.3\n'],  
['\xa0New Hampshire', '125.6', '1.8', '39.6', '16.1', '68.1\n'],  
['\xa0Maine', '103.3', '2.2', '32.0', '10.0', '59.0\n']]
```



```
In [10]: ► og_crime_rate = pd.DataFrame(table_values, columns = row_headers)
og_crime_rate
```

Out[10]:

	Location	Violent crime	Homicide	Rape	Robbery	Ag. Assault
0	United States	380.7	6.3	40.0	66.1	268.2
1	District of Columbia	812.3	29.3	41.5	357.5	383.9
2	New Mexico	780.5	12.0	54.6	110.6	603.3
3	Alaska	758.9	9.5	134.0	75.1	540.2
4	Arkansas	645.3	10.2	76.0	39.7	519.4
5	Louisiana	628.6	16.1	43.0	67.3	502.1
6	Tennessee	621.6	8.6	38.2	67.1	507.6
7	California	499.5	5.7	37.4	123.5	332.8
8	Colorado	492.5	6.4	63.4	72.6	350.1
9	South Carolina	491.3	11.2	38.2	40.6	401.3
10	Missouri	488.0	10.1	48.9	54.8	374.2
11	Michigan	461.0	6.9	64.8	36.6	352.7
12	Nevada	454.0	6.8	58.9	86.1	302.3
13	Texas	431.9	6.7	50.0	70.5	304.7
14	Arizona	431.5	6.8	44.1	70.1	310.5
15	New York	429.3	4.0	29.5	112.0	283.8
16	Oklahoma	419.7	6.7	57.5	40.6	314.8
17	Montana	417.9	4.5	54.4	23.3	335.7
18	Kansas	414.6	4.6	45.5	29.2	335.4
19	Alabama	409.1	10.9	29.6	34.5	334.1
20	North Carolina	405.1	8.1	30.5	54.9	311.6
21	Maryland	398.5	8.5	30.6	114.2	245.2
22	Delaware	383.5	4.8	22.0	57.0	299.8
23	South Dakota	377.4	4.3	55.8	25.3	292.0
24	Washington	375.6	5.0	39.2	86.8	244.7
25	Georgia	367.0	8.2	36.4	43.6	278.8
26	Oregon	342.4	4.5	40.6	68.6	228.7

	Location	Violent crime	Homicide	Rape	Robbery	Ag. Assault
27	Massachusetts	322.0	2.1	29.1	37.7	253.1
28	Indiana	306.2	6.2	32.8	43.0	224.2
29	Wisconsin	297.0	5.3	38.6	39.4	213.7
30	Ohio	293.6	6.1	48.4	53.1	185.9
31	Illinois	287.3	7.8	48.1	84.7	146.7
32	Iowa	286.5	1.7	42.5	21.6	220.7
33	Nebraska	282.8	3.2	55.3	29.1	195.2
34	Minnesota	280.6	3.2	40.7	57.0	179.7
35	Pennsylvania	279.9	7.9	29.5	68.1	174.5
36	North Dakota	279.6	3.5	56.7	27.6	191.8
37	West Virginia	277.9	4.6	44.4	10.0	218.9
38	Hawaii	259.6	2.1	37.9	66.1	153.5
39	Florida	258.9	5.0	30.2	33.6	190.1
40	Mississippi	245.0	7.8	33.7	25.6	178.0
41	Utah	241.8	2.0	59.5	29.6	150.7
42	Idaho	241.4	2.7	48.7	8.2	181.7
43	Virginia	234.0	7.3	30.2	38.4	158.1
44	Vermont	221.9	3.4	36.8	13.3	168.5
45	Kentucky	214.1	6.8	33.8	38.1	135.4
46	New Jersey	202.9	3.1	16.8	47.6	135.4
47	Wyoming	201.9	2.6	62.8	7.9	128.7
48	Rhode Island	172.3	1.5	38.0	24.6	108.3
49	Connecticut	150.0	3.8	18.1	44.9	83.3
50	New Hampshire	125.6	1.8	39.6	16.1	68.1
51	Maine	103.3	2.2	32.0	10.0	59.0

1.

In [11]:  *## In this first step, I'll be removing the "\n" text from all the values in the far right column.*

