# KEY_Practice17_Matplotlib_Intro

August 15, 2019

## 1 Practice: Matplotlib Introduction

Data science techniques can be applied to any field to extract knowledge and insights from data. thruoghout this practice we are going to use plotting to make a data-driven decision in finance. Yay!

First, import `matplotlib` and `pandas`.

```
[0]: # load packages
     import matplotlib.pyplot as plt
     import pandas as pd
```

```
[8]: # mount Google Drive
     from google.colab import drive
     drive.mount('/content/gdrive')
     path = '/content/gdrive/My Drive/SummerExperience-master/'
```

Drive already mounted at /content/gdrive; to attempt to forcibly remount, call drive.mount("/content/gdrive", force_remount=True).

Now let's load `stock_price_24months` dataset using pandas

```
[9]: # load the stock_price_24months dataset and assign it to a variable called␣
     ↪stock_price
     stock_price = pd.read_csv(path + 'SampleData/stock_price_24months.csv')
     # print stock_price to get a better sense of the data
     print(stock_price)
```

```
   month_from_IPO  Snap Inc.  Facebook Inc.  Twitter Inc.
0               0      27.09          38.23         41.65
1               1      20.82          33.05         59.00
2               2      23.19          28.76         57.00
3               3      18.08          19.41         57.44
4               4      17.18          22.86         51.92
5               5      13.52          19.00         40.05
6               6      15.34          24.00         32.05
7               7      14.79          26.26         36.90
8               8      15.27          29.66         38.33
9               9      15.07          27.13         43.13
```

| | | | | |
|---|---|---|---|---|
| 10 | 10 | 14.50 | 25.73 | 52.11 |
| 11 | 11 | 18.80 | 25.73 | 50.40 |
| 12 | 12 | 17.88 | 24.31 | 41.85 |
| 13 | 13 | 14.25 | 24.53 | 37.10 |
| 14 | 14 | 10.79 | 25.88 | 40.17 |
| 15 | 15 | 13.08 | 40.55 | 48.50 |
| 16 | 16 | 13.53 | 47.49 | 46.66 |
| 17 | 17 | 12.73 | 54.22 | 51.94 |
| 18 | 18 | 9.93 | 46.23 | 37.59 |
| 19 | 19 | 7.77 | 55.12 | 35.90 |
| 20 | 20 | 6.79 | 54.45 | 34.91 |
| 21 | 21 | 5.80 | 68.59 | 29.06 |
| 22 | 22 | 5.95 | 67.24 | 27.39 |
| 23 | 23 | 9.10 | 57.71 | 30.85 |
| 24 | 24 | 9.48 | 61.35 | 25.18 |

This dataset contains the stock price of 3 social media companies over the first 24 months after their Initial Public Offering (IPO). Basically, IPO refers to the time that a company goes public, which means its stock is publicly traded.

Have you ever used snapchat? Do you think it had a successful IPO? Let's see what data says!

```python
[10]:  # make a line graph that shows Snap's month_from_IPO on the x-axis and the
       # corresponding stock_price on the y-axis.
       # add square shape markers to the plot
       # change the color of the plot to red
       # add the title "Snap Inc. Stock Price"
       # label the x- and y-axes "Time from IPO (Month)" and "Stock Price ($)"
       # respectively
       plt.plot(stock_price["month_from_IPO"], stock_price["Snap Inc."], marker='s',
        c='r')
       plt.title("Snap Inc. Stock Price")
       plt.xlabel("Time from IPO (Month)")
       plt.ylabel("Stock Price ($)")
```

```
[10]:  Text(0, 0.5, 'Stock Price ($)')
```

**Snap Inc. Stock Price**

The most exciting part about plotting data is its interpretation! Let's work on that together!

Snap went puplic on March 2, 2017. Based on the above plot, Snap stock lost about 65% of its initial value over the first 2 years afte IPO. One possible explanation is that Snap's business model was not well-established when it went public, which means it was losing money at the time of IPO. Even today, Snap is spending more money than what it gains from ads!

