



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

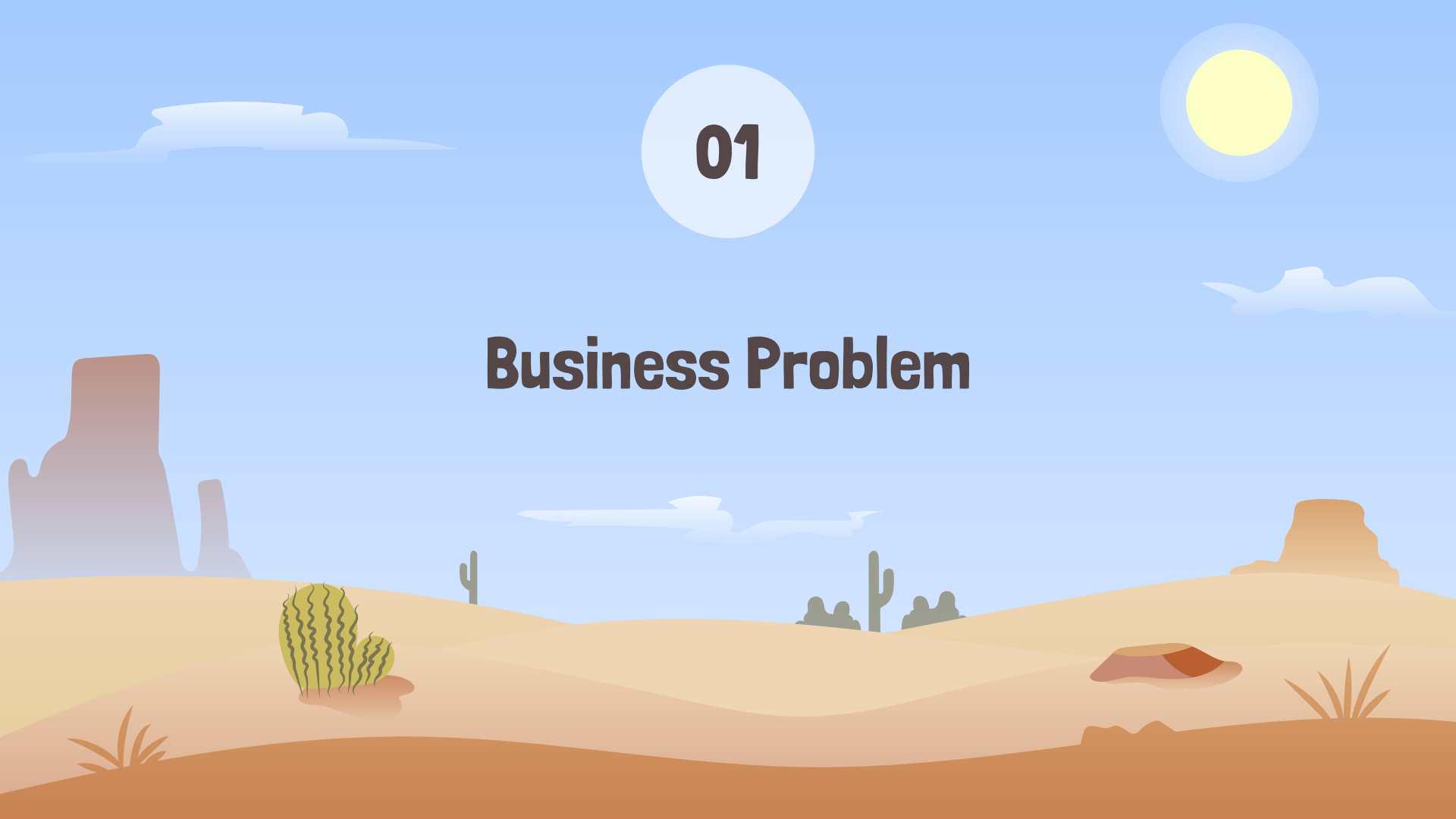
04 Features

05 Recommendation



01

Business Problem



HIGH GAS PRICE!

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



HIGH GAS PRICE!

