



Global Economic Prediction

Crude Oil and Stock Price

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WELCOME!

- Bachelor of Science in Chemistry from University of Illinois at Urbana Champaign
- Data Science study from Flatiron School



Stakeholder



- 183rd on the Fortune 500 in 2021
- Hydrocarbon exploration
- Petrochemical manufacturing

Occidental Petroleum

AGENDA

01 **Business Problem**

02 **Data**

03 **Limitations**

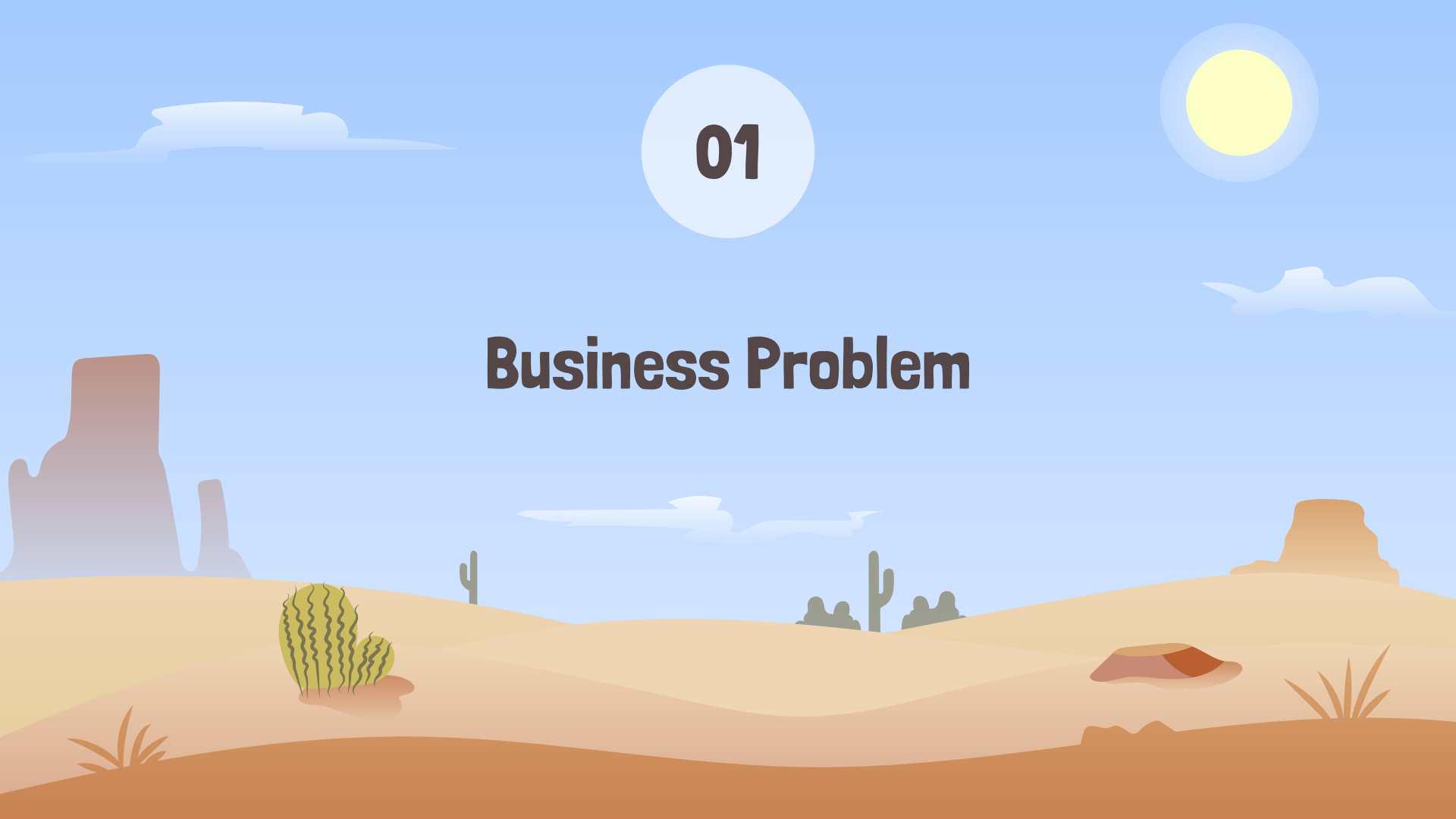
04 **Features**

05 **Recommendation**



01

Business Problem



HIGH GAS PRICE!

