Analyze Financial Data with Python Capstone Project

APRIL 2021

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Introduction

This is a project launched at Codecademy and it is a part of skill path Analyze Financial Data with Python.

TASK DESCRIPTION: You are working as a wealth manager at a small firm where you have clients seeking advice on how to invest their money. A young client wants to invest a large amount of their savings in a portfolio of stocks, but they are unsure of what stocks to invest in and at what amounts.

Contents

Timeframe

Financial Analysis will be performed for all 2020 year including first quarter of 2021 year.

- start_date = 2020-01-01
- end_date = 2021-03-31

About Stocks

Stocks

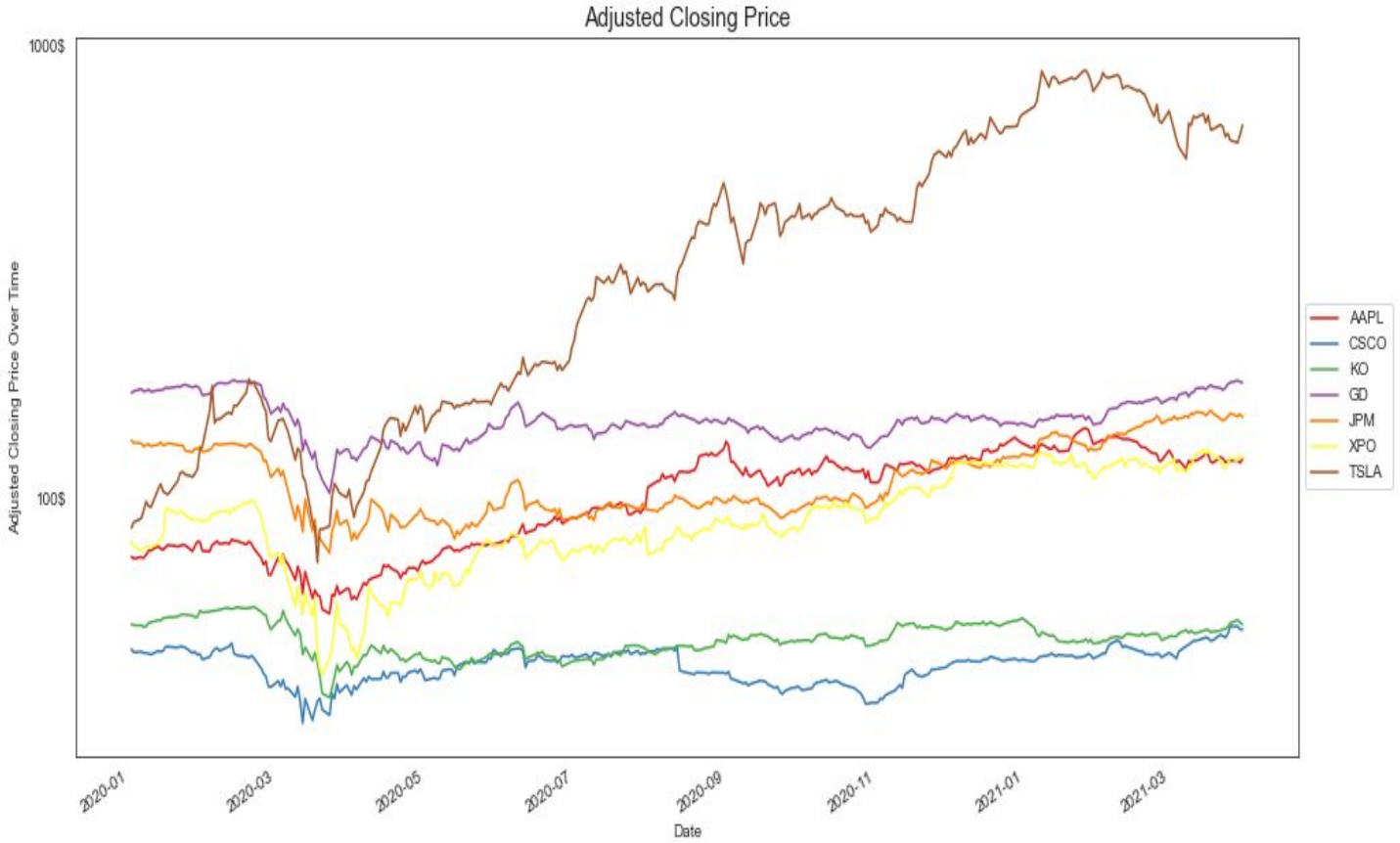
Apple	• Electronics Industry • Apple Inc. designs, manufactures and markets mobile communication and media devices, personal computers and portable digital music players. The Company sells a range of related software, services, accessories, networking solutions, and third-party digital content and applications
Cisco System	• Telecommunication Industry • Cisco develops, manufactures and sells networking hardware, software, telecommunications equipment and other high-technology services and products
Coco-Cola	• Food Industry • The Coca-Cola Company is a beverage retailer, manufacturer and marketer of non-alcoholic beverage concentrates and syrups. The company's flagship product is Coca-Cola, but it offers more than 500 brands in over 200 countries
General Dynamics	• Aviation Industry • General Dynamics Corp. is an aerospace and defense company, which engages in the provision of tanks, rockets, missiles, submarines, warships, fighters and electronics to all of the military services

