

jhTAlib

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Contents

jhTAlib	2
Depends only on	2
Docs	2
Install	3
Update	3
Examples	3
Example 1	3
Example 2	3
Example 3	4
Example 4	4
Example 5	4
Example 6	4
Example 7	5
Example 8	5
Example 9	5
Example 10	5
Example 11	5
Test	6
Reference	6
Behavioral Techniques	6
Candlestick	9
Cycle Indicators	10
Data	11
Event Driven	12
Experimental	12
General	14
Information	15
Math Functions	16
Momentum Indicators	20
Overlap Studies	24
Pattern Recognition	27
Price Transform	31

Statistic Functions	31
Uncategorised	34
Volatility Indicators	35
Volume Indicators	36
Donation and Funding	36

jhTAlib

Technical Analysis Library Time-Series

You can use and import it for your:

- Technical Analysis Software
- Charting Software
- Backtest Software
- Trading Robot Software
- Trading Software in general

Work in progress...

Depends only on

- The Python Standard Library

Docs

- .html
- .epub
- .json
- .odt
- .pdf
- .rst
- .rtf
- .xml

Install

From PyPI:

```
$ [sudo] pip3 install jhtalib
```

From source:

```
$ git clone https://github.com/joosthoeks/jhTAlib.git
$ cd jhTAlib
$ [sudo] pip3 install -e .
```

Update

From PyPI:

```
$ [sudo] pip3 install --upgrade jhtalib
```

From source:

```
$ cd jhTAlib
$ git pull [upstream master]
```

Examples

```
$ cd example/
```

Example 1

```
$ python3 example-1-plot.py
```

or

```
https://colab.research.google.com/github/joosthoeks/jhTAlib/blob/master/  
example/example-1-plot.ipynb
```

Example 2

```
$ python3 example-2-plot.py
```

or

<https://colab.research.google.com/github/joosthoeks/jhTAlib/blob/master/example/example-2-plot.ipynb>

Example 3

`$ python3 example-3-plot.py`

or

<https://colab.research.google.com/github/joosthoeks/jhTAlib/blob/master/example/example-3-plot.ipynb>

Example 4

`$ python3 example-4-plot-quandl.py`

or

<https://colab.research.google.com/github/joosthoeks/jhTAlib/blob/master/example/example-4-plot-quandl.ipynb>

Example 5

`$ python3 example-5-plot-quandl.py`

or

<https://colab.research.google.com/github/joosthoeks/jhTAlib/blob/master/example/example-5-plot-quandl.ipynb>

Example 6

`$ python3 example-6-plot-quandl.py`

or

<https://colab.research.google.com/github/joosthoeks/jhTAlib/blob/master/example/example-6-plot-quandl.ipynb>

Example 7

```
$ python3 example-7-quandl-2-df.py
```

or

<https://colab.research.google.com/github/joosthoeks/jhTAlib/blob/master/example/example-7-quandl-2-df.ipynb>

Example 8

```
$ python3 example-8-alphavantage-2-df.py
```

or

<https://colab.research.google.com/github/joosthoeks/jhTAlib/blob/master/example/example-8-alphavantage-2-df.ipynb>

Example 9

```
$ python3 example-9-cryptocompare-2-df.py
```

or

<https://colab.research.google.com/github/joosthoeks/jhTAlib/blob/master/example/example-9-cryptocompare-2-df.ipynb>

Example 10

DF NumPy Pandas

<https://colab.research.google.com/github/joosthoeks/jhTAlib/blob/master/example/example-10-df-numpy-pandas.ipynb>

Example 11

Basic Usage

<https://colab.research.google.com/github/joosthoeks/jhTAlib/blob/master/example/example-11-basic-usage.ipynb>

Test

```
$ cd test/  
$ python3 test.py
```

Reference

```
import jhtalib as jhta
```

Behavioral Techniques

ATH | All Time High | DONE

- dict of lists of floats = jhta.ATH(df, price='High')
-

LMC | Last Major Correction | DONE

- dict of lists of floats = jhta.LMC(df, price='Low')
-

PP | Pivot Point | DONE

- dict of lists of floats = jhta.PP(df)
 - [https://en.wikipedia.org/wiki/Pivot_point_\(technical_analysis\)](https://en.wikipedia.org/wiki/Pivot_point_(technical_analysis))
-