On June 15, 2022, the highest gas price in California almost reached \$10!



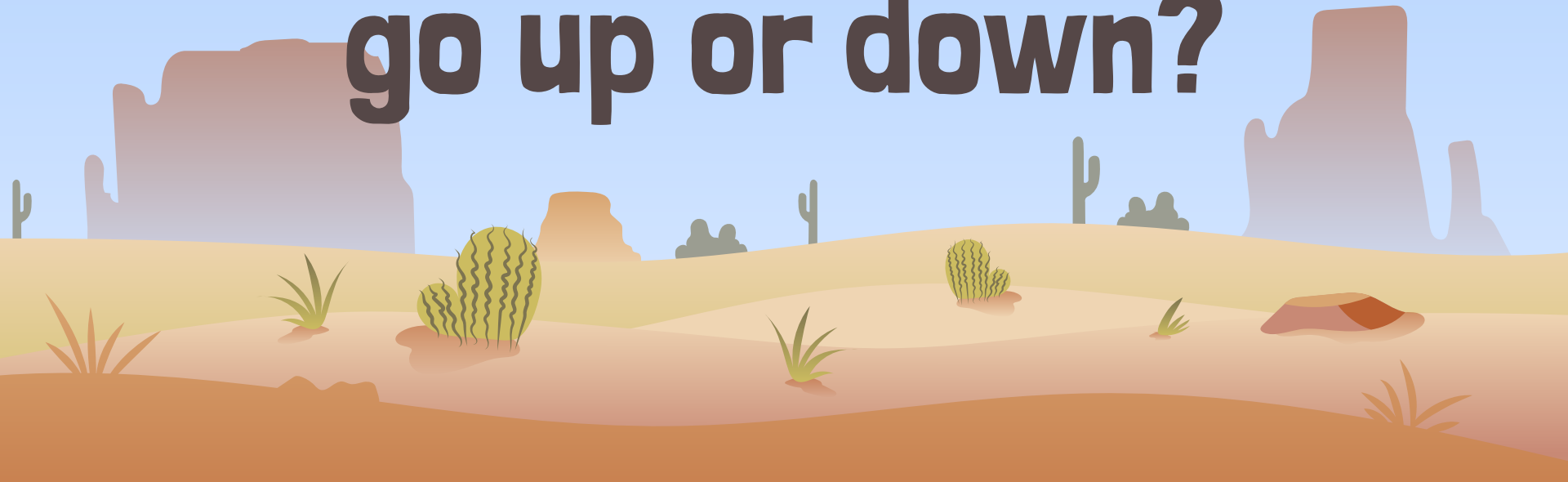
HIGH GAS PRICE!

Crude oil price dropped about 15%
from the highest peak of June

BUT recently, Warren Buffett invested
\$5 billion dollars in Occidental Petroleum



