# Finance and Risk Analytics

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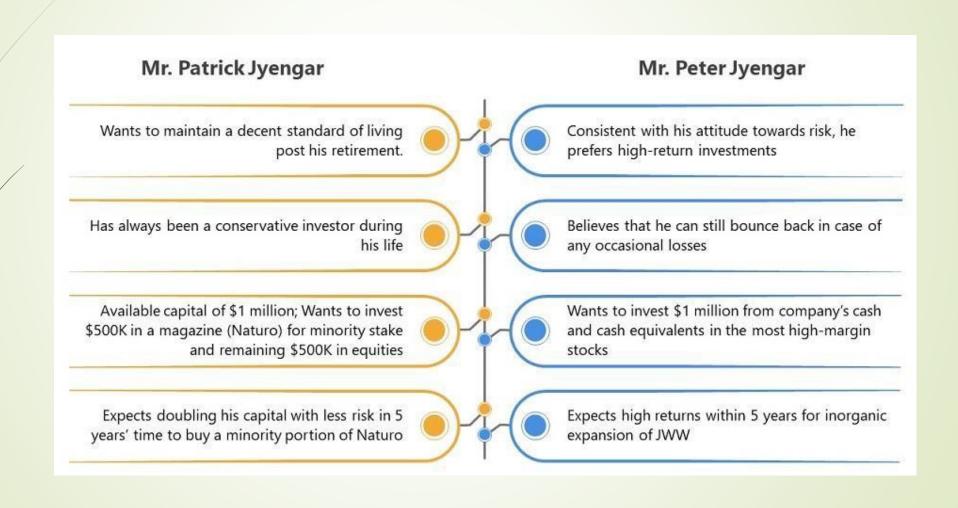
Specialization track: Business Intelligence/Data Analytics

### **BUSINESS OBJECTIVE**

- Two different investors, Mr. Patrick and Mr. Peter needs consultation on investment management based on their requirements and financial objectives by analysing the portfolio of stocks.
- Information of 24 stocks of leading companies belonging to different domains like Aviation, Finance, Pharma Healthcare and Technology listed in New York Stocks exchange from 1st October 2010 to 30th September 2020 are available including S&P500 index prices for the same period.
- The data from 1st October 2015 is used for the analysis of the stocks.

- To identify important insights from stock market analysis and, as a result, create a portfolio for Mr. Patrick and Mr. Peter.
- To comprehend the Investors' profile in order to offer an appropriate investment plan.
- In order to meet the expectations of the investors, we must: Mr. Patrick's amount will double in the next 5 years (low risk, high returns), while Mr. Peter's cash flow will double in 5 years (Ready to take risk, High Returns).