Stocks

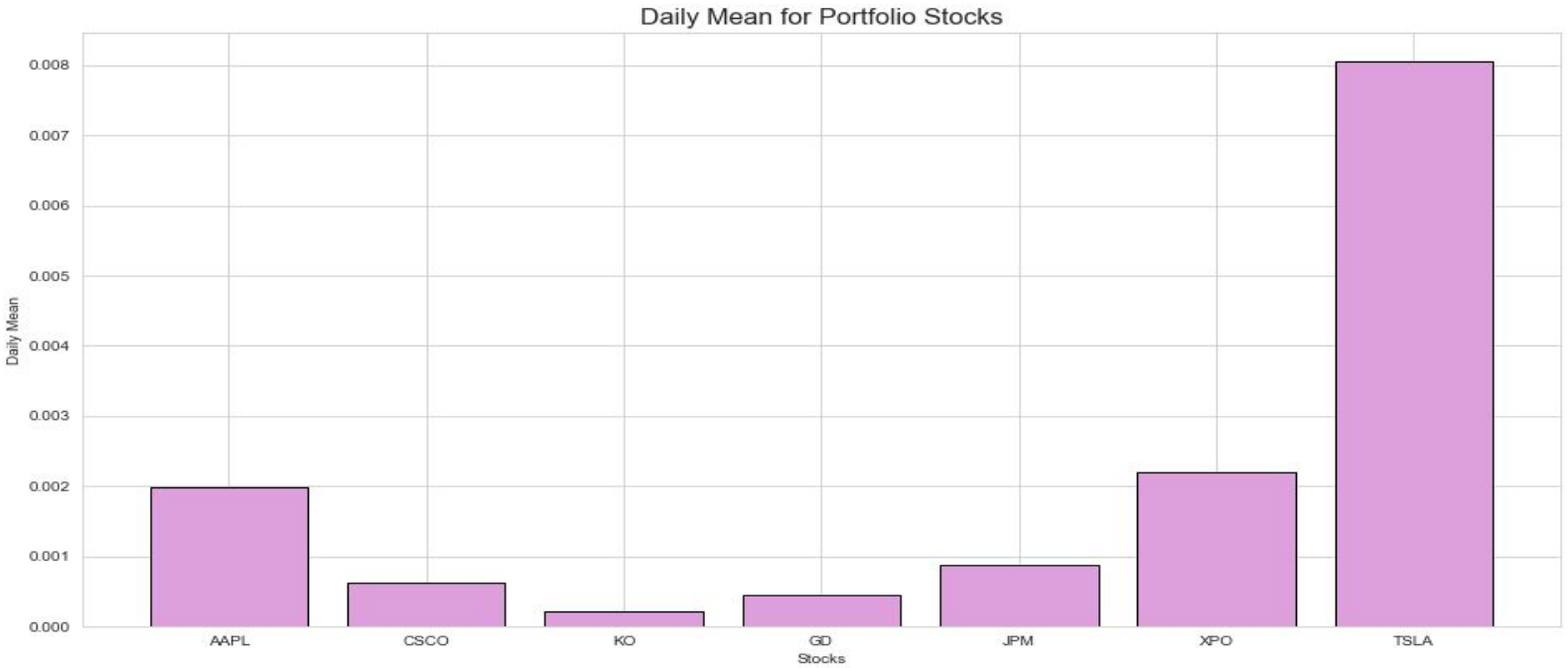
JPMorgan	• Finances • JPMorgan Chase & Co. is a financial holding company. It provides financial and investment banking services
XPO Logistics	• Logistics • XPO Logistics, Inc. is a global provider of supply chain solutions. The Company operates in two segments: Transportation and Logistics
Tesla	• Automotive Industry • Tesla, Inc. designs, develops, manufactures and sells electric vehicles and designs, manufactures, installs and sells solar energy generation and energy storage products. The Company's segments include automotive, and energy generation and storage