**Will the stock price
go up or down?**

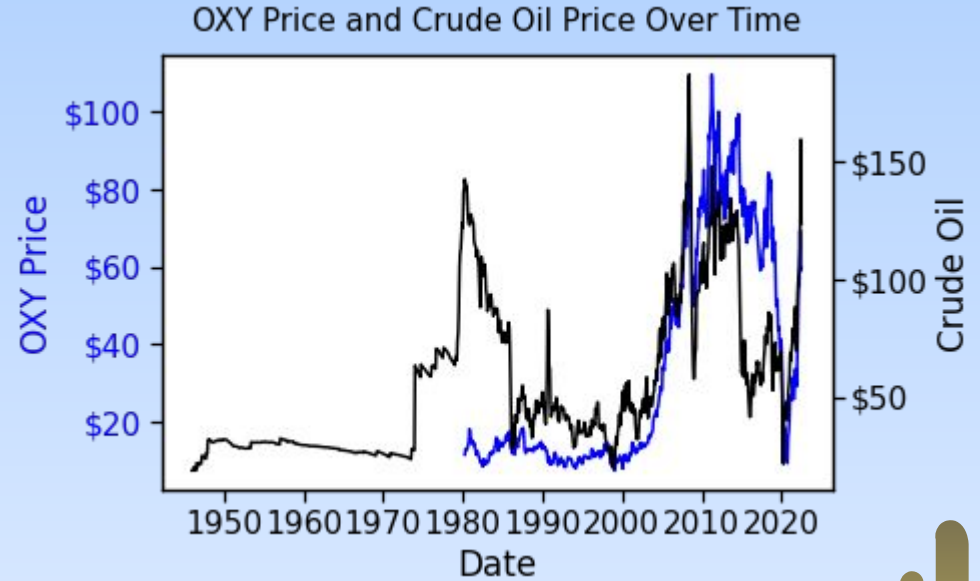
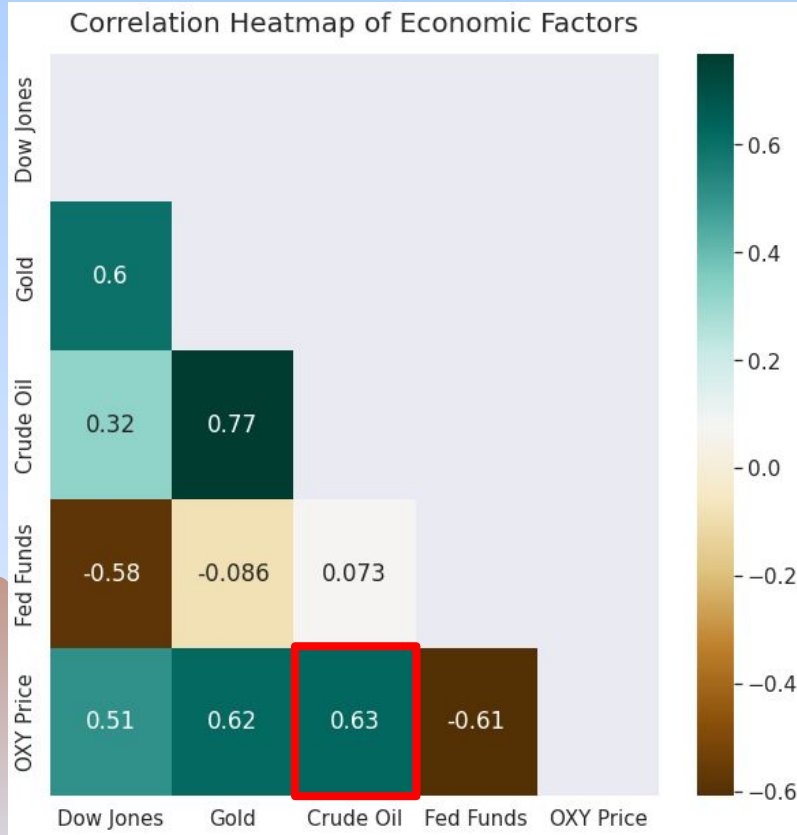