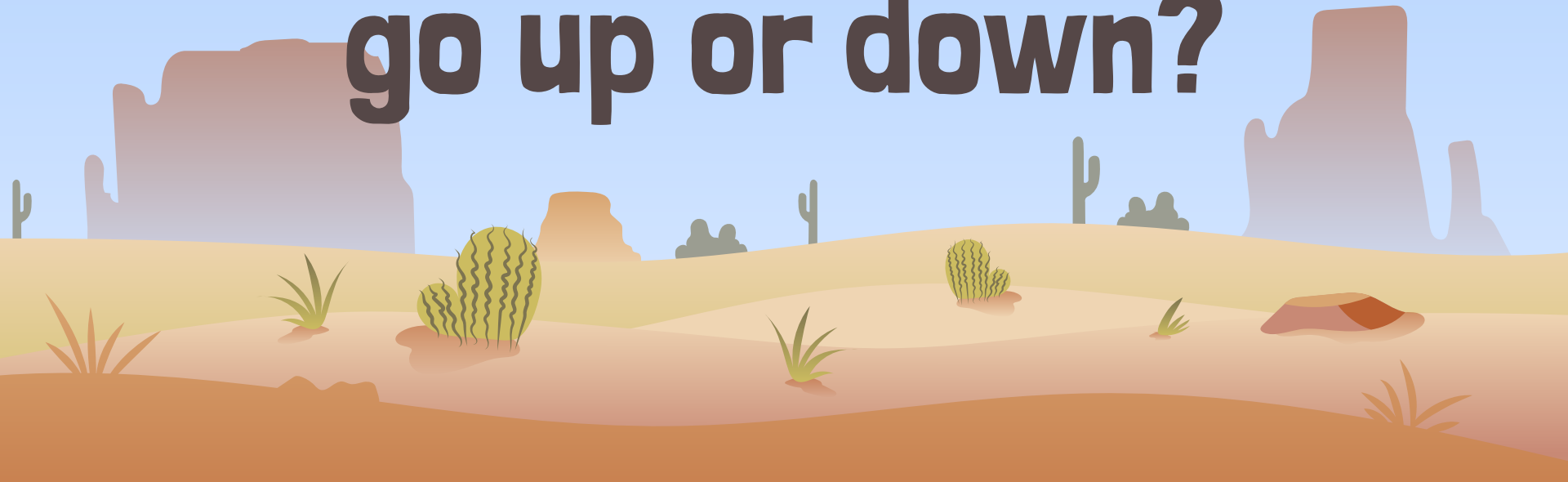
Crude oil price dropped about 15%
from the highest peak of June

