BRAUDE College of Engineering, karmiel

StockPilot

Project code: 25-2-R-6
Shelly Trifonov and Guy Naeh
Supervisor: Ilya Zeldner

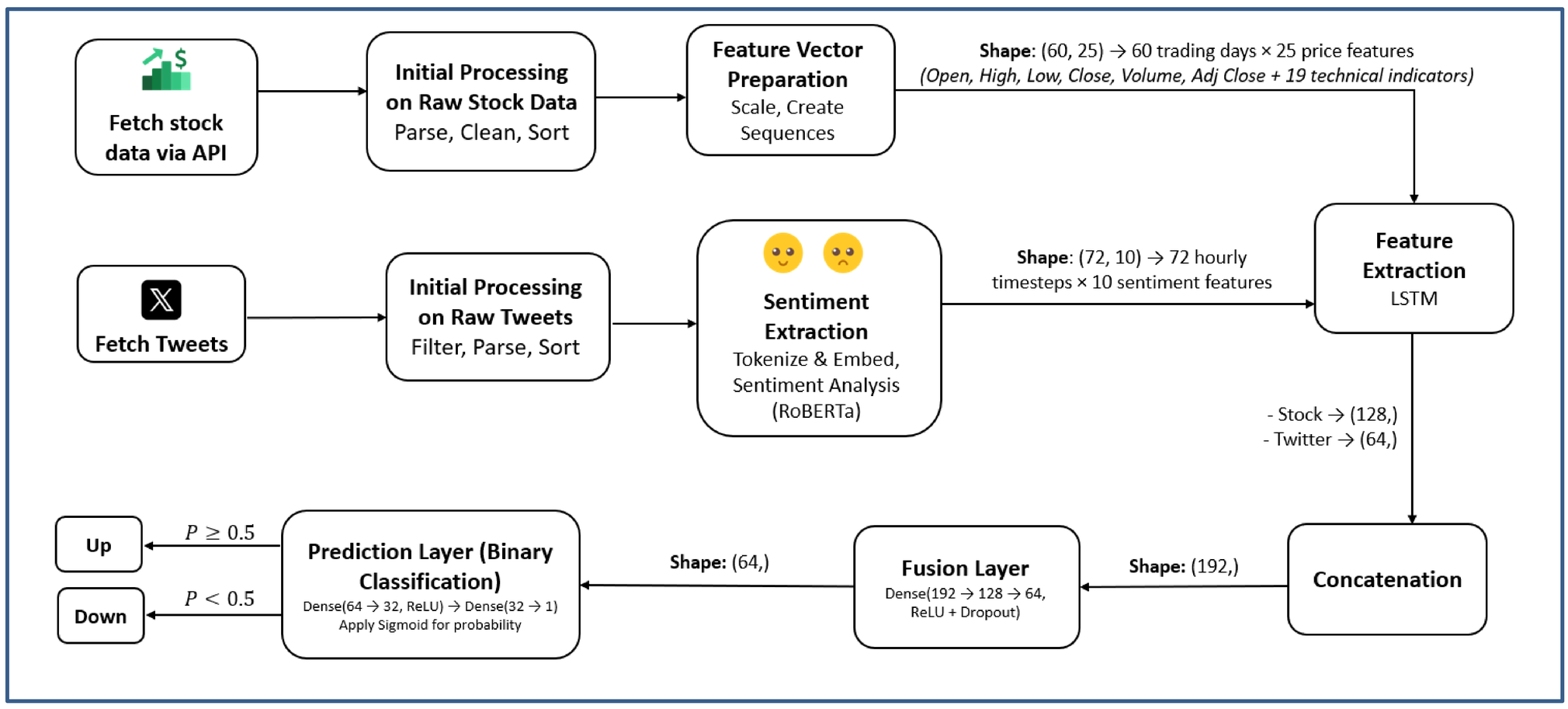
Motivation

- Stock prices are highly volatile and hard to predict using past prices alone.
- Social sentiment can strongly impact market movement in real time.
- We aim to improve short-term forecasting using a **multimodal deep learning approach**.

