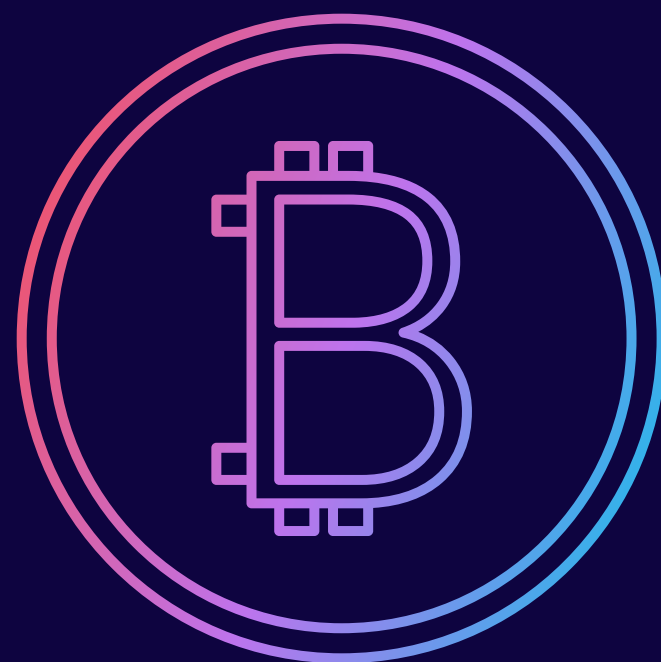


MacroBTC Insights



Predicting Bitcoin Prices with Machine Learning &
Macroeconomic Indicators

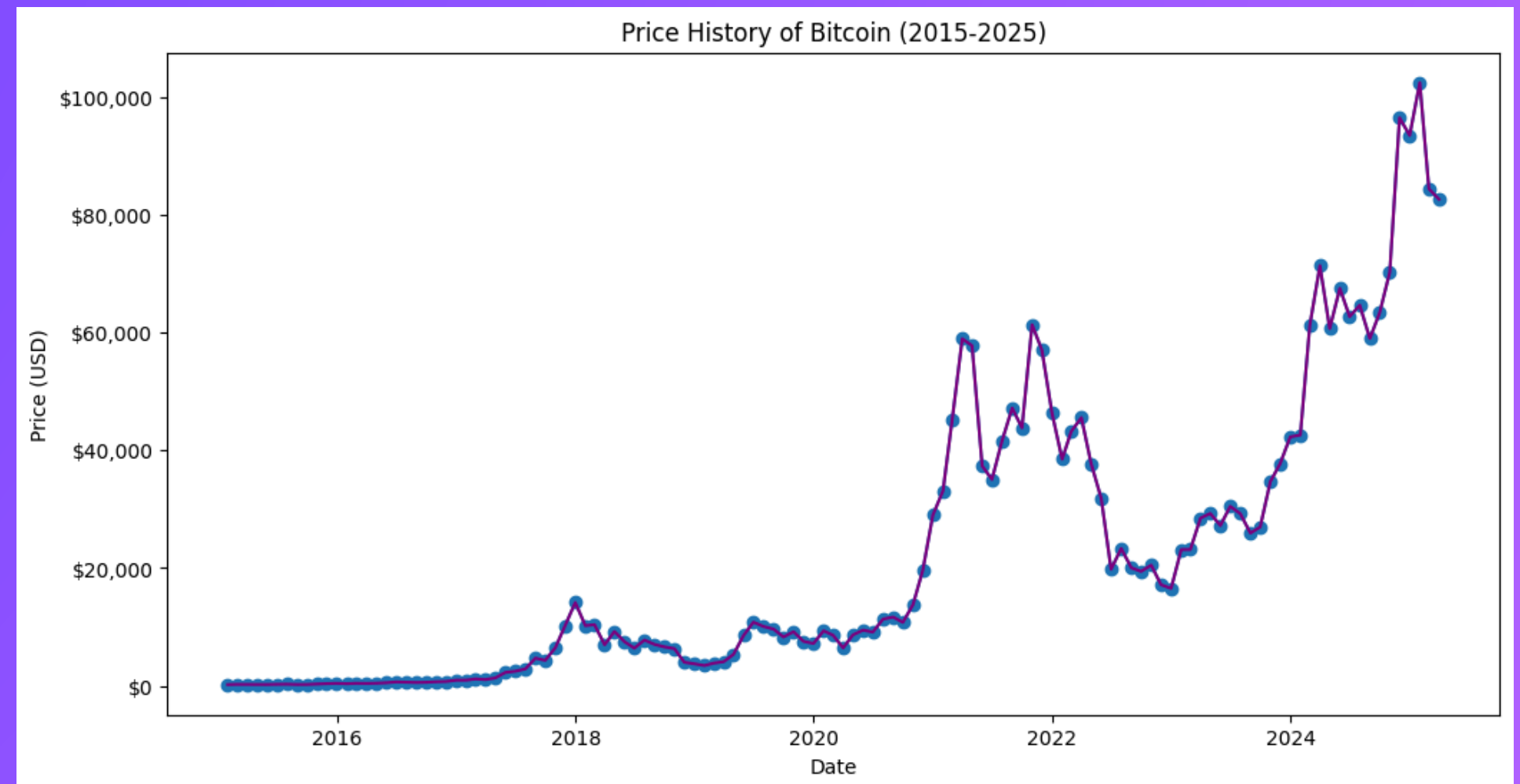
Created by Mikaela Connell

Can the Price of Bitcoin Be Predicted?

Bitcoin is highly volatile (2025: \$84,456, 2015: \$217)

Most models rely only on technical indicators, analyzing price history & trends

Objective: Create a tool using machine learning that predicts BTC prices using macroeconomic data & provides valuable investment insights for crypto traders



MacroBTC Insights: Where Macro Meets Crypto



MacroBTC Insights

