**Documentation**

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The AT library contains 4 types of

Functions:

* Type1 : functions to calculate technical indicators
* Type2 : functions to visualize technical indicators
* Type3 : functions to generate buy & sell signals and visualize them
* Type4: functions to measure the performance of trading strategies

1. **Type 1 functions:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Indicators | Function | Parameters | | Type of parameters |
| Simple Moving Average | mms (close, n) | close | Prices | pandas.DataFrame or pandas.Series |
| n | Order | int |
| Exponential Moving Average | mme (close, n) | close | Prices | pandas.DataFrame or pandas.Series |
| n | Order | int |
| MACD | macd (close, ws, wl, wsig=9) | close | Prices | pandas.DataFrame or pandas.Series |
| ws | Order of short term | int |
| wl | Order long term | int |
| wsig |  | int |
| RSI | rsi (close, n) | close | Prices | pandas.DataFrame ou pandas.Series |
| n | Order | int |
| Bollinger Bands | bollinger (close, w, k) | close | Prices | pandas.DataFrame or pandas.Series |
| w | Order de %K | int |
| k | Order de %D | int |
| Momentum | momentum(close, w, wsig=9): | close | Prices | pandas.DataFrame or pandas.Series |
| w | Order | int |
| wsig | Order of signal line | int |
| Rate of change : | rate\_of\_change(close  ,w) | close | Prices | pandas.DataFrame or pandas.Series |
| w | Order | int |
| Stochastic | stochastique (close, high, low, n, w) | close | Prices | pandas.DataFrame or pandas.Series |
| high | The highest prices | pandas.DataFrame or pandas.Series |
| low | The lowest prices | pandas.DataFrame or pandas.Series |
| n | Order of %K | int |
| w | Order of %D | int |
| On balance volume | obv (close, vol) | close | Prices | pandas.DataFrame or pandas.Series |
| vol | volumes | pandas.DataFrame or pandas.Series |
| Williams %R | williams (close, n) | close | Prices | pandas.DataFrame or pandas.Series |
| n | Order | Int |
| Money Flow Index : | MFI (close, vol, high, low, n) | close | Prices | pandas.DataFrame or pandas.Series |
| vol | volumes | pandas.DataFrame or pandas.Series |
| high | The highest prices | pandas.DataFrame or pandas.Series |
| low | The lowest prices | pandas.DataFrame or pandas.Series |
| n | Order | Int |
| Chaikin Oscillator | cho (close, vol, high, low, n, ws, wl) | close | Prices | pandas.DataFrame or pandas.Series |
| vol | volumes | pandas.DataFrame or pandas.Series |
| high | The highest prices | pandas.DataFrame or pandas.Series |
| low | The lowest prices | pandas.DataFrame or pandas.Series |
| n  ws  wl | Orders | int |
| Negative Volume Index | nvi (close, vol) | close | Prices | pandas.DataFrame or pandas.Series |
| vol | Volumes | pandas.DataFrame or pandas.Series |
| Positive Volume Index | pvi (close, vol) | close | Prices | pandas.DataFrame or pandas.Series |
| vol | volumes | pandas.DataFrame or pandas.Series |

The output of these functions are:

|  |  |  |
| --- | --- | --- |
| Functions | Type of output | Output |
| mms (close, n)  mme (close, n)  rsi (close, n)  rate\_of\_change (close, w)  obv (close, vol)  Williams (close, n)  MFI (close, vol, high, low, n)  cho (close, vol, high, low, n, ws, wl) | pandas.DataFrame  (2 columns) | First column: Prices  Second column: Values of the technical indicator |
| bollinger (close, w, k) | pandas.DataFrame  (4 columns) | First column: Prices  The other columns:  BBDOWN  BBUP  BBMID |
| stochastique (close, high, low, n, w) | pandas.DataFrame  (3 columns) | First column: Prices  The other columns : %K  & % D |
| macd (close, ws, wl, wsig=9) | pandas.DataFrame  (3 columns) | First column: Prices  The other columns:  MACD: values of MACD  MACDsig : values of the signal line |
| nvi (close, vol)  pvi (close, vol) | pandas.Series | Values of the technical indicator |

1. Type 2 functions:

|  |  |
| --- | --- |
| Indicator | Function |
| Simple Moving Average | plot\_ mms (close, n) |
| Exponential Moving Average | plot\_mme (close, n) |
| MACD | plot\_macd (close, ws, wl, wsig) |
| RSI | plot\_rsi (close, n) |
| Bollinger Bands | plot\_bollinger (close, w, k) |
| Momentum | plot\_momentum (close, w, wsig) |
| ROC | plot\_roc (close, w) |
| Stochastique | plot\_stochastique (close, high, low, n, w,) |
| OBV | plot\_obv (close, vol) |
| Williams %R | plot\_williams (close, n) |
| MFI | plot\_MFI (close, volume, high, low, n) |
| CHO | plot\_cho (close, volume, high, low, n, ws, wl) |
| NVI | plot\_nvi (close, volume) |
| PVI | plot\_pvi(close, volume) |

1. **Type 3 functions**

|  |  |  |  |
| --- | --- | --- | --- |
| Indicator | Function | | |
| Simple Moving Average | R1\* | | sign\_mms1 (close, n) |
| R2 | | sign\_mms2 (close, ws, wl) |
| MACD | R1 | | sign\_macd1 (close, ws, wl) |
| R2 | | sign\_macd2 (close, ws, wl, wsig) |
| RSI | sign\_rsi (close, n) | | |
| Bollinger Bands | sign\_bollinger (close, w, k) | | |
| Momentum | sign\_momentum (close, w, wsig) | | |
| ROC | sign\_roc (close, w) | | |
| Stochastique | R1 | sign\_stochastique1 (close, high, low, n, w,) | |
| R2 | sign\_stochastique2 (close, n, w) | |
| OBV | sign\_obv (close, vol, n) | | |
| MFI | sign\_mfi (close, volume, high, low, n) | | |
| CHO | sign\_cho (close, volume, high, low, n, ws, wl) | | |
| NVI | sign\_nvi (close, volume) | | |
| PVI | sign\_pvi (close, volume) | | |

\*Rule 1

1. Type 4 functions

- Dietz (close, signal): Calculate Modified Dietz Return

- pmv (close, signal) : Calculate the “Plus-ou-moins-value”