Day Objectives

1st June 2019

- Practice on Income Data set
  - Define functions for the following data points
    - Average Income of all states from 2005 to 2013
    - State with highest average income in the last three years
    - State with lowest average income from 2007 to 2010(inclusive)
    - Print the list of all states in the same line with average income less than California
    - Print the names of states based on descending order of income in the year 2009
    - State with the lowest recorded income from 2005 to 2013

In [15]:
```
# Fucntion to find the Average income of all states from 2005 to 2013
def avg(df):
    for i in range(len(df.values)):
        s=0
        c=0
        for j in range(2,len(df.columns)):
            s=s+df.values[i][j]
            c=c+1
        print(df.values[i][1],':',s//c,end=" ")
        print('\n')
avg(incomedf)
```

```
Alabama : 41126

Alaska : 60106

Arizona : 48967

Arkansas : 38828

California : 55350
```

In [16]:
```
# Print the names of states based on descending order of income in the year 2009
def desc_2009(df):
    u=[]
    li=[]
    s=[]
    for i in range(len(df.values)):
        for j in range(len(df.columns)):
            a=df.values[i][6]
            if a not in li:
                li.append(a)
    u=sorted(li,reverse=True)
    print(u)
    #for k in range(len(df.values)):
        #print(df.values[k][1],':',u[k])

desc_2009(incomedf)
```

```
[61604, 56134, 45739, 39980, 36538]
```

In [4]:
```
# Function to read csv data into a Data Frame
# retruns the DataFrame Object

import pandas as pd
  # comma seprated values all spreads are csv files
def readCSVdata(filepath):
    return pd.read_csv(filepath)
filepath='DataFiles\income.csv'
readCSVdata(filepath)
```

Out[4]:

	GEOID	State	2005	2006	2007	2008	2009	2010	2011	2012	2013
0	04000US01	Alabama	37150	37952	42212	44476	39980	40933	42590	43464	41381
1	04000US02	Alaska	55891	56418	62993	63989	61604	57848	57431	63648	61137
2	04000US04	Arizona	45245	46657	62993	46914	45739	46896	48621	47044	50602
3	04000US05	Arkansas	36658	37057	40795	39586	36538	38587	41302	39018	39919
4	04000US06	California	51755	55319	55734	57014	56134	54283	53367	57020	57528

In [11]:
```
incomedf=readCSVdata(filepath)
# Fucntion to print all columns names in a single line

# GEOID State 2005 2006 2007 2008 2009 2010 2011 2012 2013

def printDataFrameColumns(df):
    columns=df.columns
    for column in columns:
        print(column,end=" ")
    return
printDataFrameColumns(incomedf)
```

```
GEOID State 2005 2006 2007 2008 2009 2010 2011 2012 2013
```

In [12]:
```
# Function to access a row based on a unique
def accessDataFrameRow(df,key):
    for row in df.values:
        if key in row:
            for item in row:
                print(item,end=" ")
    return
accessDataFrameRow(incomedf,'Alaska')
```

```
04000US02 Alaska 55891 56418 62993 63989 61604 57848 57431 63648 61137
```

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