[Overview](#) [Prediction Results](#) [Data Exploration](#) [Data Sources](#)

What is MacroBTC?

MacroBTC blends Bitcoin analytics with global economic indicators to predict market behavior. We analyze trends in inflation, interest rates, M2 money supply, and more.

About This App

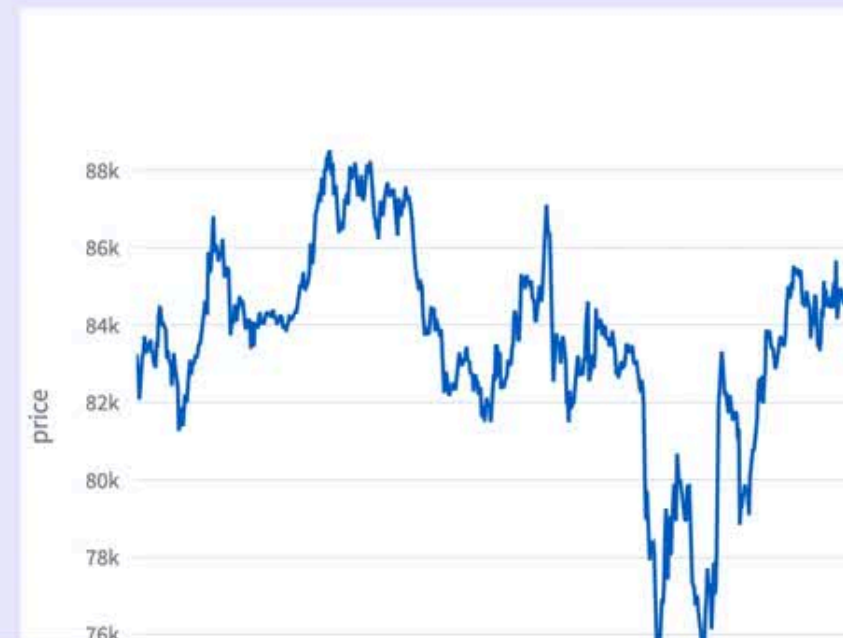
This Bitcoin Price Prediction App is a dynamic forecasting tool powered by machine learning and macroeconomic analysis. Designed for analysts, crypto enthusiasts, and curious investors, the app blends real-time market data with historical economic indicators to deliver meaningful insights into Bitcoin's price movements.

