education degree and after tax income scarp

November 17, 2024

1 Simple Webscraping Example with Beautiful Soup

```
[1]: # Import all neccessary libraries
     from bs4 import BeautifulSoup
     import urllib.request
     import pandas as pd
[2]: url = "https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/details/
      Lang=E&SearchText=M1E&DGUIDlist=2021A0011M1E&GENDERlist=1,2,3&STATISTIClist=1,4&HEADERlist=
[3]: # Assign the URL to a variable
     url = "https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/details/
      →Lang=E&SearchText=M1C&DGUIDlist=2021A0011M1C&GENDERlist=1,2,3&STATISTIClist=1,4&HEADERlist=
     # use the urlopen function to open the webpage
     html = urllib.request.urlopen(url)
     # show object html
     html
[3]: <http.client.HTTPResponse at 0x7f8988f2f3a0>
[4]: # Create the BeautifulSoup object
     html_to_parse = BeautifulSoup(html, "html.parser")
[5]: # create a list of tables. There is only 1 table in this webpage
     tables = html_to_parse.find_all("table")
     print(f"Number of tables found: {len(tables)}")
```

```
Number of tables found: 1
 [6]: # Create list of all the > tags in the table that has the title_
      ⇔"2021A0011M1C - Population, 2021 - Counts - Total"
      td = tables[0].find(attrs={"title":"2021A0011M1C - Population, 2021 - Counts -
       →Total"})
 [7]: td
 [7]: <td class="text-right text-nowrap" headers="rh1 r1 geo2021A0011M1C
      geo2021A0011M1Cstat1 geo2021A0011M1Cstat1gen1" title="2021A0011M1C - Population,
      2021 - Counts - Total"> 35,642
 [8]: # convert to float
      float(td.text.replace(",", ""))
 [8]: 35642.0
     1.1 Create a script that will look up from a list of Postal codes
 [9]: import urllib.parse as urlparse
      from urllib.parse import urlencode
      import pandas as pd
[10]: | df = pd.read_csv('Toronto_Neighborhoods_with_Coordinates.csv')
      df.head()
[10]:
       Postalcode
                       Borough
                                                            Neighborhood \
              M1B Scarborough
                                                         Malvern / Rouge
      1
              M1C Scarborough Rouge Hill / Port Union / Highland Creek
      2
              M1E Scarborough
                                     Guildwood / Morningside / West Hill
              M1G Scarborough
                                                                  Woburn
      3
              M1H Scarborough
                                                               Cedarbrae
         Latitude Longitude
      0 43.806686 -79.194353
      1 43.784535 -79.160497
      2 43.763573 -79.188711
```

3 43.770992 -79.216917 4 43.773136 -79.239476

postal = df['Postalcode']

