PREDICT STOCKS AND INVEST IN THE STOCK MARKETS USING MACHINE LEARNING IN PYTHON

- INRODUCTION TO CONCEPTS LIKE BUY POINT, SELL POINT, FUNDS AND PORTFOLIO MANAGEMENT, HEDGE FUNDS, ETC.

- WHAT ARE TECHICAL INDICATORS?
  - TECHNICAL IDICATORS PROVIDE EXTRA INFORMATION ABOUT STOCK PRICE and VOLUME USING MATHEMATICAL CALCULATIONS.
  - SIMPLE MOVING AVERAGE (SMA)
  - BOLLINGER BANDS AND DD VALUES
  - COMMODITY CHANNEL INDEX (CCI)
  - VOLATILITY

*EXPERIMENT DETAILS:

MANUAL STRATEGY

- For manual strategy, above-mentioned technical indicators are used, with some standard values.

Fig 1
Graph of portfolio using manual strategy for trading

BENCHMARK STRATEGY

- As per this strategy X shares are bought on day 1 and X are SOLD on the last day of trading

Fig 2
Graph of portfolio using basic benchmark strategy

ML STRATEGY

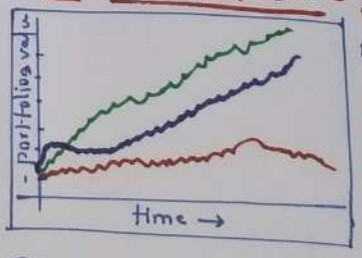
- As per this strategy BagLearner (with Random Tree Learning) with bag-size (20) and leaf-size (5), BUY/SELL actions are performed and profit is maximized.

Fig 3
Graph of Portfolio using ML strategy for Trading.

My ML Implementation and Trading Strategy:

* WILL PROVIDE DETAILS OF MY RANDOM TREE IMPLEMENTATION.
* HOW DID I MANAGE MISSING DATA AND MORE ABOUT DATA CLEANING AND STANDARDIZATION OF DATA.
* MY BAG LEARNER IMPLEMENTATION DETAILS.
* DETAILS ABOUT DATA-SET.
* HOW DID I MANAGE FOR FUNCTION APPROXIMATION FOR OPTIMAL PORTFOLIO.

* KEY OBSERVATIONS AND TAKE-AWAYS:



- manual strategy
- benchmark strategy
- machine learning strategy

CONCLUSION: With my experiment, my observation was that ML strategy help getting **1.5x** returns than manual strategy and **3-3.5x** returns than benchmark strategy.