```
In [12]: ▶ step1_crime_rate = og_crime_rate.replace('\n', '', regex=True)  
step1_crime_rate
```

Out[12]:

	Location	Violent crime	Homicide	Rape	Robbery	Ag. Assault
0	United States	380.7	6.3	40.0	66.1	268.2
1	District of Columbia	812.3	29.3	41.5	357.5	383.9
2	New Mexico	780.5	12.0	54.6	110.6	603.3
3	Alaska	758.9	9.5	134.0	75.1	540.2
4	Arkansas	645.3	10.2	76.0	39.7	519.4
5	Louisiana	628.6	16.1	43.0	67.3	502.1
6	Tennessee	621.6	8.6	38.2	67.1	507.6
7	California	499.5	5.7	37.4	123.5	332.8
8	Colorado	492.5	6.4	63.4	72.6	350.1
9	South Carolina	491.3	11.2	38.2	40.6	401.3
10	Missouri	488.0	10.1	48.9	54.8	374.2
11	Michigan	461.0	6.9	64.8	36.6	352.7
12	Nevada	454.0	6.8	58.9	86.1	302.3
13	Texas	431.9	6.7	50.0	70.5	304.7
14	Arizona	431.5	6.8	44.1	70.1	310.5
15	New York	429.3	4.0	29.5	112.0	283.8
16	Oklahoma	419.7	6.7	57.5	40.6	314.8
17	Montana	417.9	4.5	54.4	23.3	335.7
18	Kansas	414.6	4.6	45.5	29.2	335.4
19	Alabama	409.1	10.9	29.6	34.5	334.1
20	North Carolina	405.1	8.1	30.5	54.9	311.6
21	Maryland	398.5	8.5	30.6	114.2	245.2
22	Delaware	383.5	4.8	22.0	57.0	299.8
23	South Dakota	377.4	4.3	55.8	25.3	292.0
24	Washington	375.6	5.0	39.2	86.8	244.7
25	Georgia	367.0	8.2	36.4	43.6	278.8
26	Oregon	342.4	4.5	40.6	68.6	228.7

	Location	Violent crime	Homicide	Rape	Robbery	Ag. Assault
27	Massachusetts	322.0	2.1	29.1	37.7	253.1
28	Indiana	306.2	6.2	32.8	43.0	224.2
29	Wisconsin	297.0	5.3	38.6	39.4	213.7
30	Ohio	293.6	6.1	48.4	53.1	185.9
31	Illinois	287.3	7.8	48.1	84.7	146.7
32	Iowa	286.5	1.7	42.5	21.6	220.7
33	Nebraska	282.8	3.2	55.3	29.1	195.2
34	Minnesota	280.6	3.2	40.7	57.0	179.7
35	Pennsylvania	279.9	7.9	29.5	68.1	174.5
36	North Dakota	279.6	3.5	56.7	27.6	191.8
37	West Virginia	277.9	4.6	44.4	10.0	218.9
38	Hawaii	259.6	2.1	37.9	66.1	153.5
39	Florida	258.9	5.0	30.2	33.6	190.1
40	Mississippi	245.0	7.8	33.7	25.6	178.0
41	Utah	241.8	2.0	59.5	29.6	150.7
42	Idaho	241.4	2.7	48.7	8.2	181.7
43	Virginia	234.0	7.3	30.2	38.4	158.1
44	Vermont	221.9	3.4	36.8	13.3	168.5
45	Kentucky	214.1	6.8	33.8	38.1	135.4
46	New Jersey	202.9	3.1	16.8	47.6	135.4
47	Wyoming	201.9	2.6	62.8	7.9	128.7
48	Rhode Island	172.3	1.5	38.0	24.6	108.3
49	Connecticut	150.0	3.8	18.1	44.9	83.3
50	New Hampshire	125.6	1.8	39.6	16.1	68.1
51	Maine	103.3	2.2	32.0	10.0	59.0

2.

In [13]:  *# In this second step I'll be removing the \n value from the Ag.Assault header to make it more readable.*