postal

[11]: # A list of postal code from the previous part

```
[11]: 0
             M<sub>1</sub>B
             M1C
      1
      2
             M1F.
      3
             M1G
      4
             M1H
      98
             M9N
             M9P
      99
      100
             M9R.
             M9V
      101
      102
             M9W
      Name: Postalcode, Length: 103, dtype: object
[12]: # Creating Empty DataFrame and Storing it in variable df
      df = pd.DataFrame(columns = ['postal_code', 'data', 'value'])
      df
[12]: Empty DataFrame
      Columns: [postal_code, data, value]
      Index: []
[13]: | df1 = pd.DataFrame(columns = ['postal_code', 'data', 'value'])
[13]: Empty DataFrame
      Columns: [postal_code, data, value]
      Index: []
[14]: # Loop through each postal code
      # median after tax income
      for i in postal:
          url = "https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/
       →details/page.cfm?Lang=E"
          params = {
              'SearchText': i,
              'DGUIDlist': '2021A0011'+i
          }
          # this part switches up the postal code parameter in the url
          url_parts = list(urlparse.urlparse(url))
          query = dict(urlparse.parse_qsl(url_parts[4]))
          query.update(params)
          url_parts[4] = urlencode(query)
          query = urlparse.urlunparse(url_parts)
```

```
# the following code is similar to the above
    html = urllib.request.urlopen(query)
    html_to_parse = BeautifulSoup(html, "html.parser")
    tables = html_to_parse.find_all("table")
    print(f"Number of tables found: {len(tables)}")
    if len(tables) == 0:
        print(f"No tables starts with this postal code: {query}. Skipping...")#_
 →no table under this postal code
    else:
       title = (f"2021A0011{i} - Median after-tax income in 2020 among_
 →recipients ($) - Counts - Total")
        td = tables[0].find(attrs={"title": title})
       print(td)
    if td and td.text.strip():
       print(f"Processing value('median after tax income'): {td.text}")
           value = float(td.text.replace(",", "").strip()) #convert string to__
 → the float
        except ValueError:
           # cannot convert, assign it to zero
           print(f"Non-numeric value encountered: {td.text}. Assigning default⊔
 ⇔value 0.")
           value = 0.0
    else:
        # cannot find, assign it to zero
       print(f"Skipping: No valid data found for title '{title}'. Assigning⊔

default value 0.")

        value = 0.0
    df.loc[len(df.index)] = [i, title, value]
Number of tables found: 1
geo2021A0011M1Bstat1 geo2021A0011M1Bstat1gen1" title="2021A0011M1B - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 31,600
Processing value('median after tax income'): 31,600
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M1C
geo2021A0011M1Cstat1 geo2021A0011M1Cstat1gen1" title="2021A0011M1C - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 39,600
Processing value('median after tax income'): 39,600
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M1E
geo2021A0011M1Estat1 geo2021A0011M1Estat1gen1" title="2021A0011M1E - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 32,800
Processing value('median after tax income'): 32,800
Number of tables found: 1
```

```
geo2021A0011M1Gstat1 geo2021A0011M1Gstat1gen1" title="2021A0011M1G - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 29,200
Processing value('median after tax income'): 29,200
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M1H
geo2021A0011M1Hstat1 geo2021A0011M1Hstat1gen1" title="2021A0011M1H - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 31,800
Processing value('median after tax income'): 31,800
Number of tables found: 1
geo2021A0011M1Jstat1 geo2021A0011M1Jstat1gen1" title="2021A0011M1J - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 31,200
Processing value('median after tax income'): 31,200
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M1K
geo2021A0011M1Kstat1 geo2021A0011M1Kstat1gen1" title="2021A0011M1K - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 31,000
Processing value('median after tax income'): 31,000
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M1L
geo2021A0011M1Lstat1 geo2021A0011M1Lstat1gen1" title="2021A0011M1L - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 32,000
Processing value('median after tax income'): 32,000
Number of tables found: 1
geo2021A0011M1Mstat1 geo2021A0011M1Mstat1gen1" title="2021A0011M1M - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 34,000
Processing value('median after tax income'): 34,000
Number of tables found: 1
geo2021A0011M1Nstat1 geo2021A0011M1Nstat1gen1" title="2021A0011M1N - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 39,200
Processing value('median after tax income'): 39,200
Number of tables found: 1
geo2021A0011M1Pstat1 geo2021A0011M1Pstat1gen1" title="2021A0011M1P - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 31,200
Processing value('median after tax income'): 31,200
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M1R
geo2021A0011M1Rstat1 geo2021A0011M1Rstat1gen1" title="2021A0011M1R - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 32,000
Processing value('median after tax income'): 32,000
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M1S
geo2021A0011M1Sstat1 geo2021A0011M1Sstat1gen1" title="2021A0011M1S - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 29,400
Processing value('median after tax income'): 29,400
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Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M1T
geo2021A0011M1Tstat1 geo2021A0011M1Tstat1gen1" title="2021A0011M1T - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 29,800
Processing value('median after tax income'): 29,800
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M1V
geo2021A0011M1Vstat1 geo2021A0011M1Vstat1gen1" title="2021A0011M1V - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 27,400
Processing value('median after tax income'): 27,400
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M1W
geo2021A0011M1Wstat1 geo2021A0011M1Wstat1gen1" title="2021A0011M1W - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 29,600
Processing value('median after tax income'): 29,600
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M1X
geo2021A0011M1Xstat1 geo2021A0011M1Xstat1gen1" title="2021A0011M1X - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 32,000
Processing value('median after tax income'): 32,000
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M2H
geo2021A0011M2Hstat1 geo2021A0011M2Hstat1gen1" title="2021A0011M2H - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 32,000
Processing value('median after tax income'): 32,000
Number of tables found: 1
geo2021A0011M2Jstat1 geo2021A0011M2Jstat1gen1" title="2021A0011M2J - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 33,200
Processing value('median after tax income'): 33,200
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M2K
geo2021A0011M2Kstat1 geo2021A0011M2Kstat1gen1" title="2021A0011M2K - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 38,400
Processing value('median after tax income'): 38,400
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M2L
geo2021A0011M2Lstat1 geo2021A0011M2Lstat1gen1" title="2021A0011M2L - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 41,600
Processing value('median after tax income'): 41,600
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M2M
geo2021A0011M2Mstat1 geo2021A0011M2Mstat1gen1" title="2021A0011M2M - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 31,600
Processing value('median after tax income'): 31,600
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M2N
geo2021A0011M2Nstat1 geo2021A0011M2Nstat1gen1" title="2021A0011M2N - Median
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after-tax income in 2020 among recipients ($) - Counts - Total"> 36,400
Processing value('median after tax income'): 36,400
Number of tables found: 1
geo2021A0011M2Pstat1 geo2021A0011M2Pstat1gen1" title="2021A0011M2P - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 44,400
Processing value('median after tax income'): 44,400
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M2R
geo2021A0011M2Rstat1 geo2021A0011M2Rstat1gen1" title="2021A0011M2R - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 31,400
Processing value('median after tax income'): 31,400
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M3A
geo2021A0011M3Astat1 geo2021A0011M3Astat1gen1" title="2021A0011M3A - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 34,400
Processing value('median after tax income'): 34,400
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M3B
geo2021A0011M3Bstat1 geo2021A0011M3Bstat1gen1" title="2021A0011M3B - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 44,800
Processing value('median after tax income'): 44,800
Number of tables found: 1
geo2021A0011M3Cstat1 geo2021A0011M3Cstat1gen1" title="2021A0011M3C - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 32,800
Processing value('median after tax income'): 32,800
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M3H
geo2021A0011M3Hstat1 geo2021A0011M3Hstat1gen1" title="2021A0011M3H - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 36,800
Processing value('median after tax income'): 36,800
Number of tables found: 1
geo2021A0011M3Jstat1 geo2021A0011M3Jstat1gen1" title="2021A0011M3J - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 30,600
Processing value('median after tax income'): 30,600
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M3K
geo2021A0011M3Kstat1 geo2021A0011M3Kstat1gen1" title="2021A0011M3K - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 35,600
Processing value('median after tax income'): 35,600
Number of tables found: 1
geo2021A0011M3Lstat1 geo2021A0011M3Lstat1gen1" title="2021A0011M3L - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 30,600
Processing value('median after tax income'): 30,600
Number of tables found: 1
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<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M3M
geo2021A0011M3Mstat1 geo2021A0011M3Mstat1gen1" title="2021A0011M3M - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 32,400
Processing value('median after tax income'): 32,400
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M3N
geo2021A0011M3Nstat1 geo2021A0011M3Nstat1gen1" title="2021A0011M3N - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 28,400
Processing value('median after tax income'): 28,400
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M4A
geo2021A0011M4Astat1 geo2021A0011M4Astat1gen1" title="2021A0011M4A - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 32,400
Processing value('median after tax income'): 32,400
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M4B
geo2021A0011M4Bstat1 geo2021A0011M4Bstat1gen1" title="2021A0011M4B - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 35,200
Processing value('median after tax income'): 35,200
Number of tables found: 1
geo2021A0011M4Cstat1 geo2021A0011M4Cstat1gen1" title="2021A0011M4C - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 36,400
Processing value('median after tax income'): 36,400
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M4E
geo2021A0011M4Estat1 geo2021A0011M4Estat1gen1" title="2021A0011M4E - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 48,800
Processing value('median after tax income'): 48,800
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M4G
geo2021A0011M4Gstat1 geo2021A0011M4Gstat1gen1" title="2021A0011M4G - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 54,000
Processing value('median after tax income'): 54,000
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M4H
geo2021A0011M4Hstat1 geo2021A0011M4Hstat1gen1" title="2021A0011M4H - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 27,000
Processing value('median after tax income'): 27,000
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M4J
geo2021A0011M4Jstat1 geo2021A0011M4Jstat1gen1" title="2021A0011M4J - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 39,200
Processing value('median after tax income'): 39,200
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M4K
geo2021A0011M4Kstat1 geo2021A0011M4Kstat1gen1" title="2021A0011M4K - Median
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after-tax income in 2020 among recipients (\$) - Counts - Total"> 40,400

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Processing value('median after tax income'): 40,400
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M4L
geo2021A0011M4Lstat1 geo2021A0011M4Lstat1gen1" title="2021A0011M4L - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 45,200
Processing value('median after tax income'): 45,200
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M4M
geo2021A0011M4Mstat1 geo2021A0011M4Mstat1gen1" title="2021A0011M4M - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 43,600
Processing value('median after tax income'): 43,600
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M4N
geo2021A0011M4Nstat1 geo2021A0011M4Nstat1gen1" title="2021A0011M4N - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 54,400
Processing value('median after tax income'): 54,400
Number of tables found: 1
geo2021A0011M4Pstat1 geo2021A0011M4Pstat1gen1" title="2021A0011M4P - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 42,400
Processing value('median after tax income'): 42,400
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M4R
geo2021A0011M4Rstat1 geo2021A0011M4Rstat1gen1" title="2021A0011M4R - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 49,600
Processing value('median after tax income'): 49,600
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M4S
geo2021A0011M4Sstat1 geo2021A0011M4Sstat1gen1" title="2021A0011M4S - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 47,600
Processing value('median after tax income'): 47,600
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M4T
geo2021A0011M4Tstat1 geo2021A0011M4Tstat1gen1" title="2021A0011M4T - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 56,400
Processing value('median after tax income'): 56,400
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M4V
geo2021A0011M4Vstat1 geo2021A0011M4Vstat1gen1" title="2021A0011M4V - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 52,800
Processing value('median after tax income'): 52,800
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M4W
geo2021A0011M4Wstat1 geo2021A0011M4Wstat1gen1" title="2021A0011M4W - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 52,000
Processing value('median after tax income'): 52,000
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M4X
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geo2021A0011M4Xstat1 geo2021A0011M4Xstat1gen1" title="2021A0011M4X - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 31,600
Processing value('median after tax income'): 31,600
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M4Y
geo2021A0011M4Ystat1 geo2021A0011M4Ystat1gen1" title="2021A0011M4Y - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 39,200
Processing value('median after tax income'): 39,200
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M5A
geo2021A0011M5Astat1 geo2021A0011M5Astat1gen1" title="2021A0011M5A - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 39,200
Processing value('median after tax income'): 39,200
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M5B
geo2021A0011M5Bstat1 geo2021A0011M5Bstat1gen1" title="2021A0011M5B - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 35,200
Processing value('median after tax income'): 35,200
Number of tables found: 1
geo2021A0011M5Cstat1 geo2021A0011M5Cstat1gen1" title="2021A0011M5C - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 51,600
Processing value('median after tax income'): 51,600
Number of tables found: 1
geo2021A0011M5Estat1 geo2021A0011M5Estat1gen1" title="2021A0011M5E - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 56,800
Processing value('median after tax income'): 56,800
Number of tables found: 1
geo2021A0011M5Gstat1 geo2021A0011M5Gstat1gen1" title="2021A0011M5G - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 40,000
Processing value('median after tax income'): 40,000
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M5H
geo2021A0011M5Hstat1 geo2021A0011M5Hstat1gen1" title="2021A0011M5H - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 52,000
Processing value('median after tax income'): 52,000
Number of tables found: 1
geo2021A0011M5Jstat1 geo2021A0011M5Jstat1gen1" title="2021A0011M5J - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 54,000
Processing value('median after tax income'): 54,000
Number of tables found: 0
No tables starts with this postal code: https://www12.statcan.gc.ca/census-
recensement/2021/dp-
pd/prof/details/page.cfm?Lang=E&SearchText=M5K&DGUIDlist=2021A0011M5K.
Skipping...
```

