



Algothon IMCity Challenge

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04:08 06:08 11:08 14:38 17:08 19:08



LIST OF TOPICS



- 01 Introduction to Trading
- 02 IMCity challenge
- 03 CME Exchange & API
- 04 Rules, Scoring & Prices
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01

INTRODUCTION TO TRADING





WHO WE ARE

**GLOBAL TRADING POWERED
BY QUANT RESEARCH AND TECH**

WHAT WE DO CHAMPION THE BEST IDEAS

At IMC, we hire, develop, and empower exceptional people. We put the most disruptive technologies like AI, machine learning, and large-scale computing into their hands, so they can help solve the most complex challenges in the market.

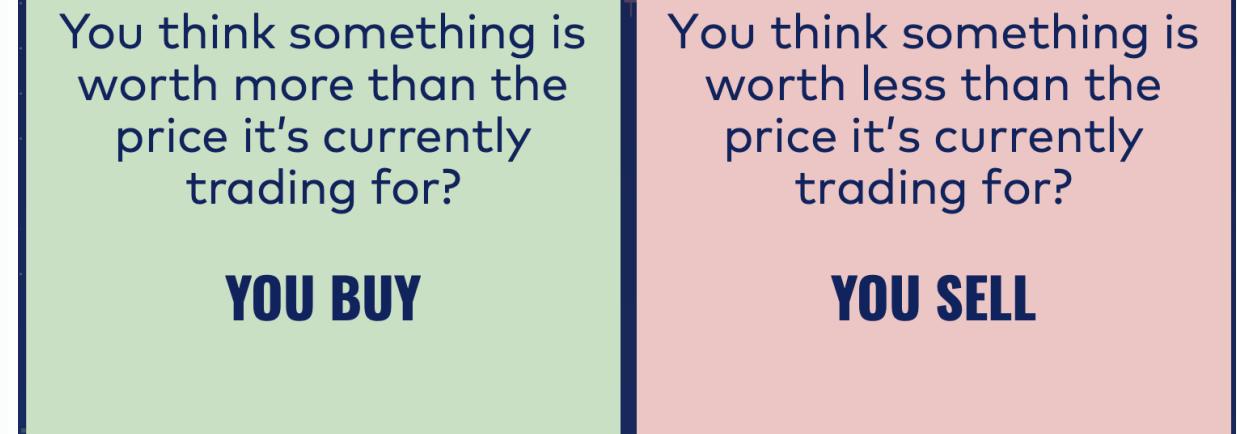
Introduction to trading



S&P 500 (^GSPC) ☆

6,908.86 -37.27 (-0.54%)

At close: February 26 at 4:38:48 PM EST



INTRO TO TRADING



What is a Market Maker?

A market maker is an entity that quotes both a buy and a sell price in a financial instrument or commodity, hoping to make a profit on the bid-ask spread.

It stands ready to buy and sell a financial product on a regular and continuous basis.

INTRO TO TRADING



What is a Market Maker?



EXAMPLE:

An iPhone thrift shop holder

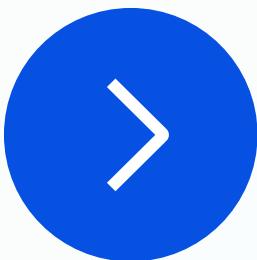
- Product = iPhone 11 (old model)



INTRO TO TRADING



What is a Market Maker?



EXAMPLE 1:

An iPhone thrift shop holder

- You run a shop that buys and sells iPhone 11's
- You run a model that values them at each moment in time
- Hence you know for what price you are willing to buy them for (**bid**) and you are willing to sell them for (**ask**)



INTRO TO TRADING



What is a Market Maker?

Customer 1:



Hmm, I
could sell
my phone
for EUR 200

I can buy
for 200!



Customer 2:



Hmm, I could
buy a phone
for EUR 250!

I can sell
for 250!

INTRO TO TRADING

What is a Market Maker?

Investors Typically Pay the Spread of the National Best Bid/Offer When they Trade



02

IMCITY CHALLENGE





Trading London



Trade the Pulse of the City

Forget backtests and static datasets.

In the **IMCity London Challenge**, you'll be trading **real-world signals** in real time not simulations, not hypotheticals:

LONDON ETF:

Thames water level, trade intraday water activity

London Heathrow airport activity, surging and dipping through the day.

London Weather data, influencing energy and movement.

No pre-programmed datasets.

No artificial market feeds.

No design that always know tomorrow.

Each data point is a heartbeat of the city; every fluctuation is an opportunity. Settlement price is unknown. For now.

Can your model keep up with reality?

