

Quantitative Trading Simulation

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CS 195.6

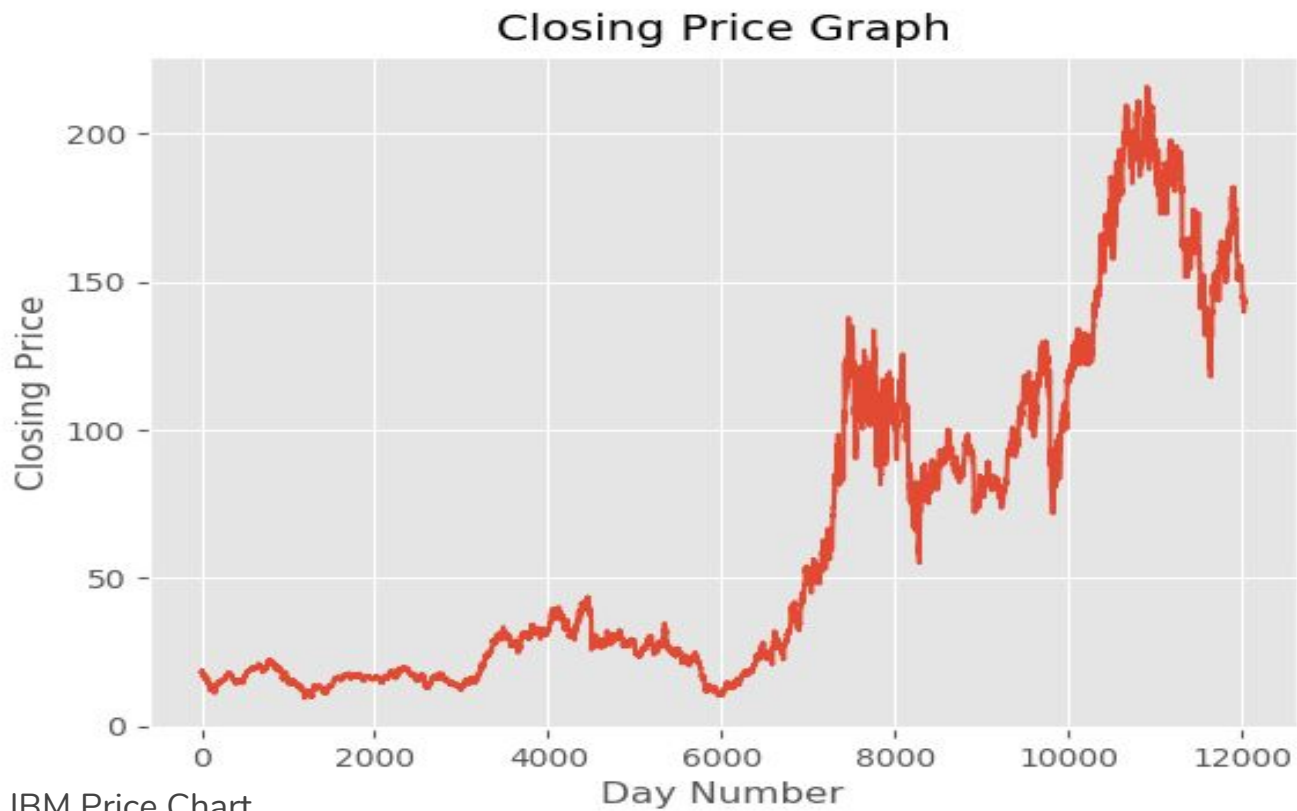


Stock Symbols

IBM, PG, KO, TM, DIS



**Programming Language
Used: Python**



IBM Price Chart



Trading Strategies

Strategy 1

1. On buy signal : Buy at S_1 at P_1 . immediately sell on the next sell signal

Strategy 1.a

1. On Buy Signal: Buy at S_1 at P_1 , immediately sell on the next sell signal
2. On Sell Signal: Sell all and attempt short sell.

Strategy 2

3. On Buy Signal: Buy at S_1 at P_1
4. On Sell Signal:
 - a. If $P_t > P$,
 1. If $P_t * S_1 > P_{\text{limit}} * S_1$, Sell All
 2. Else, Sell at $S_{\text{new}} = \frac{1}{2} S_1$

Trading Signals

- MACD
- Aroon Oscillator
- Turtle Trading



Analysis



IBM





MACD:

- Strategy 1:
 - Profit: \$125150.64
 - Sharpe Ratio: 1.13278621277
 - Maximum Drawdown: -0.0962380423166
- Strategy 2
 - Profit: \$252812.907962
 - Sharpe Ratio: 0.563850763465
 - Maximum Drawdown: -0.414072143346



Aroon Oscillator

- Strategy 1:
 - Profit: \$ 172607.897
 - Sharpe Ratio: 0.882890404484
 - Maximum Drawdown: -0.137750571991
- Strategy 2
 - Profit:
 - Sharpe Ratio:
 - Maximum Drawdown:



Turtle Trading Strategy

- Strategy 1:
 - Profit: \$ 300219.148045
 - Sharpe Ratio: 0.484699272995
 - Maximum Drawdown: -0.360002770242
- Strategy 2
 - Profit: \$ 430461.906516
 - Sharpe Ratio: 0.143708642049
 - Maximum Drawdown: -0.328155404599

TM





MACD

- Strategy 1:
 - Profit: -9767.312
 - Sharpe Ratio: 0.887274190392
 - Maximum Drawdown: -0.192002557228
- Strategy 2
 - Profit: \$ 114656.056731
 - Sharpe Ratio: 0.182936770049
 - Maximum Drawdown: -0.422470179147



Aroon Oscillator

- Strategy 1:
 - Profit: \$ 1903.931
 - Sharpe Ratio: 0.733322870036
 - Maximum Drawdown: -0.179106492471
- Strategy 2
 - Profit: \$ 119569.814904
 - Sharpe Ratio: 0.146246741874
 - Maximum Drawdown: -0.493991687404



Turtle Trading Strategy

- Strategy 1:
 - Profit: \$ 587950.729
 - Sharpe Ratio: 0.114313084782
 - Maximum Drawdown: -0.506203749467
- Strategy 2
 - Profit: \$ 928058.302705
 - Sharpe Ratio: 0.183843991587
 - Maximum Drawdown: -0.329554080239

Simulate: PG, KO, DIS





Trading Patterns: Test on IBM

- Double Top:
 - Number of instances: 63 rows has Double Top out of 1099 max peaks
- Double Bottom:
 - Number of instances: 58 rows has Double Bottom out of 1092 minimum peaks.