02

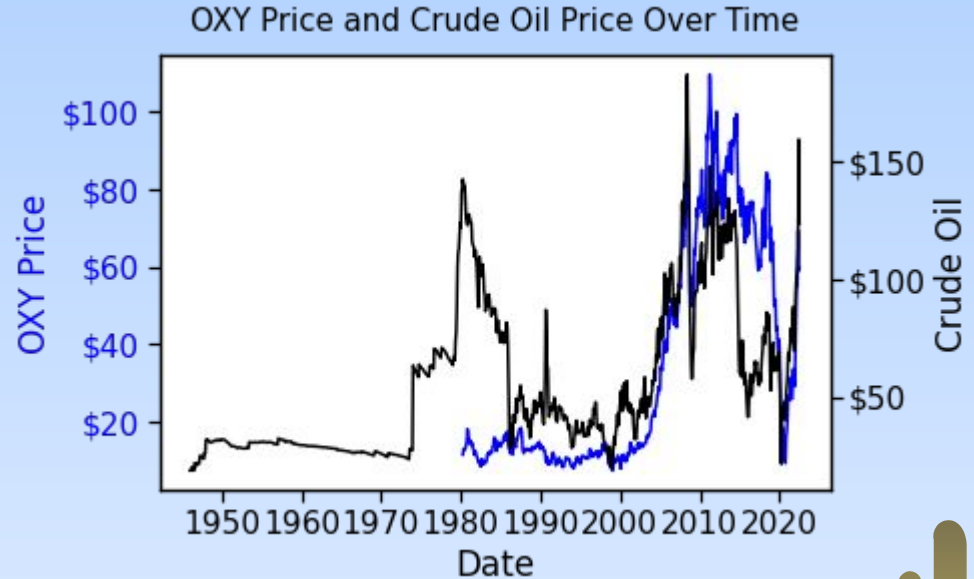
DATA

DATA SELECTION



DATA SELECTION

- TradingView
- MacroTrends
- Monthly crude oil price records from January 1946 to July 2022
- Monthly Occidental Petroleum price records from April 1980 to July 2022