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Processing value('median after tax income'): 54,000
Number of tables found: 0
No tables starts with this postal code: https://www12.statcan.gc.ca/census-
recensement/2021/dp-
pd/prof/details/page.cfm?Lang=E&SearchText=M5L&DGUIDlist=2021A0011M5L.
Skipping...
Processing value('median after tax income'): 54,000
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M5M
geo2021A0011M5Mstat1 geo2021A0011M5Mstat1gen1" title="2021A0011M5M - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 52,400
Processing value('median after tax income'): 52,400
Number of tables found: 1
geo2021A0011M5Nstat1 geo2021A0011M5Nstat1gen1" title="2021A0011M5N - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 44,400
Processing value('median after tax income'): 44,400
Number of tables found: 1
geo2021A0011M5Pstat1 geo2021A0011M5Pstat1gen1" title="2021A0011M5P - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 48,800
Processing value('median after tax income'): 48,800
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M5R
geo2021A0011M5Rstat1 geo2021A0011M5Rstat1gen1" title="2021A0011M5R - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 46,400
Processing value('median after tax income'): 46,400
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M5S
geo2021A0011M5Sstat1 geo2021A0011M5Sstat1gen1" title="2021A0011M5S - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 38,400
Processing value('median after tax income'): 38,400
Number of tables found: 1
geo2021A0011M5Tstat1 geo2021A0011M5Tstat1gen1" title="2021A0011M5T - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 29,800
Processing value('median after tax income'): 29,800
Number of tables found: 1
geo2021A0011M5Vstat1 geo2021A0011M5Vstat1gen1" title="2021A0011M5V - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 54,000
Processing value('median after tax income'): 54,000
Number of tables found: 0
No tables starts with this postal code: https://www12.statcan.gc.ca/census-
recensement/2021/dp-
pd/prof/details/page.cfm?Lang=E&SearchText=M5W&DGUIDlist=2021A0011M5W.
Skipping...
Processing value('median after tax income'): 54,000
```

```
Number of tables found: 0
No tables starts with this postal code: https://www12.statcan.gc.ca/census-
recensement/2021/dp-
pd/prof/details/page.cfm?Lang=E&SearchText=M5X&DGUIDlist=2021A0011M5X.
Skipping...
Processing value('median after tax income'): 54,000
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M6A
geo2021A0011M6Astat1 geo2021A0011M6Astat1gen1" title="2021A0011M6A - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 33,600
Processing value('median after tax income'): 33,600
Number of tables found: 1
geo2021A0011M6Bstat1 geo2021A0011M6Bstat1gen1" title="2021A0011M6B - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 35,200
Processing value('median after tax income'): 35,200
Number of tables found: 1
geo2021A0011M6Cstat1 geo2021A0011M6Cstat1gen1" title="2021A0011M6C - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 40,800
Processing value('median after tax income'): 40,800
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M6E
geo2021A0011M6Estat1 geo2021A0011M6Estat1gen1" title="2021A0011M6E - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 34,000
Processing value('median after tax income'): 34,000
Number of tables found: 1
geo2021A0011M6Gstat1 geo2021A0011M6Gstat1gen1" title="2021A0011M6G - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 39,200
Processing value('median after tax income'): 39,200
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M6H
geo2021A0011M6Hstat1 geo2021A0011M6Hstat1gen1" title="2021A0011M6H - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 36,400
Processing value('median after tax income'): 36,400
Number of tables found: 1
geo2021A0011M6Jstat1 geo2021A0011M6Jstat1gen1" title="2021A0011M6J - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 41,600
Processing value('median after tax income'): 41,600
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M6K
geo2021A0011M6Kstat1 geo2021A0011M6Kstat1gen1" title="2021A0011M6K - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 38,800
Processing value('median after tax income'): 38,800
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M6L
```