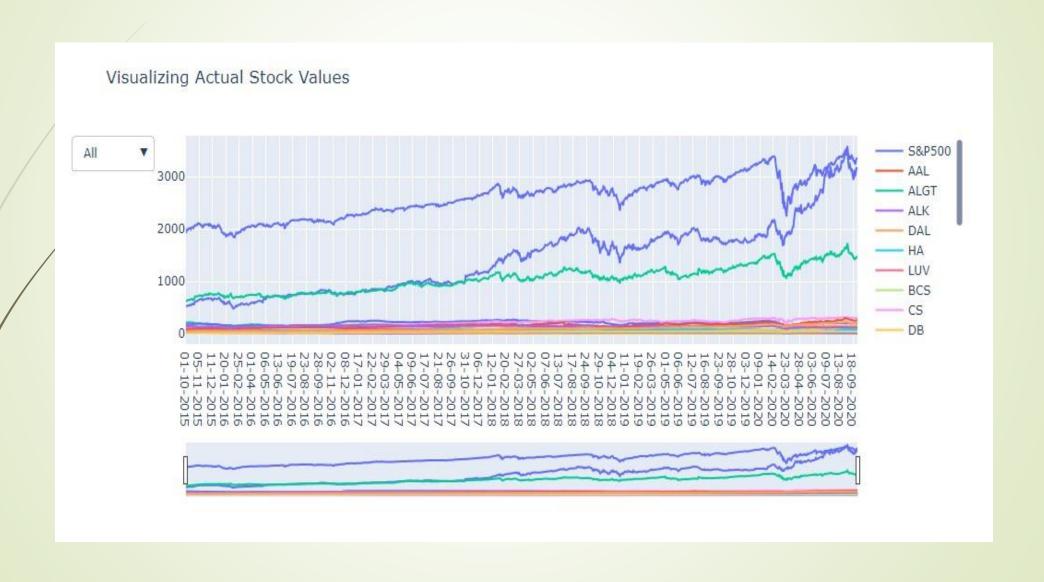
## Profile Summary of the investors



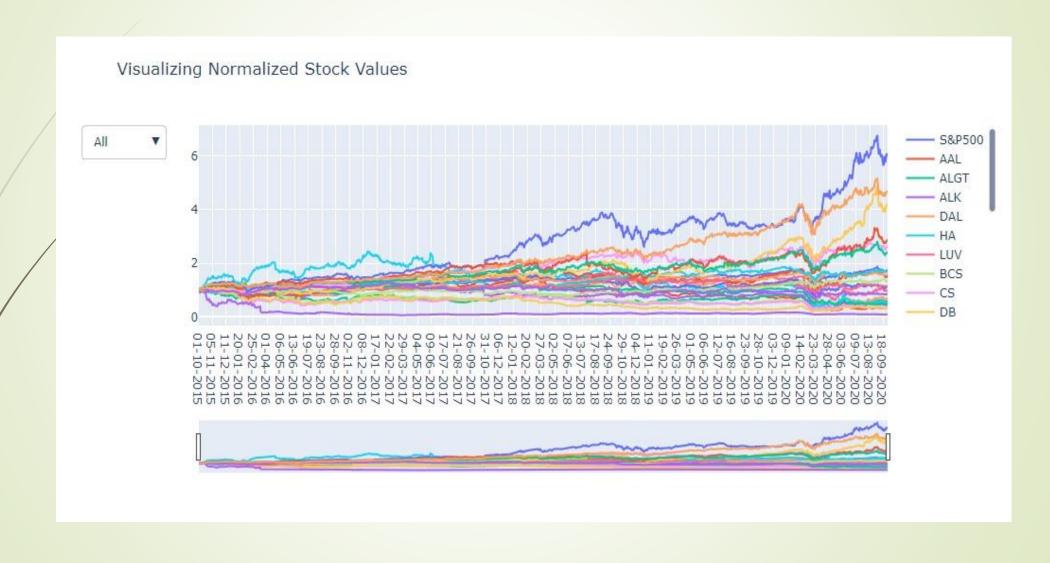
### DATA PREPARATION AND ANALYSIS

- The 24 datasets of stocks files, as well as Market Index (S&P 500) datasets, were imported and combined into a single dataset with a 5 years timeframe.
- The final dataset has been executed by industry, close price, and volume.
- Using Plotly and Tableau, visualize the data to get insights between Actual Stock Visualizations and Normalized Stocks.
- Calculated annual return, annual risk, cumulative return, and sharpe ratio or risk adjusted returns using Python matrices.
- We provide a suitable investment strategy for both investors based on the final outcomes.