Trading London

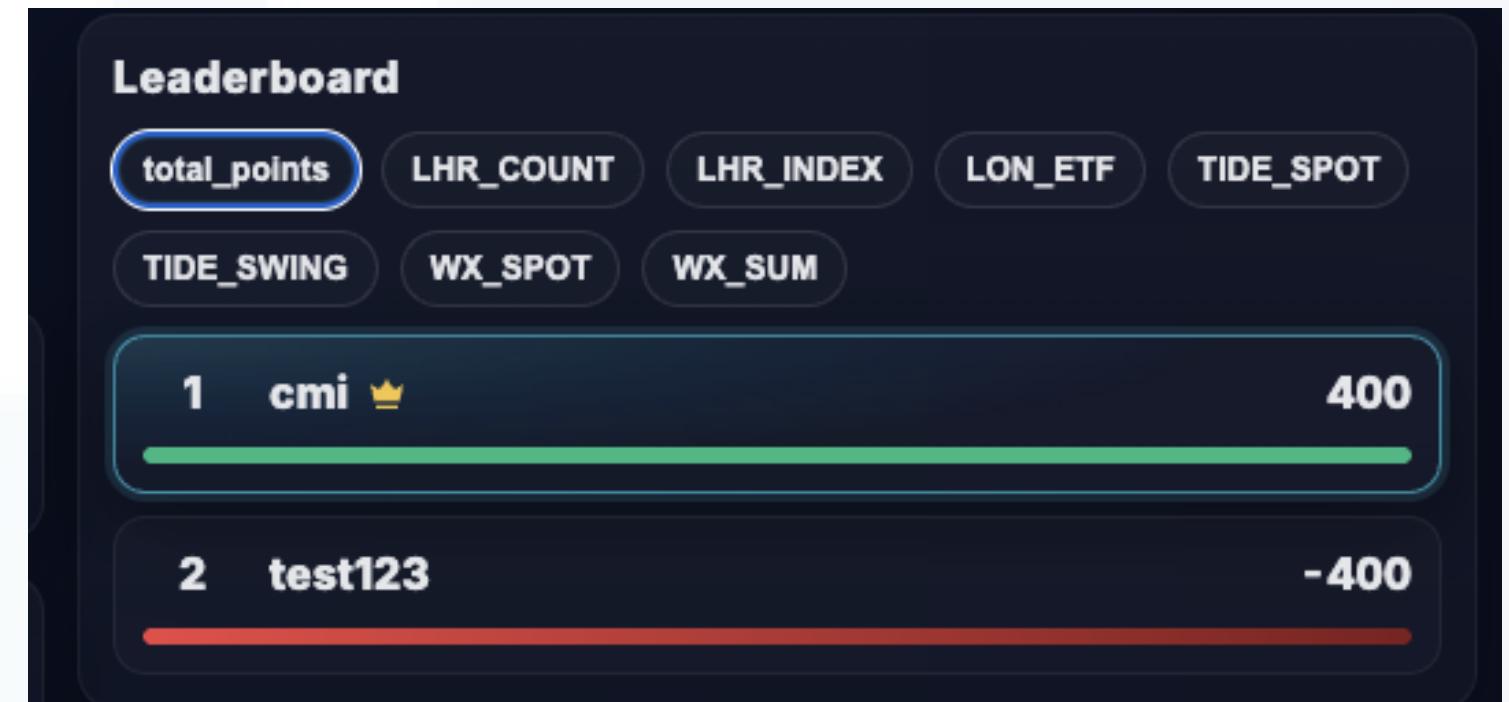


Watch **London's data come alive**

Thames levels, temperature, and flight arrivals
updating **in real time**.

See **metrics shift intraday**, and track your
position on the leaderboard as markets react.

Every fluctuation moves prices; every trade
changes the ranking.



