

# Profit\_Loss

September 29, 2021

## 1 Profit and Loss in Trading

<https://www.investopedia.com/ask/answers/how-do-you-calculate-percentage-gain-or-loss-investment/>

[https://www.investopedia.com/ask/answer/07/portfolio\\_calculations.asp](https://www.investopedia.com/ask/answer/07/portfolio_calculations.asp)

```
[1]: import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import math

import warnings
warnings.filterwarnings("ignore")

# fix_yahoo_finance is used to fetch data
import fix_yahoo_finance as yf
yf.pdr_override()
```

```
[2]: # input
symbol = 'MSFT'
start = '2016-01-01'
end = '2019-09-11'

# Read data
dataset = yf.download(symbol,start,end)

# View Columns
dataset.head()
```

[\*\*\*\*\*100%\*\*\*\*\*] 1 of 1 downloaded

```
[2]:
```

	Open	High	Low	Close	Adj Close	Volume
Date						
2016-01-04	54.320000	54.799999	53.389999	54.799999	50.708462	53778000
2016-01-05	54.930000	55.389999	54.540001	55.049999	50.939793	34079700
2016-01-06	54.320000	54.400002	53.639999	54.049999	50.014458	39518900
2016-01-07	52.700001	53.490002	52.070000	52.169998	48.274826	56564900

```
2016-01-08  52.369999  53.279999  52.150002  52.330002  48.422878  48754000
```

```
[34]: dataset.tail()
```

```
[34]:
```

	Open	High	Low	Close	Adj Close	\
Date						
2019-09-05	139.110001	140.380005	138.759995	140.050003	140.050003	
2019-09-06	140.029999	140.179993	138.199997	139.100006	139.100006	
2019-09-09	139.589996	139.750000	136.460007	137.520004	137.520004	
2019-09-10	136.800003	136.889999	134.509995	136.080002	136.080002	
2019-09-11	135.910004	136.270004	135.089996	136.119995	136.119995	

	Volume	Shares	PnL	End
Date				
2019-09-05	26101800	36.329287	87.916803	5087.916803
2019-09-06	20824500	35.701534	-33.916351	4966.083649
2019-09-09	25773900	35.945361	-56.793743	4943.206257
2019-09-10	28903400	36.358347	-52.356092	4947.643908
2019-09-11	24726100	36.743092	1.469466	5001.469466

```
[3]: Start = 5000 # How much to invest
```

```
[4]: dataset['Shares'] = 0
dataset['PnL'] = 0
dataset['End'] = Start
```

```
[5]: dataset['Shares'] = dataset['End'].shift(1) / dataset['Adj Close'].shift(1)
```

```
[6]: dataset['PnL'] = dataset['Shares'] * (dataset['Adj Close'] - dataset['Adj
→Close'].shift(1))
```

```
[7]: dataset['End'] = dataset['End'].shift(1) + dataset['PnL']
```

```
[8]: dataset.head()
```

```
[8]:
```

	Open	High	Low	Close	Adj Close	Volume	\
Date							
2016-01-04	54.320000	54.799999	53.389999	54.799999	50.708462	53778000	
2016-01-05	54.930000	55.389999	54.540001	55.049999	50.939793	34079700	
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2016-01-07	52.700001	53.490002	52.070000	52.169998	48.274826	56564900	
2016-01-08	52.369999	53.279999	52.150002	52.330002	48.422878	48754000	

	Shares	PnL	End
Date			
2016-01-04	NaN	NaN	NaN
2016-01-05	98.602872	22.809901	5022.809901

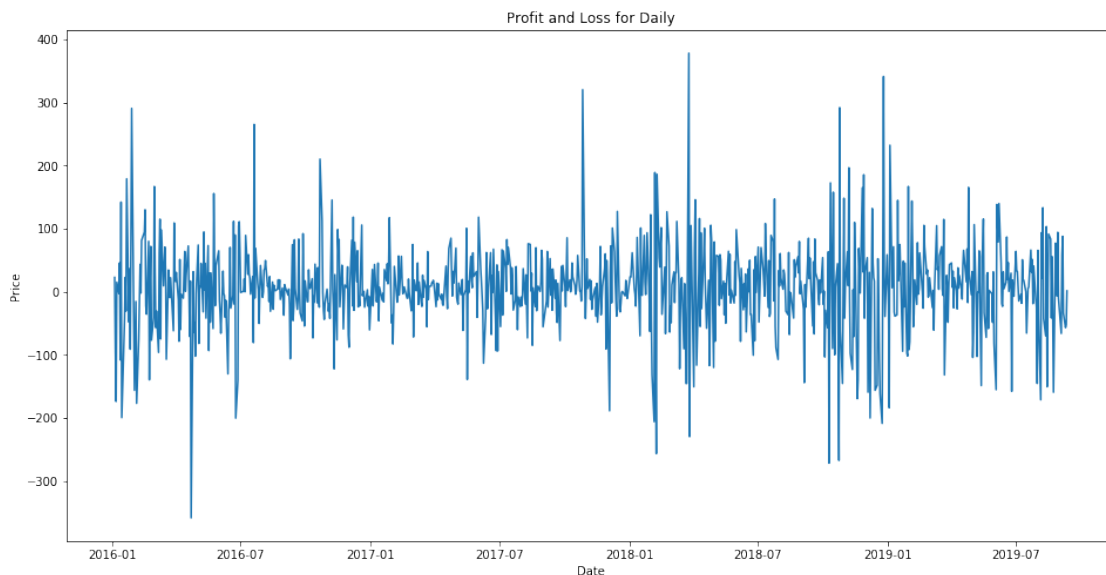
2016-01-06	98.155091	-90.826341	4909.173659
2016-01-07	99.971092	-173.912911	4826.087089
2016-01-08	103.573651	15.334286	5015.334286

```
[9]: dataset.tail()
```