```
In [14]: ▶ step1_crime_rate.rename({"Ag.  Assault\n": "Aggrevated Assault"}, axis=1, inplace=True)
step2_crime_rate = step1_crime_rate.copy()
step2_crime_rate
```

Out[14]:

	Location	Violent crime	Homicide	Rape	Robbery	Aggravated Assault
0	United States	380.7	6.3	40.0	66.1	268.2
1	District of Columbia	812.3	29.3	41.5	357.5	383.9
2	New Mexico	780.5	12.0	54.6	110.6	603.3
3	Alaska	758.9	9.5	134.0	75.1	540.2
4	Arkansas	645.3	10.2	76.0	39.7	519.4
5	Louisiana	628.6	16.1	43.0	67.3	502.1
6	Tennessee	621.6	8.6	38.2	67.1	507.6
7	California	499.5	5.7	37.4	123.5	332.8
8	Colorado	492.5	6.4	63.4	72.6	350.1
9	South Carolina	491.3	11.2	38.2	40.6	401.3
10	Missouri	488.0	10.1	48.9	54.8	374.2
11	Michigan	461.0	6.9	64.8	36.6	352.7
12	Nevada	454.0	6.8	58.9	86.1	302.3
13	Texas	431.9	6.7	50.0	70.5	304.7
14	Arizona	431.5	6.8	44.1	70.1	310.5
15	New York	429.3	4.0	29.5	112.0	283.8
16	Oklahoma	419.7	6.7	57.5	40.6	314.8
17	Montana	417.9	4.5	54.4	23.3	335.7
18	Kansas	414.6	4.6	45.5	29.2	335.4
19	Alabama	409.1	10.9	29.6	34.5	334.1
20	North Carolina	405.1	8.1	30.5	54.9	311.6
21	Maryland	398.5	8.5	30.6	114.2	245.2
22	Delaware	383.5	4.8	22.0	57.0	299.8
23	South Dakota	377.4	4.3	55.8	25.3	292.0
24	Washington	375.6	5.0	39.2	86.8	244.7
25	Georgia	367.0	8.2	36.4	43.6	278.8
26	Oregon	342.4	4.5	40.6	68.6	228.7

	Location	Violent crime	Homicide	Rape	Robbery	Aggravated Assault
27	Massachusetts	322.0	2.1	29.1	37.7	253.1
28	Indiana	306.2	6.2	32.8	43.0	224.2
29	Wisconsin	297.0	5.3	38.6	39.4	213.7
30	Ohio	293.6	6.1	48.4	53.1	185.9
31	Illinois	287.3	7.8	48.1	84.7	146.7
32	Iowa	286.5	1.7	42.5	21.6	220.7
33	Nebraska	282.8	3.2	55.3	29.1	195.2
34	Minnesota	280.6	3.2	40.7	57.0	179.7
35	Pennsylvania	279.9	7.9	29.5	68.1	174.5
36	North Dakota	279.6	3.5	56.7	27.6	191.8
37	West Virginia	277.9	4.6	44.4	10.0	218.9
38	Hawaii	259.6	2.1	37.9	66.1	153.5
39	Florida	258.9	5.0	30.2	33.6	190.1
40	Mississippi	245.0	7.8	33.7	25.6	178.0
41	Utah	241.8	2.0	59.5	29.6	150.7
42	Idaho	241.4	2.7	48.7	8.2	181.7
43	Virginia	234.0	7.3	30.2	38.4	158.1
44	Vermont	221.9	3.4	36.8	13.3	168.5
45	Kentucky	214.1	6.8	33.8	38.1	135.4
46	New Jersey	202.9	3.1	16.8	47.6	135.4
47	Wyoming	201.9	2.6	62.8	7.9	128.7
48	Rhode Island	172.3	1.5	38.0	24.6	108.3
49	Connecticut	150.0	3.8	18.1	44.9	83.3
50	New Hampshire	125.6	1.8	39.6	16.1	68.1
51	Maine	103.3	2.2	32.0	10.0	59.0

3.

In [15]: ► *# In this third step, I'll be deleting the first row labelled United Stated. Since I've chosen to deal with states, I don't need that United States row.*

