



UM Hackathon 2025

Team Error 404

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 - Eu Jun Hong

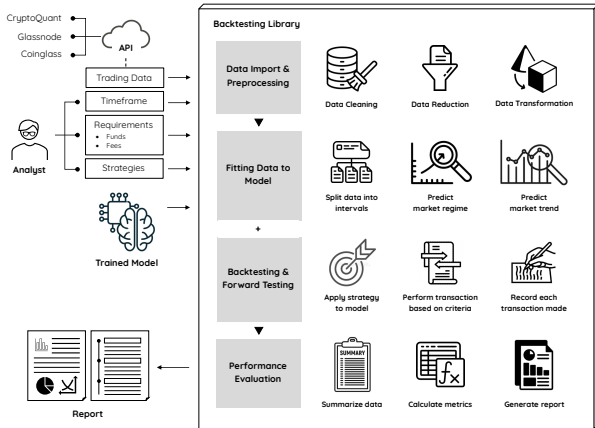
Conceptual Diagram

Three components:

- Input
- Backtest library
- Output

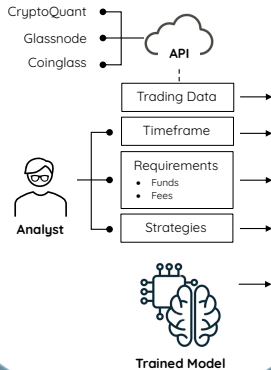
Additional libraries:

- `pandas`
- `backtrader`
- `scikit-learn`

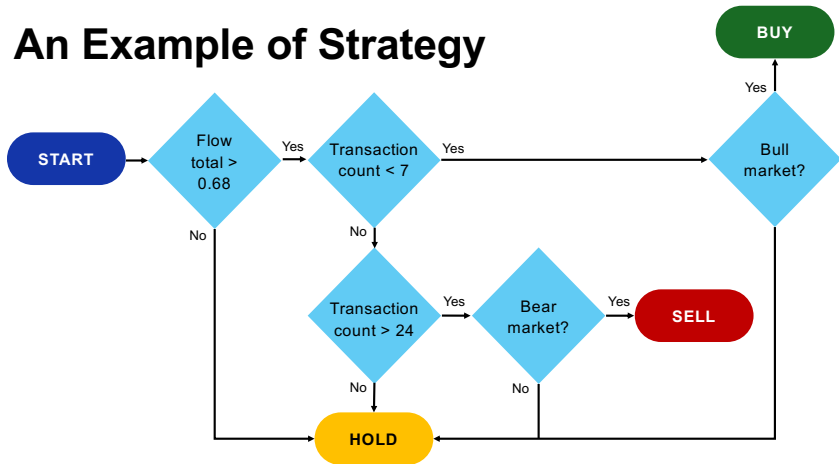


Input

- Trading data
- Timeframe
- Requirements (e.g. funds and fees)
- Strategies
- Trained model

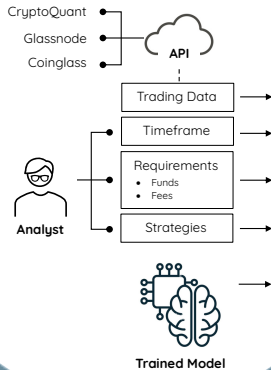


An Example of Strategy



Input

- Trading data
- Timeframe
- Requirements (e.g. funds and fees)
- Strategies
- Trained model



Trained Model

Three components:

- Identify and label market regime
- Predict future market regime
- Predict market trend based on regime



Strategies



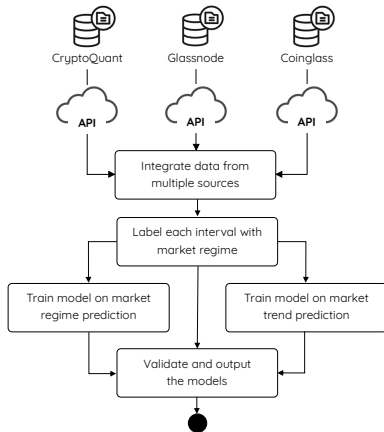
Trained Model

Fitting
M

Back
Forward

Model Training Flow

This is how we train our ML models.