Next, we will explore Facebook stock price.

```python
[11]: # make a line graph that shows Facebook's month_from_IPO on the x-axis and the
      ↪corresponding stock_price on the y-axis.
      # add star shape markers to the plot
      # change the color of the plot to green
      # add proper labels/title
      plt.plot(stock_price["month_from_IPO"], stock_price["Facebook Inc."],
      ↪marker='*', c='g')
      plt.title("Facebook Inc. Stock Price")
      plt.xlabel("Time from IPO (Month)")
      plt.ylabel("Stock Price ($)")
```

```
[11]: Text(0, 0.5, 'Stock Price ($)')
```

Facebook Inc. Stock Price

Facebook went public on May 18, 2012. Unlike Snap, Facebook was profitable when it went public! It justifies the overall incresing trend that you see in the above plot!

Finally, we'll look at Twitter's stock price. Twitter went public on Nov. 7, 2013, about 1 year and a half after Facebook!

```
[12]: # make a line graph that shows Twitter's month_from_IPO on the x-axis and the␣
      ↪corresponding stock_price on the y-axis.
      # add labels/title/marker
      plt.plot(stock_price["month_from_IPO"], stock_price["Twitter Inc."], marker='v')
      plt.title("Twitter Inc. Stock Price")
      plt.xlabel("Time from IPO (Month)")
      plt.ylabel("Stock Price ($)")
```

```
[12]: Text(0, 0.5, 'Stock Price ($)')
```

Twitter Inc. Stock Price
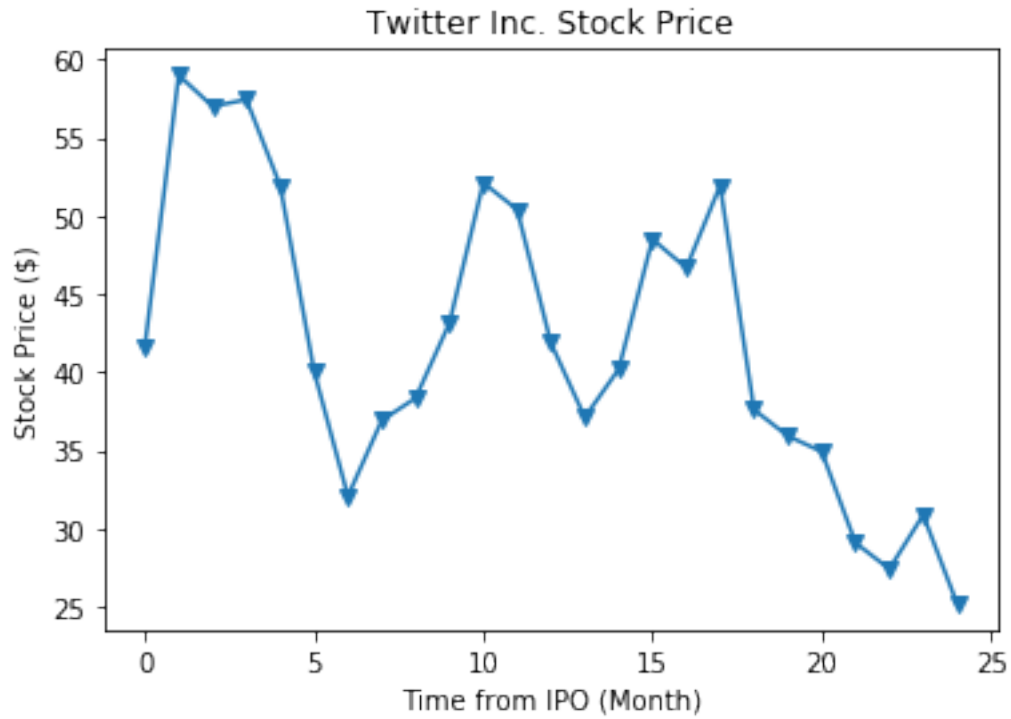
By looking at the above plot we notice that Twitter stock lost value over the first two years of its public trading. Considering this fact, can you make any conclusion about Twitter's profitability?

Great job! You just practiced: * creating line graphs * adding labels/title/market to the plot * using plot to gain insight into data and its interpretation