

Stock Forecast App using GAN and ARIMA/SARIMA

Select dataset for prediction

GOOG

Years of prediction:

1

1

4

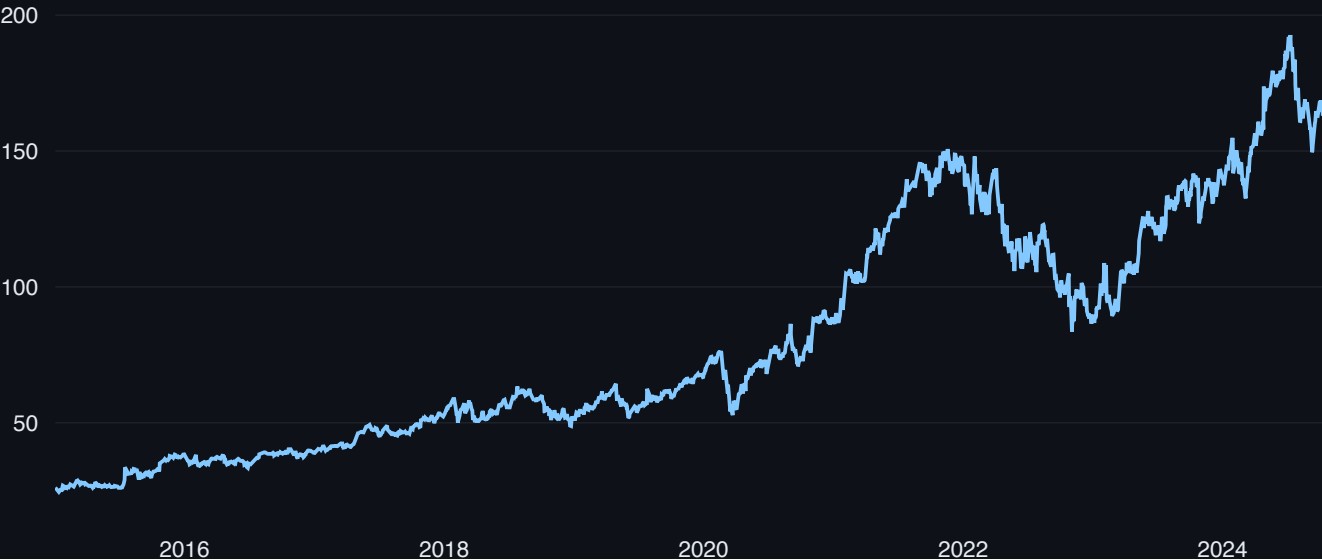
Loading data... done!

Raw data

	Date	Open	High	Low	Close	Adj Close	Volume
2,457	2024-10-08 00:00:00	165.43	166.1	164.31	165.7	165.7	11,723,900
2,458	2024-10-09 00:00:00	164.855	166.26	161.12	163.06	163.06	19,666,400
2,459	2024-10-10 00:00:00	162.11	164.311	161.64	163.18	163.18	12,900,500
2,460	2024-10-11 00:00:00	163.33	165.27	162.5	164.52	164.52	10,946,000
2,461	2024-10-14 00:00:00	164.91	167.62	164.78	166.35	166.35	9,971,600