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



Warren Buffett
CEO, Chairman
Berkshire Hathaway

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

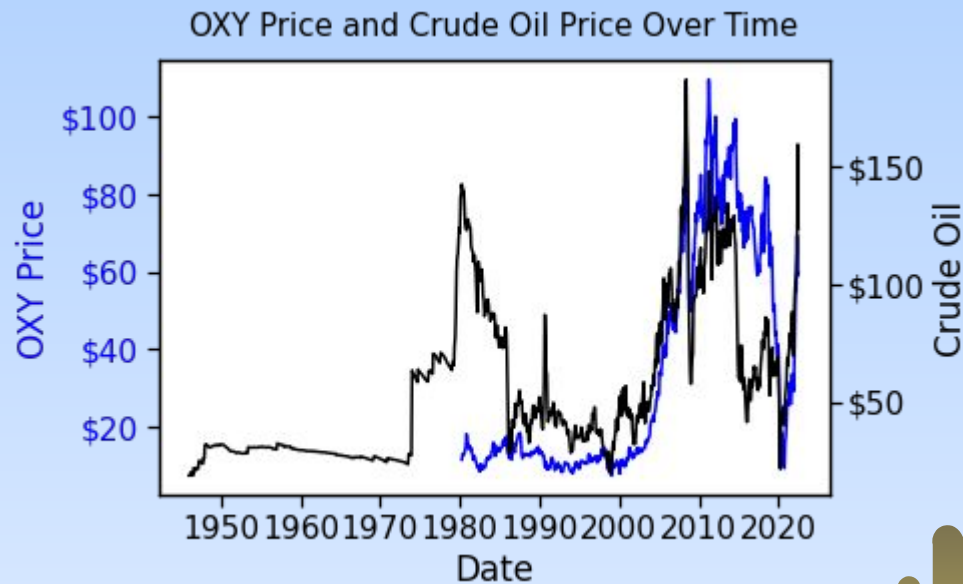
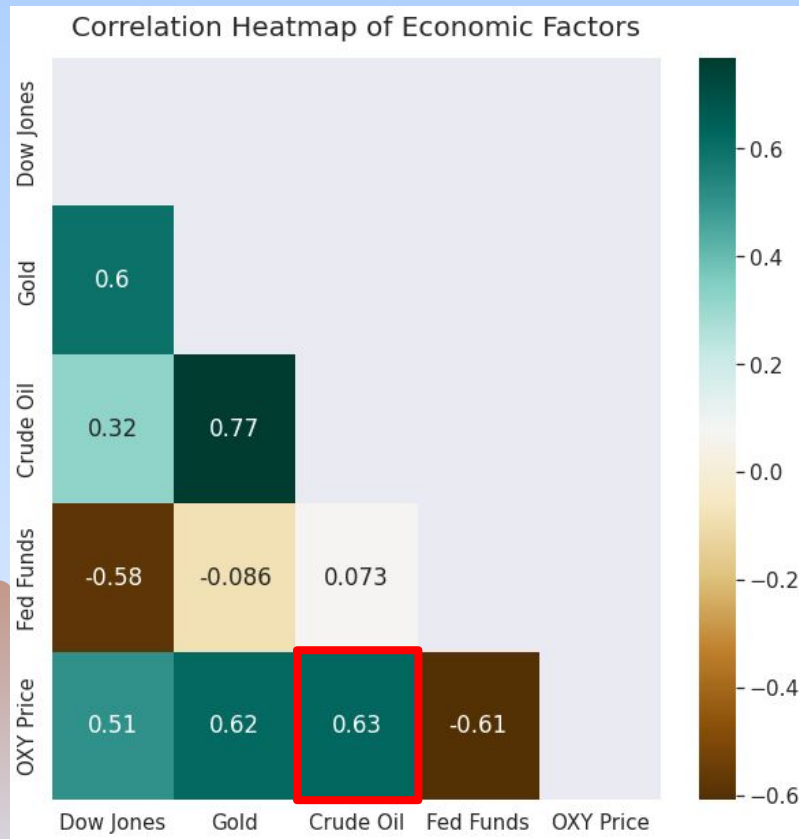




