Stock Market
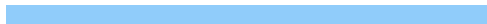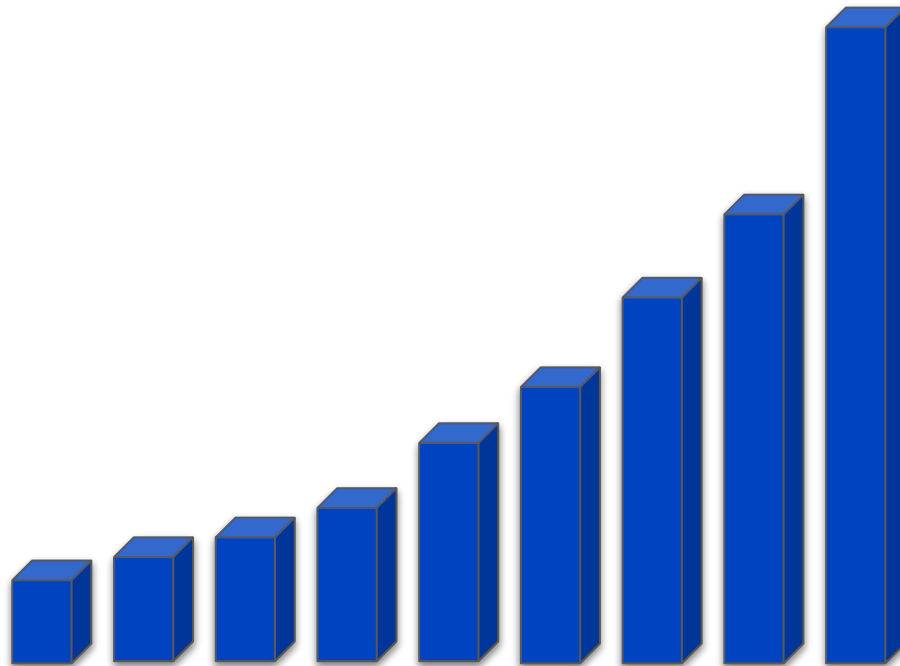# Machine Learning