FIBOPR | Fibonacci Price Retracements | DONE

- dict of lists of floats = jhta.FIBOPR(df, price='Close')
-

FIBTR | Fibonacci Time Retracements |

-
-

GANNPR | W. D. Gann Price Retracements | DONE

- dict of lists of floats = `jhta.GANNPR(df, price='Close')`
-

GANNTR | W. D. Gann Time Retracements |

-
-

JDN | Julian Day Number | DONE

- `jdn = jhta.JDN(utc_year, utc_month, utc_day)`
 - https://en.wikipedia.org/wiki/Julian_day
-

JD | Julian Date | DONE

- `jd = jhta.JD(utc_year, utc_month, utc_day, utc_hour, utc_minute, utc_second)`
 - https://en.wikipedia.org/wiki/Julian_day
-

SUNC | Sun Cycle |

-
-

MERCURYC | Mercury Cycle |

-
-

VENUSC | Venus Cycle |

-
-

EARTHC | Earth Cycle |

•

MARSC | Mars Cycle |

•

JUPITERC | Jupiter Cycle |

•

SATURNC | Saturn Cycle |

•

URANUSC | Uranus Cycle |

•

NEPTUNEC | Neptune Cycle |

•

PLUTOC | Pluto Cycle |

•

MOONC | Moon Cycle |

•

Candlestick

CDLBODYYS | Candle Body Size | DONE

- `list of floats = jhta.CDLBODYYS(df)`
 - <https://www.tradeciety.com/understand-candlesticks-patterns/>
-

CDLWICKS | Candle Wick Size | DONE

- `list of floats = jhta.CDLWICKS(df)`
 - <https://www.tradeciety.com/understand-candlesticks-patterns/>
-

CDLUPPSHAS | Candle Upper Shadow Size | DONE

- `list of floats = jhta.CDLUPPSHAS(df)`
 - <https://www.tradeciety.com/understand-candlesticks-patterns/>
-

CDLLOWSHAS | Candle Lower Shadow Size | DONE

- `list of floats = jhta.CDLLOWSHAS(df)`
 - <https://www.tradeciety.com/understand-candlesticks-patterns/>
-

CDLBODYP | Candle Body Percent | DONE

- `list of floats = jhta.CDLBODYP(p)`
-

CDLBODYM | Candle Body Momentum | DONE

- `list of floats = jhta.CDLBODYM(df, n)`
 - book: Trading Systems and Methods
-

QSTICK | Qstick | DONE

- `list of floats = jhta.QSTICK(df, n)`
 - <https://www.fmlabs.com/reference/default.htm?url=Qstick.htm>
-

SHADOWT | Shadow Trends | DONE

- `dict of lists of floats = jhta.SHADOWT(df, n)`
 - book: The New Technical Trader
-

IMI | Intraday Momentum Index | DONE

- `list of floats = jhta.IMI(df)`
 - <https://www.fmlabs.com/reference/default.htm?url=IMI.htm>
-

Cycle Indicators

HT_DCPERIOD | Hilbert Transform - Dominant Cycle Period |

-
-

HT_DCPHASE | Hilbert Transform - Dominant Cycle Phase |

-
-

HT_PHASOR | Hilbert Transform - Phasor Components |

-
-

HT_SINE | Hilbert Transform - SineWave |

-
-

HT_TRENDLINE | Hilbert Transform - Instantaneous Trendline |

-
-

HT_TRENDMODE | Hilbert Transform - Trend vs Cycle Mode |

-
-

TS | Trend Score | DONE

- list of floats = `jhta.TS(df, n, price='Close')`
 - <https://www.fmlabs.com/reference/default.htm?url=TrendScore.htm>
-