03

Limitations



LIMITATIONS

World Issues

- War
- Pandemic



Technology

- Electricity
- Nuclear Energy

Government Policy

- Government Party
- Environment Policy



Economic Factors

- Economic Crisis
- Inflation



04

Features

Crude Oil Price Prediction and Actual



ARIMA

Train

RMSE : \$9.64

Confidence Interval : 85.8%

Test

RMSE : \$18.64

Confidence Interval : 81.6%

Crude Oil Price Prediction and Actual

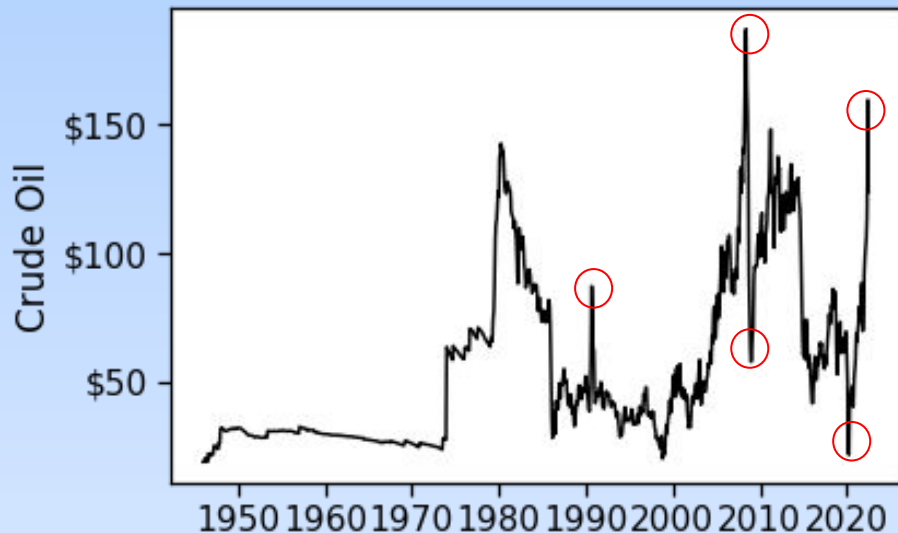


Facebook Prophet

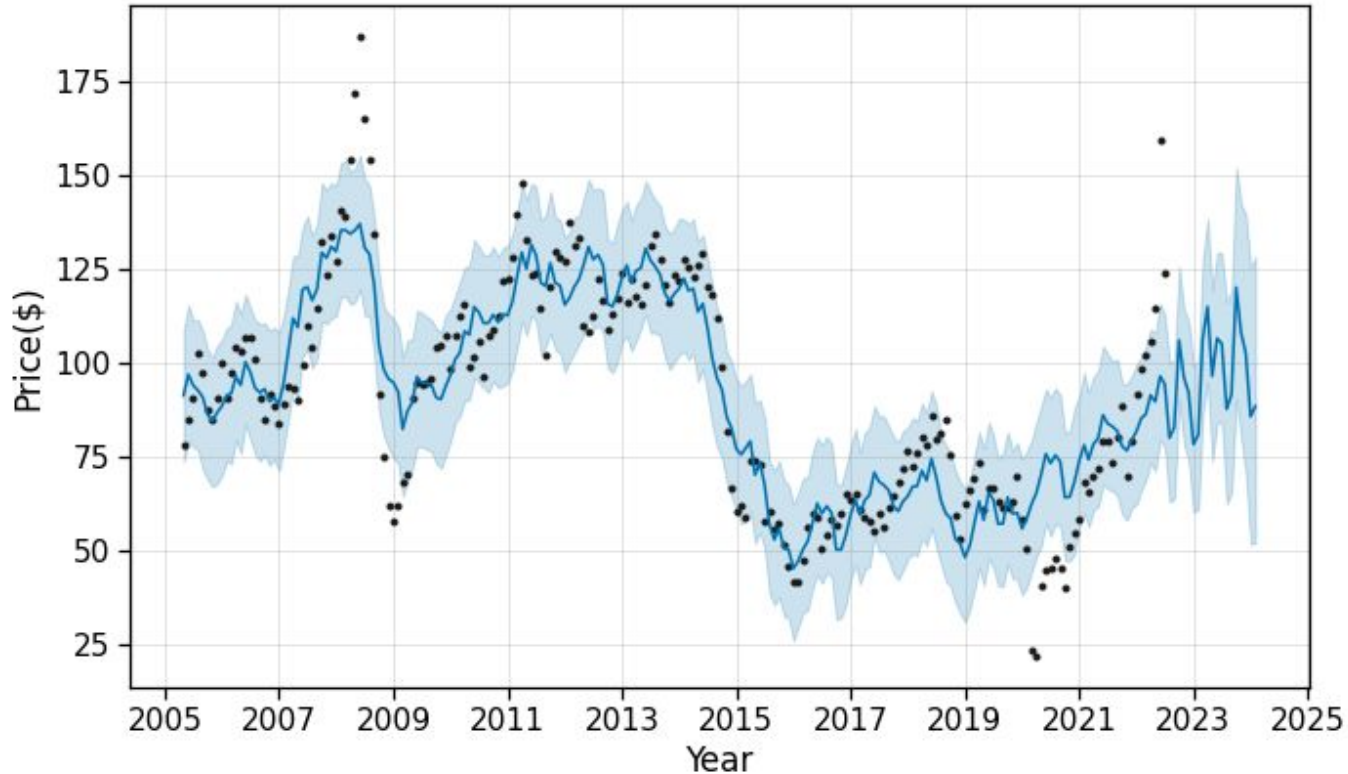


- Open source software released by Facebook's Core Data Science team.
- Procedure for forecasting time series data based on non-linear trends.
- Handles outliers very well

