Ethereum Price Prediction Project Overview

Machine Learning Models for 2-Day Ethereum Price Forecasting

Objective

The objective of this project is to predict the next 2 days' Ethereum prices (ETH-USD) using machine learning models trained on historical price data from Yahoo Finance.

Key Features

- Fetches 1-year Ethereum price data using Yahoo Finance (yfinance).

- Generates lag features from previous 3 days' prices.

- Trains 5 machine learning models: Linear Regression, Decision Tree, Random Forest, SVR, KNN.

- Selects the best-performing model using Mean Squared Error (MSE).

- Predicts Ethereum prices for the next 2 days.

- Visualizes actual vs. predicted prices with matplotlib.

Workflow Overview

1. Data Collection: Historical ETH-USD prices are downloaded via yfinance.

2. Feature Engineering: Lag features (price_t-1, price_t-2, price_t-3) are created.

3. Data Scaling: MinMaxScaler is applied to standardize data.

4. Model Training: Multiple ML models are trained on 80% of the dataset.

5. Evaluation: Models are evaluated based on Mean Squared Error (MSE).

6. Forecasting: Random Forest is used for 2-day price prediction.

7. Visualization: Actual vs predicted prices are plotted.

Results

The Random Forest model produced the lowest Mean Squared Error (MSE), making it the best-performing model for short-term Ethereum price prediction.

Example Prediction:

Day 1 Price: $3256.89

Day 2 Price: $3282.41

GitHub Repository

https://github.com/your-username/ethereum-price-prediction