```
geo2021A0011M6Lstat1 geo2021A0011M6Lstat1gen1" title="2021A0011M6L - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 31,800
Processing value('median after tax income'): 31,800
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M6M
geo2021A0011M6Mstat1 geo2021A0011M6Mstat1gen1" title="2021A0011M6M - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 31,800
Processing value('median after tax income'): 31,800
Number of tables found: 1
geo2021A0011M6Nstat1 geo2021A0011M6Nstat1gen1" title="2021A0011M6N - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 32,000
Processing value('median after tax income'): 32,000
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M6P
geo2021A0011M6Pstat1 geo2021A0011M6Pstat1gen1" title="2021A0011M6P - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 42,800
Processing value('median after tax income'): 42,800
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M6R
geo2021A0011M6Rstat1 geo2021A0011M6Rstat1gen1" title="2021A0011M6R - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 46,400
Processing value('median after tax income'): 46,400
Number of tables found: 1
geo2021A0011M6Sstat1 geo2021A0011M6Sstat1gen1" title="2021A0011M6S - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 49,200
Processing value('median after tax income'): 49,200
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M7A
geo2021A0011M7Astat1 geo2021A0011M7Astat1gen1" title="2021A0011M7A - Median
after-tax income in 2020 among recipients ($) - Counts - Total"><abbr
title="suppressed to meet the confidentiality requirements of the Statistics
Act">x</abbr>
Processing value('median after tax income'): x
Non-numeric value encountered: x. Assigning default value 0.
Number of tables found: 0
No tables starts with this postal code: https://www12.statcan.gc.ca/census-
recensement/2021/dp-
pd/prof/details/page.cfm?Lang=E&SearchText=M7R&DGUIDlist=2021A0011M7R.
Skipping...
Processing value('median after tax income'): x
Non-numeric value encountered: x. Assigning default value 0.
Number of tables found: 0
No tables starts with this postal code: https://www12.statcan.gc.ca/census-
recensement/2021/dp-
pd/prof/details/page.cfm?Lang=E&SearchText=M7Y&DGUIDlist=2021A0011M7Y.
Skipping...
```

```
Processing value('median after tax income'): x
Non-numeric value encountered: x. Assigning default value 0.
Number of tables found: 1
geo2021A0011M8Vstat1 geo2021A0011M8Vstat1gen1" title="2021A0011M8V - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 40,800
Processing value('median after tax income'): 40,800
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M8W
geo2021A0011M8Wstat1 geo2021A0011M8Wstat1gen1" title="2021A0011M8W - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 40,800
Processing value('median after tax income'): 40,800
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M8X
geo2021A0011M8Xstat1 geo2021A0011M8Xstat1gen1" title="2021A0011M8X - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 56,800
Processing value('median after tax income'): 56,800
Number of tables found: 1
geo2021A0011M8Ystat1 geo2021A0011M8Ystat1gen1" title="2021A0011M8Y - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 42,800
Processing value('median after tax income'): 42,800
Number of tables found: 1
geo2021A0011M8Zstat1 geo2021A0011M8Zstat1gen1" title="2021A0011M8Z - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 45,200
Processing value('median after tax income'): 45,200
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M9A
geo2021A0011M9Astat1 geo2021A0011M9Astat1gen1" title="2021A0011M9A - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 41,200
Processing value('median after tax income'): 41,200
Number of tables found: 1
geo2021A0011M9Bstat1 geo2021A0011M9Bstat1gen1" title="2021A0011M9B - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 42,000
Processing value('median after tax income'): 42,000
Number of tables found: 1
geo2021A0011M9Cstat1 geo2021A0011M9Cstat1gen1" title="2021A0011M9C - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 39,200
Processing value('median after tax income'): 39,200
Number of tables found: 1
geo2021A0011M9Lstat1 geo2021A0011M9Lstat1gen1" title="2021A0011M9L - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 29,600
Processing value('median after tax income'): 29,600
Number of tables found: 1
```

```
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M9M
geo2021A0011M9Mstat1 geo2021A0011M9Mstat1gen1" title="2021A0011M9M - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 32,000
Processing value('median after tax income'): 32,000
Number of tables found: 1
geo2021A0011M9Nstat1 geo2021A0011M9Nstat1gen1" title="2021A0011M9N - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 33,200
Processing value('median after tax income'): 33,200
Number of tables found: 1
geo2021A0011M9Pstat1 geo2021A0011M9Pstat1gen1" title="2021A0011M9P - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 37,600
Processing value('median after tax income'): 37,600
Number of tables found: 1
geo2021A0011M9Rstat1 geo2021A0011M9Rstat1gen1" title="2021A0011M9R - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 33,600
Processing value('median after tax income'): 33,600
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M9V
geo2021A0011M9Vstat1 geo2021A0011M9Vstat1gen1" title="2021A0011M9V - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 29,400
Processing value('median after tax income'): 29,400
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh7 r115 geo2021A0011M9W
geo2021A0011M9Wstat1 geo2021A0011M9Wstat1gen1" title="2021A0011M9W - Median
after-tax income in 2020 among recipients ($) - Counts - Total"> 32,400
Processing value('median after tax income'): 32,400
```

```
[15]: #Bachelor's degree or higher
for i in postal:
    url = "https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/
    details/page.cfm?Lang=E"
    params = {
        'SearchText': i,
        'DGUIDlist': '2021A0011'+i
    }

    # this part switches up the postal code parameter in the url
    url_parts = list(urlparse.urlparse(url))
    query = dict(urlparse.parse_qsl(url_parts[4]))
    query.update(params)

url_parts[4] = urlencode(query)
    query = urlparse.urlunparse(url_parts)
```

```
html = urllib.request.urlopen(query)
    html_to_parse = BeautifulSoup(html, "html.parser")
    tables = html_to_parse.find_all("table")
    print(f"Number of tables found: {len(tables)}")
    if len(tables) == 0:
        print(f"No tables starts with this postal code: {query}. Skipping...")#_J
  →no table under this postal code
    else:
        title = (f"2021A0011{i} - Bachelor's degree or higher - Counts - Total")
        td = tables[0].find(attrs={"title": title})
        print(td)
    if td and td.text.strip():
        print(f"Processing value('Bachelor's degree or higher): {td.text}")
            value = float(td.text.replace(",", "").strip()) #convert string to⊔
  → the float
        except ValueError:
            # cannot convert, assign it to zero
            print(f"Non-numeric value encountered: {td.text}. Assigning default⊔
  ⇔value 0.")
            value = 0.0
    else:
        # cannot find, assign it to zero
        print(f"Skipping: No valid data found for title '{title}'. Assigning⊔

default value 0.")
        value = 0.0
    df1.loc[len(df1.index)] = [i, title, value]
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M1B
geo2021A0011M1Bstat1 geo2021A0011M1Bstat1gen1" title="2021A0011M1B - Bachelor's
degree or higher - Counts - Total"> 14,160
Processing value('Bachelor's degree or higher): 14,160
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M1C
geo2021A0011M1Cstat1 geo2021A0011M1Cstat1gen1" title="2021A0011M1C - Bachelor's
degree or higher - Counts - Total"> 11,150
Processing value('Bachelor's degree or higher): 11,150
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M1E
geo2021A0011M1Estat1 geo2021A0011M1Estat1gen1" title="2021A0011M1E - Bachelor's
degree or higher - Counts - Total"> 11,120
Processing value('Bachelor's degree or higher): 11,120
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M1G
geo2021A0011M1Gstat1 geo2021A0011M1Gstat1gen1" title="2021A0011M1G - Bachelor's
```

the following code is similar to the above