```
In [16]: ▶ step3_crime_rate = step2_crime_rate.drop(step2_crime_rate.index[0]).copy()  
step3_crime_rate
```

Out[16]:

	Location	Violent crime	Homicide	Rape	Robbery	Aggravated Assault
1	District of Columbia	812.3	29.3	41.5	357.5	383.9
2	New Mexico	780.5	12.0	54.6	110.6	603.3
3	Alaska	758.9	9.5	134.0	75.1	540.2
4	Arkansas	645.3	10.2	76.0	39.7	519.4
5	Louisiana	628.6	16.1	43.0	67.3	502.1
6	Tennessee	621.6	8.6	38.2	67.1	507.6
7	California	499.5	5.7	37.4	123.5	332.8
8	Colorado	492.5	6.4	63.4	72.6	350.1
9	South Carolina	491.3	11.2	38.2	40.6	401.3
10	Missouri	488.0	10.1	48.9	54.8	374.2
11	Michigan	461.0	6.9	64.8	36.6	352.7
12	Nevada	454.0	6.8	58.9	86.1	302.3
13	Texas	431.9	6.7	50.0	70.5	304.7
14	Arizona	431.5	6.8	44.1	70.1	310.5
15	New York	429.3	4.0	29.5	112.0	283.8
16	Oklahoma	419.7	6.7	57.5	40.6	314.8
17	Montana	417.9	4.5	54.4	23.3	335.7
18	Kansas	414.6	4.6	45.5	29.2	335.4
19	Alabama	409.1	10.9	29.6	34.5	334.1
20	North Carolina	405.1	8.1	30.5	54.9	311.6
21	Maryland	398.5	8.5	30.6	114.2	245.2
22	Delaware	383.5	4.8	22.0	57.0	299.8
23	South Dakota	377.4	4.3	55.8	25.3	292.0
24	Washington	375.6	5.0	39.2	86.8	244.7
25	Georgia	367.0	8.2	36.4	43.6	278.8
26	Oregon	342.4	4.5	40.6	68.6	228.7
27	Massachusetts	322.0	2.1	29.1	37.7	253.1

	Location	Violent crime	Homicide	Rape	Robbery	Aggravated Assault
28	Indiana	306.2	6.2	32.8	43.0	224.2
29	Wisconsin	297.0	5.3	38.6	39.4	213.7
30	Ohio	293.6	6.1	48.4	53.1	185.9
31	Illinois	287.3	7.8	48.1	84.7	146.7
32	Iowa	286.5	1.7	42.5	21.6	220.7
33	Nebraska	282.8	3.2	55.3	29.1	195.2
34	Minnesota	280.6	3.2	40.7	57.0	179.7
35	Pennsylvania	279.9	7.9	29.5	68.1	174.5
36	North Dakota	279.6	3.5	56.7	27.6	191.8
37	West Virginia	277.9	4.6	44.4	10.0	218.9
38	Hawaii	259.6	2.1	37.9	66.1	153.5
39	Florida	258.9	5.0	30.2	33.6	190.1
40	Mississippi	245.0	7.8	33.7	25.6	178.0
41	Utah	241.8	2.0	59.5	29.6	150.7
42	Idaho	241.4	2.7	48.7	8.2	181.7
43	Virginia	234.0	7.3	30.2	38.4	158.1
44	Vermont	221.9	3.4	36.8	13.3	168.5
45	Kentucky	214.1	6.8	33.8	38.1	135.4
46	New Jersey	202.9	3.1	16.8	47.6	135.4
47	Wyoming	201.9	2.6	62.8	7.9	128.7
48	Rhode Island	172.3	1.5	38.0	24.6	108.3
49	Connecticut	150.0	3.8	18.1	44.9	83.3
50	New Hampshire	125.6	1.8	39.6	16.1	68.1
51	Maine	103.3	2.2	32.0	10.0	59.0

4.

In [17]:  *# In this fourth step I'll be sorting the Location column in ascending alphabetical order.*