Data

CSV2DF | CSV file 2 DataFeed | DONE

- dict of tuples of floats = `jhta.CSV2DF(csv_file_path)`
-

CSVURL2DF | CSV file url 2 DataFeed | DONE

- dict of tuples of floats = `jhta.CSVURL2DF(csv_file_url)`
-

DF2CSV | DataFeed 2 CSV file | DONE

- csv file = `jhta.DF2CSV(df, csv_file_path)`
-

DF2DFREV | DataFeed 2 DataFeed Reversed | DONE

- dict of tuples of floats = `jhta.DF2DFREV(df)`
-

DF2DFWIN | DataFeed 2 DataFeed Window | DONE

- dict of tuples of floats = `jhta.DF2DFWIN(df, start=0, end=10)`
-

DF_HEAD | DataFeed HEAD | DONE

- dict of tuples of floats = `jhta.DF_HEAD(df, n=5)`
-

DF_TAIL | DataFeed TAIL | DONE

- dict of tuples of floats = `jhta.DF_TAIL(df, n=5)`
-

DF2HEIKIN_ASHI | DataFeed 2 Heikin-Ashi DataFeed | DONE

- dict of tuples of floats = `jhta.DF2HEIKIN_ASHI(df)`
-

Event Driven

ASI | Accumulation Swing Index (J. Welles Wilder) | DONE

- list of floats = `jhta.ASI(df, L)`
 - book: New Concepts in Technical Trading Systems
-

SI | Swing Index (J. Welles Wilder) | DONE

- list of floats = `jhta.SI(df, L)`
 - book: New Concepts in Technical Trading Systems
-

Experimental

JH_SAVGP | Swing Average Price - previous Average Price | DONE

- list of floats = `jhta.JH_SAVGP(df)`
-

JH_SAVGPS | Swing Average Price - previous Average Price Summation | DONE

- list of floats = `jhta.JH_SAVGPS(df)`
-

JH_SCO | Swing Close - Open | DONE

- list of floats = `jhta.JH_SCO(df)`
-

JH_SCOS | Swing Close - Open Summation | DONE

- list of floats = `jhta.JH_SCOS(df)`
-

JH_SMEDP | Swing Median Price - previous Median Price | DONE

- list of floats = `jhta.JH_SMEDP(df)`
-

jh_SMEDPS | Swing Median Price - previous Median Price Summation | DONE

- list of floats = `jhta.JH_SMEDPS(df)`
-

JH_SPP | Swing Price - previous Price | DONE

- list of floats = `jhta.JH_SPP(df, price='Close')`
-

JH_SPPS | Swing Price - previous Price Summation | DONE

- list of floats = `jhta.JH_SPPS(df, price='Close')`
-

JH_STYPP | Swing Typical Price - previous Typical Price | DONE

- list of floats = jhta.JH_STYPP(df)
-

JH_STYPPS | Swing Typical Price - previous Typical Price Summation | DONE

- list of floats = jhta.JH_STYPPS(df)
-

JH_SWCLP | Swing Weighted Close Price - previous Weighted Close Price | DONE

- list of floats = jhta.JH_SWCLP(df)
-

JH_SWCLPS | Swing Weighted Close Price - previous Weighted Close Price Summation | DONE

- list of floats = jhta.JH_SWCLPS(df)
-

General

NORMALIZE | Normalize | DONE

- list of floats = jhta.NORMALIZE(df, price_max='High', price_min='Low', price='Close')
 - <https://machinelearningmastery.com/normalize-standardize-time-series-data-python/>
-

STANDARDIZE | Standardize | DONE

- list of floats = jhta.STANDARDIZE(df, price='Close')
 - <https://machinelearningmastery.com/normalize-standardize-time-series-data-python/>
-

RATIO | Ratio | DONE

- `list of floats = jhta.RATIO(df1, df2, price1='Close', price2='Close')`
 - <https://www.fmlabs.com/reference/default.htm?url=Ratio.htm>
-

SPREAD | Spread | DONE

- `list of floats = jhta.SPREAD(df1, df2, price1='Close', price2='Close')`
-

CP | Comparative Performance | DONE

- `list of floats = jhta.CP(df1, df2, price1='Close', price2='Close')`
 - <https://www.fmlabs.com/reference/default.htm?url=CompPerformance.htm>
-