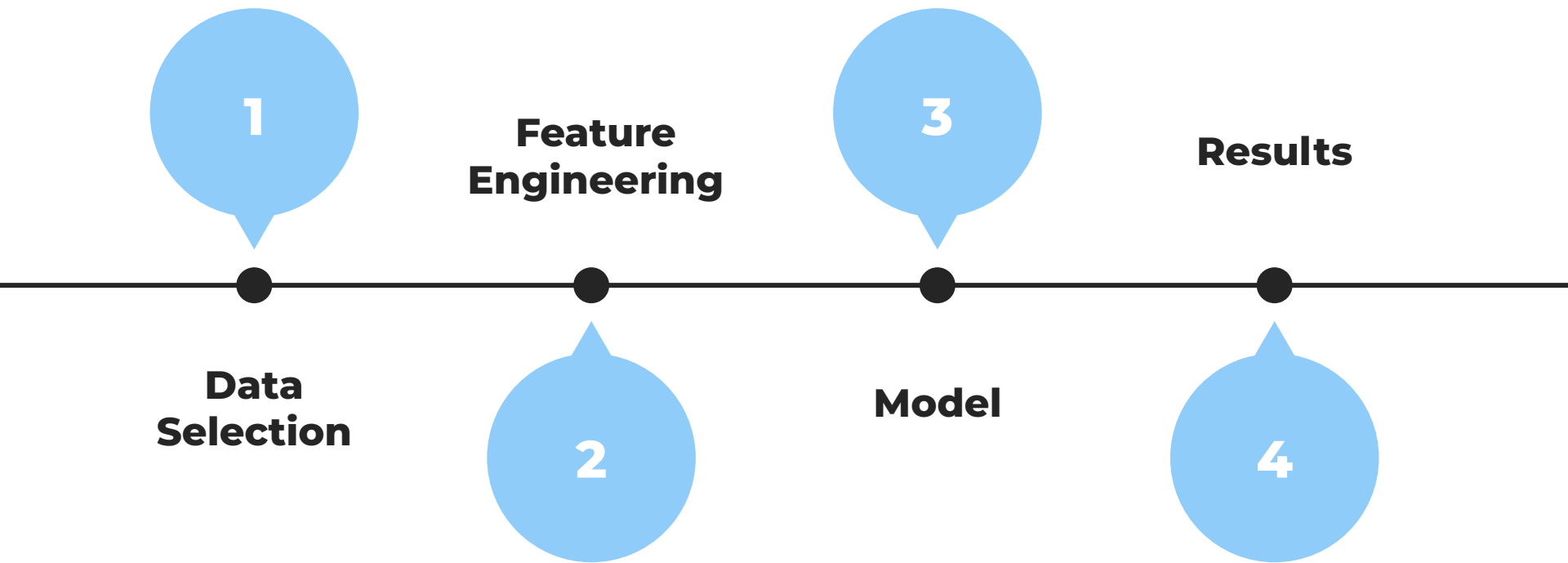TJ Bray

Business Objective

Predict Closing Stock Price of S&P 500 companies

My Process

1 — Data Selection

2 — Feature Engineering

3 — Model

4 — Results

Data Selection

Stock Market Trading Data

**Trading
History of
S&P 500 Stocks**

**S&P 500 Price
History**

Feature Engineering

Moving Averages

Trend Direction

Relative Strength Index

Momentum

Bollinger Bands

Volatility

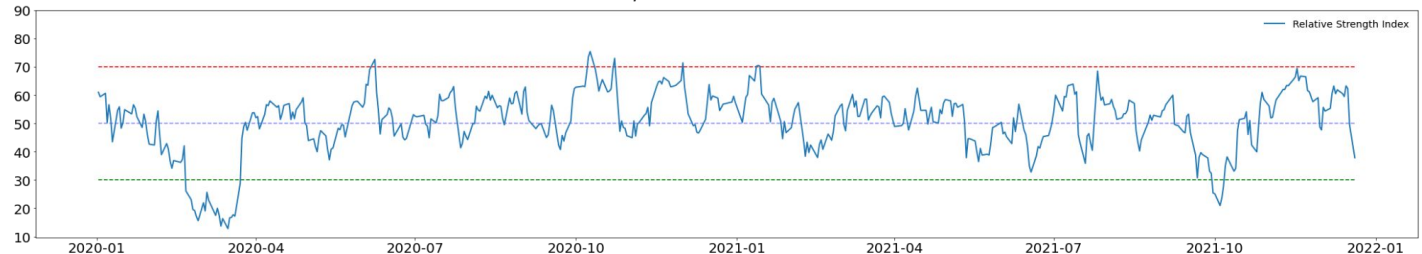# LyondellBasell Industries

HASBRO, Inc.

HASBRO, Inc. Bollinger Band Width since 1-1-2020

HASBRO, Inc. RSI since 1-1-2020

United States Macroeconomic Data

Treasury Rate

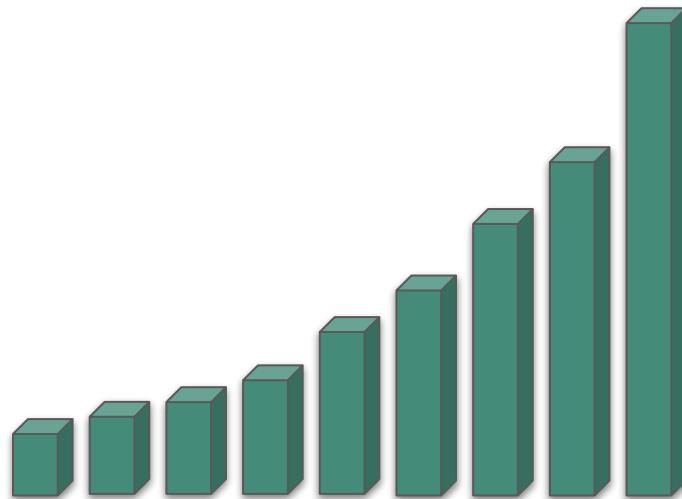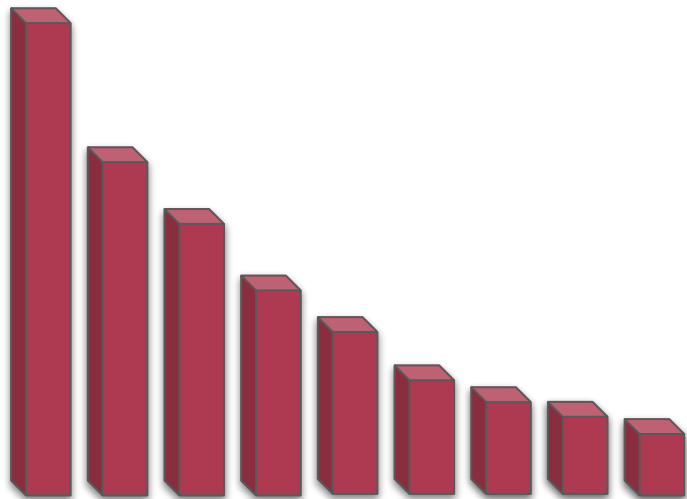M2 Money Supply

