Stock Portfolio Optimization

TEAM 7

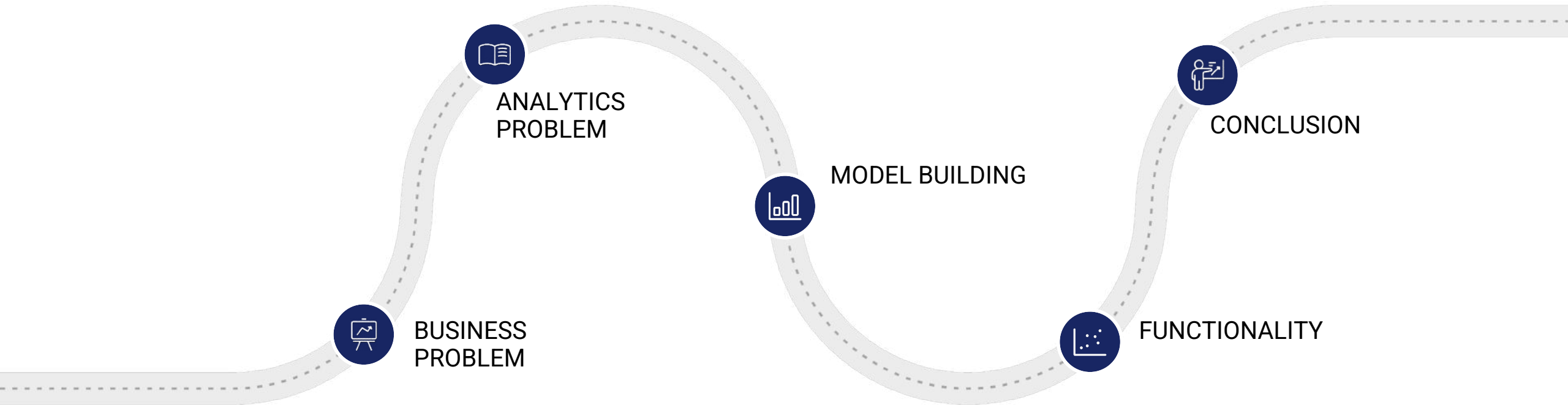Sarosh Iqbal

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AGENDA

Process Flow of the video

ANALYTICS
PROBLEM

CONCLUSION

MODEL BUILDING

BUSINESS
PROBLEM

FUNCTIONALITY

Type text

Business Problem

RETAIL INVESTORS

FUND MANAGERS/ ANALYST

RATING AGENCIES

ANALYTICS PROBLEM

Live Stock Price from **Yahoo Finance**

Pull data of **6072** stocks

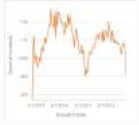| DATA ENGINEERING	DESCRIPTIVE STATISTICS	PRESCRIPTIVE STATISTICS
WEB SCRAPPING - USING JSON	VISUALISATION QUANTITATIVE METHODS STATISTICAL INSIGHTS	OPTIMIZATION

ANALYTICS PROBLEM

Price Charts of your stocks

Portfolio **ROC** performance

CAPM Metrics

Portfolio volatility Analysis

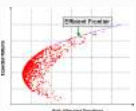| DATA ENGINEERING	DESCRIPTIVE STATISTICS	PRESCRIPTIVE STATISTICS
WEB SCRAPPING - USING JSON	VISUALIZATION (ggplot, plotly), QUANTITATIVE METHODS(Quantmod, PerformanceAnalytics, PortfolioAnalytics)	OPTIMIZATION

ANALYTICS PROBLEM

Efficient Frontier

Portfolio Allocation as per risk profile

Portfolio rebalancing

DATA ENGINEERING	DESCRIPTIVE STATISTICS	PRESCRIPTIVE STATISTICS
WEB SCRAPPING - USING JSON	VISUALIZATION (ggplot, plotly, dt), QUANTITATIVE METHODS(Quantmod, PerformanceAnalytics, PortfolioAnalytics)	OPTIMIZATION (PerformanceAnalytics, ImputeTS, Portfolio Analytics)

KEY PERFORMANCE INDICATOR

Alpha

Excess Return Over Benchmark Return

When you hear "I beat the market" from your fund-manager, this is what he will cite

Beta Ratio

Measure of volatility in comparison to the overall market

Ex: Beta of 1.12 means the stock is .12x riskier than the overall market

Sharpe Ratio

Excess return earned for the extra volatility endured

HIgher the Sharpe Ratio, better the fund return relative to the risk it takes

CAPM Model

Required return of an investment based on the risk undertaken

Conveys the proportionate amount of risk you need to take to achieve a certain rate of return

Price Chart/Volume/ROC

How have they performed wrt. each other?

CAPM Indicators

Which stocks are the riskiest?

Alpha, Beta, Volatility Index,

Beta : 0.95 | Alpha : 1.28 | Sharpe : 1.57

Asset Allocation/Risk Profile

How much money should I allocate in each stock?

Amazon : 0.32 | Tesla : 0.4 | Gamestop : 0.15 | Uber : 0.1

How will the stakeholders benefit?

RETAIL INVESTORS

How is TSLA performing?

I want to buy a stock but do not want risk.

How much to buy?

FUND MANAGERS/ ANALYST

Which funds/stocks are risky?

How do we build a risk-free portfolio

Whats the efficient frontier?

RATING AGENCIES

Which is the best asset class?

How should I rate AMC's?

Do markets need to be regulated?

FUTURE SCOPE

Live change in prices

Predictive Analytics - Seasonality, Cyclical

Functional tools : Trendlines, etc

REFERENCES

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