Financial Statistics

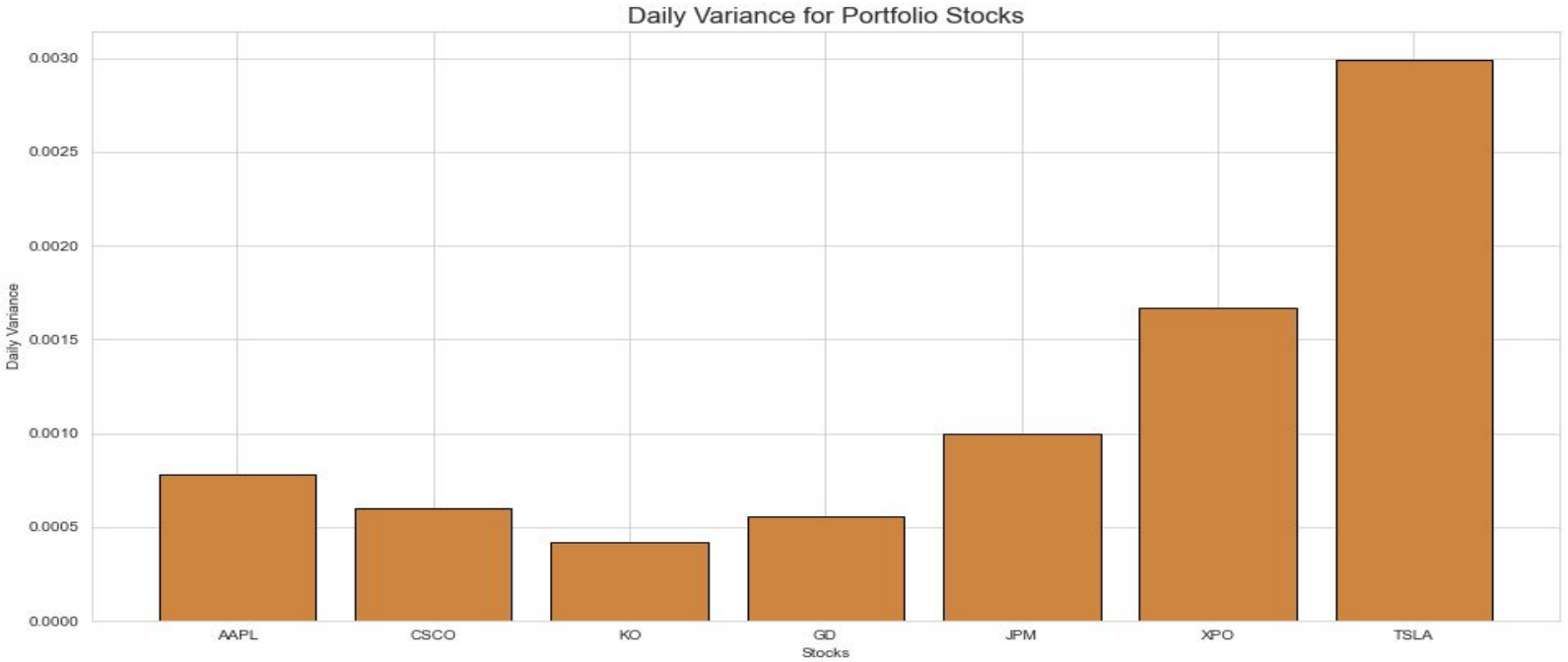
First take look at overall stocks price during period



