OPTIONS CHAIN TOOL
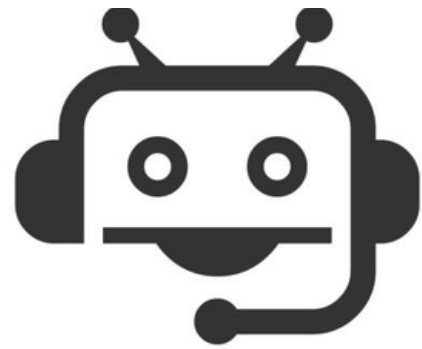
Team DAMMN

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INTRODUCTION

As a trader or investor, you need to stay on top of your game to make informed decisions that will help you succeed. The Option Chain website provides you with all the tools and information you need to do just that.

PROJECT DESCRIPTION

AI Chat Bot Functionality

Displaying the In and Out of Money Left

Displaying Real-time Data

Implied Volatility (IV) Calculation

Advanced Filter Features

REAL TIME DATA DISPLAY

- Data values are continuously updated by establishing a connection with the server, using "WebSocket" technology.

- The rapid change of data in seconds is conveniently observed on the site in a concise format at real time.

- Real time display of data allows users to analyse the data values quickly and accurately with easy accessibility.

- This functionality allows users to make timely and informed trading decisions during market hours.

LTP	LTQ	TTV	BEST		BEST QTY		Open Interest	Timestamp	Sequence	PREVIOUS		CHNG	CHNG IN OI	Implied Volatility	Strike Price
			BID	ASK	BID	ASK				CLOSE PRICE	OI				
44305	0	0	44145	44375	100	50	75350	Tue Jul 04 22:52:51 IST 2023	166061	28500	10700	55	604	76.86	18250
97540	0	0	100230	100685	300	200	21000	Tue Jul 04 22:52:51 IST 2023	165587	15200	13100	541	60	72.78	17550
320000	0	0	320000	320000	0	0	0	Tue Jul 04 22:52:51 IST 2023	165308	0	100	0	-100	42.88	19000
92345	0	0	91955	92565	100	100	120000	Tue Jul 04 22:52:21 IST 2023	165249	9100	6300	914	1804	90.99	17700
161405	0	0	147740	171075	1500	1500	1350	Tue Jul 04 22:52:21 IST 2023	165013	6050	6050	2567	-78	95.37	16950
320000	0	0	320000	320000	0	0	0	Tue Jul 04 22:52:21 IST 2023	163717	0	100	0	-100	72.5	19000
850	0	0	815	4500	50	300	0	Tue Jul 04 22:51:51 IST 2023	162317	13100	9100	-94	-100	56.11	23000
320000	0	0	320000	320000	0	0	0	Tue Jul 04 22:51:20 IST 2023	160535	0	100	0	-100	53.46	19000
105150	0	0	104655	105200	350	50	423550	Tue Jul 04 22:50:50	160273	6350	1700	1555	24814	36.06	18000

Fig. 1: Call & Put Options Tables

IMPLEMENTING FILTERS FOR DATA DISPLAY

- Filters are an essential tool for any website that displays large amounts of data, and the Option Chain website is no exception.

- By allowing users to filter the data based on their specific needs, they can quickly find the information they need without having to sift through irrelevant data.

Fig. 2: Filter categories

IMPLIED VOLATILITY (IV) CALCULATION

- IV or Implied Volatility is a measure of the predicted volatility of the underlying asset. It is estimated using an option pricing model, such as the Black–Scholes model, which takes into consideration numerous parameters such as the current market price, strike price, time to expiry, interest rates, and dividends.

- The IV may be used to assess the likelihood of the underlying asset's price going up or down in the future.

$$C = SN(d_1) - Ke^{-rt}N(d_2)$$

where:

$$d_1 = \frac{ln\frac{S}{K} + (r + \frac{\sigma_v^2}{2})t}{\sigma_s\sqrt{t}}$$

and

$$d_2 = d_1 - \sigma_s\sqrt{t}$$

and where:

C = Call option price

S = Current stock (or other underlying) price

K = Strike price

r = Risk-free interest rate

t = Time to maturity

N = A normal distribution

Fig. 3: Implied Volatility

IN THE MONEY & OUT OF THE MONEY DISPLAY

- In the Money and Out of the Money Display is a feature on the Option Chain website that provides traders with valuable information about the current market conditions.

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- This feature displays the number of contracts that are in-the-money and out-of-the-money.

