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Implementing Grid Indicator using Backtrader

JohnJoy · Follow

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The Grid Indicator is a technical analysis tool that is used to identify key price levels on a chart. It is based on the concept of price ranges, which are defined as a percentage of the current price. The Grid Indicator plots a series of horizontal lines on the chart, each representing a different price range. These lines can be used as potential support or resistance levels, and traders may use them to help identify areas where the price is likely to encounter buying or selling pressure. The Grid Indicator is a simple and easy-to-use tool that can be applied to any market and time frame.

here's an implementation of the grid indicator in Backtrader:

```
import backtrader as bt

class GridIndicator(bt.Indicator):
    params = (('price', 0.0), ('price_range', 0.5))

    def __init__(self):
        grid1up = self.p.price + ((self.p.price_range/2) * self.p.price / 100)
        grid1down = self.p.price - ((self.p.price_range/2) * self.p.price / 100
        grid2up = grid1up + ((self.p.price_range) * self.p.price / 100)
        grid2down = grid1down - ((self.p.price_range) * self.p.price / 100)
        grid3up = grid2up + ((self.p.price_range) * self.p.price / 100)
        grid3down = grid2down - ((self.p.price_range) * self.p.price / 100)
        grid4up = grid3up + ((self.p.price_range) * self.p.price / 100)
        grid4down = grid3down - ((self.p.price_range) * self.p.price / 100)
        grid5up = grid4up + ((self.p.price_range) * self.p.price / 100)
        grid5down = grid4down - ((self.p.price_range) * self.p.price / 100)

        self.lines.grid1up = bt.LinePlotterIndicator(self, plotmaster=self.data
        self.lines.grid1up.plot(grid1up, color='g')
        self.lines.grid1down = bt.LinePlotterIndicator(self, plotmaster=self.da
        self.lines.grid1down.plot(grid1down, color='r')
        self.lines.grid2up = bt.LinePlotterIndicator(self, plotmaster=self.data
        self.lines.grid2up.plot(grid2up, color='g')
        self.lines.grid2down = bt.LinePlotterIndicator(self, plotmaster=self.da
        self.lines.grid2down.plot(grid2down, color='r')
        self.lines.grid3up = bt.LinePlotterIndicator(self, plotmaster=self.data
        self.lines.grid3up.plot(grid3up, color='g')
        self.lines.grid3down = bt.LinePlotterIndicator(self, plotmaster=self.da
        self.lines.grid3down.plot(grid3down, color='r')
        self.lines.grid4up = bt.LinePlotterIndicator(self, plotmaster=self.data
        self.lines.grid4up.plot(grid4up, color='g')
        self.lines.grid4down = bt.LinePlotterIndicator(self, plotmaster=self.da
        self.lines.grid4down.plot(grid4down, color='r')
        self.lines.grid5up = bt.LinePlotterIndicator(self, plotmaster=self.data
        self.lines.grid5up.plot(grid5up, color='g')
        self.lines.grid5down = bt.LinePlotterIndicator(self, plotmaster=self.da
        self.lines.grid5down.plot(grid5down, color='r')
```

The code defines a custom indicator named `GridIndicator` that inherits from `bt.Indicator` class in the backtrader library.

The indicator has two parameters, `price` and `price_range`, with default values of 0.0 and 0.5 respectively. These parameters are used to calculate various grids which will

be plotted on the chart.

In the constructor of the class, various grid levels are calculated using the formulae provided in the original indicator. These levels are assigned to variables `grid1up`, `grid1down`, `grid2up`, `grid2down`, `grid3up`, `grid3down`, `grid4up`, `grid4down`, `grid5up`, and `grid5down`.

The grid levels are plotted using the `bt.LinePlotterIndicator` class, which creates a line plot of a single value for each grid level. The `plot()` method is used to plot each grid level, with the `color` parameter specifying the color of the plot. The `plotmaster` parameter specifies the data line that the indicator should be plotted on.

After plotting each grid level, the lines are assigned to various `self.lines` attributes named `grid1up`, `grid1down`, `grid2up`, `grid2down`, `grid3up`, `grid3down`, `grid4up`, `grid4down`, `grid5up`, and `grid5down`. These attributes are defined by the `bt.Indicator` class and store the plot data for each line.