03

CMI EXCHANGE & API



Trading London

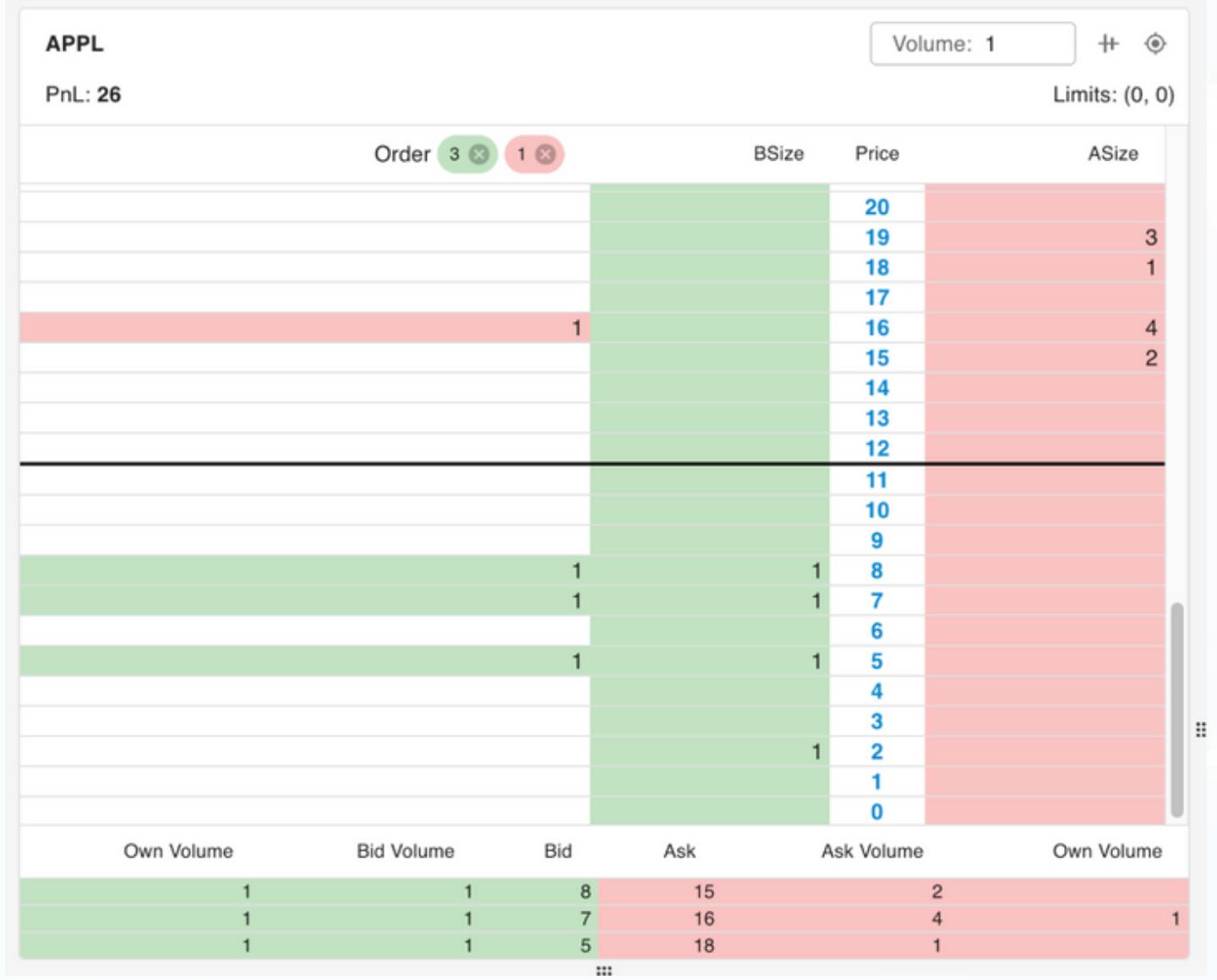


We built our **own trading exchange**, modelled after real markets.

You'll see **live order books**, **bid–ask spreads**, and **market depth**, all driven by London's data. Trade directly through the **web interface**, or connect your algorithms via our **API** to stream data, send orders, and manage positions. This design is mimicking **full-scale electronic trading**. You'll be coding, debugging, optimizing, just like you would on a real trading desk at IMC Trading.

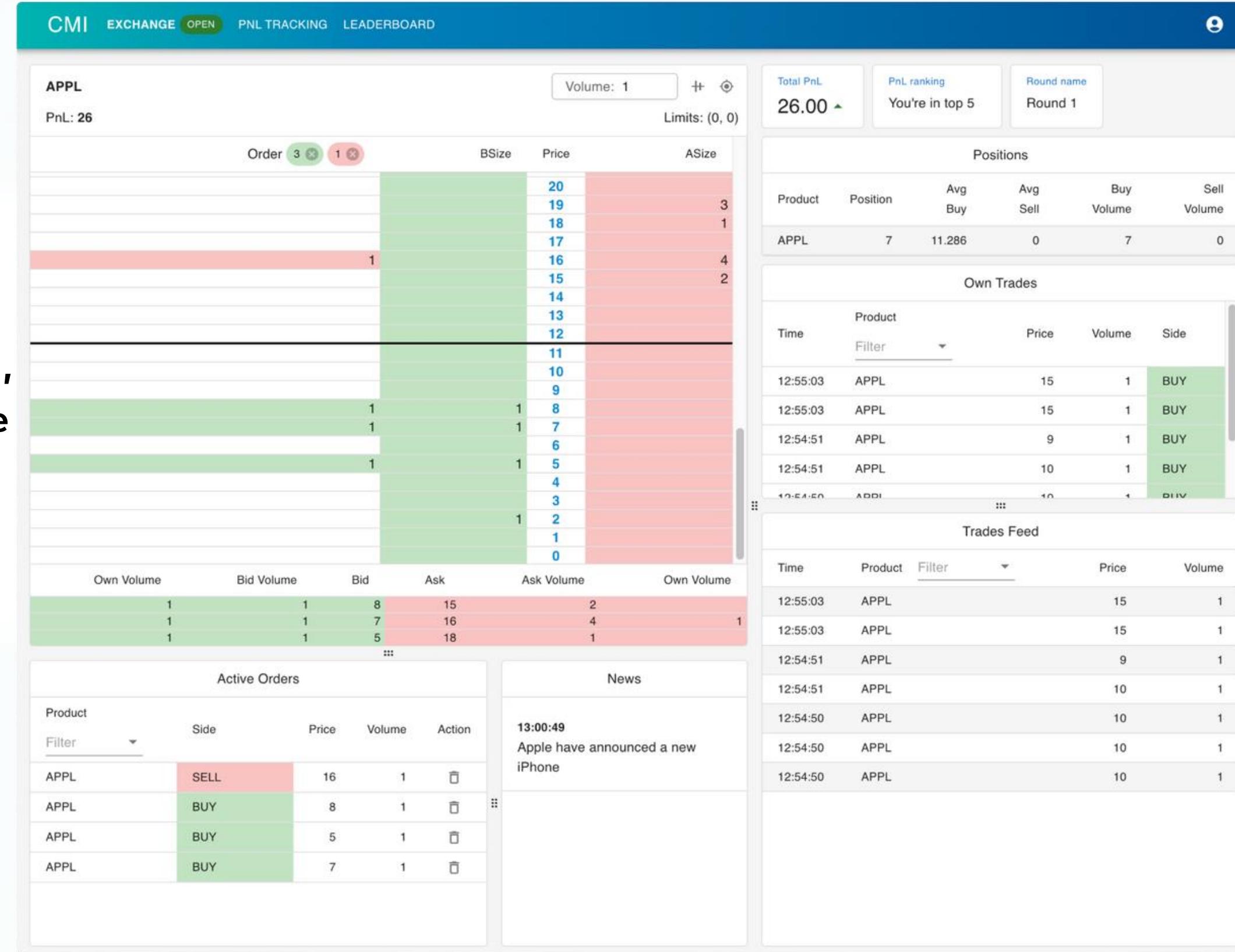
Your logic! Your algo's! Your edge?