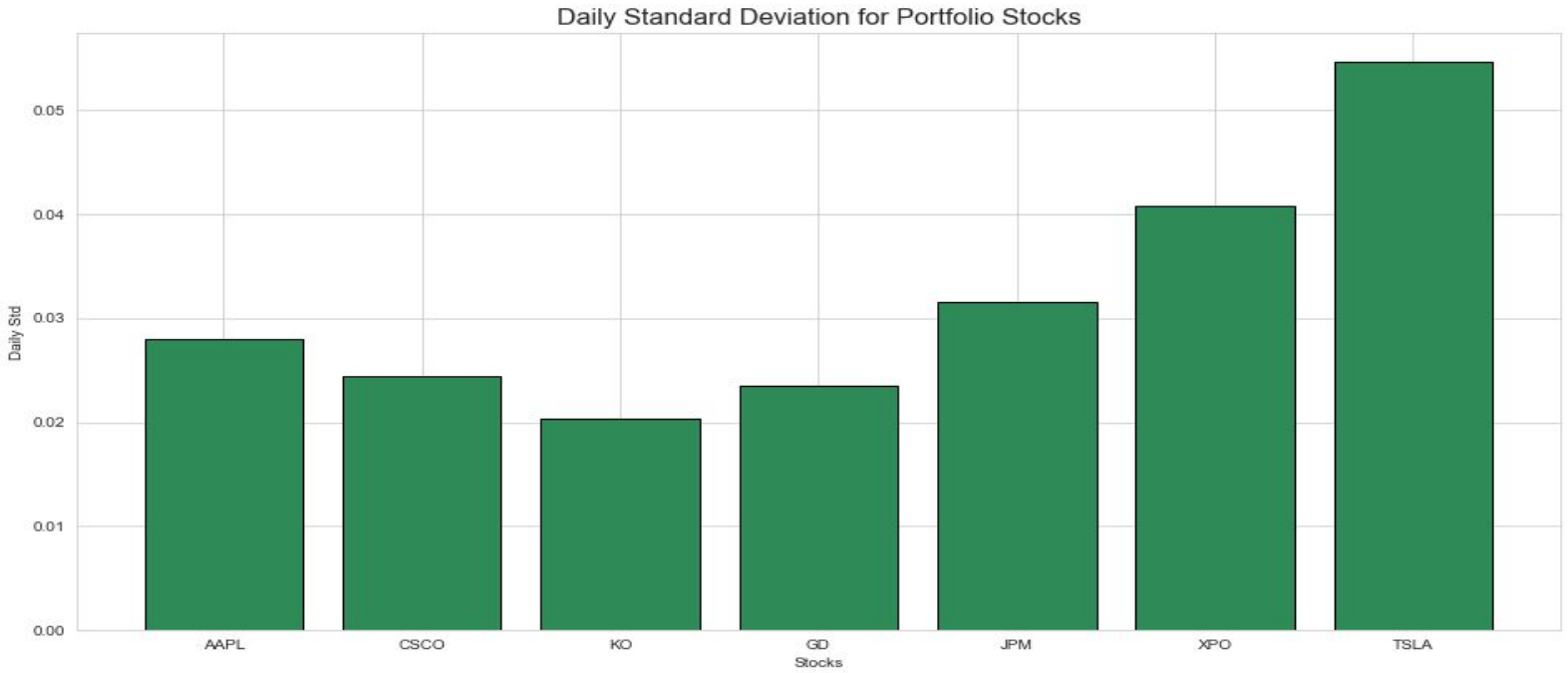
Daily mean of each stocks simple rate of return



Daily variance



Daily standard deviation



Financial Statistics Description

Mean

- Tesla has the highest mean simple rate of return over the period of data collected. Thus Tesla would have been a good choice for investment over this period of time.
- Coca-Cola, on the other hand, has the lowest mean simple rate of return over the period.

Variance

- Tesla shows the highest variance of all the stocks, indicating it can be a riskier investment.
- Coca-Cola shows the lowest variance, indicating that the returns are more predictable.