- **Real-time Bitcoin Price Tracking:** Visualize live BTC price movements alongside economic factors
- **Predictive Analytics:** Leverage machine learning to forecast Bitcoin prices
- **Data Exploration:** Explore the relationship between Bitcoin prices and key economic indicators through interactive charts

Latest BTC Price

\$84,004.00

Live Bitcoin Price (Last 30 Days)



User-friendly interactive dashboard featuring prediction tools & data visualizations



Explore trends in macroeconomic data, such as M2 money supply, interest rates, & inflation



See real-time changes in bitcoin prices & forecast price changes up to 4 months ahead

Macroeconomic + Crypto Data

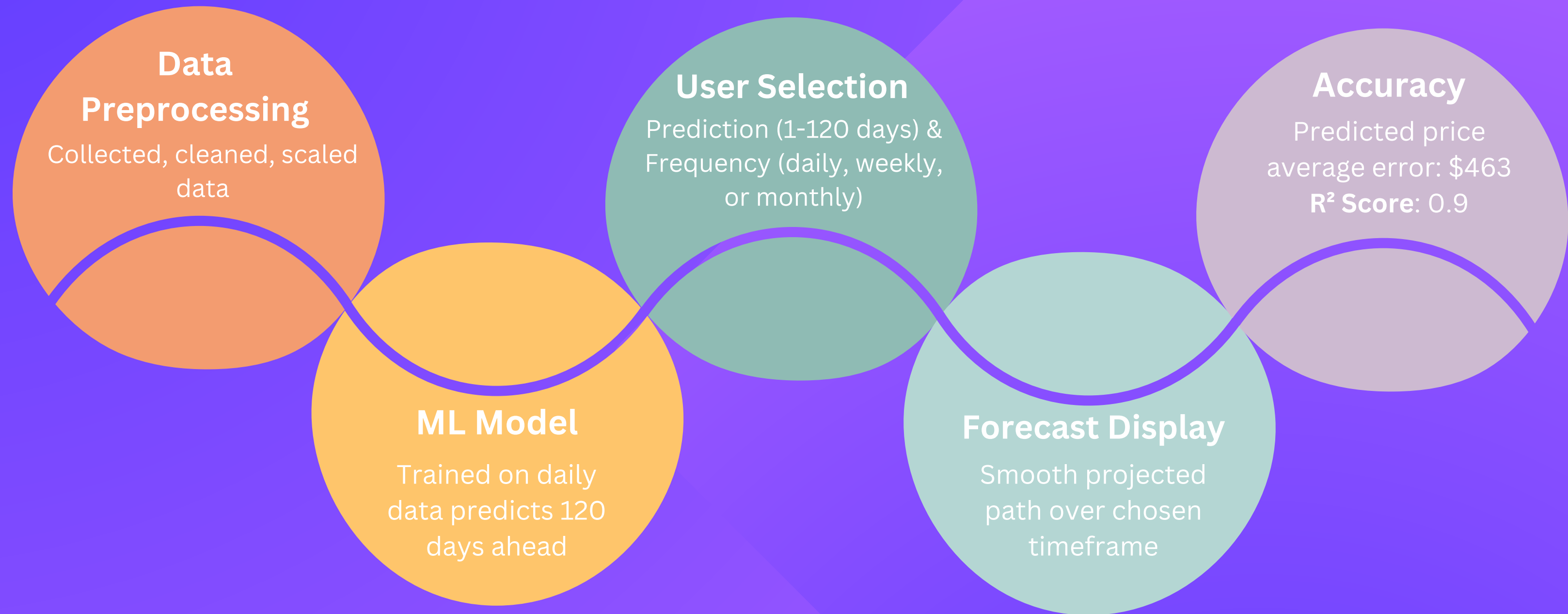
Features Used in the Model:

- Bitcoin Price
- M2 Money Supply (Global & U.S.)
- Inflation (CPI, PPI)
- Interest Rates
- Stock Indices (S&P 500, Nasdaq)
- BTC Volume




Data Sources: Trading view, Federal Reserve Economic Data (FRED), Yahoo Finance & CoinGecko

Modeling Approach



Demo: Prediction Tool



Choose the prediction range and time interval below:

After running the prediction, check the Predictive Analytics tab for the results!

Number of Days to Forecast

7

-

+

Select Interval

Daily

Run Prediction

MacroBTC Insights

Overview

Prediction Results

Data Exploration

Data Sources

Current BTC Price

\$84,028.00

Made with ❤️ by Mikaela | Powered by Machine Learning

Input User Data

Enter number of days to forecast & select time interval to view the data

View Prediction

Visualize projected changes instantly

Gain Insights

Analyze changes in price & view recommendation to buy or sell

Demo: Data Exploration

MacroBTC Insights

Overview Prediction Results **Data Exploration** Data Sources

Explore the Data

Key Economic Indicators:

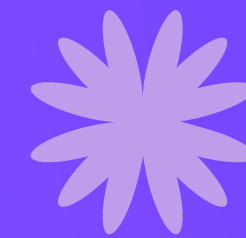
- **Global M2 Money Supply:** Total amount of money circulating in the global economy
- **U.S. M2 Money Supply:** Indicator of domestic economic conditions and liquidity
- **Inflation Rate (CPI, PPI):** Impact on purchasing power and overall economic stability
- **Interest Rates (Federal Funds Rate):** Influences demand for investment and speculative assets like Bitcoin
- **Stock Market Indices (S&P 500, Nasdaq):** Reflects overall market sentiment and investor behavior
- **Bitcoin Trading Volume:** Measures the market activity and dominance of Bitcoin over other cryptocurrencies

Select an economic indicator to compare to Bitcoin Price:

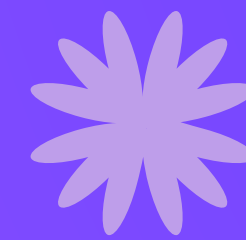
Global M2 Money Supply

Global M2 Money Supply vs. Bitcoin Price (2015–2025)

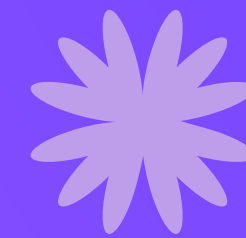
100k



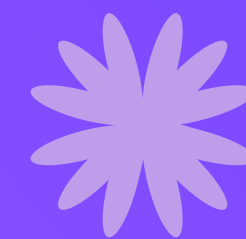
Explore interactive charts (zoom into graphs or use drop-down menu to adjust variables)



Compare bitcoin prices with macroeconomic indicators over the last 10 years



Understand how bitcoin prices are impacted by M2 Supply with 108 day time lag



See correlation between variables

Next Steps/ Future Improvements

- Predict multiple cryptos (e.g., Ethereum, Tether)
- Integrate more real-time data with the model
- Dynamic feature tuning: Add option for users to input future values for CPI, interest rates, etc., and see BTC predictions





Thank you For Listening!

Try it out:

[Link to App](#)

[GitHub Project Link](#)

References

<https://www.investopedia.com/articles/forex/121815/bitcoins-price-history.asp>

<https://finance.yahoo.com/quote/BTC-USD/history/>

<https://en.macromicro.me/series/4675/global-money-supply-m2>

<https://fred.stlouisfed.org/series/CPIAUCSL>

<https://fred.stlouisfed.org/series/PPIACO>

<https://fred.stlouisfed.org/series/SP500>

