chapter_01

April 18, 2018

1 Chapter 1 Exercises

1.1 Your Name Here

1.2 Date

```
In [15]: # Libraries you will need for this assignment
         import pandas as pd
         import matplotlib.pyplot as plt
```

1.3 3. Country snapshots

1.3.1 Solutions:

(a):

(b):

(c):

(d):

(e):

1.4 4. Making graphs (spreadsheet):

Use the snapshots.pdf file, together with its hyperlinks to the underlying data. Use this python notebook to complete the following:

(a) Make a plot of per capita GDP (in dollars) for the years 1950 to 2014 for a country of your choice. Label the x-axis "year" and the y-axis "per capita GDP." Click here for a list of the country codes

(b) Make a plot of per capita GDP relative to the United States (US = 100) for the years 1950 to 2014 that includes the United States and three other countries of your choice, all on the same graph. Be sure to label the lines on the graph in some informative way so that each line can be associated with its country.

1.4.1 Solution Part (a)

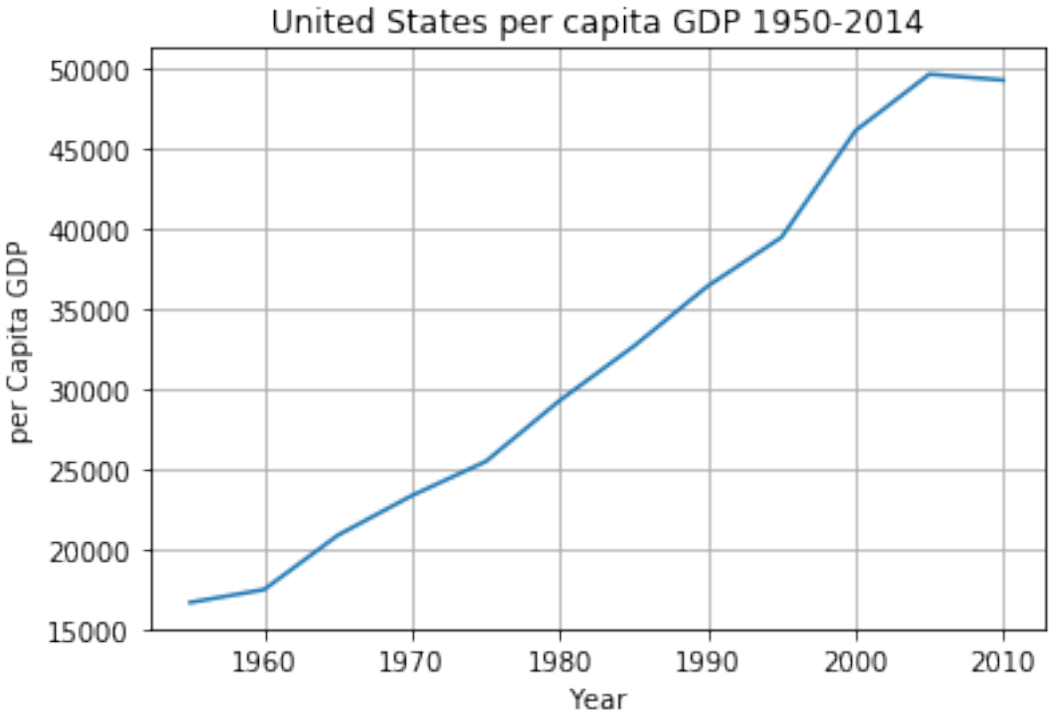
```
In [25]: # Determine what country's per capita GDP you'd like to graph
         # Make sure the country code is in single quotes (ex: 'USA')
         country_code = 'USA'
```

```
# Read in the data
# *DO NOT CHANGE THIS CODE*
percap_gdp = pd.read_excel('http://www.stanford.edu/~chadj/snapshots/' +
                           country_code +
                           '.xls',
                      sheet_name='Sheet1',
                      skiprows=9).dropna()

# This removes all the spaces from the column names
percap_gdp.columns = percap_gdp.columns.str.strip()
```

You will be required to complete the code for this next code block

In [25]:
```
# Now let's create the plot
# Figure out how to create the plot and put the code here
# Make sure you label everything correctly:
fig, ax = plt.subplots()
ax.plot(percap_gdp['Year'], percap_gdp['Y/Pop'])

ax.set(xlabel='Year', ylabel='per Capita GDP',
       title='United States per capita GDP 1950-2014')
ax.grid()
plt.show
```