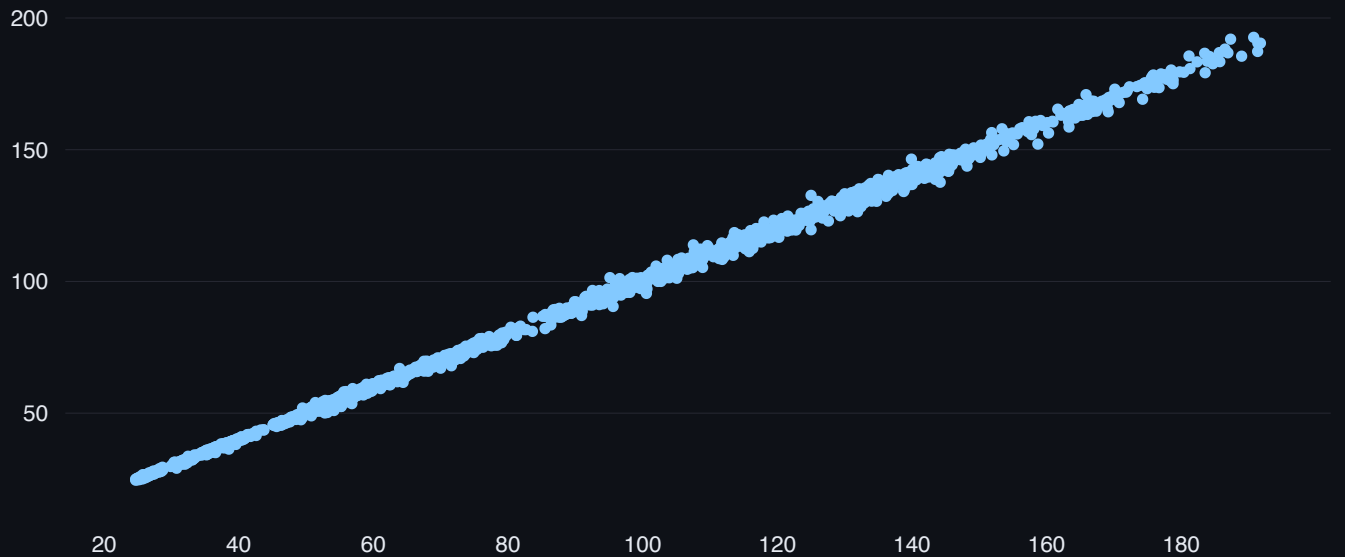
Line Graph

Stock Close Price Over Time



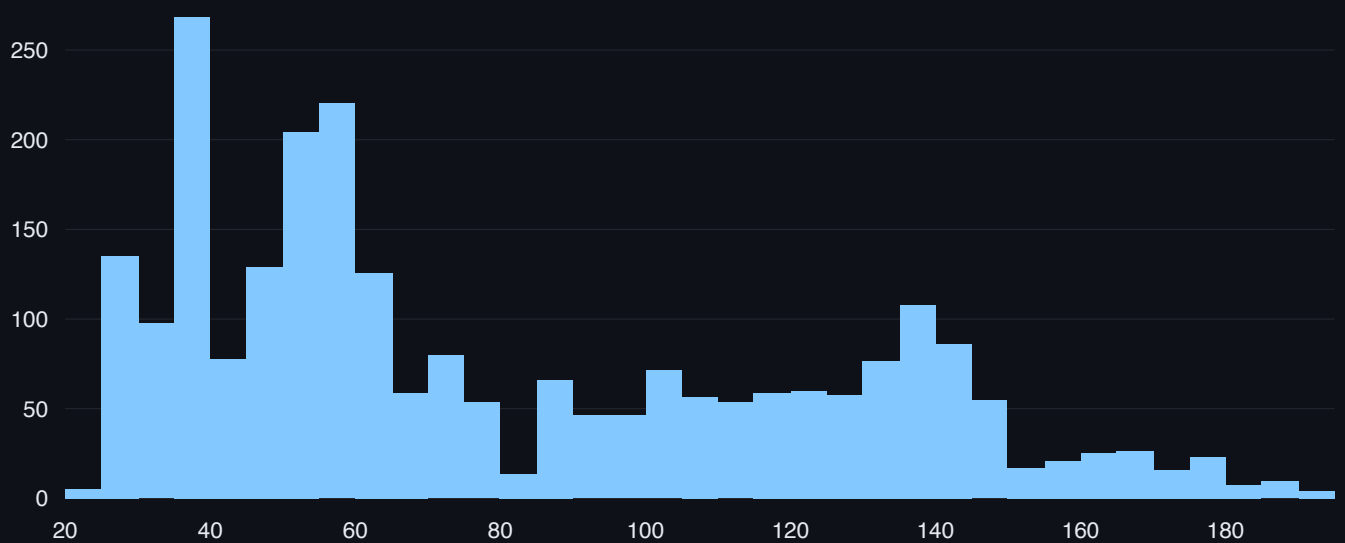
Scatter Plot

Open vs Close Price

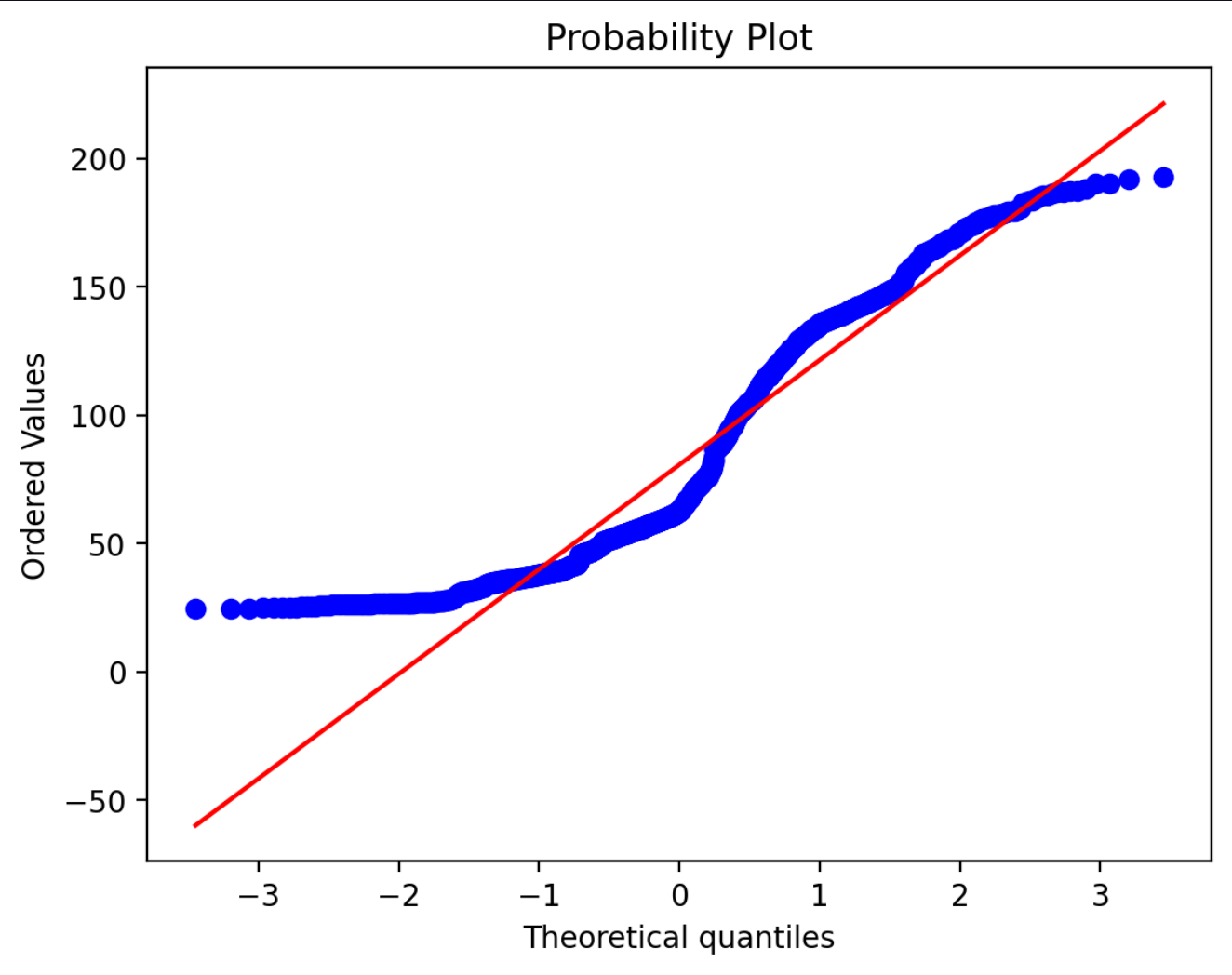


Histogram

Histogram of Close Prices



QQ Plot



Descriptive Statistics

	Date	Open	High	Low	Close	Adj Close	Volume
count	2462	2,462	2,462	2,462	2,462	2,462	
mean	2019-11-22 14:35:34.849715712	80.6456	81.5088	79.85	80.6939	80.5054	31,020
min	2015-01-02 00:00:00	24.6648	24.7309	24.3113	24.5601	24.4999	6
25%	2017-06-13 06:00:00	46.2924	46.5501	45.9646	46.3416	46.2281	21
50%	2019-11-20 12:00:00	62.5507	63.3769	62.0845	62.981	62.8267	27
75%	2022-05-02 18:00:00	117.1994	118.9622	116.4186	117.7376	117.4492	35
max	2024-10-14 00:00:00	191.75	193.31	190.62	192.66	192.4067	223
std	None	42.6555	43.1301	42.2245	42.6696	42.5841	15,383,4

