

# **Title:** Stock Price Prediction

## **Subtitle:** Predicting Tomorrow's Stock Prices with Machine Learning

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# What is This Project About?



In this project, I tried to **predict tomorrow's stock prices**  
**Using past data.**




I used machine learning (regression) to do this



This can help investors or traders make better decisions.



 **It's also a great way to learn how machine learning works**  
In real world finance.



# What I Wanted to Do

Use past prices to predict  
What the price will be the  
Next day.

Show trends using graphs  
and charts.

Check how accurate the  
model is



# About the Data

I used **NIFTY50 stock data** from Kaggle

It contains daily prices from **50 companies** (2008–2020).

Includes details like **Open, High, Low, Close, Volume**.

# Getting the Data Ready



Removed missing values and cleaned the data.



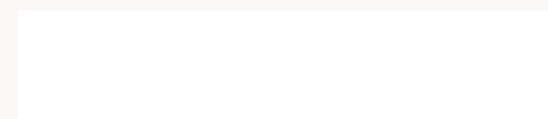
Created a new column for **next day's closing price**



Split data into training and testing sets.



Scaled values to improve model results.





# Training and Validation



I first used **Linear Regression** (simple model).



Then I tried better models like:

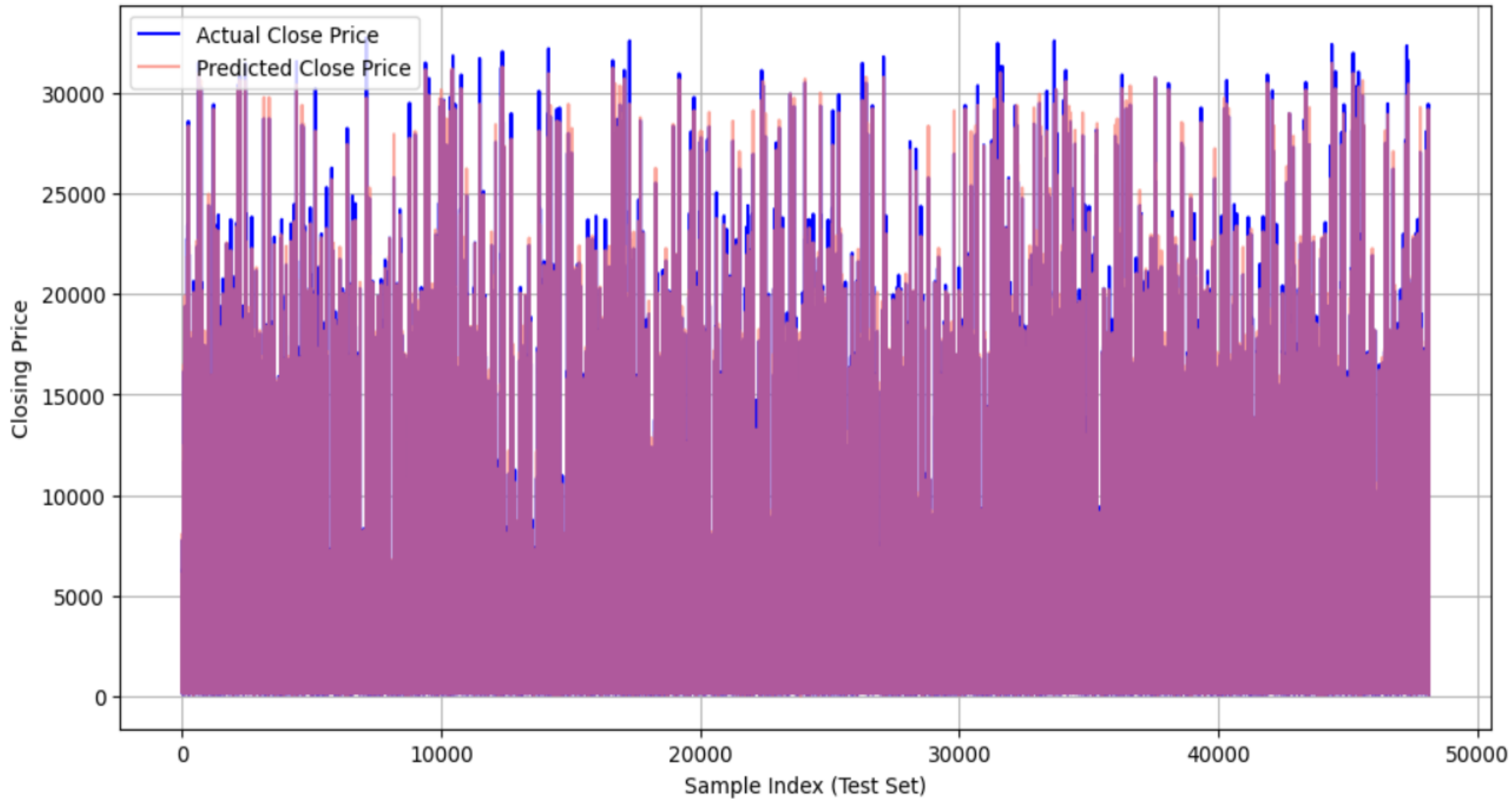
- 1] Random forest
- 2] XG Boost



Compared them to see which one works best.



Stock Price Prediction: Actual vs Predicted



# Visualization of Predictions

The plot illustrates predicted versus actual prices. This helps assess model fit visually.

Residual analysis confirmed no heteroscedasticity. It indicated good normality.



# Limitations and Challenges

- Stock market volatility and unpredictability are inherent challenges.
- Risk of overfitting to historical data remains a concern.
- Feature selection bias can skew model outcomes.
- Real-world transaction costs are not modeled.
- Market impact is also outside current scope.



# Future Directions



## Sentiment Analysis

Incorporate news article sentiment for better insights.



## Deep Learning

Utilize LSTMs for enhanced time series forecasting.



## Expand Scope

Apply models to multiple stocks and sectors.



## Live Deployment

Implement model in a paper trading environment.