### Actual Stocks



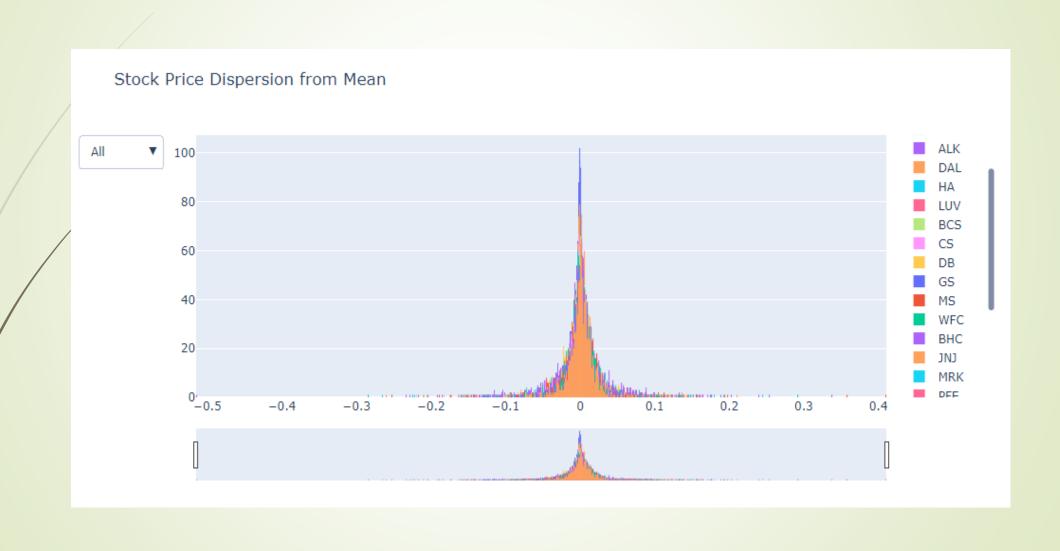
### Normalized Stocks



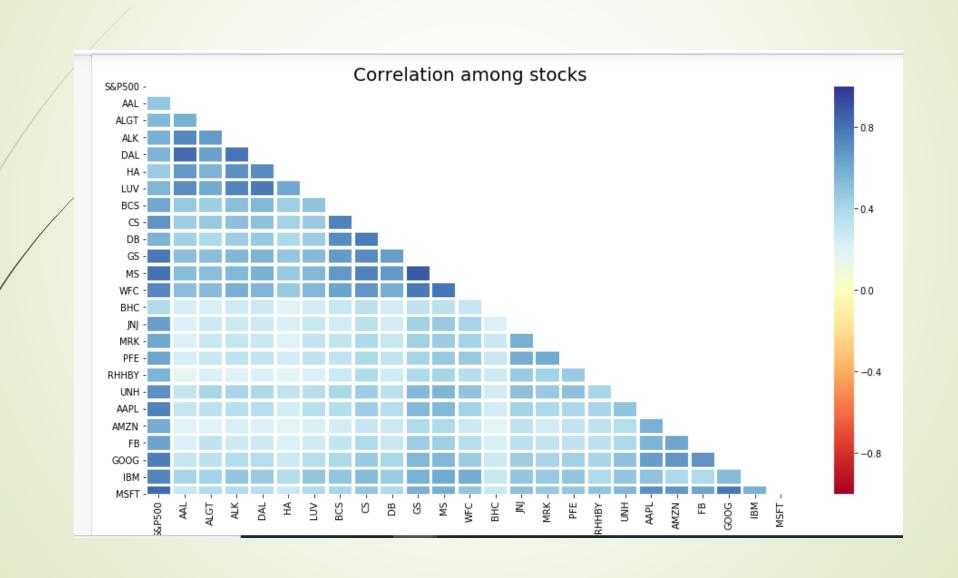
## Daily Stock Returns



## Stock Risks



### **Stock Correlation**



### CONCLUSIONS

The following plan can be advised based on the level of risk an investor is prepared to take:

- ► For Mr. Patrick Jyenger: The estimated portfolio returns for the stocks JNJ, RHHBY, PFE and MRK is \$1,214,929 with 21.38% risk which is near to the market or S&P500 risk.
- ☐ Therefore, we recommend Mr.Patrick Jyenger to invest the amount in the below stocks equally to get 2.4X returns with a 21% risk.
- > Johnson & Johnson
- Roche Holding AG
- > Pfizer inc
- Merck and CO inc.

#### Mr.Patrick Jyenger's Portfolio Investment = \$ 500,000 Risk = 21% Returns = \$ 1,214,929 Daily Returns 1 Jul 15 1 Jan 16 1 Jul 16 1 Jan 17 1 Jul 17 1 Jan 18 1 Jul 18 1 Jan 19 1 Jul 19 1 Jan 20 1 Jul 20 1 Jan 21 Date Roche Holding AG Pfizer Inc 40 PFE 20 PFE returns 0.05 0.00 -0.05 2016 2017 2018 2019 2020 2021 2016 2017 2018 2019 2020 Date Date Johnson & Johnson Merck and Co Inc MRK 50 MRK retur.. 0.1 0.0 -0.1

Patrick's daily ..

Rhhby

RHHBY ret..

N

JNJ returns

0.05 0.00 -0.05

40

20

0.1

0.0

-0.1

150

100

50

0.0

0

- ► For Mr. Peter Jyenger: The estimated portfolio returns for the stocks AMZN, MSFT, AAPL, FB, UNH, GOOG are \$4,824,411 which is 4 times the investment with a risk of 29%.
- ☐ Therefore, we recommend Mr.Peter Jyenger to invest in the below stocks to get a 4X return with a 29% risk.
- > Amazon
- > Microsoft
- > Apple
- > Facebook
- United Health group Inc
- Google

#### Mr.Peter Jyenger's Portfolio

Investment = \$ 1,000,000

Risk = 29%

Returns = \$ 4,824,411

#### Daily Returns



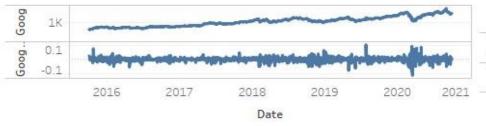
#### Facebook

#### 

#### Amazon



#### Google



#### Apple



#### Microsoft



#### United Health Group Inc



# Thank You