The file `contituents.csv` has the name, ticker symbol, and sector of companies that make up the S&P 500 stock index. Read this file into a pandas DataFrame called `dfnames`. The file `prices.csv` has daily **Adjusted Close prices** of these stocks. Read this file into a pandas DataFrame called `dfprices`. Use `dfprices.set_index('Date',inplace=True)` to make column `Date` the index of dataframe `dfprices`. Note that for this assignment the library `pandas_datareader` is not needed.

1. (10 pts) Report the number of companies in each sector.
2. (10 pts) From file `prices.csv` compute net returns and construct the correlation matrix. Display the first five rows and columns of this matrix.
3. (20 pts) Find the two companies with the smallest correlation. Make a scatterplot of their net returns.

Use `dfnames.sample(n=8,random_state=1)` to select a random sample of 8 companies.

4. (10 pts) Show the names and ticker symbols of these companies.
5. (10 pts) Plot the stock prices over time.
6. (10 pts) Which stock was the riskiest (with the largest std deviation in net returns).
7. (10 pts) Plot their cumulative gross returns and write down what stock had the largest price increase.
8. (20 pts) Which stock had the largest average return.

Submit your report with your name and USC ID as a pdf file online (no screen captures).