02

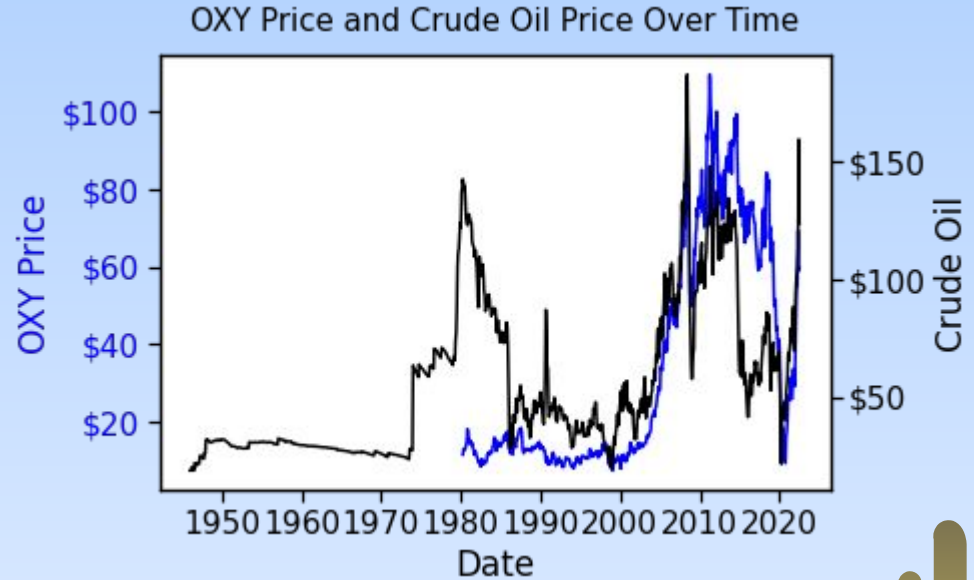
DATA

DATA SELECTION



DATA SELECTION

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



03

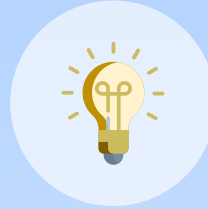
Limitations



LIMITATIONS

World Issues

- War
- Pandemic



Technology

- Electricity
- Nuclear Energy

Government Policy

- Government Party
- Environment Policy

