PREDICTION OF STOCK PRICES



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Introduction

This project focuses on predicting stock prices using a simple yet powerful machine learning technique: linear regression. Stock price prediction is a crucial aspect of financial markets, where accurate forecasts can guide investment decisions, trading strategies, and risk management.

Objective:

The main goal of this project is to develop a linear regression model that can predict the closing prices of stocks based on historical data. By using historical prices and computed features like moving averages and volatility, we aim to create a model that provides insights into future price movements.



Accurate stock price predictions can:

- Help investors make informed decisions on buying or selling stocks.
 - Aid in portfolio management by optimizing asset allocation.
- Enhance trading strategies by identifying potential price movements.
 - 4. Support risk management by predicting potential losses and gains.



Data Analysis:

- Examine Historical Data:

 Analyze the historical
 stock prices to
 understand trends,
 patterns, and volatility.
- Visualize Data: Create charts and graphs to visualize the stock's performance over time.

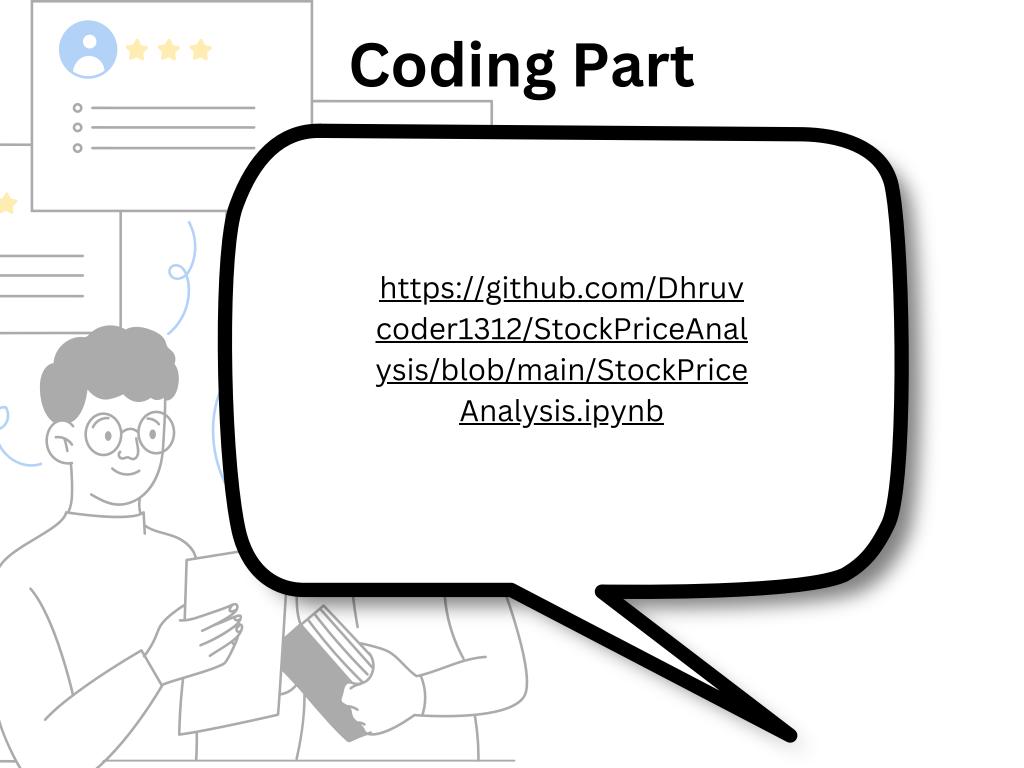
Model Building:

- Feature Engineering:
 Develop key features such as moving averages (e.g., SMA_20) and volatility to improve model performance.
- Linear Regression Model:

 Build and train a linear
 regression model to predict
 future stock prices based on
 historical data.

Evaluation:

- Model Assessment:
 model's performance
 using metrics such as
 Mean Absolute Error
 (MAE) to quantify
 prediction accuracy.
 - Result Analysis:
 Compare predicted
 prices against actual
 prices to assess the
 effectiveness of the
 model visually.





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