CMI & API



- Shows order prices at which market participants are willing to buy (bid) or sell (ask)
- Orders express beliefs about a tradable quantity: buy -> too low, sell -> too high
- A new order that crosses resting orders in the book gets executed at the best possible price for the aggressor → Price/Time priority
- When a new order crosses existing ones, it is immediately executed

CMI Web GUI



WANT TO BUY?

You click on the left end,
on the **green** cells at the
price you want to buy
for

WANT TO SELL?

You click on the right end,
on the **red** cells at the
price you want to
sell for

Trading Styles



- Market making
- Arbitraging between correlated markets
- Trading an alpha signal
- More??

CMI API

```
class CustomBot(BaseBot):
    # Handler for own trades
    def on_trades(self, trades: list[dict]):
        for trade in trades:
            print(f"{trade['volume']} @ {trade['price']}")

    # Handler for order book updates
    def on_orderbook(self, orderbook: OrderBook):
        print(orderbook)
        do_i_want_to_buy = False
        if do_i_want_to_buy:
            order = OrderRequest(product=orderbook.product,
                                  price=orderbook.sell_orders[0].price,
                                  volume=1,
                                  side=Side.BUY)
            self.send_order(order)

    try:
        bot = CustomBot(exchange_url, username, password)
        bot.start()

        while True:
            pass
    except KeyboardInterrupt as e:
        bot.stop()
```

- Easy to use Python (>= 3.11) wrappers
- We have tutorials and templates available to get you started quickly
- Feel free to write your own code in any language to interact with the API.

04

RULES, SCORING & PRICES



Markets



Markets will be run based on data from Saturday 12:00 PM until Sunday 12:00 PM

Thames

1. Absolute value of tidal height in MAOD * 1000 on Sunday at 12:00 PM (so -1.48m will settle to 1480)
2. Sum of strangle (0.2-0.25 strikes) values on 15m value differences (t-1 vs t) over the past 24 hours *100

Weather

3. Temperature (In Fahrenheit) * Humidity on Sunday at 12:00 PM
4. The sums of (Temperature * Humidity) / 100 for all 15-minute time intervals.

Airplane

5. Number of arrivals and departures on LHR airport in the past 24 hours on Sunday 12:00 PM
6. The airport metric: sum over all 30 min intervals : 100 * (arrivals - departures)/(arrivals + departures)

London ETF

7. ETF spot price: Market 1 + Market 3 + Market 5 at settlement
8. Option structure on the ETF: +2 P6200 +C6200 -2 C6600 +3 C7000

