ultra-finance

Python project for real-time financial data collection, analyzing && backtesting trading strategies

READ-ONLY: This project has been archived. For more information see this post.

Project Information

Project feeds

Code license
MIT License

Labels
python, Finance, Algorithm, trading, backtesing, QuantLib, pydispather, sqlalchemy

Members
panpandas
1 committer

Featured

Downloads
uf_components.jpg
ultraFinance-0.0.2.zip
Show all »

Wiki pages
Backtesting
BuildProcess
FundamentalsCrawler
PythonHbaseThrift
RoadMap
SourceData
interestingResults
pyTaLib
stockCrawler
Show all »

Links

Welcome

Ultra-finance is a pure Python library & utility for real time stock data collection, analyzing and backtesting.

Code has been moved to https://github.com/panpanpandas/ultrafinance

First Build

- First build is available at: http://code.google.com/p/ultra-finance/downloads/list
- Installation instruction can be found at: http://code.google.com/p/ultra-finance/wiki/BuildProcess
- Any questions can be posted at: http://groups.google.com/group/ultra-finance?pli=1

Examples

- stock crawler -- save stock quotes/ticks to local disk(sqlite or hbase)

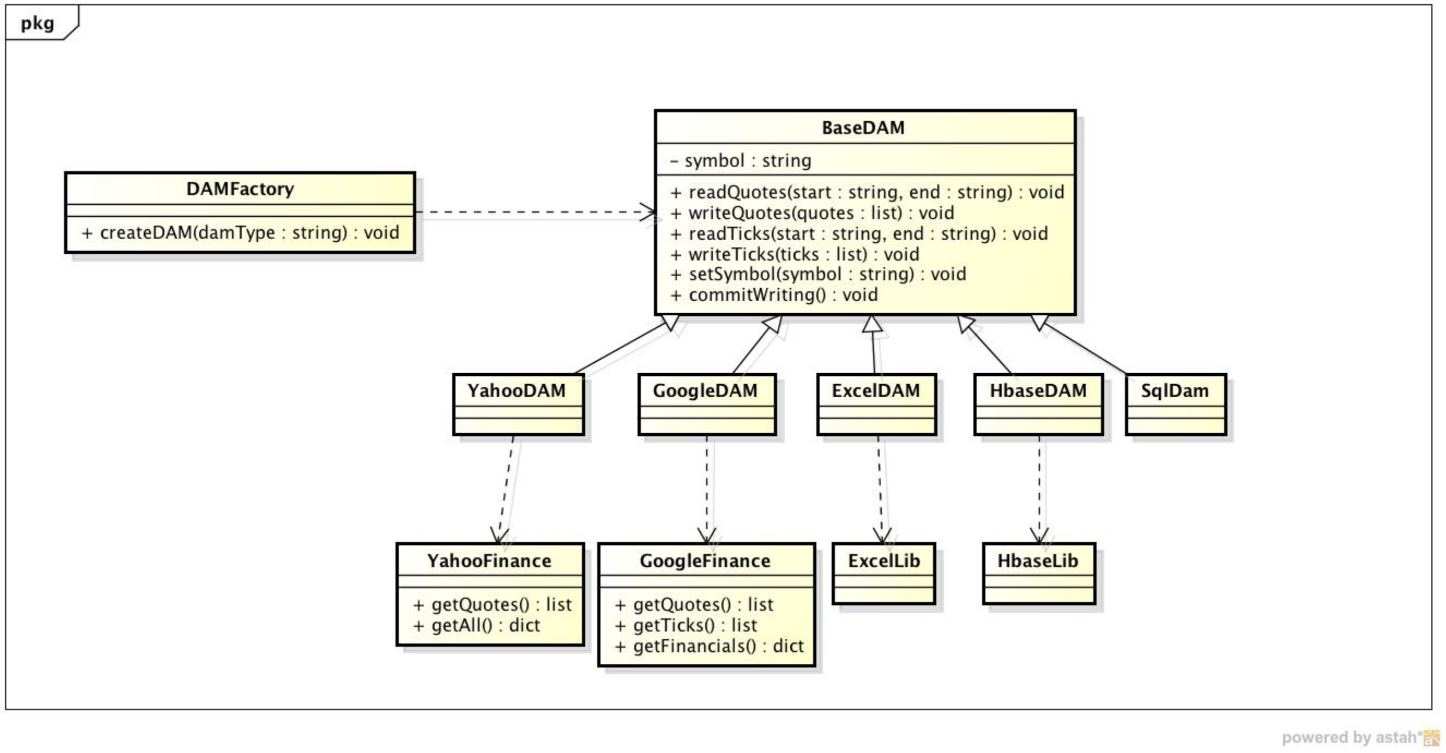
Design

We try to keep the structure flat. Most modules are independent and can be executed easily.