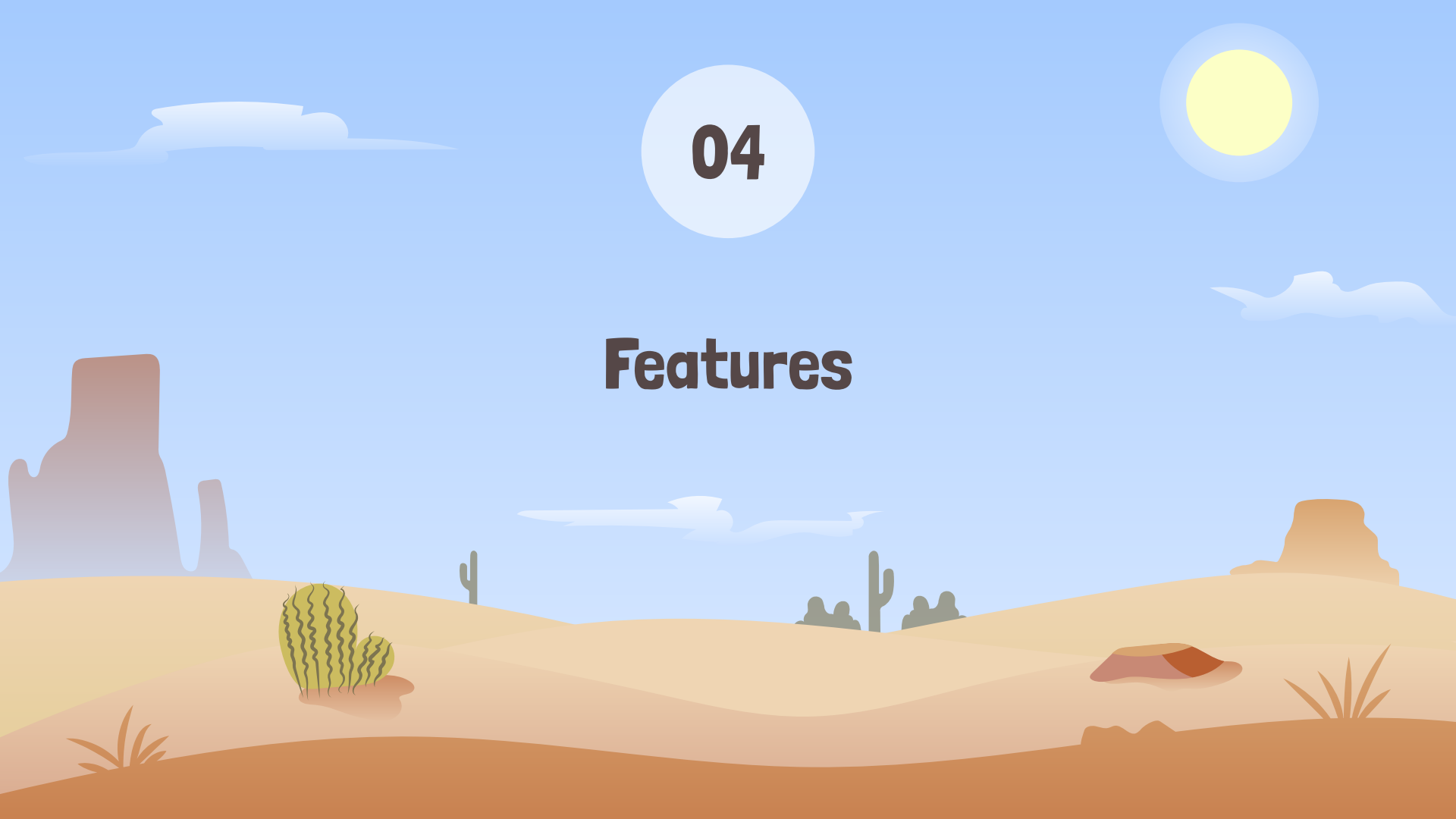


Economic Factors

- 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

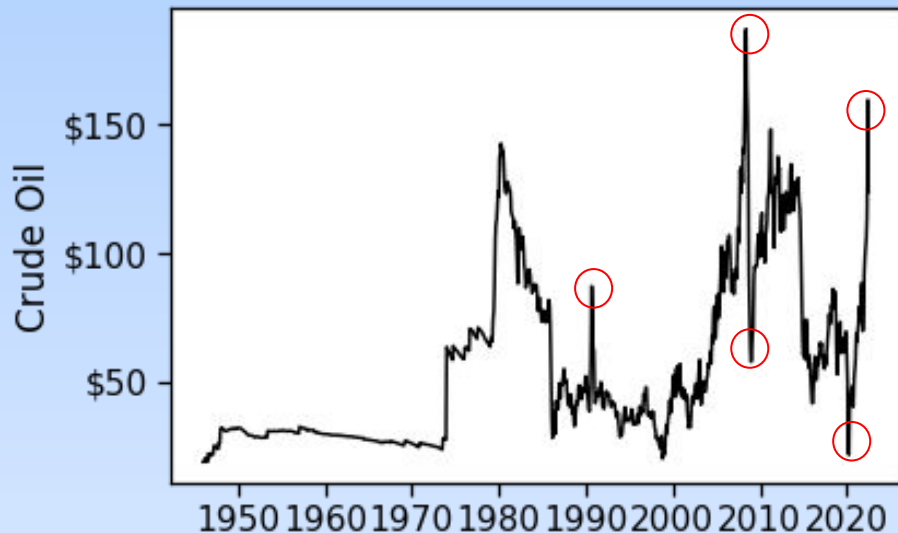


Facebook Prophet

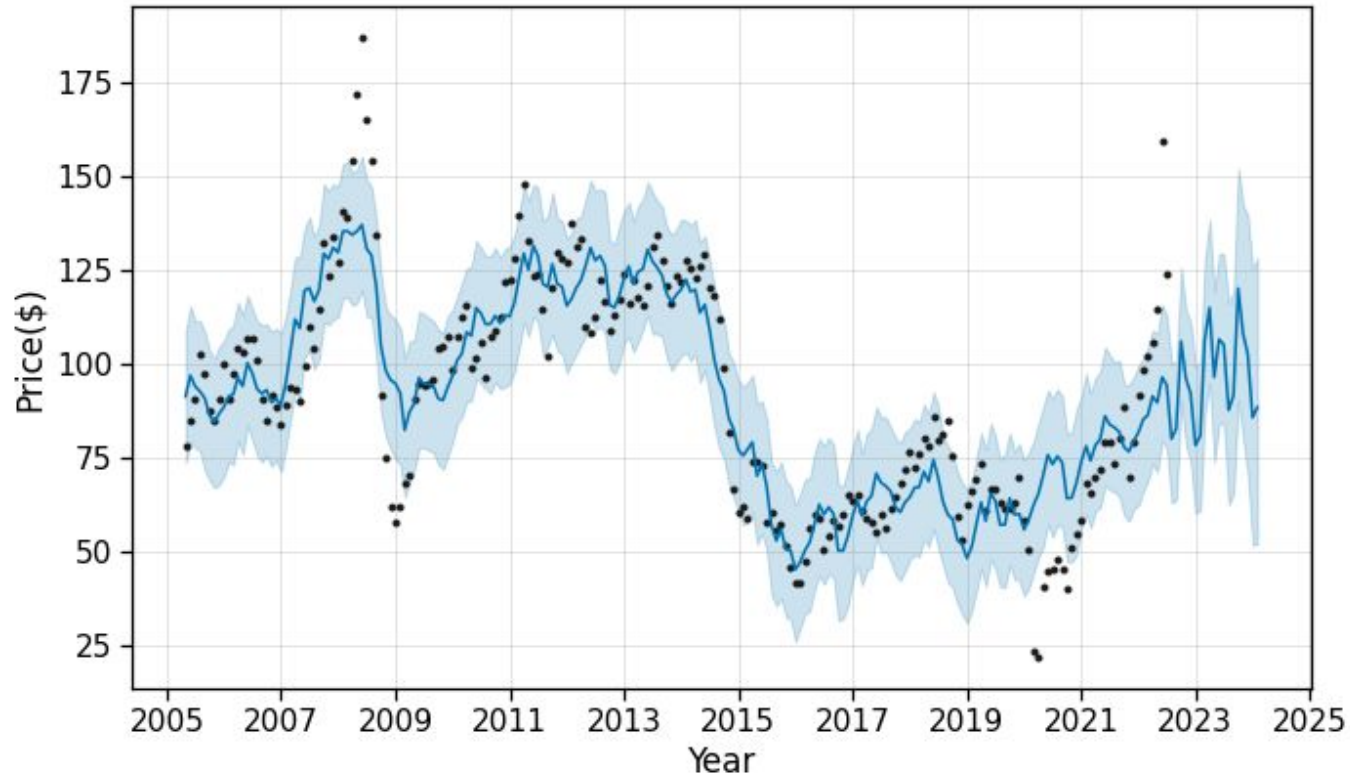


- Open source software release by Facebook's Core Data Science team.
- Procedure for forecasting time series data based on non-linear trends.
- Handles outliers very well