```
degree or higher - Counts - Total"> 6,770
Processing value('Bachelor's degree or higher):
                                            6,770
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M1H
geo2021A0011M1Hstat1 geo2021A0011M1Hstat1gen1" title="2021A0011M1H - Bachelor's
degree or higher - Counts - Total"> 6,895
Processing value('Bachelor's degree or higher):
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M1J
geo2021A0011M1Jstat1 geo2021A0011M1Jstat1gen1" title="2021A0011M1J - Bachelor's
degree or higher - Counts - Total"> 7,690
Processing value('Bachelor's degree or higher):
                                             7,690
Number of tables found: 1
geo2021A0011M1Kstat1 geo2021A0011M1Kstat1gen1" title="2021A0011M1K - Bachelor's
degree or higher - Counts - Total"> 10,665
Processing value('Bachelor's degree or higher): 10,665
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M1L
geo2021A0011M1Lstat1 geo2021A0011M1Lstat1gen1" title="2021A0011M1L - Bachelor's
degree or higher - Counts - Total"> 9,660
Processing value('Bachelor's degree or higher):
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M1M
geo2021A0011M1Mstat1 geo2021A0011M1Mstat1gen1" title="2021A0011M1M - Bachelor's
degree or higher - Counts - Total"> 6,700
Processing value('Bachelor's degree or higher):
                                            6,700
Number of tables found: 1
geo2021A0011M1Nstat1 geo2021A0011M1Nstat1gen1" title="2021A0011M1N - Bachelor's
degree or higher - Counts - Total"> 6,805
Processing value('Bachelor's degree or higher):
                                            6,805
Number of tables found: 1
geo2021A0011M1Pstat1 geo2021A0011M1Pstat1gen1" title="2021A0011M1P - Bachelor's
degree or higher - Counts - Total"> 11,585
Processing value('Bachelor's degree or higher): 11,585
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M1R
geo2021A0011M1Rstat1 geo2021A0011M1Rstat1gen1" title="2021A0011M1R - Bachelor's
degree or higher - Counts - Total"> 7,100
Processing value('Bachelor's degree or higher):
                                            7,100
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M1S
geo2021A0011M1Sstat1 geo2021A0011M1Sstat1gen1" title="2021A0011M1S - Bachelor's
degree or higher - Counts - Total"> 10,320
Processing value('Bachelor's degree or higher): 10,320
Number of tables found: 1
```

```
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M1T
geo2021A0011M1Tstat1 geo2021A0011M1Tstat1gen1" title="2021A0011M1T - Bachelor's
degree or higher - Counts - Total"> 9,635
Processing value('Bachelor's degree or higher):
                                             9,635
Number of tables found: 1
geo2021A0011M1Vstat1 geo2021A0011M1Vstat1gen1" title="2021A0011M1V - Bachelor's
degree or higher - Counts - Total"> 10,700
Processing value('Bachelor's degree or higher): 10,700
Number of tables found: 1
geo2021A0011M1Wstat1 geo2021A0011M1Wstat1gen1" title="2021A0011M1W - Bachelor's
degree or higher - Counts - Total"> 13,180
Processing value('Bachelor's degree or higher): 13,180
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M1X
geo2021A0011M1Xstat1 geo2021A0011M1Xstat1gen1" title="2021A0011M1X - Bachelor's
degree or higher - Counts - Total"> 3,145
Processing value('Bachelor's degree or higher):
                                             3,145
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M2H
geo2021A0011M2Hstat1 geo2021A0011M2Hstat1gen1" title="2021A0011M2H - Bachelor's
degree or higher - Counts - Total"> 9,520
Processing value('Bachelor's degree or higher):
                                             9,520
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M2J
geo2021A0011M2Jstat1 geo2021A0011M2Jstat1gen1" title="2021A0011M2J - Bachelor's
degree or higher - Counts - Total"> 24,985
Processing value('Bachelor's degree or higher): 24,985
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M2K
geo2021A0011M2Kstat1 geo2021A0011M2Kstat1gen1" title="2021A0011M2K - Bachelor's
degree or higher - Counts - Total"> 13,120
Processing value('Bachelor's degree or higher): 13,120
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M2L
geo2021A0011M2Lstat1 geo2021A0011M2Lstat1gen1" title="2021A0011M2L - Bachelor's
degree or higher - Counts - Total"> 5,250
Processing value('Bachelor's degree or higher):
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M2M
geo2021A0011M2Mstat1 geo2021A0011M2Mstat1gen1" title="2021A0011M2M - Bachelor's
degree or higher - Counts - Total"> 13,715
Processing value('Bachelor's degree or higher): 13,715
Number of tables found: 1
geo2021A0011M2Nstat1 geo2021A0011M2Nstat1gen1" title="2021A0011M2N - Bachelor's
degree or higher - Counts - Total"> 39,350
```

