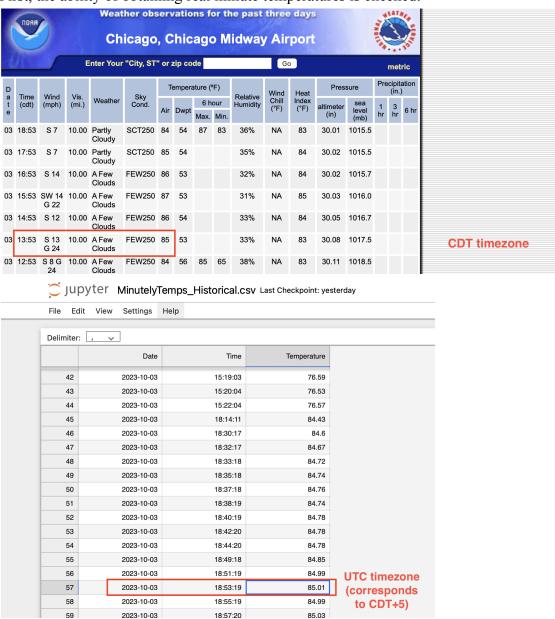
Proof of Success - CS542 Common Task

This report was created to state evidence of the effectiveness of the created trading tool (*TradingTool.ipynb*). In particular, it will be shown how the obtained minute temperatures are actual temperature occurrences, and why their use (with Strategy 2) provides a significant advantage over trading with hourly data (as done with Strategy 1). Additionally, some screenshots of the trader user page at <u>kalshi.com</u> will be provided to demonstrate the profitability of using the built tool to trade in the mentioned site.

Minute Temperatures

First, the ability of obtaining real minute temperatures is checked:



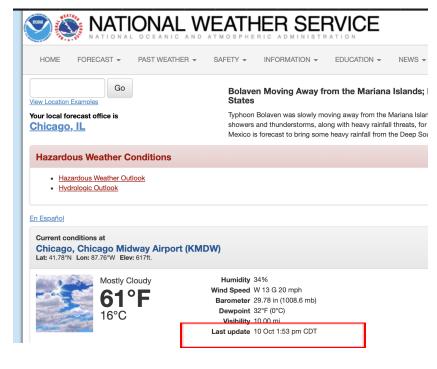
Please note: 13:53 CDT (time in the Chicago Midway Airport as reported by the NWS) = 18:53 UTC (time as reported by OpenWeather)

The first picture is a screenshot of <u>this page</u>, which shows the hourly temperature data for the past 3 days. The second screenshot corresponds to a dataset that was built by sequentially calling <u>this API</u>.

The obtained minute temperatures being actual temperatures implies that the trading tool's strategy 2 is thus reliable. In fact, the next evidence shows how this trading strategy, having no risk associated (as it is based on observed data rather than predictions), exceeds the effectiveness of hourly-data-based trading.

This can be illustrated with a real example. On 10/10/2023 at 10:00 AM, <u>forecast data</u> from the National Weather Service (obtained via API) indicated that the maximum temperature for the day was 60 degrees.

	Tod	lay's maxir	num temper	ature in Chic	ago Midway	Airport	is	60
[6]:		Date	e Time	Temperature				
	0	2023-10-10	11:00:00	55				
	1	2023-10-10	12:00:00	57				
	2	2023-10-10	13:00:00	58				
	3	2023-10-10	14:00:00	59	_			
	4	2023-10-10	15:00:00	60				
	5	2023-10-10	16:00:00	60				
	6	2023-10-10	17:00:00	59				
	7	2023-10-10	18:00:00	58				
	8	2023-10-10	19:00:00	57				
	9	2023-10-10	20:00:00	56				
	10	2023-10-10	21:00:00	53				
	11	2023-10-10	22:00:00	53				
	12	2023-10-10	23:00:00	51				



However, at 1:53 PM, current data from the National Weather Service (same data source as the forecasts) showed that the temperature was 61 degrees (thus exceeding the expected maximum temperature of 60 degrees):

This, i	n fact,	was	aligned	with	the	minute	temperatures	recorded	in	the	self-created	database
(used f	or Stra	tegy 2	2).									

29	2023-10-10	19:00:36	60.42
30	2023-10-10 UTC tin		60.53
31	2023-10-10	s to CDT + 5) 19:03:12	60.69
32	2023-10-10	19:04:28	60.71
33	2023-10-10	19:05:29	60.76
34	2023-10-10	19:06:37	60.76
35	2023-10-10	19:07:54	60.76
36	2023-10-10	19:09:13	60.8
27	2022 10 10	10:10:20	en 92

Please note: 19:00 UTC (time as reported by OpenWeather) = 14:00 CDT (time in the Chicago Midway Airport as reported by the NWS)

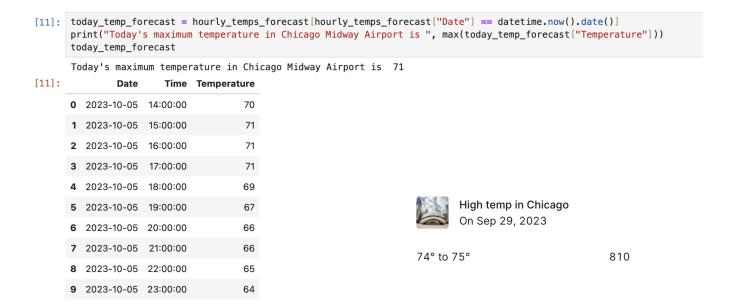
Trading Report

The complete record of trades for the past weeks can be found at *TradingTool.ipynb* > *Trading Report*. Here, some examples will be provided to illustrate the evolution of profitability during the past weeks (while the tool was being built).

Week 1 - Manual trades

Week 2 - Trades based on predictions (forecasts of daily maximum temperature using hourly data)

	date	time	${\tt max_temp}$	uvi	humidity	rain		0.
0	2023-09-28	17:00:00	66.99	2.53	49	3.43	Market ↑	Qty ↑
1	2023-09-29	17:00:00	66.67	5.15	91	6.87	High temp in Chicago On Sep 28, 2023	
2	2023-09-30	17:00:00	75.97	5.36	53	0.00	Оп Зер 20, 2023	
3	2023-10-01	17:00:00	78.15	5.27	42	0.00	66° to 67°	1000
4	2023-10-02	17:00:00	80.56	6.00	40	0.00		



Week 3-4 - Automatic trades (via Kalshi's API) based on predictions (using minutely data)