Crude Oil Price Over Time



Crude oil Price Prediction by Facebook Prophet

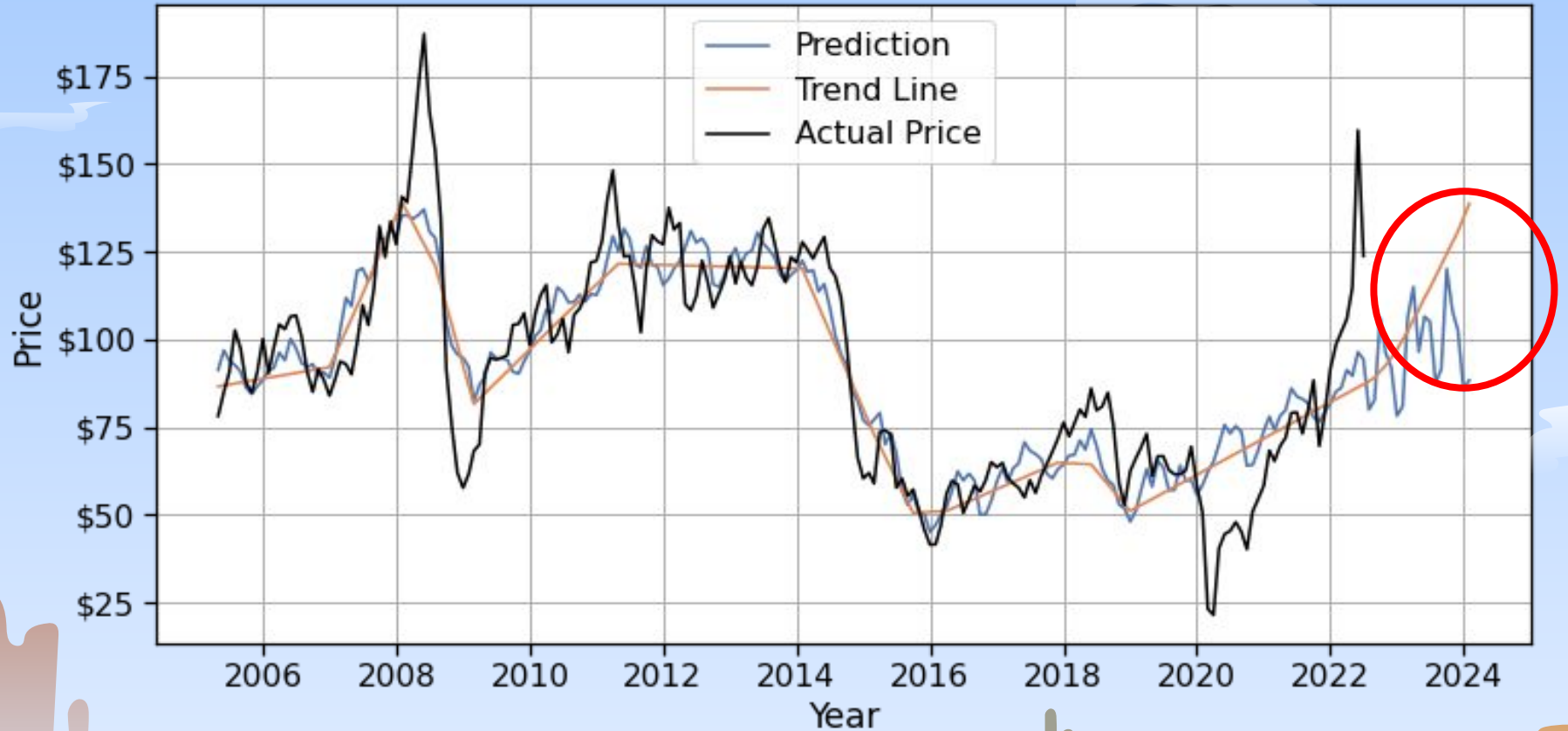


Facebook Prophet

- 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



THANKS!