```
Processing value('Bachelor's degree or higher): 39,350
Number of tables found: 1
geo2021A0011M2Pstat1 geo2021A0011M2Pstat1gen1" title="2021A0011M2P - Bachelor's
degree or higher - Counts - Total"> 3,810
Processing value('Bachelor's degree or higher):
                                               3,810
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M2R
geo2021A0011M2Rstat1 geo2021A0011M2Rstat1gen1" title="2021A0011M2R - Bachelor's
degree or higher - Counts - Total"> 13,725
Processing value('Bachelor's degree or higher): 13,725
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M3A
geo2021A0011M3Astat1 geo2021A0011M3Astat1gen1" title="2021A0011M3A - Bachelor's
degree or higher - Counts - Total"> 10,585
Processing value('Bachelor's degree or higher): 10,585
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M3B
geo2021A0011M3Bstat1 geo2021A0011M3Bstat1gen1" title="2021A0011M3B - Bachelor's
degree or higher - Counts - Total"> 6,135
Processing value('Bachelor's degree or higher):
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M3C
geo2021A0011M3Cstat1 geo2021A0011M3Cstat1gen1" title="2021A0011M3C - Bachelor's
degree or higher - Counts - Total"> 12,370
Processing value('Bachelor's degree or higher): 12,370
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M3H
geo2021A0011M3Hstat1 geo2021A0011M3Hstat1gen1" title="2021A0011M3H - Bachelor's
degree or higher - Counts - Total"> 13,965
Processing value('Bachelor's degree or higher): 13,965
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M3J
geo2021A0011M3Jstat1 geo2021A0011M3Jstat1gen1" title="2021A0011M3J - Bachelor's
degree or higher - Counts - Total"> 6,315
Processing value('Bachelor's degree or higher):
                                              6,315
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M3K
geo2021A0011M3Kstat1 geo2021A0011M3Kstat1gen1" title="2021A0011M3K - Bachelor's
degree or higher - Counts - Total"> 1,965
Processing value('Bachelor's degree or higher):
                                               1,965
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M3L
geo2021A0011M3Lstat1 geo2021A0011M3Lstat1gen1" title="2021A0011M3L - Bachelor's
degree or higher - Counts - Total"> 2,380
Processing value('Bachelor's degree or higher):
                                               2,380
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M3M
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```
geo2021A0011M3Mstat1 geo2021A0011M3Mstat1gen1" title="2021A0011M3M - Bachelor's
degree or higher - Counts - Total"> 3,975
Processing value('Bachelor's degree or higher):
                                              3,975
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M3N
geo2021A0011M3Nstat1 geo2021A0011M3Nstat1gen1" title="2021A0011M3N - Bachelor's
degree or higher - Counts - Total"> 3,855
Processing value('Bachelor's degree or higher):
                                              3,855
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M4A
geo2021A0011M4Astat1 geo2021A0011M4Astat1gen1" title="2021A0011M4A - Bachelor's
degree or higher - Counts - Total"> 3,545
Processing value('Bachelor's degree or higher):
                                              3,545
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M4B
geo2021A0011M4Bstat1 geo2021A0011M4Bstat1gen1" title="2021A0011M4B - Bachelor's
degree or higher - Counts - Total"> 4,395
Processing value('Bachelor's degree or higher):
                                              4,395
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M4C
geo2021A0011M4Cstat1 geo2021A0011M4Cstat1gen1" title="2021A0011M4C - Bachelor's
degree or higher - Counts - Total"> 15,735
Processing value('Bachelor's degree or higher): 15,735
Number of tables found: 1
geo2021A0011M4Estat1 geo2021A0011M4Estat1gen1" title="2021A0011M4E - Bachelor's
degree or higher - Counts - Total"> 11,150
Processing value('Bachelor's degree or higher): 11,150
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M4G
geo2021A0011M4Gstat1 geo2021A0011M4Gstat1gen1" title="2021A0011M4G - Bachelor's
degree or higher - Counts - Total"> 9,715
Processing value('Bachelor's degree or higher):
                                              9,715
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M4H
geo2021A0011M4Hstat1 geo2021A0011M4Hstat1gen1" title="2021A0011M4H - Bachelor's
degree or higher - Counts - Total"> 4,280
Processing value('Bachelor's degree or higher):
Number of tables found: 1
geo2021A0011M4Jstat1 geo2021A0011M4Jstat1gen1" title="2021A0011M4J - Bachelor's
degree or higher - Counts - Total"> 12,370
Processing value('Bachelor's degree or higher): 12,370
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M4K
geo2021A0011M4Kstat1 geo2021A0011M4Kstat1gen1" title="2021A0011M4K - Bachelor's
degree or higher - Counts - Total"> 12,900
Processing value('Bachelor's degree or higher): 12,900
```

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Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M4L
geo2021A0011M4Lstat1 geo2021A0011M4Lstat1gen1" title="2021A0011M4L - Bachelor's
degree or higher - Counts - Total"> 12,225
Processing value('Bachelor's degree or higher): 12,225
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M4M
geo2021A0011M4Mstat1 geo2021A0011M4Mstat1gen1" title="2021A0011M4M - Bachelor's
degree or higher - Counts - Total"> 10,395
Processing value('Bachelor's degree or higher): 10,395
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M4N
geo2021A0011M4Nstat1 geo2021A0011M4Nstat1gen1" title="2021A0011M4N - Bachelor's
degree or higher - Counts - Total"> 8,035
Processing value('Bachelor's degree or higher):
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M4P
geo2021A0011M4Pstat1 geo2021A0011M4Pstat1gen1" title="2021A0011M4P - Bachelor's
degree or higher - Counts - Total"> 13,115
Processing value('Bachelor's degree or higher): 13,115
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M4R
geo2021A0011M4Rstat1 geo2021A0011M4Rstat1gen1" title="2021A0011M4R - Bachelor's
degree or higher - Counts - Total"> 6,335
Processing value('Bachelor's degree or higher): 6,335
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M4S
geo2021A0011M4Sstat1 geo2021A0011M4Sstat1gen1" title="2021A0011M4S - Bachelor's
degree or higher - Counts - Total"> 16,940
Processing value('Bachelor's degree or higher): 16,940
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M4T
geo2021A0011M4Tstat1 geo2021A0011M4Tstat1gen1" title="2021A0011M4T - Bachelor's
degree or higher - Counts - Total"> 5,880
Processing value('Bachelor's degree or higher):
                                                 5,880
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M4V
geo2021A0011M4Vstat1 geo2021A0011M4Vstat1gen1" title="2021A0011M4V - Bachelor's
degree or higher - Counts - Total"> 10,760
Processing value('Bachelor's degree or higher): 10,760
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M4W
geo2021A0011M4Wstat1 geo2021A0011M4Wstat1gen1" title="2021A0011M4W - Bachelor's
degree or higher - Counts - Total"> 9,360
Processing value('Bachelor's degree or higher):
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M4X
geo2021A0011M4Xstat1 geo2021A0011M4Xstat1gen1" title="2021A0011M4X - Bachelor's
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degree or higher - Counts - Total"> 7,175
Processing value('Bachelor's degree or higher):
                                            7,175
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M4Y
geo2021A0011M4Ystat1 geo2021A0011M4Ystat1gen1" title="2021A0011M4Y - Bachelor's
degree or higher - Counts - Total"> 20,815
Processing value('Bachelor's degree or higher): 20,815
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M5A
geo2021A0011M5Astat1 geo2021A0011M5Astat1gen1" title="2021A0011M5A - Bachelor's
degree or higher - Counts - Total"> 21,690
Processing value('Bachelor's degree or higher): 21,690
Number of tables found: 1
geo2021A0011M5Bstat1 geo2021A0011M5Bstat1gen1" title="2021A0011M5B - Bachelor's
degree or higher - Counts - Total"> 9,925
Processing value('Bachelor's degree or higher):
                                            9,925
Number of tables found: 1
geo2021A0011M5Cstat1 geo2021A0011M5Cstat1gen1" title="2021A0011M5C - Bachelor's
degree or higher - Counts - Total"> 1,770
Processing value('Bachelor's degree or higher):
                                           1,770
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M5E
geo2021A0011M5Estat1 geo2021A0011M5Estat1gen1" title="2021A0011M5E - Bachelor's
degree or higher - Counts - Total"> 8,005
Processing value('Bachelor's degree or higher):
                                            8,005
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M5G
geo2021A0011M5Gstat1 geo2021A0011M5Gstat1gen1" title="2021A0011M5G - Bachelor's
degree or higher - Counts - Total"> 6,220
Processing value('Bachelor's degree or higher):
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M5H
geo2021A0011M5Hstat1 geo2021A0011M5Hstat1gen1" title="2021A0011M5H - Bachelor's
degree or higher - Counts - Total"> 2,270
Processing value('Bachelor's degree or higher):
Number of tables found: 1
geo2021A0011M5Jstat1 geo2021A0011M5Jstat1gen1" title="2021A0011M5J - Bachelor's
degree or higher - Counts - Total"> 11,410
Processing value('Bachelor's degree or higher): 11,410
Number of tables found: 0
No tables starts with this postal code: https://www12.statcan.gc.ca/census-
recensement/2021/dp-
pd/prof/details/page.cfm?Lang=E&SearchText=M5K&DGUIDlist=2021A0011M5K.
Skipping...
Processing value('Bachelor's degree or higher): 11,410
```