Markets



Markets will run from Saturday 12:00 until Sunday 12:00

Thames

- Water level

Markets

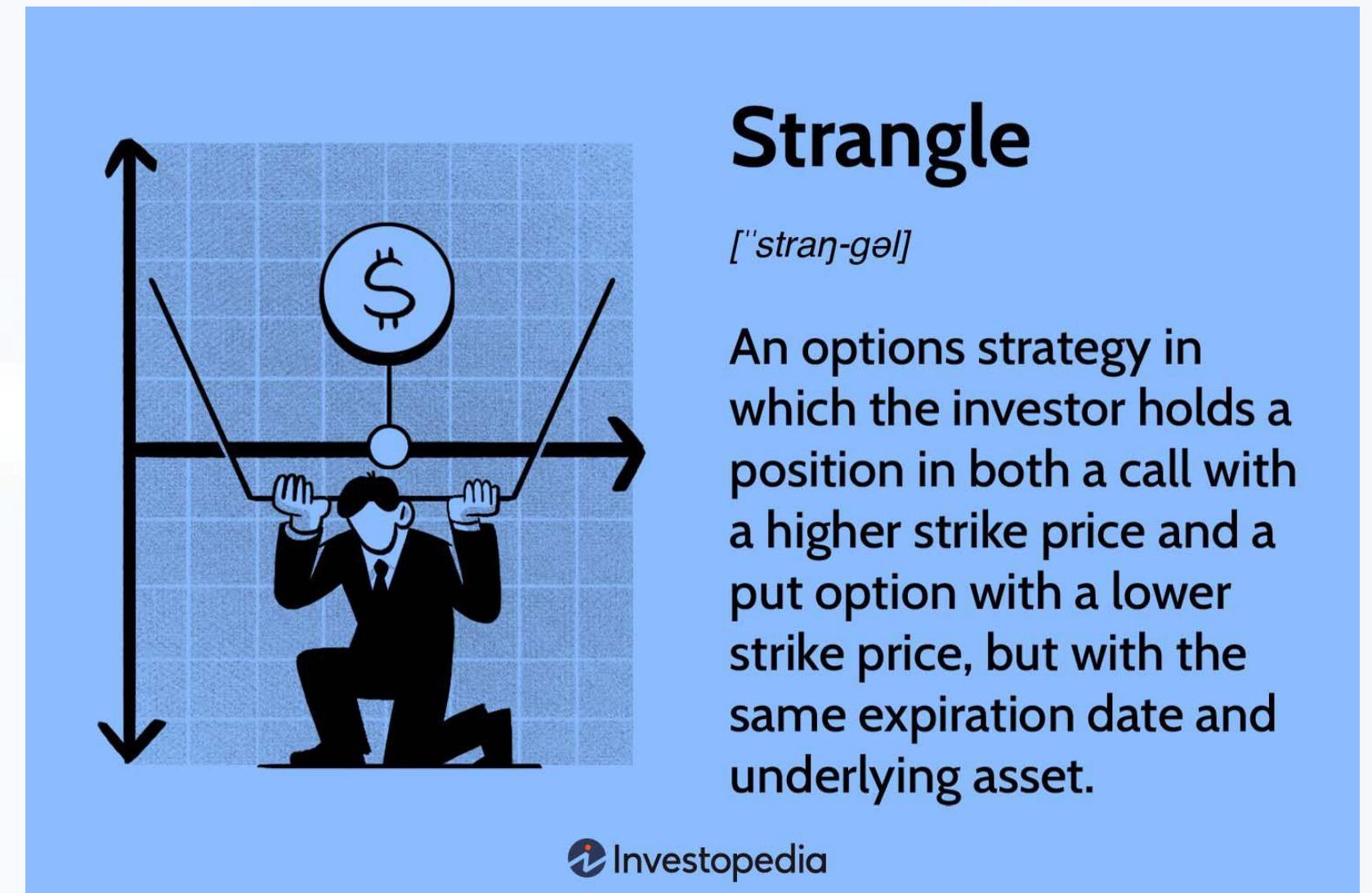
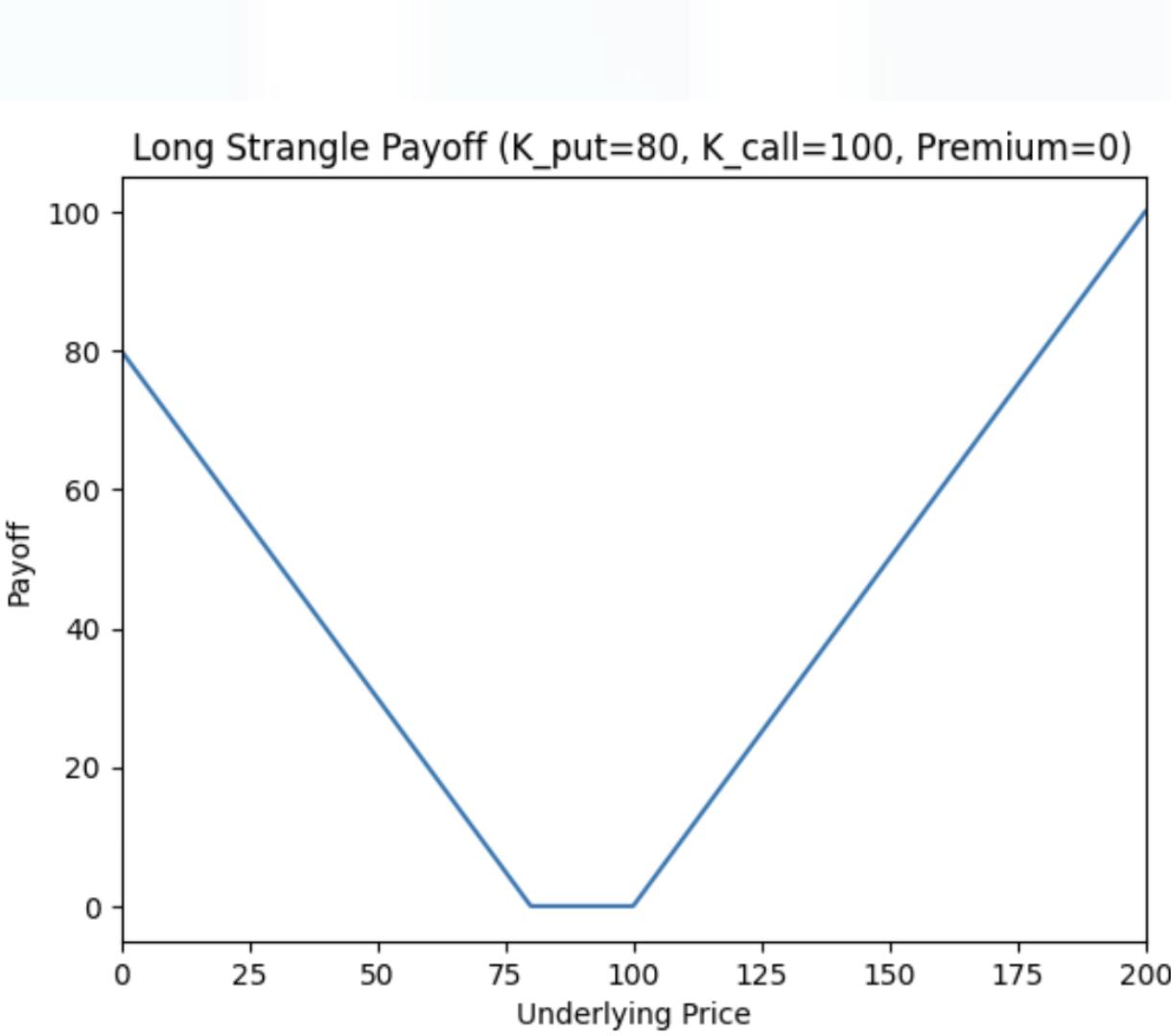
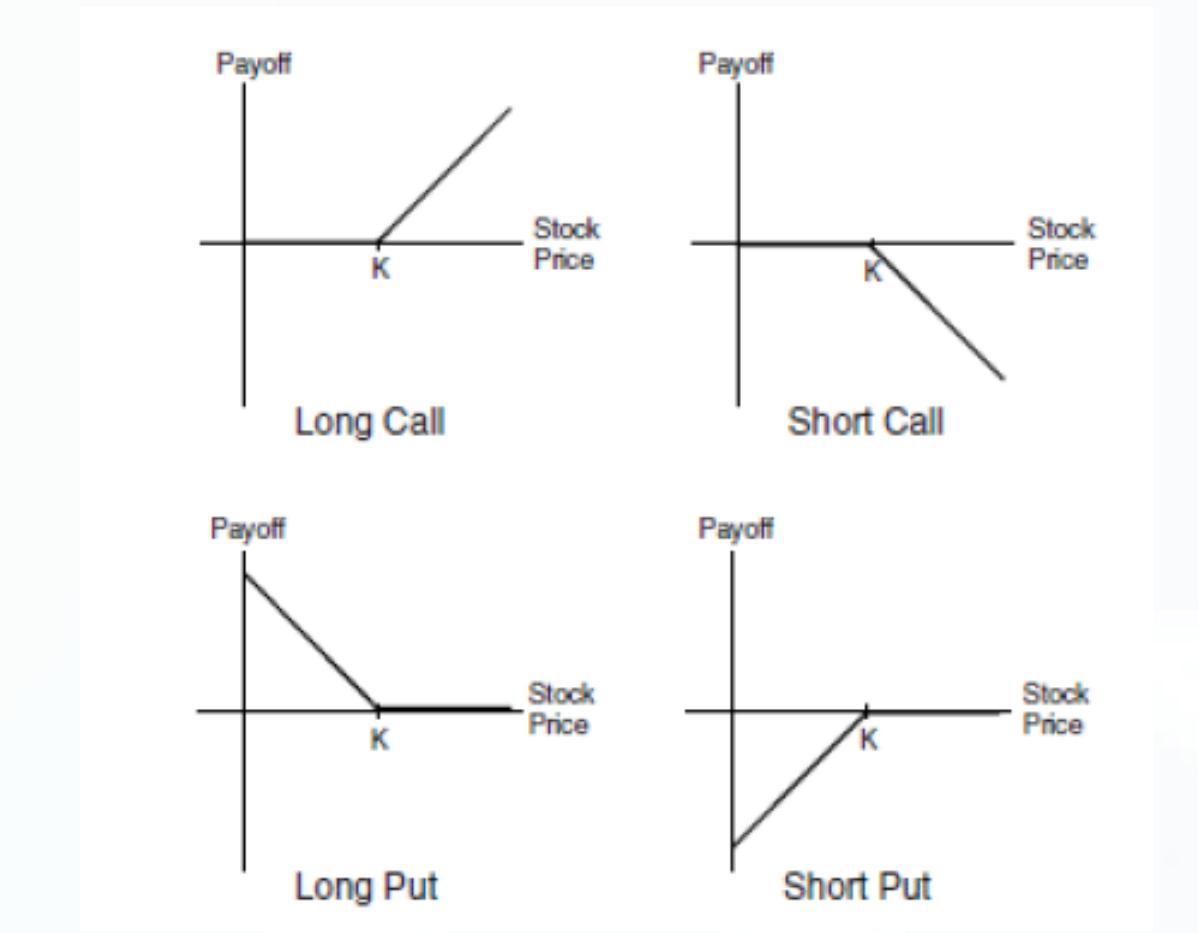
1. ABS(Water level) on (Sunday at 12:00) in Metres Above Ordnance Datum (MAOD) * 1000