DO YOU HAVE ANY QUESTIONS?

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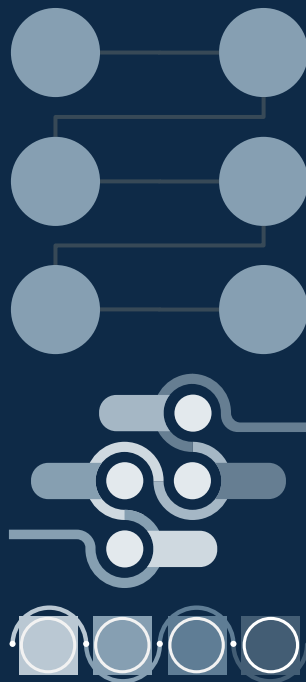
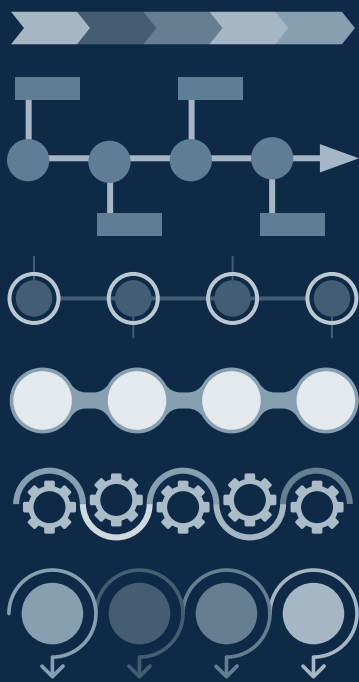
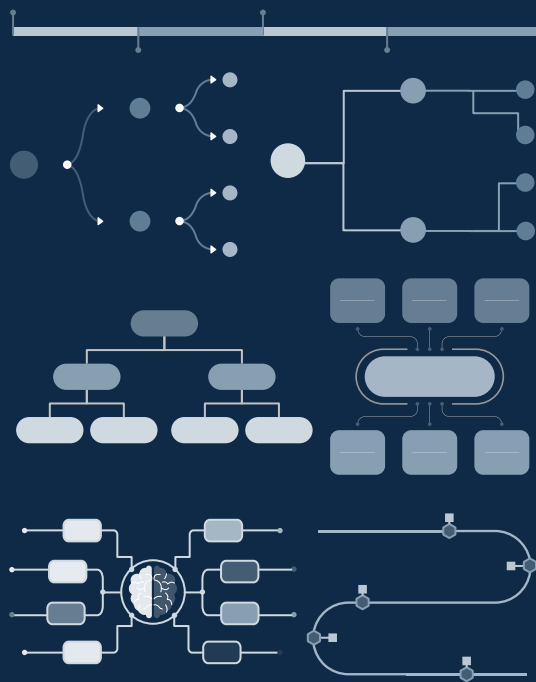
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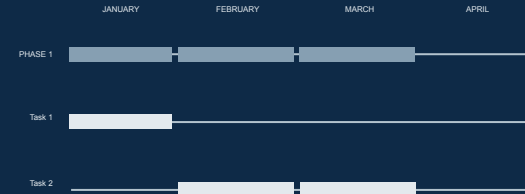
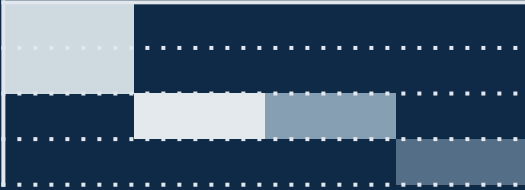