CRSI | Comparative Relative Strength Index | DONE

- `list of floats = jhta.CRSI(df1, df2, n, price1='Close', price2='Close')`
 - <https://www.fmlabs.com/reference/default.htm?url=RSIC.htm>
-

CS | Comparative Strength | DONE

- `list of floats = jhta.CS(df1, df2, price1='Close', price2='Close')`
 - <https://www.fmlabs.com/reference/default.htm?url=CompStrength.htm>
-

Information

INFO | Print df Information | DONE

- `print = jhta.INFO(df, price='Close')`
-

INFO_TRADES | Print Trades Information | DONE

- `print = jhta.INFO_TRADES(profit_trades_list, loss_trades_list)`
-

Math Functions

EXP | Exponential | DONE

- `list of floats = jhta.EXP(df, price='Close')`
-

LOG | Logarithm | DONE

- `list of floats = jhta.LOG(df, price='Close')`
-

LOG10 | Base-10 Logarithm | DONE

- `list of floats = jhta.LOG10(df, price='Close')`
-

SQRT | Square Root | DONE

- `list of floats = jhta.SQRT(df, price='Close')`
-

ACOS | Arc Cosine | DONE

- `list of floats = jhta.ACOS(df, price='Close')`
-

ASIN | Arc Sine | DONE

- `list of floats = jhta.ASIN(df, price='Close')`
-

ATAN | Arc Tangent | DONE

- `list of floats = jhta.ATAN(df, price='Close')`
-

COS | Cosine | DONE

- `list of floats = jhta.COS(df, price='Close')`
-

SIN | Sine | DONE

- `list of floats = jhta.SIN(df, price='Close')`
-

TAN | Tangent | DONE

- `list of floats = jhta.TAN(df, price='Close')`
-

ACOSH | Inverse Hyperbolic Cosine | DONE

- `list of floats = jhta.ACOSH(df, price='Close')`
-

ASINH | Inverse Hyperbolic Sine | DONE

- `list of floats = jhta.ASINH(df, price='Close')`
-

ATANH | Inverse Hyperbolic Tangent | DONE

- `list of floats = jhta.ATANH(df, price='Close')`
-

COSH | Hyperbolic Cosine | DONE

- `list of floats = jhta.COSH(df, price='Close')`
-

SINH | Hyperbolic Sine | DONE

- `list of floats = jhta.SINH(df, price='Close')`
-

TANH | Hyperbolic Tangent | DONE

- `list of floats = jhta.TANH(df, price='Close')`
-

PI | Mathematical constant PI | DONE

- `float = jhta.PI()`
-

E | Mathematical constant E | DONE

- `float = jhta.E()`
-

TAU | Mathematical constant TAU | DONE

- `float = jhta.TAU()`
-

PHI | Mathematical constant PHI | DONE

- `float = jhta.PHI()`
-

FIB | Fibonacci series up to n | DONE

- `list of ints = jhta.FIB(n)`
-

CEIL | Ceiling | DONE

- `list of floats = jhta.CEIL(df, price='Close')`
-

FLOOR | Floor | DONE

- `list of floats = jhta.FLOOR(df, price='Close')`
-

DEGREES | Radians to Degrees | DONE

- list of floats = `jhta.DEGREES(df, price='Close')`
-

RADIANS | Degrees to Radians | DONE

- list of floats = `jhta.RADIANS(df, price='Close')`
-

ADD | Addition High + Low | DONE

- list of floats = `jhta.ADD(df)`
-

DIV | Division High / Low | DONE

- list of floats = `jhta.DIV(df)`
-

MAX | Highest value over a specified period | DONE

- list of floats = `jhta.MAX(df, n, price='Close')`
-

MAXINDEX | Index of highest value over a specified period | DONE

- list of ints = `jhta.MAXINDEX(df, n, price='Close')`
-

MIN | Lowest value over a specified period | DONE

- list of floats = `jhta.MIN(df, n, price='Close')`
-

MININDEX | Index of lowest value over a specified period | DONE

- list of ints = `jhta.MININDEX(df, n, price='Close')`
-

MINMAX | Lowest and Highest values over a specified period | DONE

- dict of lists of floats = `jhta.MINMAX(df, n, price='Close')`
-

MINMAXINDEX | Indexes of lowest and highest values over a specified period | DONE