Stationarity Check (ADF Test)

ADF Statistic: 0.0346715221528203

p-value: 0.9613071847242007

Critical Values: {'1%': -3.433036172077103, '5%': -2.862726723070964, '10%': -2.5674017409301175}

Transformations for Stationarity

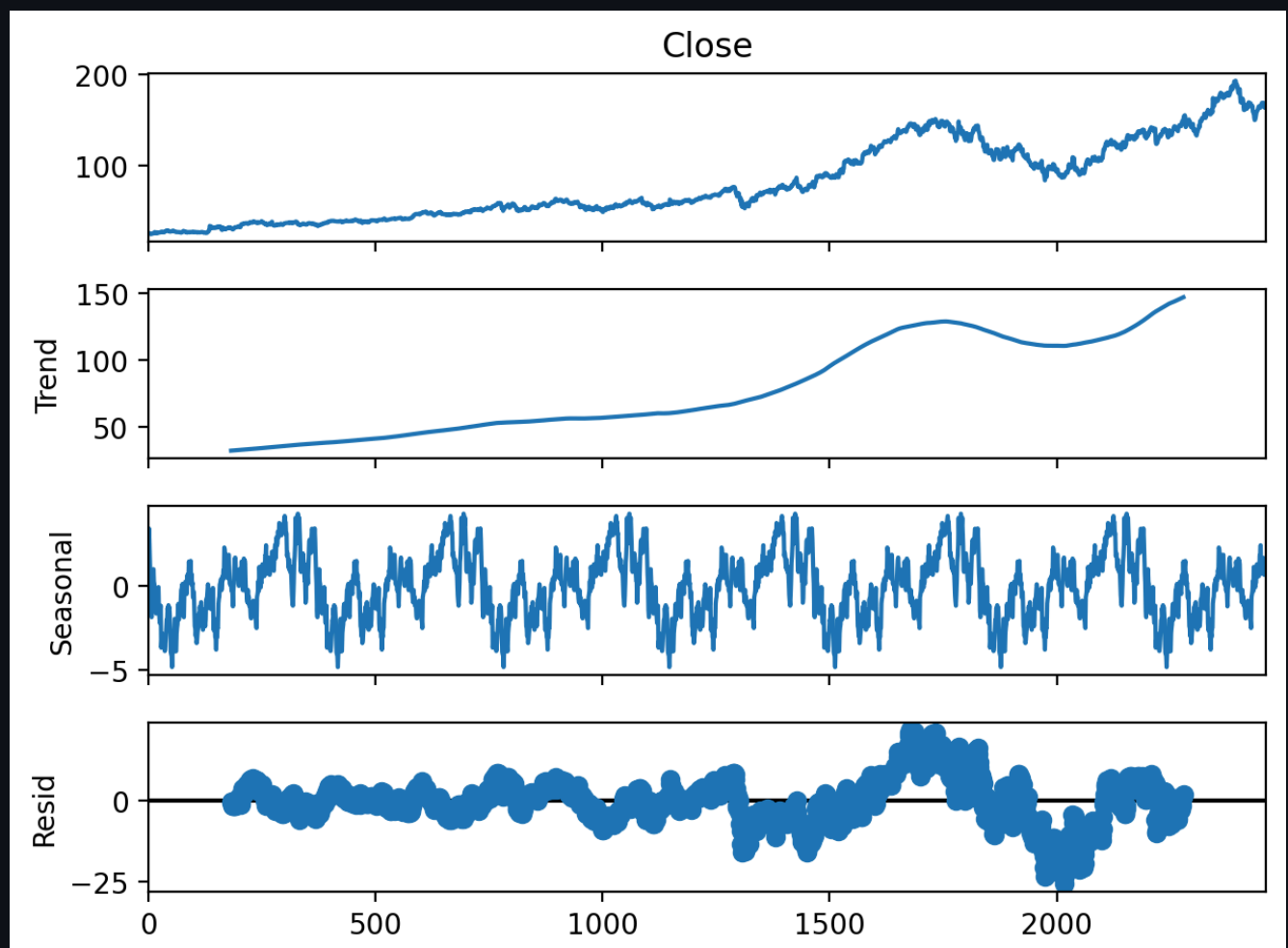
ADF Statistic: -1.0901026634192637

p-value: 0.7190026665018605

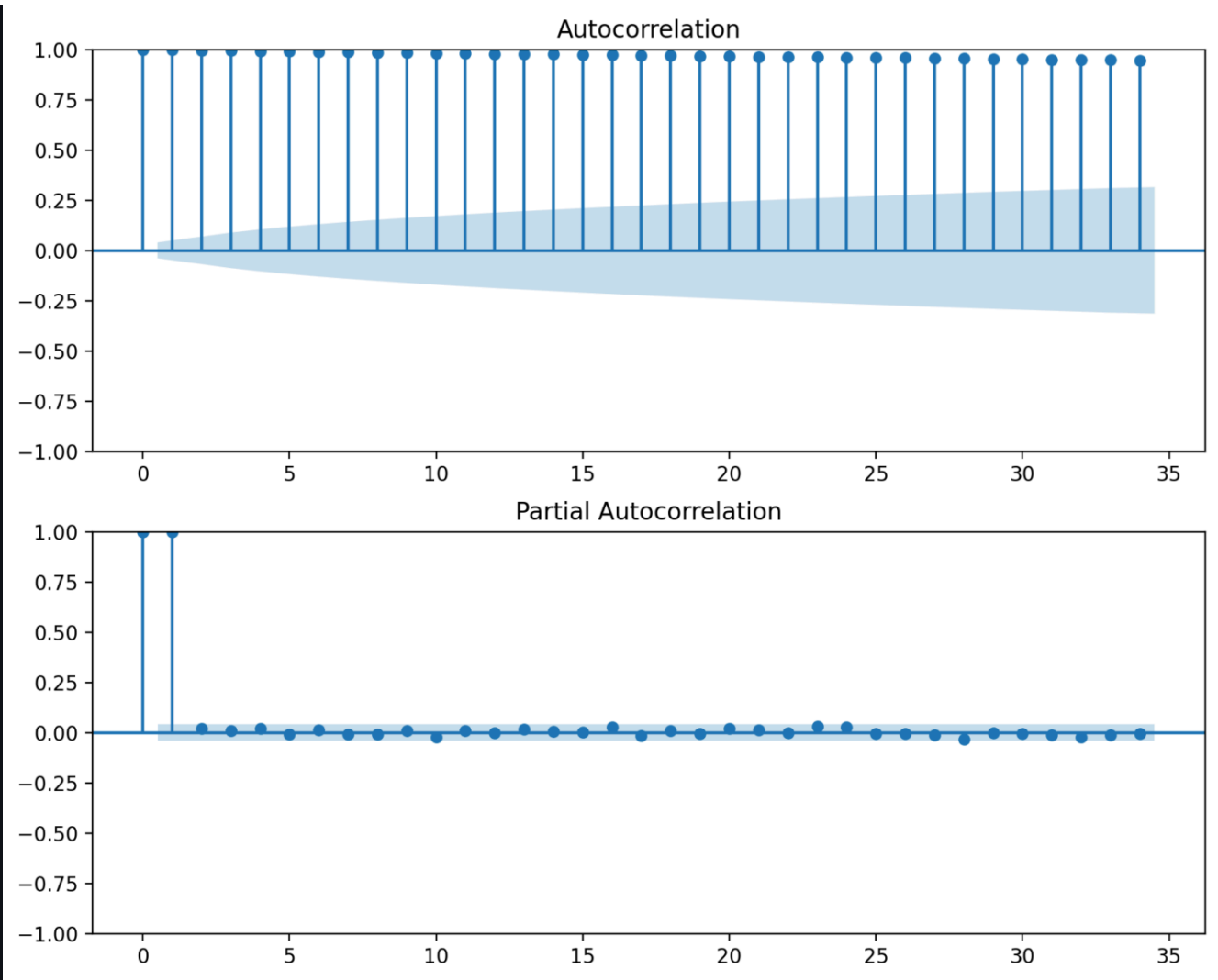
Critical Values: {'1%': -3.433019722288691, '5%': -2.862719458977711, '10%': -2.567397873407599}

