Stock-Mate Feature Dictionary

This document provides a clean, technical overview of all features used in the Stock-Mate Temporal Fusion Transformer (TFT) forecasting model. The feature set enables high-quality multi-horizon stock price forecasting by combining raw market data, engineered statistical features, technical indicators, volatility metrics, sentiment scores, and calendar effects.

1. Raw Price Features

Feature	Description
date	Trading day timestamp (from Yahoo Finance).
adj close	Adjusted close price accounting for splits/dividends.
close	Final trading price of the day.
high	Highest price reached during the day.
low	Lowest price reached during the day.
open	Opening price of the trading day.
volume	Shares traded during the day.
symbol	Ticker symbol of the stock.
time_idx	Sequential index used for model time ordering.

2. Price-Derived Statistical Features

Feature	Description
returns_pct	Daily percent return: (close - prev_close) / prev_close.
log_returns	Logarithmic return: log(close / prev_close).
high_low_spread	Intraday volatility: high - low.
open_close_spread	Daily momentum: close - open.
rolling_mean_7	7-day moving average of close price.
rolling_std_7	7-day rolling standard deviation (volatility).
rolling_std_30	30-day rolling volatility.

3. Technical Indicators

Feature	Description
EMA_20	20-day exponential moving average.

EMA_50	50-day exponential moving average.
SMA_20	20-day simple moving average.
RSI_14	Relative Strength Index using 14-day window.
MACD	MACD line: EMA(12) - EMA(26).
MACD_signal	MACD signal: EMA of MACD.
MACD_hist	Histogram: MACD - Signal.
ATR_14	Average True Range across 14 days.
true_range	Max(high-low, abs(high-prev_close), abs(low-prev_close)).
bollinger_bandwidth	Normalized volatility measured via Bollinger Bands.

4. Volatility Features

Feature	Description
volatility_20d	20-day rolling statistical volatility (annualized).
volatility_60d	60-day statistical volatility.

5. Sentiment Features

Feature	Description
sentiment_news_composite	NLP score derived from financial news headlines.
sentiment_social_score	Market sentiment from Twitter, Reddit, StockTwits.

6. Calendar Features

Feature	Description
day_of_week	0=Monday to 4=Friday.
week_of_year	Seasonal, quarterly patterns.
month	1–12 month indicator.
is_month_start	Boolean flag for first business day of month.
is_month_end	Boolean flag for last business day.

7. Multi-Horizon Forecast Targets

Feature	Description
target_future_1	Close price 1 day ahead.

target_future_2	2 days ahead.
target_future_3	3 days ahead.
target_future_4	4 days ahead.
target_future_5	5 days ahead.
target_future_6	6 days ahead.
target_future_7	7 days ahead.