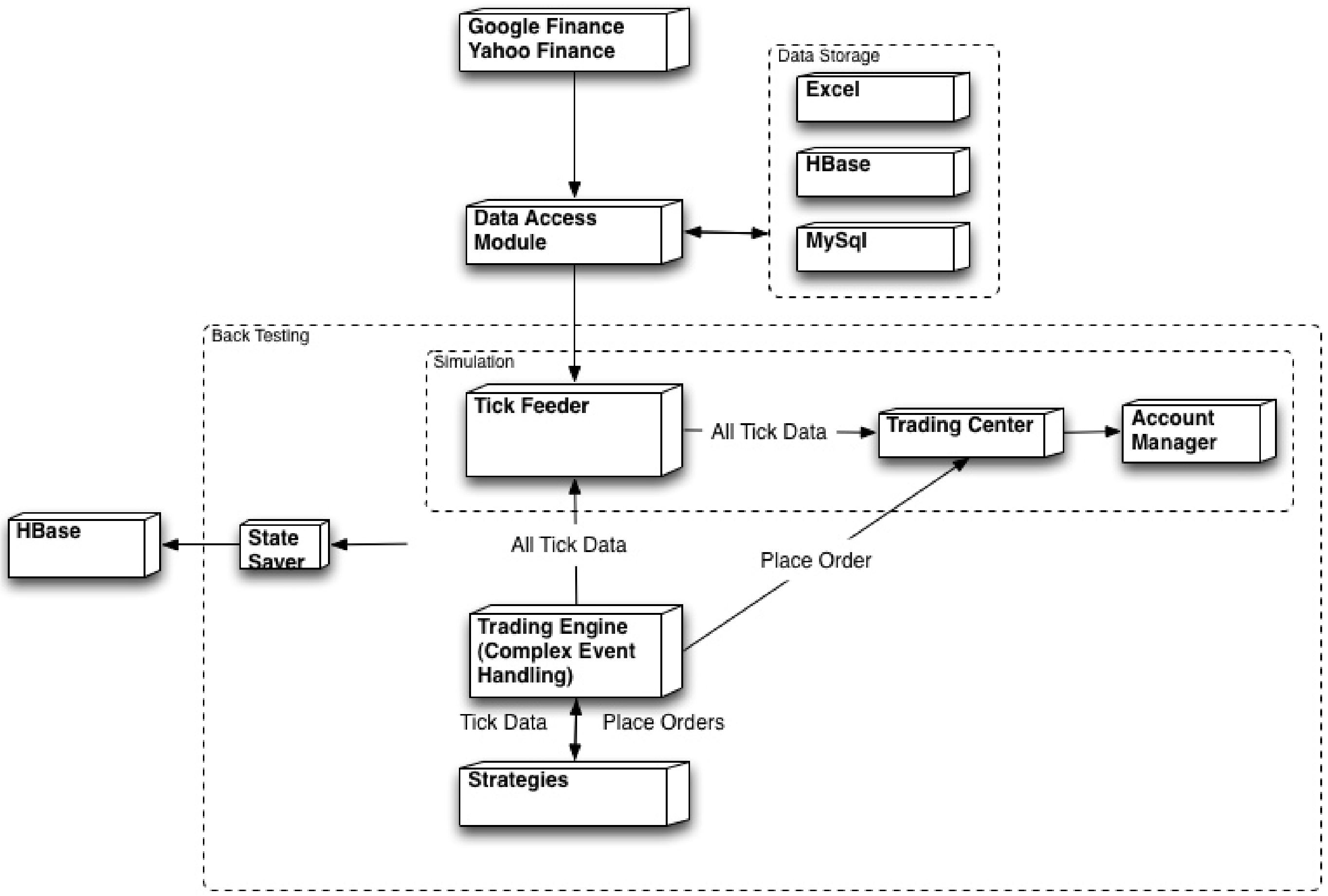
Ultra-finance consists of four components:

- DAM(data access model): provides general API for quote/tick/financials access. There are four DAMs implemented: Yahoo Finance, Google Finance, HBase and Excel.

