| Jiahui Tang

1.3. Stock Summary (10 points)

Write a MapReduce job to calculate the average daily stock price at close of Alphabet Inc. (GOOG) per year since 2009. Use the design patterns explained in class. The output should be the year and the average price. You can use as input file the daily historical data GOOGLE.csv (downloaded from Yahoo

Finance https://finance.yahoo.com/quote/GOOG/history?ltr=1). You have to preprocess the GOOGLE.csv file to remove the header line.

```
$ sed '1d' GOOGLE.csv > tmpfile; mv tmpfile GOOGLE.csv

$ ./P13_mapper.py < GOOGLE.csv | sort | ./P13_reducer.py
```

Submission
- P13_mapper.py: Mapper script
- P13_reducer.py: Reducer script
- P13.pdf: The command line that you used to execute the job and any information required to reproduce the execution

---

Command Used:

```
sed '1d' GOOGLE.csv > tmpfile; mv tmpfile GOOGLE.csv

./P13_mapper.py < GOOGLE.csv | sort | ./P13_reducer.py
```

Output:

```
[admin@C02D36V0ML85 Jiahui_Tang_HWC % cd problem_1
[admin@C02D36V0ML85 problem_1 % sed '1d' GOOGLE.csv > tmpfile; mv tmpfile GOOGLE.csv
[admin@C02D36V0ML85 problem_1 % ./P13_mapper.py < GOOGLE.csv | sort | ./P13_reducer.py
 2009    218.423532869
 2010    266.080947385
 2011    282.648725802
 2012    319.331297028
 2013    439.264377286
 2014    558.270557611
 2015    601.550546778
 2016    743.486706698
 2017    921.780837311
 2018    1109.19770506
```