**ADS\_Phase 4**

Development part 2 :

**STOCK PRICE PREDICTION**

In this part I am continued building my project.

Continued building the stock price prediction model by

* Feature engineering .
* Model training.
* Evaluation.

**1. Import Libraries and Load Data:**

import pandas as pd

import numpy as np

from sklearn.model\_selection import train\_test\_split

from sklearn.ensemble import RandomForestRegressor

from sklearn.metrics import mean\_squared\_error

# Load your dataset

data = pd.read\_csv('your\_stock\_data.csv')

# Convert the 'date' column to a datetime object

data['date'] = pd.to\_datetime(data['date'])

# Sort the data by date

data = data.sort\_values(by='date')

**2. Feature Engineering:**

Here's a simple example of feature engineering using moving averages and creating lag features:

# Calculate moving averages

data['10\_Day\_MA'] = data['adj close'].rolling(window=10).mean()

data['50\_Day\_MA'] = data['adj close'].rolling(window=50).mean()

# Create lag features for 'close' and 'volume'

data['close\_lag1'] = data['close'].shift(1)

data['volume\_lag1'] = data['volume'].shift(1)

**3. Data Preprocessing:**

# Drop rows with missing values

data.dropna(inplace=True)

# Define features (X) and target (y)

features = ['close\_lag1', 'volume\_lag1', '10\_Day\_MA', '50\_Day\_MA']

X = data[features]

y = data['close']

# Split the data into training and testing sets

X\_train, X\_test, y\_train, y\_test = train\_test\_split(X, y, test\_size=0.2, random\_state=42)

**4. Model Training:**

Here, I am using the simple Random Forest Regressor as an example:

python

# Initialize the model

model = RandomForestRegressor(n\_estimators=100, random\_state=42)

# Train the model

model.fit(X\_train, y\_train)

**5. Evaluation:**

Evaluating the model's performance using Mean Squared Error:

# Make predictions on the test set

y\_pred = model.predict(X\_test)

# Calculate Mean Squared Error

mse = mean\_squared\_error(y\_test, y\_pred)

print(f"Mean Squared Error: {mse}")

**CONCLUSION:**

Since, the stock price prediction is a challenging task due to the many factors influencing financial markets. This project provides a foundation, but continuous refinement and possibly more advanced modeling techniques may be required for accurate and reliable stock price predictions.