Fundamentals of Artificial Intelligence

CSCE 5210 – SPRING 2022 – Academic Project

Signal Generator for making a market view for Index Options of Indian Stock Market Benchmark Index NIFTY 50

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Goals & Objectives:

Motivation:

Nifty Index Options is a ZERO-SUM GAME – Which means if you are making gains then someone is making the same loss so if you understand how to read the data, you can make some fortune for yourselves. The motivation for this project is to make the most of the available data, developed for generating a **BUY** or **SELL** signal depending on performing some calculations and behavior of option chain data.

Significance:

The NIFTY 50 is one of two main stock indices in India, the other being the BSE - SENSEX. It represents the weighted average of the index of the 50 largest Indian companies listed on the National Stock Exchange. NIFTY Options is derivative instrument of asset NIFTY. It has different strikes and multiple expiries.

Objectives:

The following are the objectives of the project:

The main objective of the project is to generate a BUY or SELL Signal for the INDEX Option.

Apart from that, the code will be developed in such a way that it provides multiple visualizations of data in form of Bar Graphs & Line Graphs.

This will also create a dataset in which it will store the periodic data for analyzing the trade to be taken on a particular day. i.e, to buy, to sell or to do nothing (Not lose hard earned money).

Features:

Pull the data from the stock exchange website and store in multiple datasets in python.

There are multiple columns in the data pulled like – OpenInterest, ChangeInOpenInterest, Strike Price, Expiry Date etc.., To store these data to various datatypes like arrays, lists etc.,

Some part of the code will calculate few ratios which will help us to understand if the underlying options are oversold or overbought, depending on which we can take a contra bet and make some gains. There will be data like change in the Open Interest from the previous day, the total Open Interest on the particular strike price, their differences etc.,

Definitions:

Below are the definitions of frequently used stock market terminology in this proposal.

Option Chain: An options chain is a table displaying options quotes for a particular underlying security.

It is a matrix and is updated in real-time showing the last price, trading volume, and best bid and offer for the calls and puts of an options series, typically segmented by expiration date.
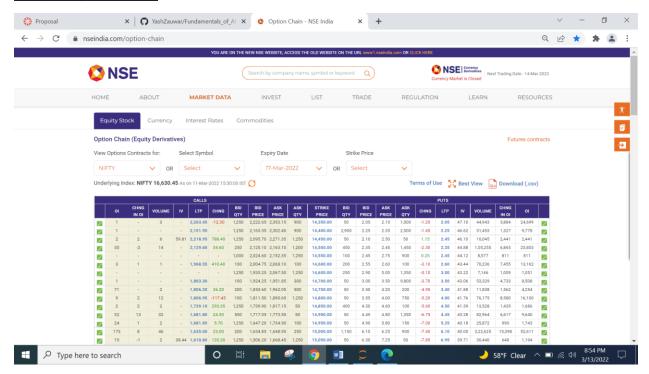
<u>Open Interest</u>: Open interest is the number of options that exist for a stock and include options that were opened in days prior.

<u>Change in Open Interest</u>: It is the difference of number of contracts traded from the previous day.

<u>Strike Price</u>: In the case of a call or a put, the strike price is the point at which you can buy or sell.

<u>PCR</u>: It is called as Put/Call ratio (PCR) is a popular derivative indicator, specifically designed to help traders gauge the overall sentiment (mood) of the market. The ratio is calculated either on the basis of options trading volumes or on the basis of the open interest for a particular period.

<u>Sample Option Chain:</u>

GITHUB LINK:

https://github.com/YashZauwar/Fundamentals_of_AI_Project/blob/main/project_proposal.pdf

References:

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Disclaimer: The project is for personal research and experience and is intended to be educational material and trade executed based on the output of the project should be consulted with their financial advisor. Owners of the project are not responsible for any kind of financial loss.

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