Seasonality Decomposition

Seasonal Decomposition



ACF and PACF Plots



ARIMA/SARIMA Model Identification

Based on the ACF/PACF plots, we can identify the AR (p), MA (q), and differencing (d) orders.

Fitting ARIMA model (p=5, d=1, q=0)

SARIMAX Results						
=====						
Dep. Variable:	Close	No. Observations:	2462			
Model:	ARIMA(5, 1, 0)	Log Likelihood	-4737.781			
Date:	Tue, 15 Oct 2024	AIC	9487.562			
Time:	18:01:35	BIC	9522.412			
Sample:	0	HQIC	9500.224			
	- 2462					
Covariance Type:	opg					
=====						
	coef	std err	z	P> z	[0.025	0.975]

ar.L1	-0.0338	0.013	-2.555	0.011	-0.060	-0.008
ar.L2	-0.0157	0.015	-1.049	0.294	-0.045	0.014
ar.L3	-0.0481	0.014	-3.484	0.000	-0.075	-0.021
ar.L4	-0.0133	0.014	-0.934	0.350	-0.041	0.015
ar.L5	-0.0265	0.015	-1.819	0.069	-0.055	0.002

sigma2	2.7522	0.033	83.112	0.000	2.687	2.817
=====						
Ljung-Box (L1) (Q):		0.01	Jarque-Bera (JB):		10375.4	
Prob(Q):		0.91	Prob(JB):		0.0	
Heteroskedasticity (H):		19.51	Skew:		-0.2	
Prob(H) (two-sided):		0.00	Kurtosis:		13.0	
=====						

Warnings:

[1] Covariance matrix calculated using the outer product of gradients (complex-ste

AIC and BIC Criteria

AIC: 9487.561913802307

BIC: 9522.411852104653

Forecast data using GAN

value
189.1672
185.2658
189.3314
186.0228
183.979
188.5023
186.9761
186.813
181.621
189.3521