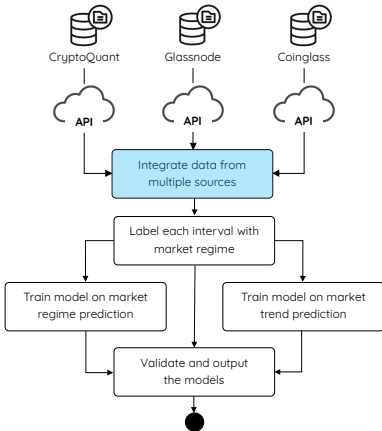
Model Training Flow

Data source:

- CryptoQuant
- Glassnode
- Coinglass

Actions:

- Combine datasets
- Remove unused attributes
- Preprocessing



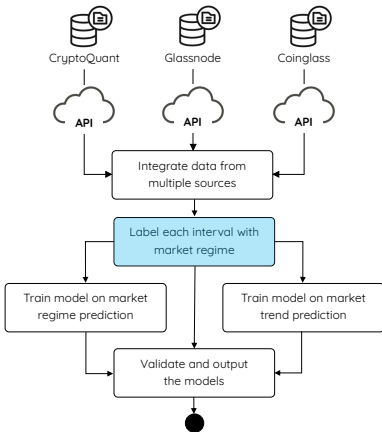
Model Training Flow

Types of market regime:

- Bull
- Bear
- Neutral

Algorithms:

- HMM models
- Clustering models (e.g. k-means algorithm)



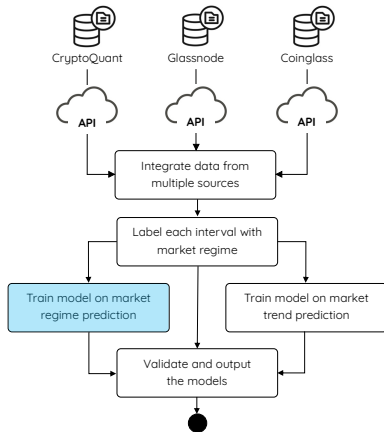
Model Training Flow

Actions:

- Split dataset into training and testing sets
- Apply classification algorithm
- Evaluate model and improvise

Algorithms:

- Random forest
- Neural network



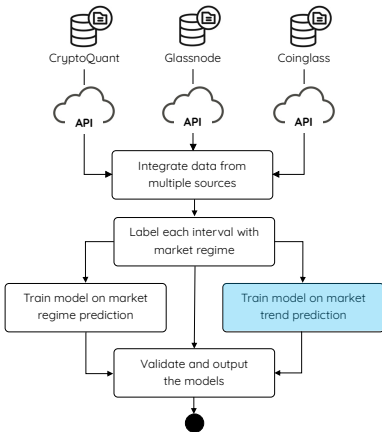
Model Training Flow

Actions:

- Split dataset into training and testing sets
- Apply regression or time-series algorithm
- Evaluate model and improvise

Algorithms:

- Polynomial regression
- LSTM model



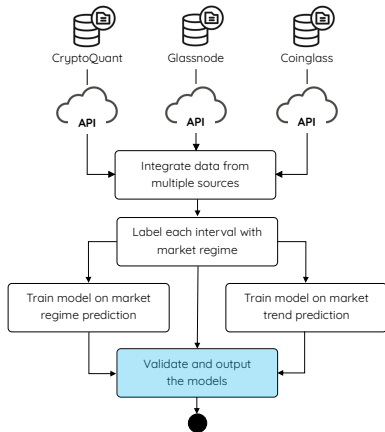
Model Training Flow

Actions:

- Perform final evaluation
- Save models to be used in backtest library

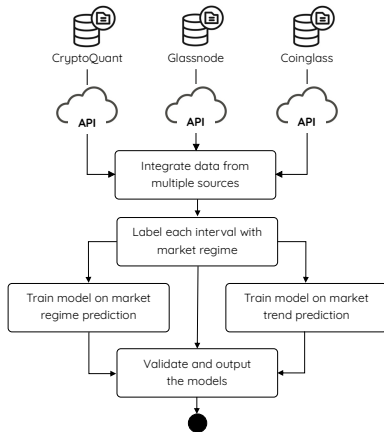
Approach:

- Hybrid model
- Output models separately



Model Training Flow

This is how we train our ML models.