- dict of lists of ints = `jhta.MINMAXINDEX(df, n, price='Close')`
-

MULT | Multiply High * Low | DONE

- list of floats = `jhta.MULT(df)`
-

SUB | Subtraction High - Low | DONE

- list of floats = `jhta.SUB(df)`
-

SUM | Summation | DONE

- list of floats = `jhta.SUM(df, n, price='Close')`
-

Momentum Indicators

ADX | Average Directional Movement Index |

-
-

ADXR | Average Directional Movement Index Rating |

-
-

APO | Absolute Price Oscillator | DONE

- `list of floats = jhta.APO(df, n_fast, n_slow, price='Close')`
 - <https://www.fmlabs.com/reference/default.htm?url=PriceOscillator.htm>
-

AROON | Aroon |

-
-

AROONOSC | Aroon Oscillator |

-
-

BOP | Balance Of Power |

-
-

CCI | Commodity Channel Index |

-
-

CMO | Chande Momentum Oscillator |

-
-

DX | Directional Movement Index |

-
-

MACD | Moving Average Convergence/Divergence |

-
-

MACDEXT | MACD with controllable MA type |

-

MACDFIX | Moving Average Convergence/Divergence Fix 12/26 |

-

MFI | Money Flow Index |

-

MINUS_DI | Minus Directional Indicator |

-

MINUS_DM | Minus Directional Movement |

-

MOM | Momentum | DONE

- list of floats = jhta.MOM(df, n, price='Close')
- <https://www.fmlabs.com/reference/default.htm?url=Momentum.htm>

PLUS_DI | Plus Directional Indicator |

-

PLUS_DM | Plus Directional Movement |

-

PPO | Percentage Price Oscillator |

-
-

RMI | Relative Momentum Index | DONE

- `list of floats = jhta.RMI(df, n, price='Close')`
 - <https://www.fmlabs.com/reference/default.htm?url=RMI.htm>
-

ROC | Rate of Change | DONE

- `list of floats = jhta.ROC(df, n, price='Close')`
-

ROCP | Rate of Change Percentage | DONE

- `list of floats = jhta.ROCP(df, n, price='Close')`
-

ROCR | Rate of Change Ratio | DONE

- `list of floats = jhta.ROCR(df, n, price='Close')`
-

ROCR100 | Rate of Change Ratio 100 scale | DONE

- `list of floats = jhta.ROCR100(df, n, price='Close')`
 - <https://www.fmlabs.com/reference/default.htm?url=RateOfChange.htm>
-

RSI | Relative Strength Index | DONE

- `list of floats = jhta.RSI(df, n, price='Close')`
 - <https://www.fmlabs.com/reference/default.htm?url=rsi.htm>
-

STOCH | Stochastic | DONE

- `list of floats = jhta.STOCH(df, n, price='Close')`
 - <https://www.fmlabs.com/reference/default.htm?url=Stochastic.htm>
-

STOCHF | Stochastic Fast |

-
-

STOCHRSI | Stochastic Relative Strength Index |

-
-

TRIX | 1-day Rate-Of-Change (ROC) of a Triple Smooth EMA |

-
-

ULTOSC | Ultimate Oscillator |

-
-

WILLR | Williams' %R | DONE

- `list of floats = jhta.WILLR(df, n)`
 - <https://www.fmlabs.com/reference/default.htm?url=WilliamsR.htm>
-

Overlap Studies

BBANDS | Bollinger Bands | DONE

- `dict of lists of floats = jhta.BBANDS(df, n, f=2)`
 - <https://www.fmlabs.com/reference/default.htm?url=Bollinger.htm>
-

BBANDW | Bollinger Band Width | DONE

- `list of floats = jhta.BBANDW(df, n, f=2)`
 - <https://www.fmlabs.com/reference/default.htm?url=BollingerWidth.htm>
-