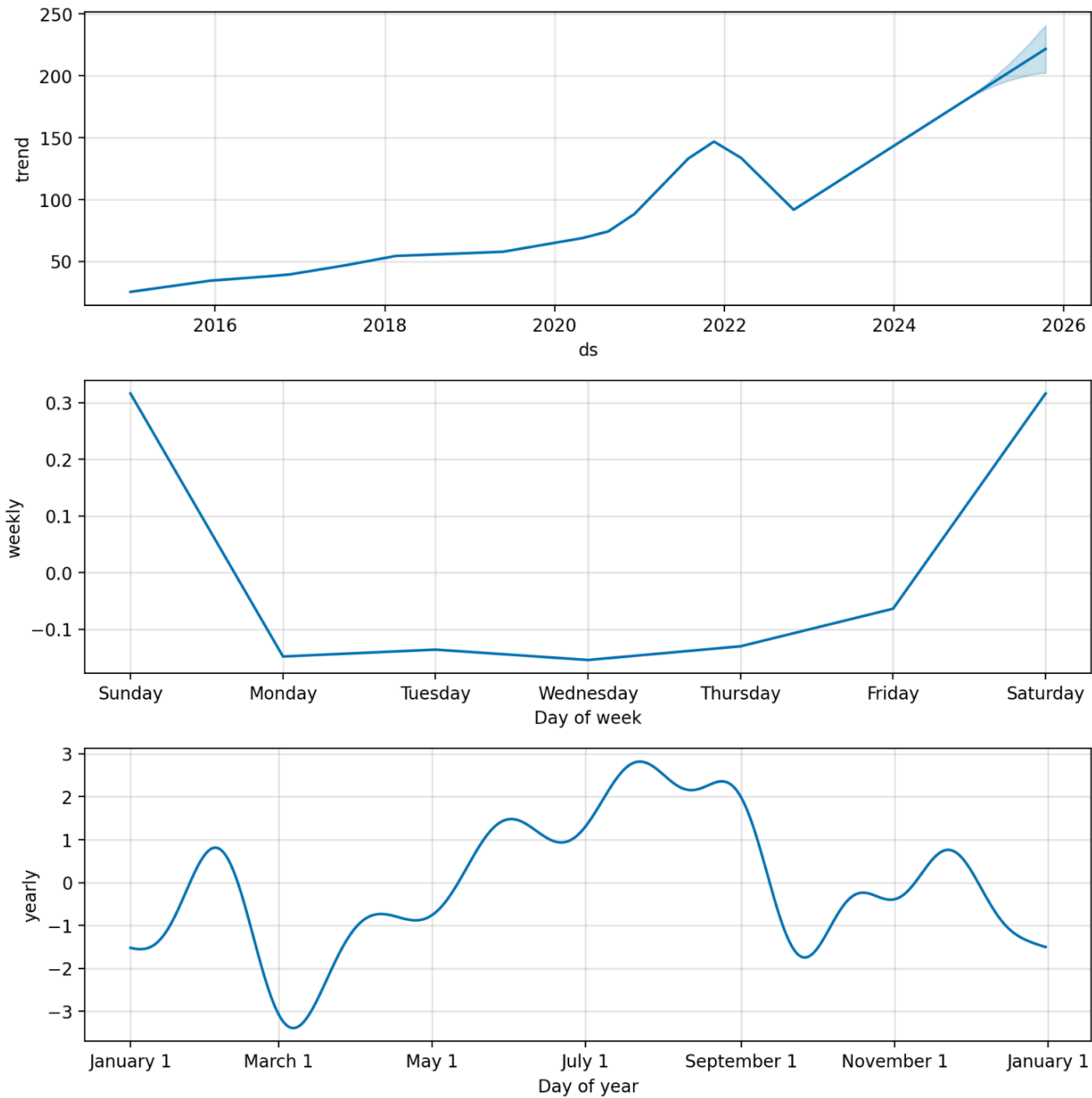
Forecast data

	ds	trend	yhat_lower	yhat_upper	trend_lower	trend_upper	additive_te
2,822	2025-10-10 00:00:00	221.2554	201.3701	240.9377	202.3918	239.7802	-0.7
2,823	2025-10-11 00:00:00	221.3753	201.5281	241.248	202.4066	240.008	-0.2
2,824	2025-10-12 00:00:00	221.4952	201.0945	241.7586	202.4233	240.2616	-0.1
2,825	2025-10-13 00:00:00	221.6152	202.1752	240.8732	202.4401	240.5152	-0.5
2,826	2025-10-14 00:00:00	221.7351	200.4744	241.7198	202.4569	240.7688	-0.5

Forecast plot for 1 years



Forecast components



AI-Generated Financial Report for GOOG

Summary

As of 2024-10-15, GOOG is showing a strongly bullish trend based on our AI-powered analysis. The current market sentiment appears to be very positive.

Key Metrics

Current Price	1M Change	52W High
\$166.35	4.88%	\$192.66
1D Change	1Y Change	52W Low
1.11%	20.04%	\$24.56

Market Analysis

The current price of \$166.35 for GOOG is somewhat positive, suggesting moderate optimism in the market.

The stock has shown a volatility of 28.46% over the past year. The volatility of 28.46% for GOOG is somewhat negative, hinting at some market concerns.

AI-Powered Forecast

Our AI model predicts that by 2025-10-14, GOOG could reach \$221.23.

This represents a potential increase of 32.99% from the current price.

The forecasted price of \$221.23 for GOOG is neutral, implying stable market conditions.

Risk Factors

- Market volatility and economic uncertainties
- Regulatory changes in the relevant industry
- Competition and technological disruptions

Recommendation

Based on our AI analysis, we maintain a **BUY** recommendation for GOOG. The stock shows strong potential for growth, but investors should be aware of the inherent risks and conduct their own due diligence.

Disclaimer

This report is generated by an AI model and should not be considered as financial advice. While we strive for accuracy, the content may contain errors or omissions. Always consult with a qualified financial advisor before making investment decisions.