Title:
Cryptocurrency Prediction Model (BTC/ETH/SOL) — *In Progress*

Summary
Currently developing a machine-learning pipeline to forecast short-term price movements for BTC/ETH/SOL. The goal is to evaluate technical indicators, build predictive models, and benchmark strategies for traders.

Problem & Motivation
Cryptocurrency markets are highly volatile and difficult to predict. This project explores how machine learning and time-series methods can extract meaningful patterns to assist traders. Motivation: gain hands-on experience with data pipelines, feature engineering, and ML modeling applied to real-world financial data.

Data & Features (So Far)

- Data: ~800 hours of OHLCV (Open, High, Low, Close, Volume) collected from APIs.
- Features engineered: moving averages, RSI, volatility, lagged returns (work in progress).
- Storage: SQL-based system for structured access.

Approach

- Baseline models: tree-based methods (Random Forest, XGBoost).
- Advanced models: sequential deep learning (LSTM, GRU).
- Planned evaluation: directional accuracy, precision/recall, backtest metrics.
- Current status: data pipeline and feature engineering scripts complete; model prototyping in progress.

Expected Results
The project aims to achieve prediction accuracy above baseline chance and provide insights into which indicators carry predictive power. Visual performance results will be added as experiments complete.

Tech Stack
Python (pandas, NumPy, scikit-learn, PyTorch), SQL, Matplotlib/Seaborn.

Tools Used

- **Data Sources:** Binance/Coinbase/Dexscreener APIs
- **Development:** VS Code, Jupyter Notebook
- **Version Control:** GitHub (private repo)
- **Libraries:** Pandas, NumPy, scikit-learn, PyTorch, Matplotlib
- **Database:** SQL

Future Work

- Add sentiment/NLP signals (Twitter, Reddit).

- Deploy live dashboard for real-time predictions.
- Explore reinforcement learning for trading strategies.

Contact
This project is ongoing. For updates, contact Sheraz Ahmed at Sherazssj20@gmail.com.