DEMA | Double Exponential Moving Average |

-
-

EMA | Exponential Moving Average | DONE

- `list of floats = jhta.EMA(df, n, price='Close')`
 - <https://www.fmlabs.com/reference/default.htm?url=ExpMA.htm>
-

ENVP | Envelope Percent | DONE

- `dict of lists of floats = jhta.ENVP(df, pct=.01, price='Close')`
 - <https://www.fmlabs.com/reference/default.htm?url=EnvelopePct.htm>
-

KAMA | Kaufman Adaptive Moving Average |

-
-

MA | Moving Average |

-
-

MAMA | MESA Adaptive Moving Average |

-
-

MAVP | Moving Average with Variable Period |

-
-

MIDPOINT | MidPoint over period | DONE

- `list of floats = jhta.MIDPOINT(df, n, price='Close')`
 - <http://www.tadoc.org/indicator/MIDPOINT.htm>
-

MIDPRICE | MidPoint Price over period | DONE

- `list of floats = jhta.MIDPRICE(df, n)`
 - <http://www.tadoc.org/indicator/MIDPRICE.htm>
-

MMR | Mayer Multiple Ratio | DONE

- `list of floats = jhta.MMR(df, n=200, price='Close')`
 - <https://www.theinvestorspodcast.com/bitcoin-mayer-multiple/>
-

SAR | Parabolic SAR | DONE

- `list of floats = jhta.SAR(df, af_step=.02, af_max=.2)`
 - book: New Concepts in Technical Trading Systems
-

SAREXT | Parabolic SAR - Extended |

-
-

SMA | Simple Moving Average | DONE

- `list of floats = jhta.SMA(df, n, price='Close')`
 - <https://www.fmlabs.com/reference/default.htm?url=SimpleMA.htm>
-

T3 | Triple Exponential Moving Average (T3) |

-

TEMA | Triple Exponential Moving Average |

-

TRIMA | Triangular Moving Average | DONE

- `list of floats = jhta.TRIMA(df, n, price='Close')`
- <https://www.fmlabs.com/reference/default.htm?url=TriangularMA.htm>