```
In [18]: ▶ step4_crime_rate = step3_crime_rate.sort_values(by='Location').copy()  
step4_crime_rate
```

Out[18]:

	Location	Violent crime	Homicide	Rape	Robbery	Aggravated Assault
19	Alabama	409.1	10.9	29.6	34.5	334.1
3	Alaska	758.9	9.5	134.0	75.1	540.2
14	Arizona	431.5	6.8	44.1	70.1	310.5
4	Arkansas	645.3	10.2	76.0	39.7	519.4
7	California	499.5	5.7	37.4	123.5	332.8
8	Colorado	492.5	6.4	63.4	72.6	350.1
49	Connecticut	150.0	3.8	18.1	44.9	83.3
22	Delaware	383.5	4.8	22.0	57.0	299.8
1	District of Columbia	812.3	29.3	41.5	357.5	383.9
39	Florida	258.9	5.0	30.2	33.6	190.1
25	Georgia	367.0	8.2	36.4	43.6	278.8
38	Hawaii	259.6	2.1	37.9	66.1	153.5
42	Idaho	241.4	2.7	48.7	8.2	181.7
31	Illinois	287.3	7.8	48.1	84.7	146.7
28	Indiana	306.2	6.2	32.8	43.0	224.2
32	Iowa	286.5	1.7	42.5	21.6	220.7
18	Kansas	414.6	4.6	45.5	29.2	335.4
45	Kentucky	214.1	6.8	33.8	38.1	135.4
5	Louisiana	628.6	16.1	43.0	67.3	502.1
51	Maine	103.3	2.2	32.0	10.0	59.0
21	Maryland	398.5	8.5	30.6	114.2	245.2
27	Massachusetts	322.0	2.1	29.1	37.7	253.1
11	Michigan	461.0	6.9	64.8	36.6	352.7
34	Minnesota	280.6	3.2	40.7	57.0	179.7
40	Mississippi	245.0	7.8	33.7	25.6	178.0
10	Missouri	488.0	10.1	48.9	54.8	374.2
17	Montana	417.9	4.5	54.4	23.3	335.7

	Location	Violent crime	Homicide	Rape	Robbery	Aggravated Assault
33	Nebraska	282.8	3.2	55.3	29.1	195.2
12	Nevada	454.0	6.8	58.9	86.1	302.3
50	New Hampshire	125.6	1.8	39.6	16.1	68.1
46	New Jersey	202.9	3.1	16.8	47.6	135.4
2	New Mexico	780.5	12.0	54.6	110.6	603.3
15	New York	429.3	4.0	29.5	112.0	283.8
20	North Carolina	405.1	8.1	30.5	54.9	311.6
36	North Dakota	279.6	3.5	56.7	27.6	191.8
30	Ohio	293.6	6.1	48.4	53.1	185.9
16	Oklahoma	419.7	6.7	57.5	40.6	314.8
26	Oregon	342.4	4.5	40.6	68.6	228.7
35	Pennsylvania	279.9	7.9	29.5	68.1	174.5
48	Rhode Island	172.3	1.5	38.0	24.6	108.3
9	South Carolina	491.3	11.2	38.2	40.6	401.3
23	South Dakota	377.4	4.3	55.8	25.3	292.0
6	Tennessee	621.6	8.6	38.2	67.1	507.6
13	Texas	431.9	6.7	50.0	70.5	304.7
41	Utah	241.8	2.0	59.5	29.6	150.7
44	Vermont	221.9	3.4	36.8	13.3	168.5
43	Virginia	234.0	7.3	30.2	38.4	158.1
24	Washington	375.6	5.0	39.2	86.8	244.7
37	West Virginia	277.9	4.6	44.4	10.0	218.9
29	Wisconsin	297.0	5.3	38.6	39.4	213.7
47	Wyoming	201.9	2.6	62.8	7.9	128.7

5.

```
In [19]: ► # For the fifth step, I'm goin to add "rate" to each header. This will differentiate the columns in this  
# from the other column headers when I eventually mereg my tables in milestone 5.
```

