**options Trading Strategy: Automated Strangle/Straddle Execution for S&P 500**

**Objective**: Implement an algorithm to sell strangle or straddle options for both S&P 500 and NASDAQ at regular time intervals based on a predefined pattern, with automated exit conditions based on stop-loss or take-profit triggers. The user can choose to trade either or both indices simultaneously, with the flexibility to specify different time intervals for each index within the same trading session.

**Strategy Parameters**:

* **Index Selection**: User can select S&P 500, or both for trading.
* **Time Window**: User-defined trading window (e.g., 9:30 AM to 3:00 PM EST, adjusted for U.S. markets).
* **Time Interval**: Orders are placed at fixed intervals (e.g., every 30 minutes for S&P 500, every 1 minute for within the time window, configurable separately for each index.
* **Range**: Determines strike prices for selling calls and puts based on the current market price (CMP) of the selected index.
  + Example for S&P 500 (CMP = 5,000):
    - Range = 50: Sell 4,950 put and 5,050 call.
    - Range = 100: Sell 4,900 put and 5,100 call.
    - Range = 0: Sell 5,000 put and 5,000 call (straddle).
  + Example for NASDAQ (CMP = 18,000):
    - Range = 200: Sell 17,800 put and 18,200 call.
    - Range = 400: Sell 17,600 put and 18,400 call.
    - Range = 0: Sell 18,000 put and 18,000 call (straddle).
* **Order Size**: Specified in lots, configurable separately for S&P 500 and NASDAQ.
* **Stop-Loss**: Each trade pair (call and put leg) for each index has an independent stop-loss, defined as a percentage increase in premium (e.g., 20% premium increase triggers exit). Every pair( call and put leg may have different stop loss)
* **Take-Profit Conditions**:
  + **Condition 1**: If the combined premium of both legs (call + put) for an index falls to 50% of the initial premium, exit both legs for that index.
    - Example: S&P 500 call sold at 50, put at 50; exit both when combined premium = 50.
  + **Condition 2 Condition 2**: If one leg hits its stop-loss, the other leg’s take-profit for that index is set to trigger 200% of the stopped leg’s premium increase but take profit will occur when premium again reaches 150% value. Else trade carries on and will expire at 3:45pm EST
    - Example: S&P 500 call sold at 50, put at 40, stop-loss at 30% (call stop at 65, put stop at 52). If call hits 65, put’s take-profit trigger is set at 40 - (15 × 2) = 10. If rises to 150% of loss we book the trades else we carry on. So in the case . if the put leg reaches 10, then we stop profit case set @ 17.5 . else we carry on the trade til 3:45 pm est
    - If the calculated take-profit is negative, set target @0.05 with no trail profit case.
* **Trade Closure**: All open trades for both indices are squared off at 3:45 PM EST.
  + **Execution Logic**:
* The algorithm supports simultaneous trading of S&P 500 and NASDAQ options, with independent configurations for time intervals, ranges, order sizes, and stop-loss percentages for each index.
* Starting at the beginning of the time window (e.g., 9:30 AM), the algorithm sells a strangle/straddle for each index at its specified interval (e.g., every 30 minutes for S&P 500, every 1 minute for NASDAQ) until the end of the window (e.g., 3:00 PM).
* For example, with a 1-minute interval for NASDAQ from 9:30 AM to 3:00 PM (330 minutes), 330 individual call and put sell orders are placed for NASDAQ, each with its own stop-loss. For a 30-minute interval for S&P 500, trades are placed every 30 minutes.
* Each pair (call and put sold at the same time) for an index shares the same stop-loss percentage but is independent of pairs executed at different times or for the other index.
* The algorithm continuously monitors premiums for stop-loss and take-profit triggers for each index separately.
* At 1:00 AM IST, all remaining open positions for both indices are closed.(during winters as day light saving time this time changes)

Since option in s&p come become illiquid at times we can choose a rules for order execution

Rule-If (bid-offer gap is less then .3 points then hit market. Else place order @ mid price and revise every 5 times every 3 seconds till filled , if not filled after that also then hit the market.

We need to make a UI where separate entries are running simultaneously for odte,1dte,2dte and so on if desired. For example I want to run 0dte @ 30 min, and 1dte @ 1hr it should be possible