E.g.

20.11.2025 12:00	-1,41
20.11.2025 11:45	-1,42
20.11.2025 11:30	-1,43
20.11.2025 11:15	-1,23

Settlement would be: $\text{ABS}(-1,41) * 1000 = -1410$

https://environment.data.gov.uk/flood-monitoring/id/measures/0006-level-tidal_level-i-15_min-mAOD/readings



Strangle

[*stran&-gəl*]

An options strategy in which the investor holds a position in both a call with a higher strike price and a put option with a lower strike price, but with the same expiration date and underlying asset.

$$\text{Long Call Payoff} = \max(0, S_T - K_C)$$

$$\text{Long Put Payoff} = \max(0, K_P - S_T)$$

$$\text{Long Strangle Payoff} = [\max(0, S_T - K_C) + \max(0, K_P - S_T)]$$

Markets



Markets will run from Saturday 12:00 until Sunday 12:00

Thames

- Water level

Markets

2. Sum of strangle (0.2-0.25 STRIKES) values on 15m value differences (t-1 vs t) over the past 24 hours *100

E.g.

Water level values (MAOD)

20.11.2025 12:00	1,31
20.11.2025 11:45	1,52
20.11.2025 11:30	1,43
20.11.2025 11:15	1,1

Strangle value computation

20.11.2025 10:00	Diff= 0.21 → strangle = 0
20.11.2025 09:00	Diff = 0.09, strangle = 0.11
20.11.2025 08:00	Diff = 0.33, strangle = 0.08
20.11.2025 07:00	...