PUT Table

LTP	LTQ	TTV	BEST		BEST QTY		Open Interest	Timestamp	Sequence	PREVIOUS		CHNG	CHNG IN OI	Implied Volatility	Strike Price
			BID	ASK	BID	ASK				CLOSE PRICE	OI				
2185	4800	4800	2175	2185	450	100	296850	Tue Jul 04 22:52:51 IST 2023	166770	78550	53250	-98	457	31.11	18100
9500	1500	1500	9460	9510	300	200	932400	Tue Jul 04 22:52:51 IST 2023	166534	55000	30850	-83	2922	39.52	18000
49610	0	0	49610	49610	0	0	800	Tue Jul 04 22:52:21 IST 2023	164302	2300	0	2056	0	62.29	19050
44730	0	0	41290	0	100	0	3400	Tue Jul 04 22:52:21 IST 2023	163745	100	0	44630	0	56.8	18850
108050	0	0	108600	109690	150	200	10950	Tue Jul 04 22:51:51 IST 2023	163501	6800	5300	1488	106	13.1	19700
305	0	0	305	305	0	0	0	Tue Jul 04 22:51:51 IST 2023	163029	3300	2100	-91	-100	40.48	10500
39125	0	0	37245	37775	250	50	3700	Tue Jul 04 22:51:51 IST 2023	162791	250	50	15550	7300	66.13	18750
55650	100	100	55495	55650	500	150	13900	Tue Jul 04 22:51:51 IST 2023	162554	186100	18250	-71	-24	91.09	19100
35805	200	200	35895	35990	300	50	58800	Tue Jul 04 22:51:51 IST 2023	162220	112150	44400	-69	32	80.95	18

Fig. 4: In-the-money & out-of-the-money

AI BOT INTEGRATION

- For users relatively new to the options chain tool, an AI-based Chatbot serves as a virtual assistant to resolve the user's basic queries, to understand the website and its elements better.

- The chatbot connected to "openAI", allows fetching responses to display at the site.

- With the Chatbot, users can easily access relevant information, understand the functionalities of different features, and navigate the options chain tool more effectively.
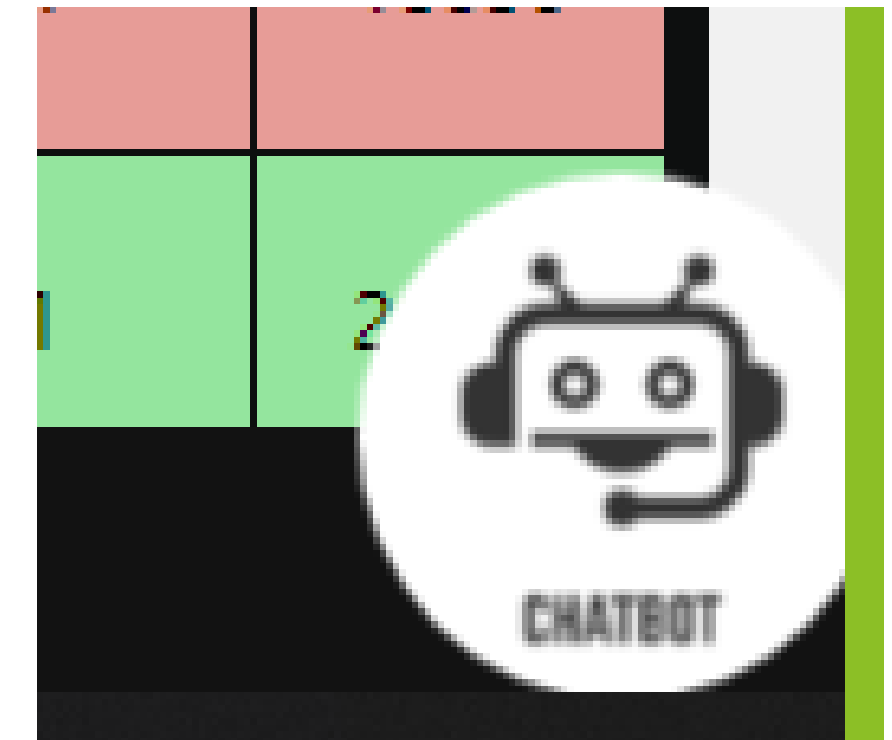

Fig. 5: ChatBot for queries

Conclusion

We successfully implemented all the required functionalities , additionally added the AI bot features beyond given scope.

With real-time data, advanced filters, and AI Bot integration, this platform is designed to give you a competitive edge in the market. Whether you're a seasoned professional or just starting out, understanding the features of the Option Chain website is crucial and helpful.

Thank you.

BY TEAM DAMMN