Groups
ultra-finance-discuss



- Backtesting: validates trading strategies with historical quotes/ticks. Backtesting is functional completed now.



- Python TA-Lib: pure python library that process financial data. This component is still in design.
- Stock picker: Based on real data and user defined filter, this component will rank/pick the stocks.

Interesting Result

By using ultra-finance, we find something interesting: http://code.google.com/p/ultra-finance/wiki/interestingResults

Features

COMPONENT	FEATURE	STATUS
DAM		
	Retrieve quote/tick/financials from Yahoo Finance	DONE

	Retrieve quote/tick/financials from Google Finance	DONE
	Retrieve/Save quote/tick from Excel	DONE
	Retrieve/Save quote/tick from HBase	DONE
	Retrieve/Save quote/tick from MySql	DONE
Back Test		
	Tick Feeder Simulator	DONE
	Trading Center Simulator	DONE
	Account Manager	DONE
	Trading Engine	DONE
	Metrics -- Sharpe Ratio, Lowest, Highest	DONE
	Metrics -- Average, Standard Deviation, Beta, Alpha	SCHEDULED
	Strategy -- Period	DONE
	Strategy -- MACD	DONE
	Save Orders/Ticks/Position to HBase	DONE
	Save Orders/Ticks/Position to Sqlite	DONE
	Integrate with Sqlalchemy	DONE
	Complex Event Processing	SCHEDULED
	Generate Graphic Report	SCHEDULED
	UNIT TEST	SCHEDULED
Design Patterns		
	Singleton	DONE
	Observer	DONE
	More patterns	
Stock picker		
	Sort Stocks by Revenue Increasing	DONE
	Sort Stocks by Diluted Normalized EPS	DONE
	Save Financials to HBase	SCHEDULED
	Build Stock Picker Framework Loads filter Plugins	SCHEDULED

	Filter Plugins -- Sort Filter by Dividend, P/E ...	SCHEDULED
	Unit Test	SCHEDULED
Python TA-Lib		
	Design Interface	
	FUNCTIONS -- ...	SCHEDULED
DEPRECATED		
	Plot any data and save it to image file	DONE
	Send email to user (automatic sending alert to one's email address when filter triggered)	DONE
	Optimize two risky portfolios	DONE
	Config file/dynamic config for the program	DONE
	Processing chain(based on event-driven) - multiple components hook together to achieve a complex task	DONE
	Analyze 524 oversea Chinese stocks' return, alpha for 1 day, 1 week, 3 months and 1 year	DONE
	Stock measurement, including average, return rate, alpha, beta	
	Stock average and standard deviation	DONE
	Stock alpha and beta	DONE
	Trading strategy simulation	
	Automatic investment plan: buy $1000 at the end of each year for SPY500(since year 1900).	DONE
	Automatic investment plan: buy $1000 at the end of each year plus an addition $1000 if index is the lowest during last 3 years.	DONE
	Automatic investment plan: buy $6000 per half a year, whenever the price is the lowest during the last half year, or just buy it at the end of the period	DONE
	Weekly trading: buy and sell in one week	DONE
	Others	
	Unit-test, exception handling and logging	DONE
	Make first build	DONE
	Write installation instruction on Windows, Linux and Mac	DONE

Plan: In near future, this project will be focus on backtesting. The first step is to do backtesting on one strategy using one stock quote data as input. The final goal to do backtesting within a single run to get results of multiple strategies with hundreds of separate rounds while each round takes multiple stocks quotes/ticks as input.

Features/effort are listed below for each run of backtesting:

Number of Tests	Number of Stock Inputs Per Test	Number of Strategies Per Round	Data Type	Realtime	Effort	Status
1	1	1	Quote	No	2 full days	DONE
1	multiple	1	Quote	No	2 full days	DONE
multiple	multiple	1	Quote	No	2 full days	DONE
multiple	multiple	multiple	Quote	No	Unknown	
multiple	multiple	multiple	Quote/Tick	Yes	Unknown	

Wish-list:

- UI or website or graph generating
- real time web news and analyze(web crawler), when bad/good news comes, ultra-finance will do trading automatically
- integrate with NumPy(data processing), PyQT(or wxpython), Pyramid(Pylons) and pandas