**SPY Put/Call ratio Data Mining**

*Group Project (no more than 4 students per group; you are responsible for forming a group)*

Chicago Board Options Exchange (CBOE) Volume and Put/Call Ratio data is provided for informational purposes only. The volume data reflected below may be based upon preliminary reported volume rather than cleared volume.

Options represent the right (but not the obligation) to take some sort of action by a predetermined date. That right is the buying or selling of shares of the underlying stock.

There are two types of options, calls and puts. And there are two sides to every option transaction -- the party *buying* the option, and the party *selling* (also called *writing)* the option. Each side comes with its own risk/reward profile and may be entered into for different strategic reasons. (<https://www.fool.com/investing/options/options-the-basics.aspx>).

The put-call ratio is a measurement that is widely used by investors to [gauge](https://www.investopedia.com/trading/forecasting-market-direction-with-put-call-ratios/) the overall mood of a market. If traders are buying more puts than calls, it signals a rise in bearish sentiment. If they are buying more calls than puts, it suggests that they see a bull market ahead (<https://www.investopedia.com/ask/answers/06/putcallratio.asp>).

The SPDR S&P 500 trust is an [exchange-traded fund](https://en.wikipedia.org/wiki/Exchange-traded_fund) which trades on the NYSE under the symbol SPY (<https://www.google.com/search?tbm=fin&q=SPY#scso=_R3HyXpuBL8PatQb_tKzwBA1:0>). SPDR is an acronym for the [Standard & Poor's Depositary Receipts](https://en.wikipedia.org/wiki/Standard_%26_Poor%27s_Depositary_Receipts), the former name of the ETF. It is designed to track the [S&P 500 stock market index](https://en.wikipedia.org/wiki/S%26P_500_Index).

Another file has lots of data. Write a C program to read this data and draw some statistical conclusions from the data. There are no obvious right or wrong answers. Your grade depends on

Following items are to be included in your report:

* Source code
* Output supporting conclusions drawn
* Video demo
* Report citing contributions of team members

The following grading criteria will be applied to each unit of programming assignments:

* Correctness & Completeness 70%
* Program Output & Testing 15%
* Program Organization & Source Code Management 10%
* Documentation 5%