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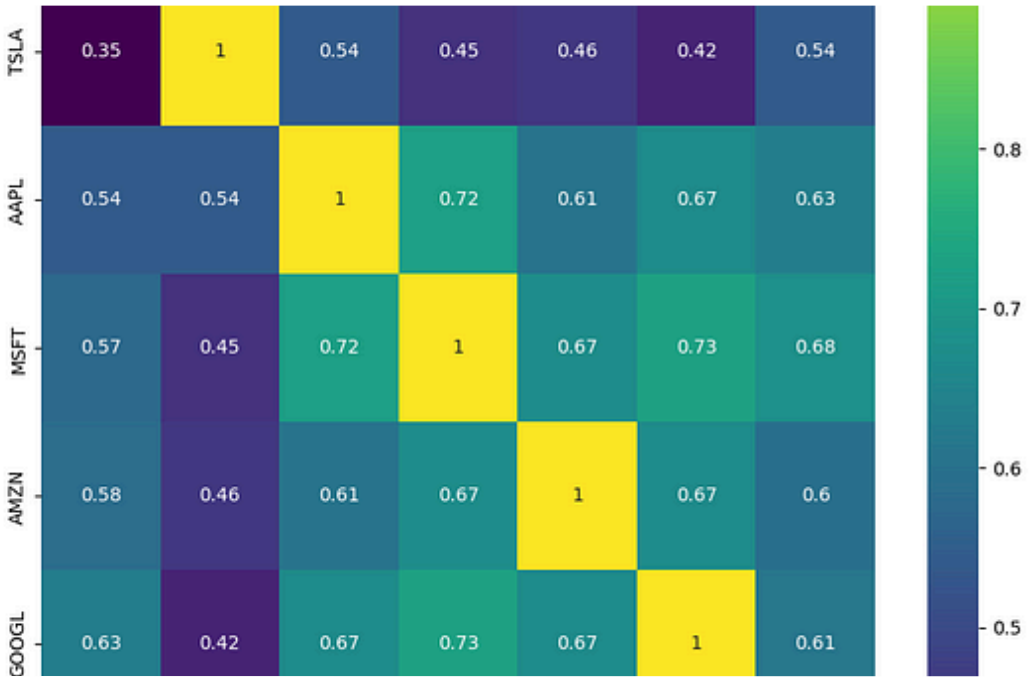

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```
ticker = "GOOGL"
df = yf.download(ticker, start="2021-01-02", end="2022-1-1")
df.head()
```

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```
[**********100%**********]  1 of 1 completed
```

Date	Open	High	Low	Close	Adj Close	Volume
2021-01-04	88.000000	88.124496	85.357002	86.306503	86.306503	37324000
2021-01-05	86.254501	87.341499	85.845001	87.002502	87.002502	20360000
2021-01-06	85.013000	87.198502	84.805000	86.143997	86.143997	46588000
2021-01-07	86.337997	88.890999	86.337997	88.717003	88.717003	41936000
2021-01-08	88.858002	89.968002	88.060997	89.891502	89.891502	35484000

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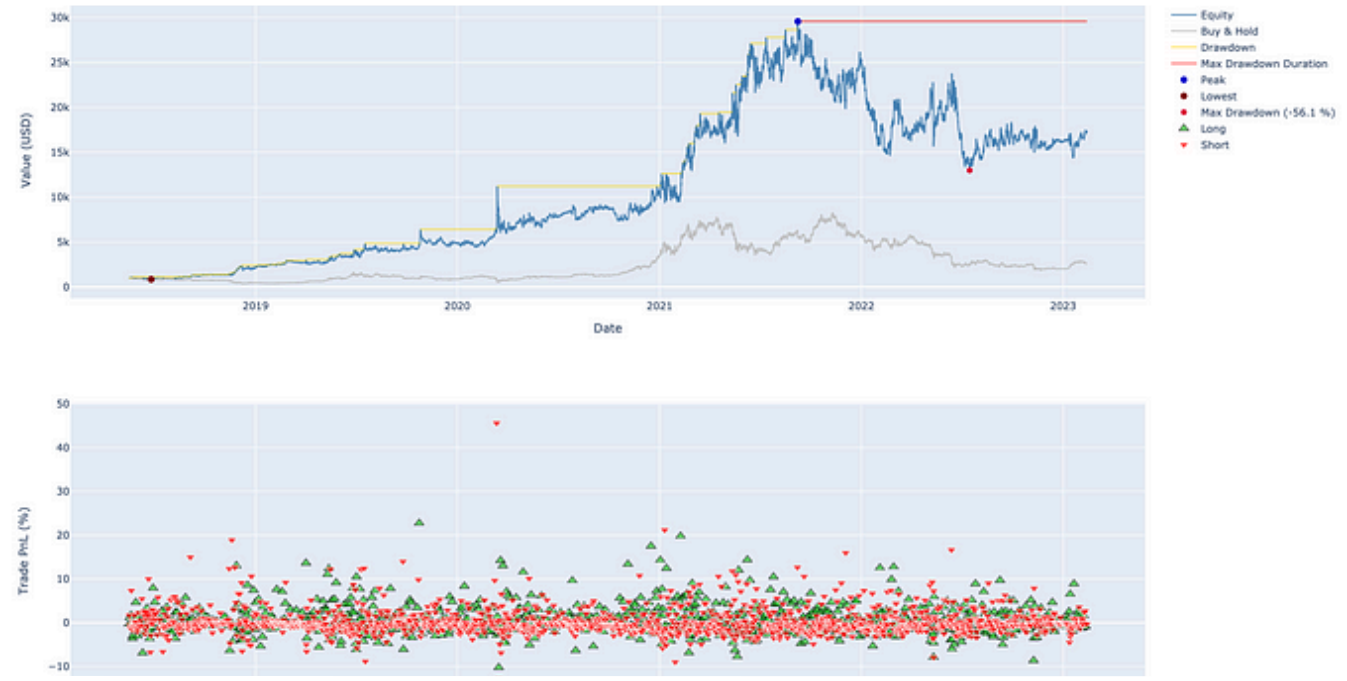

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