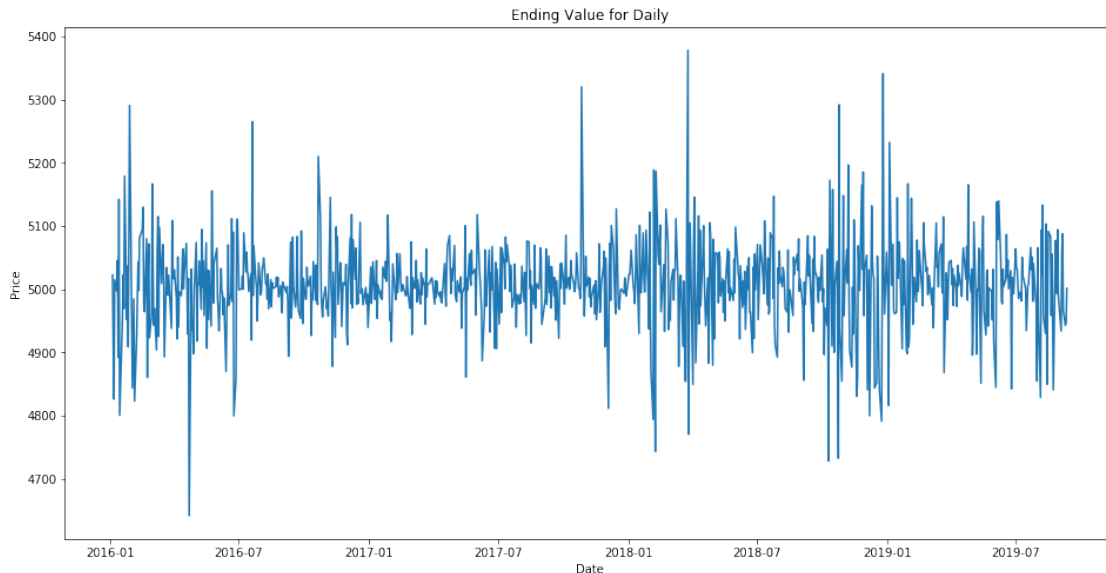
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2019-09-10	28903400	36.358347	-52.356092	4947.643908
2019-09-11	24726100	36.743092	1.469466	5001.469466

```
[10]: plt.figure(figsize=(16,8))
plt.plot(dataset['PnL'])
plt.title('Profit and Loss for Daily')
plt.xlabel('Date')
plt.ylabel('Price')
plt.show()
```



```
[11]: plt.figure(figsize=(16,8))
plt.plot(dataset['End'])
plt.title('Ending Value for Daily')
plt.xlabel('Date')
plt.ylabel('Price')
plt.show()
```



```
[12]: # How many shares can get with the current money?
Shares = round(int(float(Start) / dataset['Adj Close'][0]),1)
Purchase_Price = dataset['Adj Close'][0] # Invest in the Beginning Price
Current_Value = dataset['Adj Close'][-1] # Value of stock of Ending Price
Purchase_Cost = Shares * Purchase_Price
Current_Value = Shares * Current_Value
Profit_or_Loss = Current_Value - Purchase_Cost
```

```
[13]: print(symbol + ' profit or loss of $%.2f' % (Profit_or_Loss))
```

MSFT profit or loss of \$8370.33

```
[31]: percentage_gain_or_loss = (Profit_or_Loss/Current_Value) * 100
print('%s %%' % round(percentage_gain_or_loss,2))
```

62.75 %

```
[32]: percentage_returns = (Current_Value - Purchase_Cost)/ Purchase_Cost
print('%s %%' % round(percentage_returns,2))
```

1.68 %

```
[37]: net_gains_or_losses = (dataset['Adj Close'][-1] - dataset['Adj Close'][0]) /  
      ↪dataset['Adj Close'][0]  
      print('%s %%' % round(net_gains_or_losses,2))
```

1.68 %

```
[39]: total_return = ((Current_Value/Purchase_Cost)-1) * 100  
      print('%s %%' % round(total_return,2))
```

168.44 %

```
[41]: print("Financial Analysis")  
      print('-' * 50)  
      print(symbol + ' profit or loss of $%.2f' % (Profit_or_Loss))  
      print('Percentage gain or loss: %s %%' % round(percentage_gain_or_loss,2))  
      print('Percentage of returns: %s %%' % round(percentage_returns,2))  
      print('Net gains or losses: %s %%' % round(net_gains_or_losses,2))  
      print('Total Returns: %s %%' % round(total_return,2))
```

Financial Analysis

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MSFT profit or loss of \$8370.33  
Percentage gain or loss: 62.75 %  
Percentage of returns: 1.68 %  
Net gains or losses: 1.68 %  
Total Returns: 168.44 %