Standard Deviation

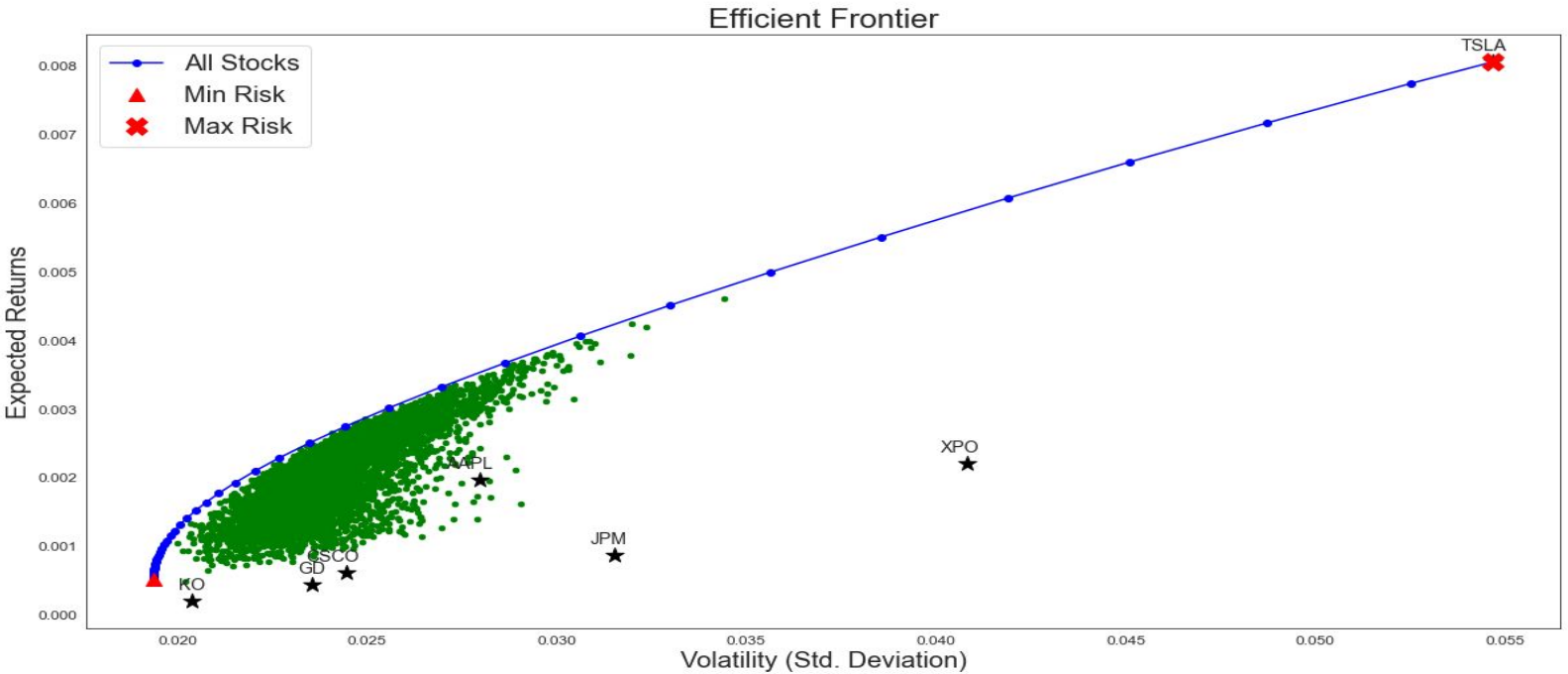
- Tesla is the most volatile stock, as it has the largest standard deviation. It also, however, has the largest mean return. If you are a more risky investor, this could be your stock of choice.
- Coca-Cola, on the other hand, is the least volatile stock, but has the lowest mean return.