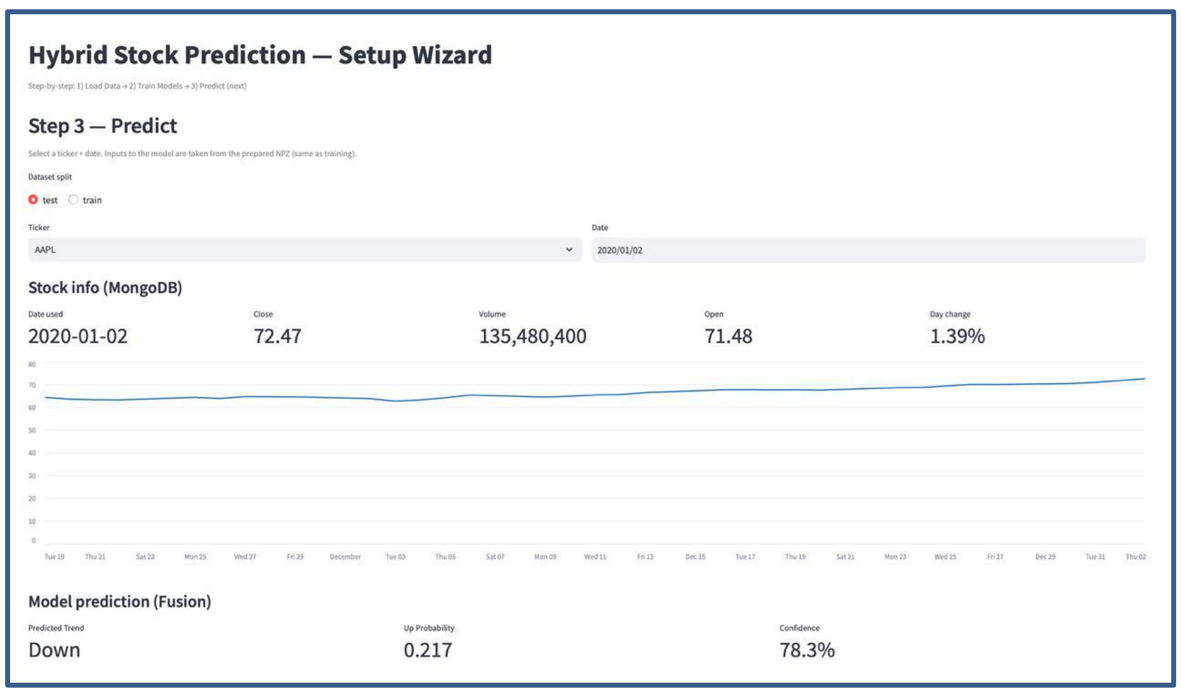
Main System Requirements

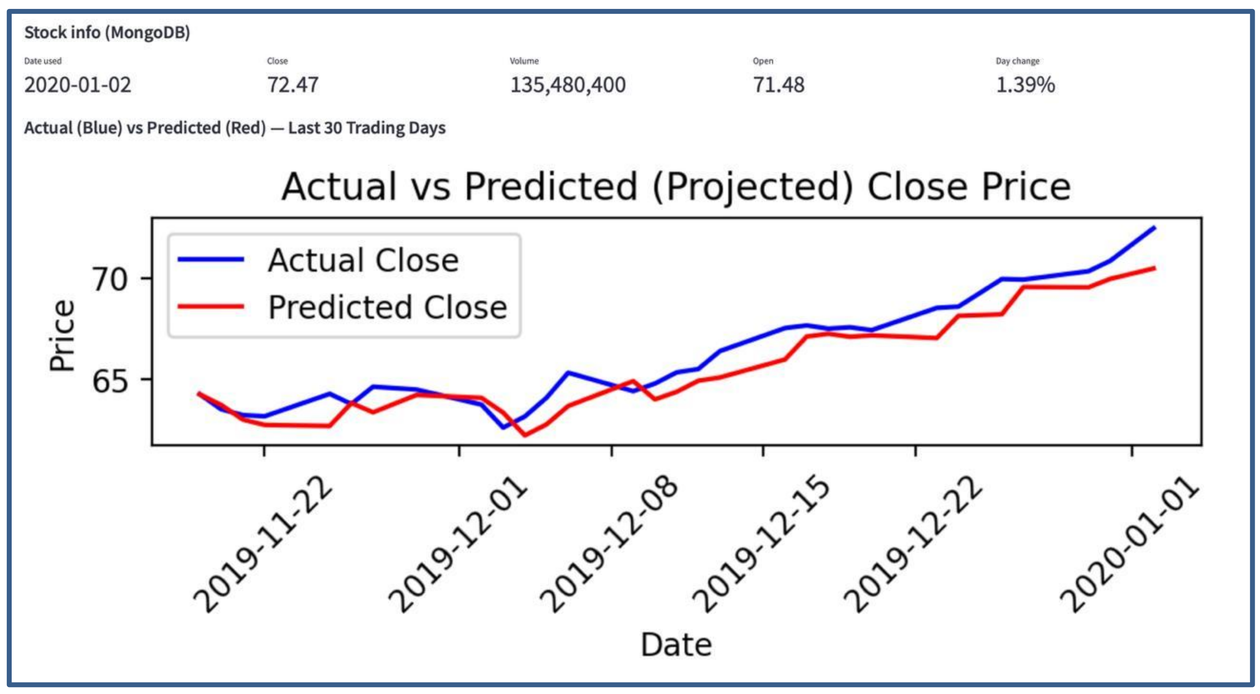
- Predict **short-term stock price movement** using a deep learning model.
- Integrate multiple data sources: **historical prices + X (Twitter) sentiment.**
- Support multiple tickers and scalable data ingestion.
- Dashboard for visualization and model results.

The Solution



python · MongoDB · PyTorch · Streamlit





Project Metrics & Achievements

- **End-to-end pipeline:** MongoDB storage → preprocessing & feature engineering → LSTM models → Fusion prediction.
- Processed **3.7M tweets** and aligned them with historical stock data for **multi-ticker learning**.
- The system outputs the predicted trend (**Up/Down**) alongside **probability and confidence** scores.
- Interactive UI for **data setup, training status, and real-time prediction exploration** by ticker and date.