WMA | Weighted Moving Average

-

Pattern Recognition

CDL2CROWS | Two Crows |

CDL3BLACKCROWS | Three Black Crows |

CDL3INSIDE | Three Inside Up/Down |

CDL3LINESTRIKE | Three-Line Strike |

CDL3OUTSIDE | Three Outside Up/Down |

CDL3STARSINSOUTH | Three Stars In The South |

CDL3WHITESOLDIERS | Three Advancing White Soldiers |

CDLABANDONEDBABY | Abandoned Baby |

CDLADVANCEBLOCK | Advance Block |

CDLBELTHOLD | Belt-hold |

CDLBREAKAWAY | Breakaway |

CDLCLOSINGMARUBOZU | Closing Marubozu |

CDLCONSEALBABYSWALL | Concealing Baby Swallow |

CDLCOUNTERATTACK | Counterattack |

CDLDARKCLOUDCOVER | Dark Cloud Cover |

CDLDOJI | Doji |

CDLDOJISTAR | Doji Star |

CDLDRAGONFLYDOJI | Dragonfly Doji |

CDLENGULFING | Engulfing Pattern |

CDLEVENINGDOJISTAR | Evening Doji Star |

CDLEVENINGSTAR | Evening Star |

**CDLGAPSIDESIDEWHITE | Up/Down-gap side-by-side white lines
|**

CDLGRAVESTONEDOJI | Gravestone Doji |

CDLHAMMER | Hammer |

CDLHANGINGMAN | Hanging Man |

CDLHARAMI | Harami Pattern |

CDLHARAMICROSS | Harami Cross Pattern |

CDLHIGHWAVE | High-Wave Candle |

CDLHIKKAKE | Hikkake Pattern |

CDLHIKKAKEMOD | Modified Hikkake Pattern |

CDLHOMINGPIGEON | Homing Pigeon |

CDLIDENTICAL3CROWS | Identical Three Crows |

CDLINNECK | In-Neck Pattern |

CDLINVERTEDHAMMER | Inverted Hammer |

CDLKICKING | Kicking |

CDLKICKINGBYLENGTH | Kicking - bull/bear determined by the longer marubozu |

CDLLADDERBOTTOM | Ladder Bottom |

CDLLONGLEGGEDDOJI | Long Legged Doji |

CDLLONGLINE | Long Line Candle |

CDLMARUBOZU | Marubozu |

CDLMATCHINGLOW | Matching Low |

CDLMATHOLD | Mat Hold |

CDLMORNINGDOJISTAR | Morning Doji Star |

CDLMORNINGSTAR | Morning Star |

CDLONNECK | On-Neck Pattern |

CDLPIERCING | Piercing Pattern |

CDLRICKSHAWMAN | Rickshaw Man |

CDLRISEFALL3METHODS | Rising/Falling Three Methods |

CDLSEPARATINGLINES | Separating Lines |

CDLSHOOTINGSTAR | Shooting Star |

CDLSHORTLINE | Short Line Candle |

CDLSPINNINGTOP | Spinning Top |

CDLSTALLEDPATTERN | Stalled Pattern |

CDLTICKSANDWICH | Stick Sandwich |

CDLTAKURI | Takuri (Dragonfly Doji with very long lower shadow)
|

CDLTASUKIGAP | Tasuki Gap |

CDLTHRUSTING | Thrusting Pattern |

CDLTRISTAR | Tristar Pattern |

CDLUNIQUE3RIVER | Unique 3 River |

CDLUPSIDEGAP2CROWS | Upside Gap Two Crows |

CDLXSIDEGAP3METHODS | Upside/Downside Gap Three Methods |

Price Transform

AVGPRICE | Average Price | DONE

- `list of floats = jhta.AVGPRICE(df)`
 - <https://www.fmlabs.com/reference/default.htm?url=AvgPrices.htm>
-

MEDPRICE | Median Price | DONE

- `list of floats = jhta.MEDPRICE(df)`
 - <https://www.fmlabs.com/reference/default.htm?url=MedianPrices.htm>
-

TYPPRICE | Typical Price | DONE

- `list of floats = jhta.TYPPRICE(df)`
 - <https://www.fmlabs.com/reference/default.htm?url=TypicalPrices.htm>
-

WCLPRICE | Weighted Close Price | DONE

- `list of floats = jhta.WCLPRICE(df)`
 - <https://www.fmlabs.com/reference/default.htm?url=WeightedCloses.htm>
-

Statistic Functions

MEAN | Arithmetic mean (average) of data | DONE

- `list of floats = jhta.MEAN(df, n, price='Close')`
-

HARMONIC_MEAN | Harmonic mean of data | DONE

- list of floats = `jhta.HARMONIC_MEAN(df, n, price='Close')`
-

MEDIAN | Median (middle value) of data | DONE

- list of floats = `jhta.MEDIAN(df, n, price='Close')`
-

MEDIAN_LOW | Low median of data | DONE

- list of floats = `jhta.MEDIAN_LOW(df, n, price='Close')`
-

MEDIAN_HIGH | High median of data | DONE

- list of floats = `jhta.MEDIAN_HIGH(df, n, price='Close')`
-

MEDIAN_GROUPED | Median, or 50th percentile, of grouped data | DONE

- list of floats = `jhta.MEDIAN_GROUPED(df, n, price='Close', interval=1)`
-

MODE | Mode (most common value) of discrete data | DONE

- list of floats = `jhta.MODE(df, n, price='Close')`
-

PSTDEV | Population standard deviation of data | DONE

- list of floats = `jhta.PSTDEV(df, n, price='Close', mu=None)`
-

PVARIANCE | Population variance of data | DONE

- list of floats = `jhta.PVARIANCE(df, n, price='Close', mu=None)`
-

STDEV | Sample standard deviation of data | DONE

- `list of floats = jhta.STDEV(df, n, price='Close', xbar=None)`
-

VARIANCE | Sample variance of data | DONE

- `list of floats = jhta.VARIANCE(df, n, price='Close', xbar=None)`
-

COV | Covariance | DONE

- `float = jhta.COV(list1, list2)`
 - https://en.wikipedia.org/wiki/Algorithms_for_calculating_variance#Covariance
-