Portfolio Option

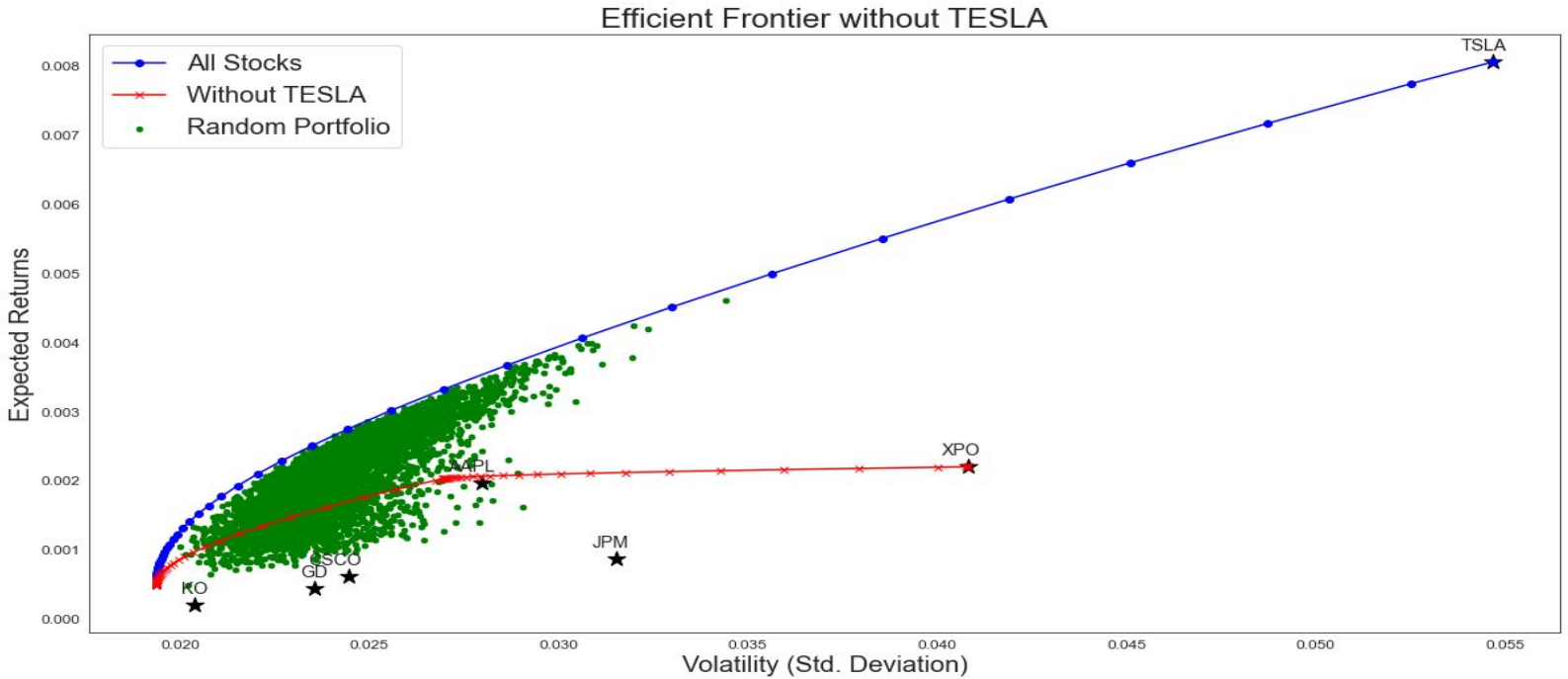
Mean-Variance Portfolio Optimisation

The next few slides will shows a graphs where I calculate efficient frontier for stocks in my portfolio and it will be compared with efficient frontier counts for stocks without Tesla.

Efficient Frontier for all Stocks in portfolio



Efficient Frontier without Tesla



Efficient Frontier Description

Scenario 1: all stocks

- standard deviation at level 0.055
- expected returns at level 0.008

Scenario 2: without Tesla

- standard deviation at level 0.040
- expected returns at level 0.002

In both scenarios Apple fall on the efficient frontier which suggests it will be good to invest in that stocks.

High Risk Portfolio vs. Low Risk Portfolio

HIGH RISK	
Volatility(Std)	**0.03459**
Returns	**0.004707**
AAPL Weight	0.125956
CSCO Weight	0.016831
KO Weight	0.042719
GD Weight	0.047385
JPM Weight	0.104954
XPO Weight	0.172688
TSLA Weight	0.489468

LOW RISK	
Volatility(Std)	**0.01986**
Returns	**0.000885**
AAPL Weight	0.036611
CSCO Weight	0.299699
KO Weight	0.450403
GD Weight	0.120221
JPM Weight	0.015544
XPO Weight	0.02707
TSLA Weight	0.050453

Description of High Risk and Low Risk Portfolio

High Risk

- standard deviation at level 0.03459
- expected returns at level 0.004707

Low Risk

- standard deviation at level 0.01986
- expected returns at level 0.000885

Both tables shows the weights for each stocks. Depending what kind of investor we met we can suggests invest in High Risk Portfolio or Low Risk Portfolio.

Final Conclusion

Conclusions

- ★ As a recommendation for a client would be a choose a portfolio that fall on the efficient frontier. In our example this portfolio is Apple.
- ★ Depending on investor acceptable level of risk a good idea would be choose a portfolio with Tesla stocks because it could increase our expected returns.
- ★ Perhaps considering portfolio without Tesla is not the clever idea because the volatility in both cases is comparable - 0.040 and 0.055 respectively without and with Tesla stocks in portfolio. It seems that Tesla is high-risk stocks (in compare to six others stocks in portfolio) but it could increase expected returns four times.
- ★ All of this chosen stocks have not worked out an incredible returns. Perhaps chosen stocks by absolutely random to this project was not the best idea.

Thanks for Attention