Out[25]:
```
<function matplotlib.pyplot.show>
```



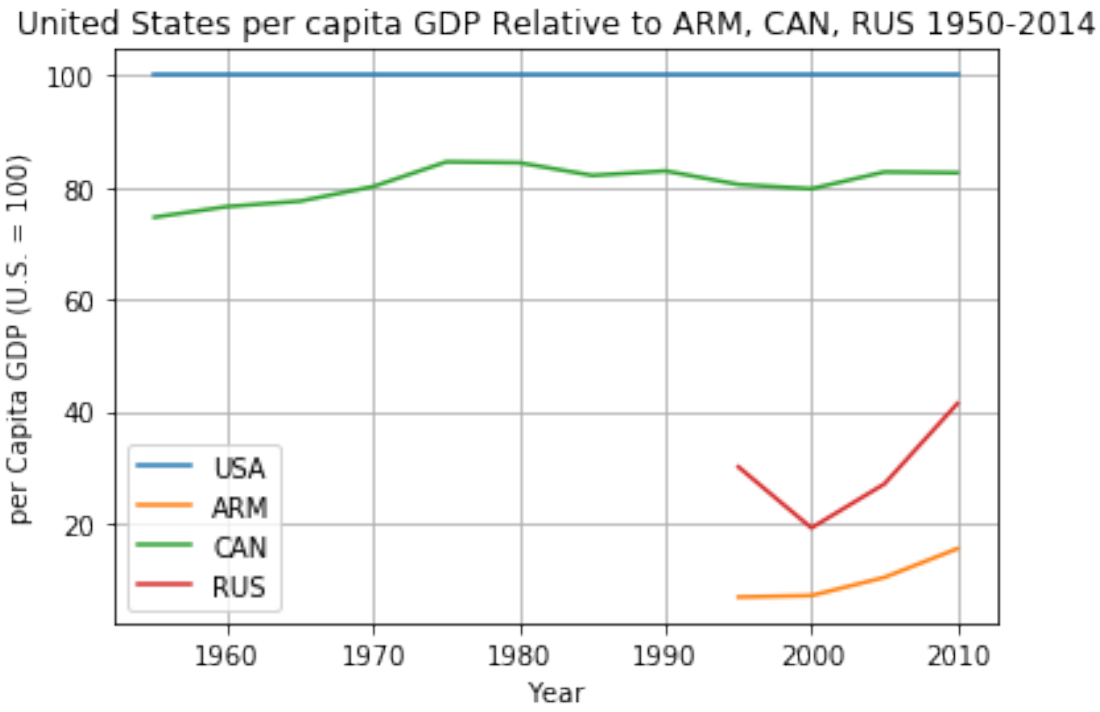
1.4.2 Solution Part (b)

```
In [55]: # Insert your 3 countries you'd like to compare to the USA in an array
         three_countries = ['ARM','CAN', 'RUS']

         # We will need the USA data as a baseline
         # *DO NOT CHANGE THIS CODE*
         usa_gdp = pd.read_excel('http://www.stanford.edu/~chadj/snapshots/USA.xls',
                                 sheet_name='Sheet1',
                                 skiprows=9).dropna()
         usa_gdp['country'] = 'USA'

         # Loop through the three countries and append it to the USA dataset
         # *DO NOT CHANGE THIS CODE*
         for x in three_countries:
             temp = pd.read_excel('http://www.stanford.edu/~chadj/snapshots/' +
                                  x +
                                  '.xls',
                                 sheet_name='Sheet1',
                                 skiprows=9).dropna()
             temp['country'] = x
             usa_gdp = usa_gdp.append(temp)

         # This removes all the white spaces from the column names
         # This will be helpful when plotting your data
         usa_gdp.columns = usa_gdp.columns.str.strip()
```

You will be required to complete the code in this next code block

```
In [55]: # Create the plot for this question:
         fig, ax = plt.subplots()
         # USA
         ax.plot(usa_gdp.query("country == 'USA'")['Year'],
                 usa_gdp.query("country == 'USA'")['Y/Pop(us=100)'],
                label = 'USA')
         # ARMENIA
         ax.plot(usa_gdp.query("country == 'ARM'")['Year'],
                 usa_gdp.query("country == 'ARM'")['Y/Pop(us=100)'],
                label = "ARM")
         # CANADA
         ax.plot(usa_gdp.query("country == 'CAN'")['Year'],
                 usa_gdp.query("country == 'CAN'")['Y/Pop(us=100)'],
                label = "CAN")
         # RUSSIA
         ax.plot(usa_gdp.query("country == 'RUS'")['Year'],
                 usa_gdp.query("country == 'RUS'")['Y/Pop(us=100)'],
                label = "RUS")

         ax.set(xlabel='Year', ylabel='per Capita GDP (U.S. = 100)',
```

```
        title='United States per capita GDP Relative to ARM, CAN, RUS 1950-2014')
ax.grid()
plt.legend()
plt.show()
```



1.5 6. The labor market model (II):

1.5.1 Solutions:

(a):

(b):

(c):

(d):

(e):