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Number of tables found: 0
No tables starts with this postal code: https://www12.statcan.gc.ca/census-
recensement/2021/dp-
pd/prof/details/page.cfm?Lang=E&SearchText=M5L&DGUIDlist=2021A0011M5L.
Skipping...
Processing value('Bachelor's degree or higher): 11,410
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M5M
geo2021A0011M5Mstat1 geo2021A0011M5Mstat1gen1" title="2021A0011M5M - Bachelor's
degree or higher - Counts - Total"> 12,470
Processing value('Bachelor's degree or higher): 12,470
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M5N
geo2021A0011M5Nstat1 geo2021A0011M5Nstat1gen1" title="2021A0011M5N - Bachelor's
degree or higher - Counts - Total"> 7,380
Processing value('Bachelor's degree or higher):
                                               7,380
Number of tables found: 1
geo2021A0011M5Pstat1 geo2021A0011M5Pstat1gen1" title="2021A0011M5P - Bachelor's
degree or higher - Counts - Total"> 10,595
Processing value('Bachelor's degree or higher): 10,595
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M5R
geo2021A0011M5Rstat1 geo2021A0011M5Rstat1gen1" title="2021A0011M5R - Bachelor's
degree or higher - Counts - Total"> 14,920
Processing value('Bachelor's degree or higher): 14,920
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M5S
geo2021A0011M5Sstat1 geo2021A0011M5Sstat1gen1" title="2021A0011M5S - Bachelor's
degree or higher - Counts - Total"> 9,500
Processing value('Bachelor's degree or higher):
                                               9,500
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M5T
geo2021A0011M5Tstat1 geo2021A0011M5Tstat1gen1" title="2021A0011M5T - Bachelor's
degree or higher - Counts - Total"> 7,275
Processing value('Bachelor's degree or higher):
                                               7,275
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M5V
geo2021A0011M5Vstat1 geo2021A0011M5Vstat1gen1" title="2021A0011M5V - Bachelor's
degree or higher - Counts - Total"> 39,245
Processing value('Bachelor's degree or higher): 39,245
Number of tables found: 0
No tables starts with this postal code: https://www12.statcan.gc.ca/census-
recensement/2021/dp-
pd/prof/details/page.cfm?Lang=E&SearchText=M5W&DGUIDlist=2021A0011M5W.
Processing value('Bachelor's degree or higher): 39,245
Number of tables found: 0
```

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No tables starts with this postal code: https://www12.statcan.gc.ca/census-
recensement/2021/dp-
pd/prof/details/page.cfm?Lang=E&SearchText=M5X&DGUIDlist=2021A0011M5X.
Skipping...
Processing value('Bachelor's degree or higher): 39,245
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M6A
geo2021A0011M6Astat1 geo2021A0011M6Astat1gen1" title="2021A0011M6A - Bachelor's
degree or higher - Counts - Total"> 6,430
Processing value('Bachelor's degree or higher):
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M6B
geo2021A0011M6Bstat1 geo2021A0011M6Bstat1gen1" title="2021A0011M6B - Bachelor's
degree or higher - Counts - Total"> 8,685
Processing value('Bachelor's degree or higher):
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M6C
geo2021A0011M6Cstat1 geo2021A0011M6Cstat1gen1" title="2021A0011M6C - Bachelor's
degree or higher - Counts - Total"> 10,060
Processing value('Bachelor's degree or higher): 10,060
Number of tables found: 1
geo2021A0011M6Estat1 geo2021A0011M6Estat1gen1" title="2021A0011M6E - Bachelor's
degree or higher - Counts - Total"> 8,710
Processing value('Bachelor's degree or higher): 8,710
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M6G
geo2021A0011M6Gstat1 geo2021A0011M6Gstat1gen1" title="2021A0011M6G - Bachelor's
degree or higher - Counts - Total"> 13,140
Processing value('Bachelor's degree or higher): 13,140
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M6H
geo2021A0011M6Hstat1 geo2021A0011M6Hstat1gen1" title="2021A0011M6H - Bachelor's
degree or higher - Counts - Total"> 15,515
Processing value('Bachelor's degree or higher): 15,515
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M6J
geo2021A0011M6Jstat1 geo2021A0011M6Jstat1gen1" title="2021A0011M6J - Bachelor's
degree or higher - Counts - Total"> 14,095
Processing value('Bachelor's degree or higher): 14,095
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M6K
geo2021A0011M6Kstat1 geo2021A0011M6Kstat1gen1" title="2021A0011M6K - Bachelor's
degree or higher - Counts - Total"> 17,215
Processing value('Bachelor's degree or higher): 17,215
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M6L
geo2021A0011M6Lstat1 geo2021A0011M6Lstat1gen1" title="2021A0011M6L - Bachelor's
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degree or higher - Counts - Total"> 3,120
Processing value('Bachelor's degree or higher):
                                               3,120
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M6M
geo2021A0011M6Mstat1 geo2021A0011M6Mstat1gen1" title="2021A0011M6M - Bachelor's
degree or higher - Counts - Total"> 5,825
Processing value('Bachelor's degree or higher):
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M6N
geo2021A0011M6Nstat1 geo2021A0011M6Nstat1gen1" title="2021A0011M6N - Bachelor's
degree or higher - Counts - Total"> 7,190
Processing value('Bachelor's degree or higher):
                                                7,190
Number of tables found: 1
geo2021A0011M6Pstat1 geo2021A0011M6Pstat1gen1" title="2021A0011M6P - Bachelor's
degree or higher - Counts - Total"> 18,145
Processing value('Bachelor's degree or higher): 18,145
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M6R
geo2021A0011M6Rstat1 geo2021A0011M6Rstat1gen1" title="2021A0011M6R - Bachelor's
degree or higher - Counts - Total"> 9,135
Processing value('Bachelor's degree or higher):
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M6S
geo2021A0011M6Sstat1 geo2021A0011M6Sstat1gen1" title="2021A0011M6S - Bachelor's
degree or higher - Counts - Total"> 15,230
Processing value('Bachelor's degree or higher): 15,230
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M7A
geo2021A0011M7Astat1 geo2021A0011M7Astat1gen1" title="2021A0011M7A - Bachelor's
degree or higher - Counts - Total"><abbr title="suppressed to meet the
confidentiality requirements of the Statistics Act">x</abbr>
Processing value('Bachelor's degree or higher): x
Non-numeric value encountered: x. Assigning default value 0.
Number of tables found: 0
No tables starts with this postal code: https://www12.statcan.gc.ca/census-
recensement/2021/dp-
pd/prof/details/page.cfm?Lang=E&SearchText=M7R&DGUIDlist=2021A0011M7R.
Skipping...
Processing value('Bachelor's degree or higher): x
Non-numeric value encountered: x. Assigning default value 0.
Number of tables found: 0
No tables starts with this postal code: https://www12.statcan.gc.ca/census-
recensement/2021/dp-
pd/prof/details/page.cfm?Lang=E&SearchText=M7Y&DGUIDlist=2021A0011M7Y.
Skipping...
Processing value('Bachelor's degree or higher): x
Non-numeric value encountered: x. Assigning default value 0.
```

