

# 40.317 Homework 2

This assignment is due at 11:59 p.m. on Wednesday 10<sup>th</sup> June. You may complete it with a partner; if you choose to do so, be sure to list both of your names on all your submissions.

The starting point of this assignment is the “holdings manager” you implemented for Homework 1.

1. Modify your holdings manager to compute two quantities every 10 seconds: the Volume-Weighted Average Price (“VWAP”) of all *purchases* so far, and the VWAP of all *sales* so far.  
You can find the definition of VWAP online – for instance, [here](#).
  - a. Add a global instance of [collections.deque](#) which stores the history of all purchases (the quantity and price of each). Modify your buy command logic to append the current buy information into this deque.
  - b. Add another global instance of [collections.deque](#) which stores the history of all sales. Modify your sell command logic to append the current sell information into this deque.
  - c. Construct a “daemon thread” and launch it at startup. This thread
    - i. computes the buy VWAP (if any) and sell VWAP (if any) from the contents of these two deques;
    - ii. prints out these two VWAPs to the console;
    - iii. sleeps for 10 seconds;
    - iv. repeats step i.
2. Pass your computed VWAPs from the daemon thread back to the main thread, safely, instead of simply printing them out.
  - a. Add a third global [collections.deque](#) which contains the computed (buy VWAP, sell VWAP) pairs.
  - b. Modify the daemon thread to append the buy and sell VWAPs to this deque, instead of printing them out.
3. Extend your asset manager by adding a command which returns the *latest* buy and sell VWAPs (if any).
  - a. Implement a new command “get\_latest\_vwaps”. When run, this command retrieves the most recent buy and sell VWAPs from the third deque, and returns them in a string.
    - You can remove older entries from the VWAP deque, but be careful not to remove them all.
  - b. On success, this new command should return the string “[OK] <latest buy VWAP> <latest sell VWAP>”
  - c. If either or both of these VWAPs are missing, it should return “N/A” in place of a number.

To receive credit for this assignment, you must submit:

- Your completed server script.
- One screen shot showing your server script generates zero warnings when run through the `pycodestyle` style-checking utility.
- One or more screen shots showing your client/server work as expected. Your screen shots must demonstrate that your server can be shut down cleanly, i.e. you do not need to explicitly shut down the daemon thread in order to shut down the server.