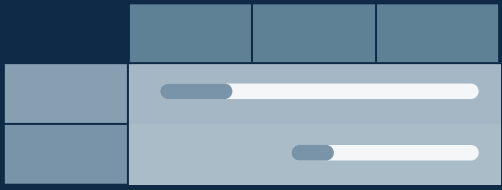
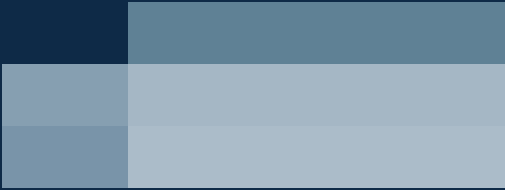
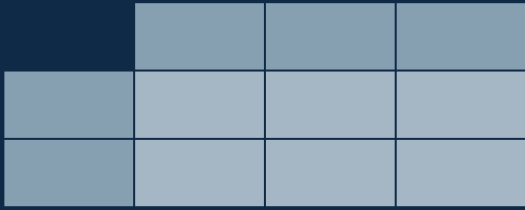
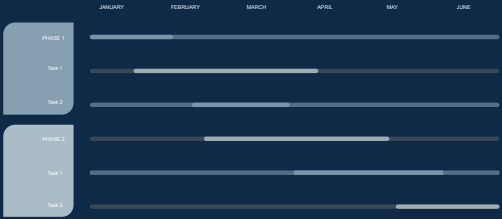
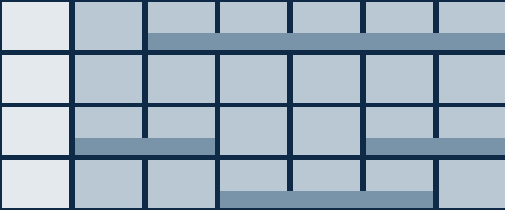
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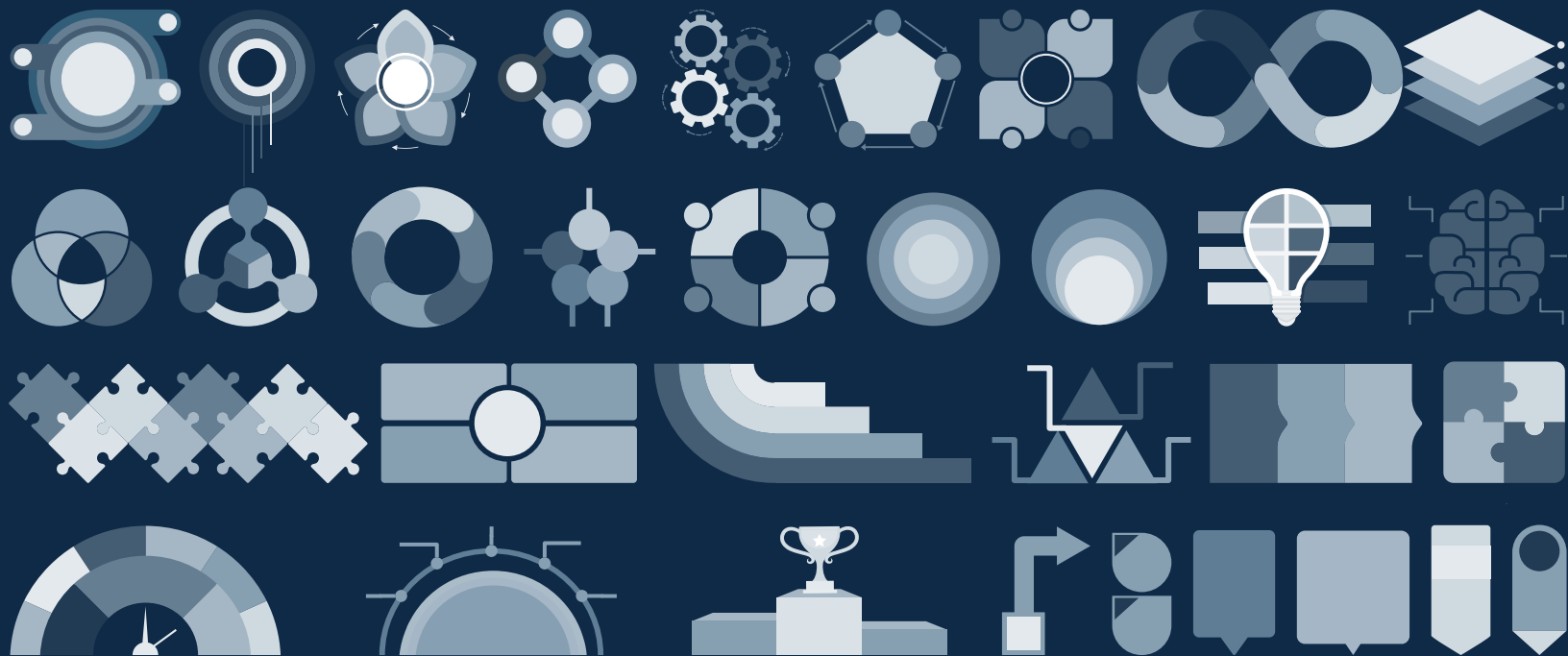
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