In this case, the sum of these straddle values is $(0 + 0.11 + 0.08 + \dots) * 100 = \text{settlement value}$

Markets



Markets will run from Saturday 12:00 until Sunday 12:00, only that period will be used for settlement

London Weather data

- Temperature (Fahrenheit)
- Humidity

Markets

3. Temperature (Fahrenheit, rounded) * humidity at time of settlement

Date	Temperature	Humidtiy	T*H
20.11.2025 12:00	33	29	957
20.11.2025 11:45	30	30	900
E.g. 20.11.2025 11:30	30	90	2700

Settlement would be: $33*29 = 957$

Markets



Markets will run from Saturday 12:00 until Sunday 12:00, only that period will be used for settlement

London Weather data

- Temperature (Fahrenheit)
- Humidity

Markets

4. • The sums of $(\text{Temperature} * \text{Humidity}) / 100$ over all 115m time intervals.

Date	Temperature	Humidtiy	T*H
20.11.2025 12:00	33	29	957
20.11.2025 11:45	30	30	900
20.11.2025 11:30	30	90	2700

settlement would be: $957 + 900 + 2700 + \dots = 4557 + \dots$

<https://api.open-meteo.com/v1/forecast>, (LAT, LON) = (51.5074, -0.1278)

Markets



Markets will run from Saturday 12:00 until Sunday 12:00, only that period will be used for settlement

Airport

- Arrivals to LHR Airport
- Departures from LHR Airport

Markets

5. Number of (incoming flights + number of outgoing flights) over the 24h time period

Date	Arrivals	Departures
20.11.2025 11:30-11:59	13	9
20.11.2025 11:00-11:29	10	19
20.11.2025 10:30-10:59	15	11

E.g. Settlement would be: $((13+10+15+...)+(9+19+11+...)) = (38+..) + (39+...)$

<https://aerodatabox.p.rapidapi.com/flights/airports/iata/LHR>

Markets



Markets will run from Saturday 12:00 until Sunday 12:00, only that period will be used for settlement

Airport

- Arrivals to LHR Airport
- Departures from LHR Airport

Markets

6. The airport metric: sum over the intervals : $100 * ((\text{arrivals} - \text{departures}) / (\max(\text{arrivals} + \text{departures}, 1)))$, settles to the absolute value E.g.

Date	Arrivals	Departures	Metric
20.11.2025 09:30-09:59	13	9	18.18
20.11.2025 09:00-09:29	10	19	-31.03
20.11.2025 08:30-08:59	15	11	15.38

09:30-09:59 metric: $100 * ((13-9)) / ((13+9)) = 18.18$

settlement would be: $18.18 - 31.03 + 15.38 + \dots = |2.52 + \dots|$

Markets



Markets will run from Saturday 12:00 until Sunday 12:00, only that period will be used for settlement

ETF

- Spot value, combining previous markets. Settles to absolute value, so ETF settlement can not be negative

Markets

7. ETF constituents:

- Market 1 (settlement value)
- Market 3 (settlement value)
- Market 5 (settlement value)

E.g. if we have a water level = 1000, Temperature * Humidity = 1500 and number of flights = 500

The ETF will settle to: $1000 + 1500 + 500 = 3000$

Markets

Markets will run from Saturday 12:00 until Sunday 12:00, only that period will be used for settlement