```
In [20]: ▶ step4_crime_rate.rename({"Violent crime": "Violent crime rate", "Homicide": "Homicide rate", "Rape": "Rape rate"}, axis=1)  
final_crime_rate = step4_crime_rate.copy()  
final_crime_rate
```

Out[20]:

	Location	Violent crime rate	Homicide rate	Rape rate	Robbery rate	Aggravated Assault rate
19	Alabama	409.1	10.9	29.6	34.5	334.1
3	Alaska	758.9	9.5	134.0	75.1	540.2
14	Arizona	431.5	6.8	44.1	70.1	310.5
4	Arkansas	645.3	10.2	76.0	39.7	519.4
7	California	499.5	5.7	37.4	123.5	332.8
8	Colorado	492.5	6.4	63.4	72.6	350.1
49	Connecticut	150.0	3.8	18.1	44.9	83.3
22	Delaware	383.5	4.8	22.0	57.0	299.8
1	District of Columbia	812.3	29.3	41.5	357.5	383.9
39	Florida	258.9	5.0	30.2	33.6	190.1
25	Georgia	367.0	8.2	36.4	43.6	278.8
38	Hawaii	259.6	2.1	37.9	66.1	153.5
42	Idaho	241.4	2.7	48.7	8.2	181.7
31	Illinois	287.3	7.8	48.1	84.7	146.7
28	Indiana	306.2	6.2	32.8	43.0	224.2
32	Iowa	286.5	1.7	42.5	21.6	220.7
18	Kansas	414.6	4.6	45.5	29.2	335.4
45	Kentucky	214.1	6.8	33.8	38.1	135.4
5	Louisiana	628.6	16.1	43.0	67.3	502.1
51	Maine	103.3	2.2	32.0	10.0	59.0
21	Maryland	398.5	8.5	30.6	114.2	245.2
27	Massachusetts	322.0	2.1	29.1	37.7	253.1
11	Michigan	461.0	6.9	64.8	36.6	352.7
34	Minnesota	280.6	3.2	40.7	57.0	179.7
40	Mississippi	245.0	7.8	33.7	25.6	178.0
10	Missouri	488.0	10.1	48.9	54.8	374.2
17	Montana	417.9	4.5	54.4	23.3	335.7

	Location	Violent crime rate	Homicide rate	Rape rate	Robbery rate	Aggravated Assault rate
33	Nebraska	282.8	3.2	55.3	29.1	195.2
12	Nevada	454.0	6.8	58.9	86.1	302.3
50	New Hampshire	125.6	1.8	39.6	16.1	68.1
46	New Jersey	202.9	3.1	16.8	47.6	135.4
2	New Mexico	780.5	12.0	54.6	110.6	603.3
15	New York	429.3	4.0	29.5	112.0	283.8
20	North Carolina	405.1	8.1	30.5	54.9	311.6
36	North Dakota	279.6	3.5	56.7	27.6	191.8
30	Ohio	293.6	6.1	48.4	53.1	185.9
16	Oklahoma	419.7	6.7	57.5	40.6	314.8
26	Oregon	342.4	4.5	40.6	68.6	228.7
35	Pennsylvania	279.9	7.9	29.5	68.1	174.5
48	Rhode Island	172.3	1.5	38.0	24.6	108.3
9	South Carolina	491.3	11.2	38.2	40.6	401.3
23	South Dakota	377.4	4.3	55.8	25.3	292.0
6	Tennessee	621.6	8.6	38.2	67.1	507.6
13	Texas	431.9	6.7	50.0	70.5	304.7
41	Utah	241.8	2.0	59.5	29.6	150.7
44	Vermont	221.9	3.4	36.8	13.3	168.5
43	Virginia	234.0	7.3	30.2	38.4	158.1
24	Washington	375.6	5.0	39.2	86.8	244.7
37	West Virginia	277.9	4.6	44.4	10.0	218.9
29	Wisconsin	297.0	5.3	38.6	39.4	213.7
47	Wyoming	201.9	2.6	62.8	7.9	128.7

Short Paragraph

```
In [21]: """
I'd argue that none of the transformations I performed violate or raise any ethical implications. As was
previous milestone, the data that was scraped from the website was pretty much well polished. I struggled
transform.
"""
```

```
Out[21]: "\nI'd argue that none of the transformations I performed violate or raise any ethical implications. As
was the case with the \nprevious milestone, the data that was scraped from the website was pretty much
well polished. I struggled to find things to\ntransform. \n"
```

```
In [22]: import pandas as pd
import sqlite3 as sql
```

```
In [23]: conn = sql.connect('website_crime_data')
```

```
In [ ]: final_crime_rate.to_sql("website_crime_data", conn, index=False)
```

```
In [ ]: conn.close()
```

```
In [ ]: fig = px.bar(web_data, x='Location', y='Violent crime rate', title='Violent Crime Rate by Location')
fig.show()
```