Crude Oil Price Over Time



Crude oil Price Prediction by Facebook Prophet

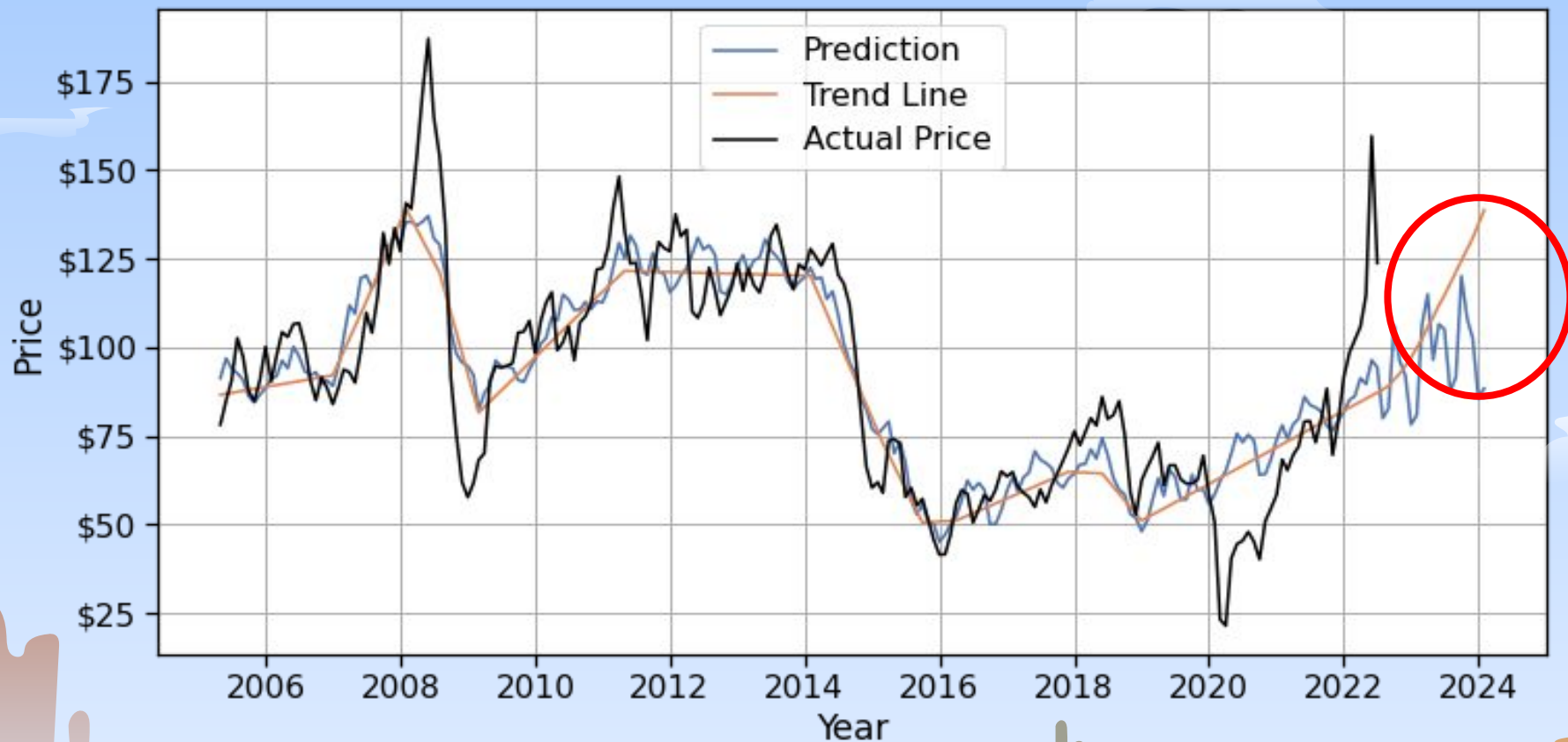


Facebook Prophet

- Actual Price
- 80% Confidence Level
- Prediction

RMSE : \$14.08

Crude Oil Price Prediction and Trend Line



05

Recommendations



Recommendations

Rising Trend of Crude Oil

- November 2023 by PROPHET
- July 2027 by ARIMA

High Price and High Demand

- Increase hydrocarbon exploration
- Increase supply chain
- Prepare possibility of cash out from Berkshire Hathaway before the second quarter of 2027



THANKS!

DO YOU HAVE ANY QUESTIONS?

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