ETF

- Combining previous markets

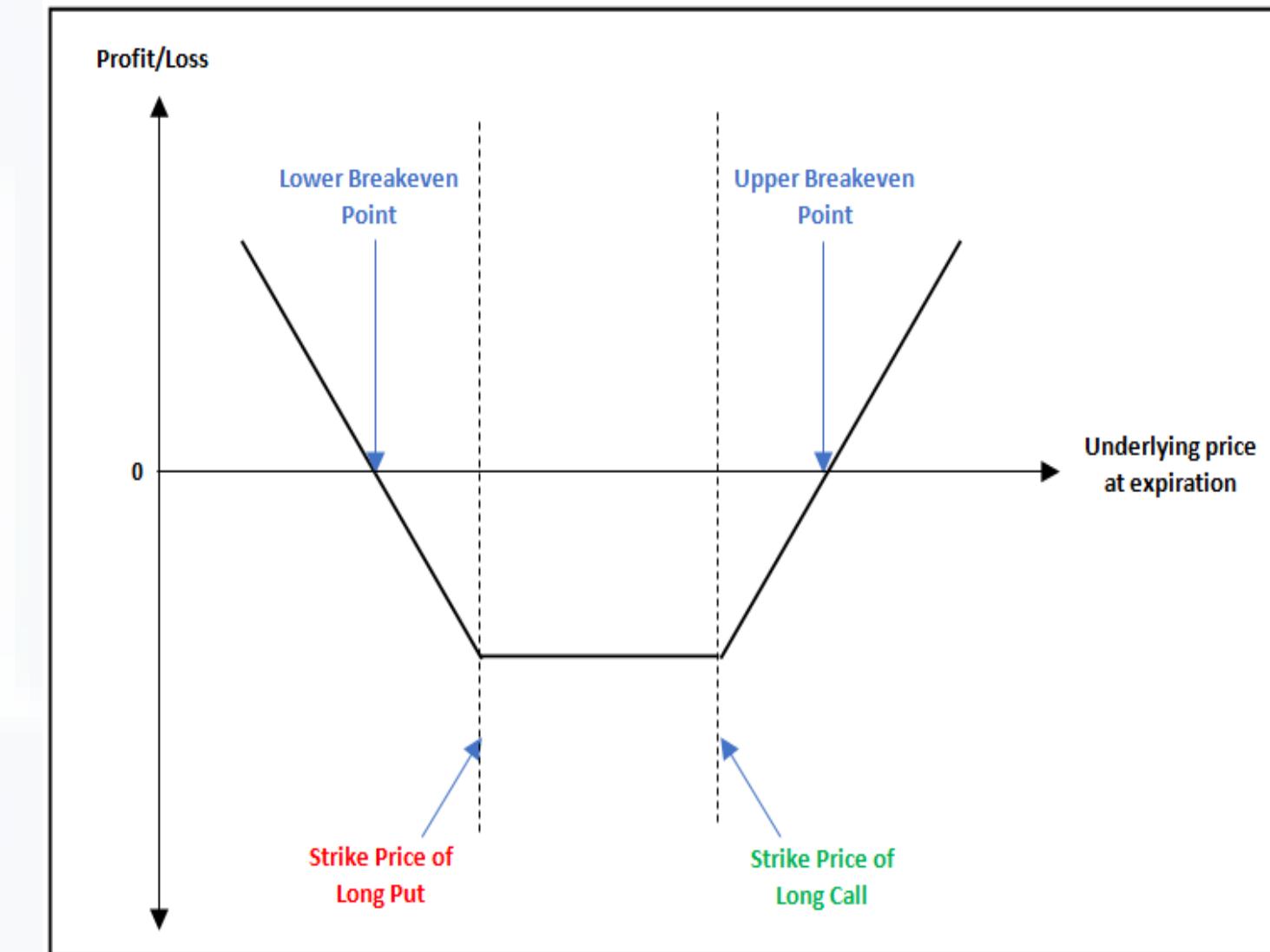
Markets

8. Option package (A, B, C & D) on the ETF settlement value

- A) Long 2 6200 Strike Puts &
- B) Long 1 6200 Strike Call &
- C) Short 2 6600 Strike Calls &
- D) Long 3 7000 Strike Calls

- If the final settlement of the ETF is 6300, market 8 settles to:

- A) $2 * \text{Max}(0, 6200 - 6300) = 0$
- B) $1 * \text{Max}(0, 6300 - 6200) = 100$
- C) $-2 * \text{Max}(0, 6300 - 6600) = 0$
- D) $3 * \text{Max}(0, 6300 - 7000) = 0$



Rules



1. • Do not manipulate or interfere with other teams' bots or the exchange.
Don't try to break things!
2. • No collusion or coordinated trading between teams
3. • Keep API usage efficient — don't hammer endpoints
4. • Don't spawn excessive connections or threads
5. • Stay within your team's position limits (± 100 net long or short per product)
6. • Be curious, collaborative, and competitive — but keep the system running for everyone

Failure to oblique results in a permanent ban. If you are unsure if something is allowed or not, please just ask the IMC Staff (:

TMCITY



2nd

1st

3nd



Goodiebag

Points



1. We will settle all products at the end of the trading round. For each productGroup where you have positive PnL, we normalize your PnL by the sum of all positive PnLs across teams in that product.
2. This makes each product's group' score a percentage share of the achievable PnL.
3. Teams with losses will see their score be normalized against all other teams with negative PnL, We have 5 product Groups:

A) Market 1,3,5 & 7, B) Market 2, C) Market 4, D) Market 6, E) Market 8

Product Group A points will be multiplied by 4 (Given we have 4 products in there)

4. Your final total score is the sum of all product scores, which is derived from the obtained PnL based on your trading. Any leftover position is sold/bought by our system at the settlement price.

E.g.

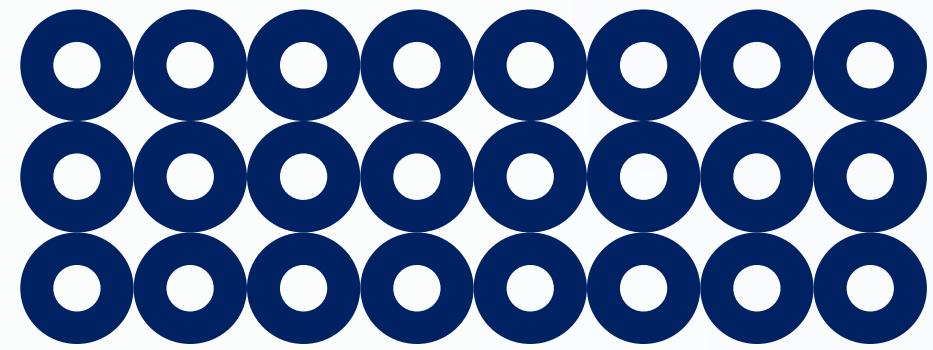
PNL	A: Market 1, 3, 5 & 7	B: Market 2	C: Market 4	D: Market 6	E: Market 8	
Team A	-90	27	171	80	117	
Team B	-52	130	138	0	147	
Team C	54	50	6	20	195	
Team D	145	65	30	-100	-43	
Team E	-89	171	161	0	94	

POINTS	A: Market 1	B: Market 2	C: Market 4	D: Market 6	E: Market 8	Total Score
Team A	-0,39	0,061	0,338	0,8	0,212	-0,149
Team B	-0,225	0,293	0,273	0	0,266	-0,068
Team C	0,271	0,113	0,012	0,2	0,353	1,762
Team D	0,729	0,147	0,059	-1	-1	1,122
Team E	-0,385	0,386	0,318	0	0,17	-0,66

05

Q&A





IMC

- Any questions?
- Happy coding!
- Please scan the code on the right to register →
You can not participate in the challenge without this registration!