Trained Model

Three components:

- Identify and label market regime
- Predict future market regime
- Predict market trend based on regime



Trained Model

Backtest Library

Four components:

- Data import and preprocessing
- Fitting data to model
- Backtesting and forward testing
- Performance evaluation

CryptoQuant
Glassnode
Coinglass



Analyst

Inputs

Strategies



Model



Report

Backtesting Library

Data Import & Preprocessing



Data Cleaning



Data Reduction



Data Transformation

Fitting Data to Model



Split data into intervals



Predict market regime



Predict market trend

Backtesting & Forward Testing



Apply strategy to model



Perform transaction based on criteria



Record each transaction made

Performance Evaluation



Summarize data



Calculate metrics



Generate report

Backtest Library

Data Import and Preprocessing

Actions:

- Remove null or missing data
- Filter out unused data
- Feature extraction
- Correct data format
- Normalization (if needed)

CryptoQuant

Thorsnode

Coinglass

API

Trading D

Timefram

Requirement

- Funds
- Fees

Strategies

Analyst

Backtesting Library

Data Import &
Preprocessing

Data C

Fitting Data to

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Backtest Library

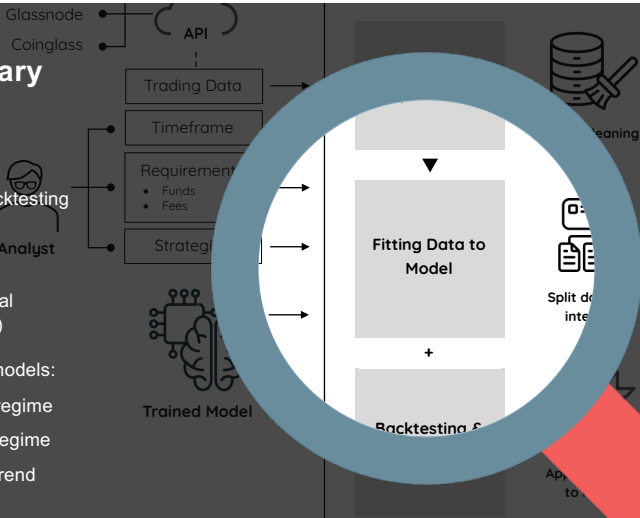
Fitting Data to Model

Purpose:

- Prepare data for backtesting and forward testing

Steps:

- Divide data into equal intervals (e.g. years)
- Feed data into the models:
 - Identify market regime
 - Predict market regime
 - Predict market trend



Backtest Library

Backtesting and Forward Testing

Actions:

- Use existing data for backtesting
- Use newly predicted market trend for forward testing
- Apply the strategy to be tested
- Record each simulated transaction made



• Funds
• Fees

Strategies



Trained M



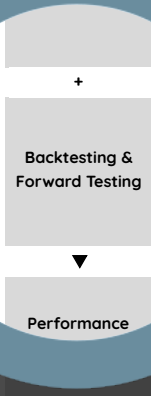
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Report



Performance

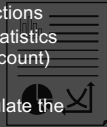
Summ

Backtest Library

Performance Evaluation

Actions:

- Summarize all transactions made and calculate statistics (e.g. total transaction count)
- Apply formula to calculate the associated metrics
- Generate report



Report

Trained Model

Forward Testing

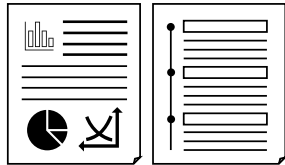
Performance
Evaluation

Summary

Output

Prepare report with details like:

- Performance metrics:
 - Sharpe ratio (SR)
 - Maximum drawdown (MDD)
 - Profit and Loss (PnL)
- Graphs and charts
 - Equity curve
 - Trade signal timeline
- Full list of trade records / transactions



Report

A vibrant blue watercolor splash, resembling a paint blot or ink splatter, serves as the background for the text. The splash features various shades of blue, from deep navy to bright cyan, with numerous small droplets and splatters radiating from the central area. The text 'thank you' is written in a white, elegant cursive script, centered within the splash. The entire composition is framed by a solid dark blue border.

thank
you