

Week 1 Challenge

Welcome to Week 1 of *Python for COINS Members*. In the last week, you should have successfully downloaded Anaconda, setup an IDE, and began studying! This week we are going to hit the ground running by working with ETF price data.

Problem description

Your division head has asked you to use python to pull 2 years of the daily closing prices for all of the commodities in your division and put them in a pandas dataframe.

1. Install the Python package *yfinance*. For help install packages: <https://packaging.python.org/tutorials/installing-packages/> To learn more about *yfinance*: <https://pypi.org/project/yfinance/>
2. Import the pandas and yfinance packages into your python script as pd and yf.
3. Using the yf.download function, download at least three ETF price series and assign them to variables. There is an option to pull multiple tickers at once but you may find it easier to pull each ticket individually and assign them to separate variable names. Set period = "2y". yfinance creates a dataframe of multiple variables for each ticker: Date (which is the dataframe index), Open, High, Low, Close, Adj Close, and Volume. Below is the head data I pulled for WEAT.

```
## [*****100%*****] 1 of 1 completed
```

```
##           Open  High   Low  Close  Adj Close  Volume
## Date
## 2018-05-21  6.84  6.84  6.66   6.72         6.72  240300
## 2018-05-22  6.81  6.93  6.80   6.84         6.84  224700
## 2018-05-23  6.86  6.95  6.82   6.95         6.95  207700
## 2018-05-24  6.99  7.04  6.90   6.93         6.93  269600
## 2018-05-25  6.98  7.08  6.96   7.06         7.06  204800
```

5. We need to combine (concatenate) the 'Close' column for each of our three dataframes to form a single dataframe. Use the pd.concat function. Here is a useful guide: <https://kite.com/python/answers/how-to-create-a-pandas-dataframe-from-columns-in-other-dataframes-in-python>.
6. Your deliverable to your division head should look something like this:

```
## [*****100%*****] 1 of 1 completed
```

```
## [*****100%*****] 1 of 1 completed
```

```
##           Corn           Soyb   Weat
## Date
## 2018-05-21  18.280001  18.580000  6.72
## 2018-05-22  18.360001  18.660000  6.84
## 2018-05-23  18.469999  18.860001  6.95
## 2018-05-24  18.340000  18.799999  6.93
## 2018-05-25  18.450001  18.870001  7.06
```

7. Your division head has decided to investigate one of the ETFs further (your choice), but a lot has changed in the last two years. She requests that you subset the data to only include from June 2019 forward.
8. Using subsetting data, find the percent of time the ETF has closed above the current price.
9. Calculate the daily percent change for the chosen ETF. What was the largest increase (positive), largest decrease (negative), and largest percent change (absolute)? What was going on during that time which could have driven that price action?