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Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M8V
geo2021A0011M8Vstat1 geo2021A0011M8Vstat1gen1" title="2021A0011M8V - Bachelor's
degree or higher - Counts - Total"> 17,070
Processing value('Bachelor's degree or higher): 17,070
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M8W
geo2021A0011M8Wstat1 geo2021A0011M8Wstat1gen1" title="2021A0011M8W - Bachelor's
degree or higher - Counts - Total"> 6,660
Processing value('Bachelor's degree or higher):
                                              6,660
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M8X
geo2021A0011M8Xstat1 geo2021A0011M8Xstat1gen1" title="2021A0011M8X - Bachelor's
degree or higher - Counts - Total"> 5,475
Processing value('Bachelor's degree or higher):
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M8Y
geo2021A0011M8Ystat1 geo2021A0011M8Ystat1gen1" title="2021A0011M8Y - Bachelor's
degree or higher - Counts - Total"> 8,435
Processing value('Bachelor's degree or higher):
                                              8,435
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M8Z
geo2021A0011M8Zstat1 geo2021A0011M8Zstat1gen1" title="2021A0011M8Z - Bachelor's
degree or higher - Counts - Total"> 6,870
Processing value('Bachelor's degree or higher): 6,870
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M9A
geo2021A0011M9Astat1 geo2021A0011M9Astat1gen1" title="2021A0011M9A - Bachelor's
degree or higher - Counts - Total"> 14,425
Processing value('Bachelor's degree or higher): 14,425
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M9B
geo2021A0011M9Bstat1 geo2021A0011M9Bstat1gen1" title="2021A0011M9B - Bachelor's
degree or higher - Counts - Total"> 12,120
Processing value('Bachelor's degree or higher): 12,120
Number of tables found: 1
geo2021A0011M9Cstat1 geo2021A0011M9Cstat1gen1" title="2021A0011M9C - Bachelor's
degree or higher - Counts - Total"> 11,905
Processing value('Bachelor's degree or higher): 11,905
Number of tables found: 1
geo2021A0011M9Lstat1 geo2021A0011M9Lstat1gen1" title="2021A0011M9L - Bachelor's
degree or higher - Counts - Total"> 1,960
Processing value('Bachelor's degree or higher):
Number of tables found: 1
<td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M9M
geo2021A0011M9Mstat1 geo2021A0011M9Mstat1gen1" title="2021A0011M9M - Bachelor's
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degree or higher - Counts - Total"> 4,210
    Processing value('Bachelor's degree or higher):
                                                 4,210
    Number of tables found: 1
    geo2021A0011M9Nstat1 geo2021A0011M9Nstat1gen1" title="2021A0011M9N - Bachelor's
    degree or higher - Counts - Total"> 4,015
    Processing value('Bachelor's degree or higher):
    Number of tables found: 1
    geo2021A0011M9Pstat1 geo2021A0011M9Pstat1gen1" title="2021A0011M9P - Bachelor's
    degree or higher - Counts - Total"> 5,210
    Processing value('Bachelor's degree or higher):
                                                  5,210
    Number of tables found: 1
    geo2021A0011M9Rstat1 geo2021A0011M9Rstat1gen1" title="2021A0011M9R - Bachelor's
    degree or higher - Counts - Total"> 7,610
    Processing value('Bachelor's degree or higher):
                                                 7,610
    Number of tables found: 1
    <td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M9V
    geo2021A0011M9Vstat1 geo2021A0011M9Vstat1gen1" title="2021A0011M9V - Bachelor's
    degree or higher - Counts - Total"> 9,715
    Processing value('Bachelor's degree or higher):
                                                 9,715
    Number of tables found: 1
    <td class="text-right text-nowrap" headers="rh37 r2008 geo2021A0011M9W
    geo2021A0011M9Wstat1 geo2021A0011M9Wstat1gen1" title="2021A0011M9W - Bachelor's
    degree or higher - Counts - Total"> 8,315
    Processing value('Bachelor's degree or higher):
                                                 8,315
[16]: df.head()
     dfSort = df.sort_values(by = 'value', ascending = False)
     unique_df = dfSort.drop_duplicates(subset=["postal_code"], keep="first")# drop_
      →the duplicate postal code
     unique df
[16]:
        postal code
                                                            data
                                                                   value
     90
               M8X 2021A0011M8X - Median after-tax income in 2020...
                                                               56800.0
     56
               M5E 2021A0011M5E - Median after-tax income in 2020... 56800.0
               M4T 2021A0011M4T - Median after-tax income in 2020... 56400.0
     48
               M4N 2021A0011M4N - Median after-tax income in 2020... 54400.0
     44
     68
               M5V 2021A0011M5V - Median after-tax income in 2020... 54000.0
     14
               M1V 2021A0011M1V - Median after-tax income in 2020... 27400.0
     39
               M4H 2021A0011M4H - Median after-tax income in 2020...
                                                                27000.0
     87
               M7Y 2021A0011M7A - Median after-tax income in 2020...
                                                                   0.0
     86
               M7R 2021A0011M7A - Median after-tax income in 2020...
                                                                   0.0
     85
               M7A 2021A0011M7A - Median after-tax income in 2020...
                                                                   0.0
```

[103 rows x 3 columns]

```
[17]: df1.head()
      dfSort1 = df1.sort_values(by = 'value', ascending = False)
      dfSort1
      unique_df1 = dfSort1.drop_duplicates(subset=["postal_code"], keep="first")#_1
      ⇔drop the duplicate postal code
      unique df1
[17]:
         postal_code
                                                                    data
                                                                            value
                 M2N 2021A0011M2N - Bachelor's degree or higher - C... 39350.0
      22
      68
                 M5V 2021A0011M5V - Bachelor's degree or higher - C... 39245.0
      69
                 M5W 2021A0011M5V - Bachelor's degree or higher - C... 39245.0
                 M5X 2021A0011M5V - Bachelor's degree or higher - C... 39245.0
      70
      18
                 M2J 2021A0011M2J - Bachelor's degree or higher - C...
                                                                        24985.0
      . .
                 M9L 2021A0011M9L - Bachelor's degree or higher - C...
      96
                                                                         1960.0
      55
                 M5C 2021A0011M5C - Bachelor's degree or higher - C...
                                                                         1770.0
                 M7Y 2021A0011M7A - Bachelor's degree or higher - C...
      87
                                                                            0.0
      86
                 M7R 2021A0011M7A - Bachelor's degree or higher - C...
                                                                            0.0
                 M7A 2021A0011M7A - Bachelor's degree or higher - C...
      85
                                                                            0.0
      [103 rows x 3 columns]
[19]: # Now you can export this to a CSV file for further analysis or visulization
      unique_df.to_csv('after tax income sorted value.csv')
      unique_df1.to_csv('bachelors degress.csv')
 []:
 []:
```