Greeks Calculator Documentation

We very strongly recommend that you use our greeks calculator, as we will be using this for scoring purposes.

Dependencies
This calculator uses vollib, therefore you will need to install it on your computer. This can be done by following the instructions at https://github.com/vollib/vollib#dependencies. There is one dependency (that I know of) for vollib, called SWIG, which can be installed by doing

        pip install swig

Class Greeks
        def __init__(self, algo_client, contract, strikes, time_to_expiry)
                Initialize a greeks object

                Args:
                algo_client (object): an algo Algo_Client object
                contract (str): the underlying of the options being traded
                strikes (array): an array of strikes (as integers)
                interest (float): the risk-free rate of interest
                time_to_expiry (float): the amount of time until expiry, in years

        def update_implied_vol(self):
                Updates the implied volatility of each option:

                Args: None

        def update_delta(self):
                Updates the delta of the each option

                Args: None

        def update_vega(self):
                Updates the vega of each option

                Args: None

        def log_greeks(self):
                Logs the implied volatility, delta, and vega of each option to the terminal

        def return_delta(self):
                Updates the implied volatility and delta of each option and returns a dictionary of arrays pertaining to the delta of each option.

                Args: None

        def return_vega(self):
                Updates the implied volatility and vega of each option and returns a dictionary of

arrays pertaining to the vega of each option.

Args: None

Example:
First, we need to import the Greeks class.

from greeks import Greeks

Suppose that we are trading options where the underlying is the June 2017 E-Mini S&P 500 Futures. Suppose that we are interested in trading calls and puts with strikes 234000, 234500, 235000, 235500, 236000, 236500, 237000, 237500, 238000. Lets say that there are 70 trading days left, and the risk-free interest rate is 1%. Suppose we have an Algo_Client instance called algo_client. We create an instance of the Greeks class as follows.

```
strikes = [234000, 234500, 235000, 235500, 236000, 236500, 237000, 237500, 238000]
interest = .01
time_to_expiry = 70/252
greeks = Greeks(algo_client, "ESM7", strikes, interest, time_to_expiry)
```

Now that we have created an instance of the Greeks class, we can now obtain the deltas and vegas of each option. To do this, we call the return_delta() and return_vega() methods. Each method returns a dictionary of arrays, where each array contains the delta/vega of the call in position 0, and the delta/vega of the put in position 1. For example, if we want the delta value of the 238000 call, we do

```
deltas = greeks.return_delta()
238000_call_delta = deltas[238000][0]
```