COVARIANCE | Covariance | DONE

- `list of floats = jhta.COVARANCE(df1, df2, n, price1='Close', price2='Close')`
 - https://en.wikipedia.org/wiki/Algorithms_for_calculating_variance#Covariance
-

COR | Correlation | DONE

- `float = jhta.COR(list1, list2)`
-

CORRELATION | Correlation | DONE

- `list of floats = jhta.CORRELATION(df1, df2, n, price1='Close', price2='Close')`
-

PCOR | Population Correlation | DONE

- `float = jhta.PCOR(list1, list2)`
-

PCORRELATION | Population Correlation | DONE

- `list of floats = jhta.PCORRELATION(df1, df2, n, price1='Close', price2='Close')`
-

BETA | Beta | DONE

- `float = jhta.BETA(list1, list2)`
 - [https://en.wikipedia.org/wiki/Beta_\(finance\)](https://en.wikipedia.org/wiki/Beta_(finance))
-

BETAS | Betas | DONE

- `list of floats = jhta.BETAS(df1, df2, n, price1='Close', price2='Close')`
 - [https://en.wikipedia.org/wiki/Beta_\(finance\)](https://en.wikipedia.org/wiki/Beta_(finance))
-

LSR | Least Squares Regression | DONE

- `list of floats = jhta.LSR(df, price='Close', predictions_int=0)`
 - <https://www.mathsisfun.com/data/least-squares-regression.html>
-

SLR | Simple Linear Regression | DONE

- `list of floats = jhta.SLR(df, price='Close', predictions_int=0)`
 - <https://machinelearningmastery.com/implement-simple-linear-regression-scratch-python/>
-

Uncategorised

HR | Hit Rate / Win Rate | DONE

- `float = jhta.HR(hit_trades_int, total_trades_int)`
 - <http://traderskillset.com/hit-rate-stock-trading/>
-

PLR | Profit/Loss Ratio | DONE

- `float = jhta.PLR(mean_trade_profit_float, mean_trade_loss_float)`
 - https://www.investopedia.com/terms/p/profit_loss_ratio.asp
-

EV | Expected Value | DONE

- `float = jhta.EV(hittrade_float, mean_trade_profit_float, mean_trade_loss_float)`
 - https://en.wikipedia.org/wiki/Expected_value
-

POR | Probability of Ruin (Table of Lucas and LeBeau) | DONE

- `int = jhta.POR(hittrade_float, profit_loss_ratio_float)`
 - book: Computer Analysis of the Futures Markets
-

Volatility Indicators

ATR | Average True Range | DONE

- `list of floats = jhta.ATR(df, n)`
 - <https://www.fmlabs.com/reference/default.htm?url=ATR.htm>
-

NATR | Normalized Average True Range |

-
-

RVI | Relative Volatility Index | DONE

- `list of floats = jhta.RVI(df, n)`
 - <https://www.fmlabs.com/reference/default.htm?url=RVI.htm>
-

INERTIA | Inertia |

-
-

TRANGE | True Range | DONE

- `list of floats = jhta.TRANGE(df)`
 - <https://www.fmlabs.com/reference/default.htm?url=TR.htm>
-

Volume Indicators

AD | Chaikin A/D Line | DONE

- `list of floats = jhta.AD(df)`
 - <https://www.fmlabs.com/reference/default.htm?url=AccumDist.htm>
-

ADOSC | Chaikin A/D Oscillator |

-
-

OBV | On Balance Volume | DONE

- `list of floats = jhta.OBV(df)`
 - <https://www.fmlabs.com/reference/default.htm?url=OBV.htm>
-

Donation and Funding

BTC: <https://insight.bitpay.com/address/3KCoXMyUDgVABoFSuV8GQT3k8qkUhEDG9X>