Federal Funds Rate

Personal Savings Rate

Core Consumer Price Index
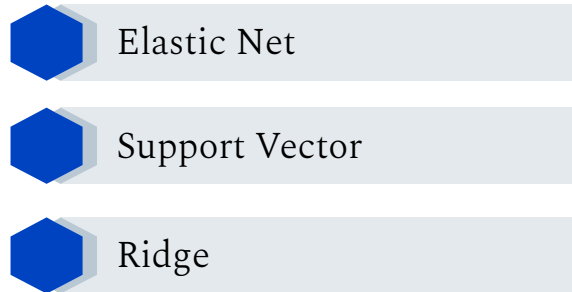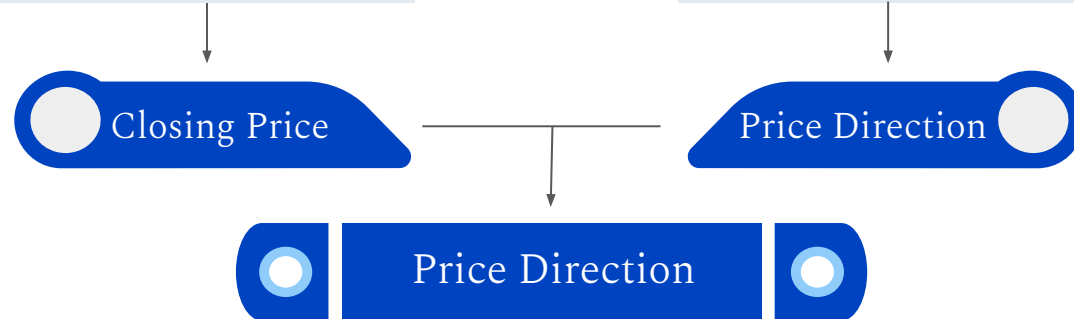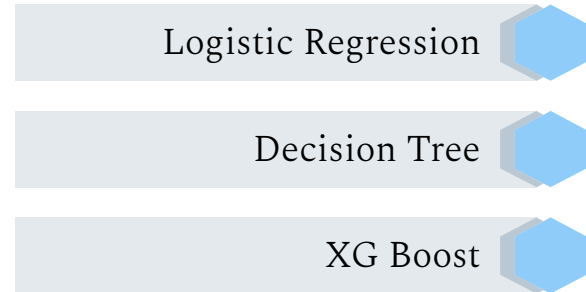
Industrial Production

Model Selection

Baseline

6 Model Types

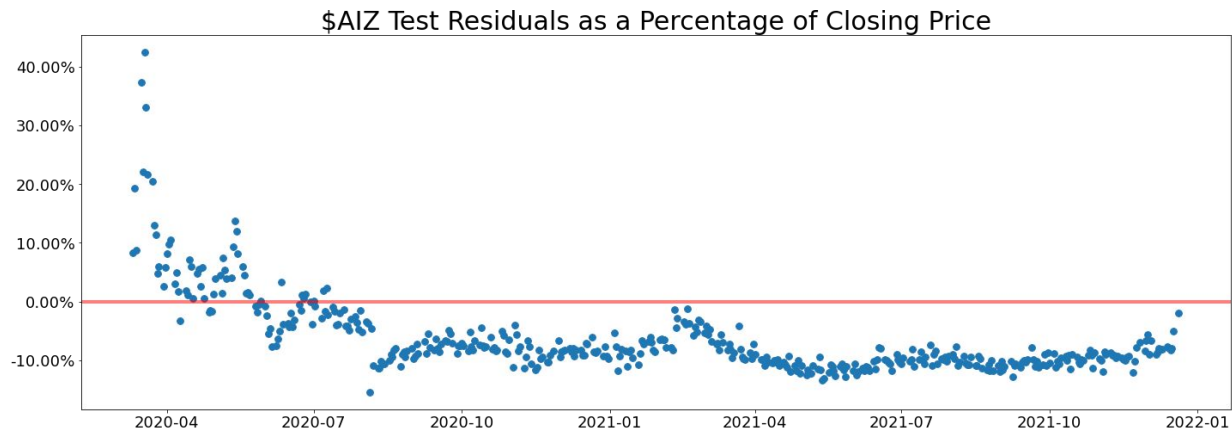**Regression Models**

Classification Models

Elastic Net

Support Vector

Ridge

Logistic Regression

Decision Tree

XG Boost

Closing Price

Price Direction

Price Direction

Results

Regression Models

2%

Models with normally distributed residuals

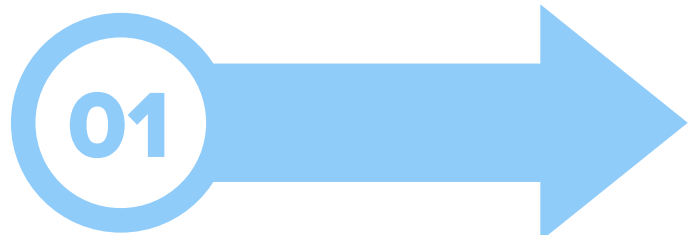$AIZ Test Residuals as a Percentage of Closing Price

Classification Models

63

Models
outperformed
the baseline.

Outperformed the baseline
model by **6.2%**

Next Steps

01 Natural Language Processing

02 Sector Focused Analysis

03 Rolling Regressions

Thanks!

Does **anyone** have any questions?

TJ Bray

LinkedIn
Github

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Credits