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Trading Algorithms – HW1

کد pine script (داخل کامنت هاش سعی شده فینگلیش توضیح داده بشه که کد چجوری کار میکنه)

```
//@version=4

strategy("VWAP Crossover", overlay=true)

// input haayi ke mitunim taghir bedim:
in1 = input(title="VWAP Length", type=input.integer, defval=14) // tooli ke baraye mohasebeye vwap mikhahim
src = input(title="VWAP Source", type=input.source, defval=close) // close
TP = input(title="Take Profit (%)", type=input.float, defval=10) / 100 //take profit chand darsad baashe
SL = input(title="Stop Loss (%)", type=input.float, defval=5) / 100 // stop loss chand darsad bashe

// yeseri input bara back testing
year1 = input(title = "start year", type = input.integer, defval = 2022)
year2 = input(title = "end year", type = input.integer, defval = 2022)
month1 = input(title = "start month", type = input.integer, defval = 1)
month2 = input(title = "end month", type = input.integer, defval = 2)
day1 = input(title = "start day", type = input.integer, defval = 1)
day2 = input(title = "end day", type = input.integer, defval = 1)

vwapValue = vwap(hlc3) // ba komake ((high+low+close)/3) va volume vwap hesab mishe.

long = crossover(close, vwapValue) // conditione long ineke candle roo be bala ghat kone
short = crossunder(close, vwapValue) // condition e short kardan barakse baalaaei e

//maqaadire TP va SL
takeProfitLong = vwapValue * (1 + TP)
stopLossLong = vwapValue * (1 - SL)
takeProfitShort = vwapValue * (1 - TP)
stopLossShort = vwapValue * (1 + SL)

//plot kardane khate vwap
plot(vwapValue, color=color.orange, title="VWAP", offset=0)

if (time >= timestamp(year1, month1, day1, 00, 00) and time <= timestamp(year2, month2, day2, 00, 00)) //baaze baraye backtest kardan age
nazarim roo kole candle ha strategy e'maal mishe
    //entry va exit strategy

        strategy.entry("Long", strategy.long, when=long)
        strategy.entry("Short", strategy.short, when=short)
        strategy.exit("Take Profit/Stop Loss", from_entry="Long", stop=stopLossLong, limit=takeProfitLong)
```

```
strategy.exit("Take Profit/Stop Loss", from_entry="Short", stop=stopLossShort, limit=takeProfitShort)
```

نمونه ای از عملکرد استراتژی:



Stock Screener Pine Editor Strategy Tester Trading Panel

Deep Backtesting

Overview Performance Summary List of Trades Properties

| Title | All | Long | Short |
|---------------------|-------------------------|-----------------------|-------------------------|
| Net Profit | 960.00 USD 0.96% | 2 305.00 USD 2.31% | -1 345.00 USD -1.34% |
| Gross Profit | 6 326.00 USD 6.33% | 4 701.00 USD 4.7% | 1 625.00 USD 1.63% |
| Gross Loss | 5 366.00 USD 5.37% | 2 396.00 USD 2.4% | 2 970.00 USD 2.97% |
| Max Run-up | 2 776.00 USD 2.75% | | |
| Max Drawdown | 2 415.00 USD 2.41% | | |
| Buy & Hold Return | 31 815.74 USD 31.82% | | |
| Sharpe Ratio | 0.035 | | |
| Sortino Ratio | 0.077 | | |
| Profit Factor | 1.179 | 1.962 | 0.547 |
| Max Contracts Held | 1 | 1 | 1 |
| Open PL | 0.00 USD 0% | | |
| Commission Paid | 0.00 USD | 0.00 USD | 0.00 USD |
| Total Closed Trades | 81 | 41 | 40 |
| Total Open Trades | 0 | 0 | 0 |

Stock Screener Pine Editor Strategy Tester Trading Panel

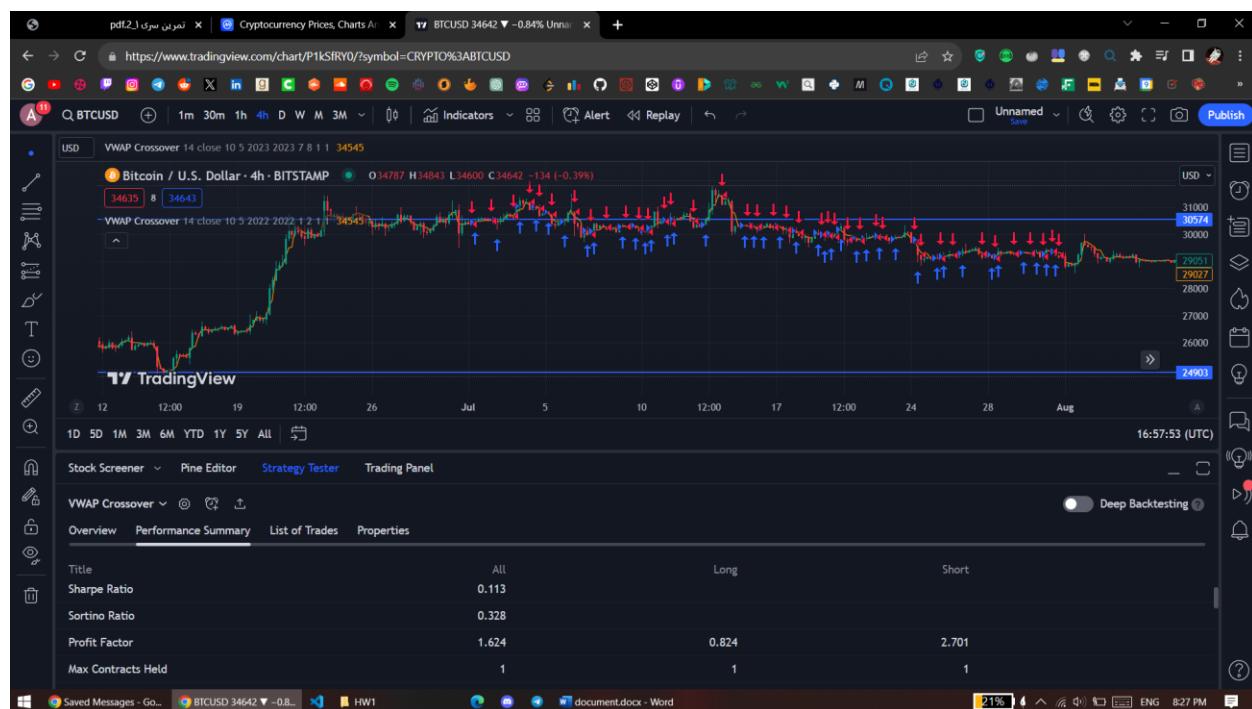
Deep Backtesting

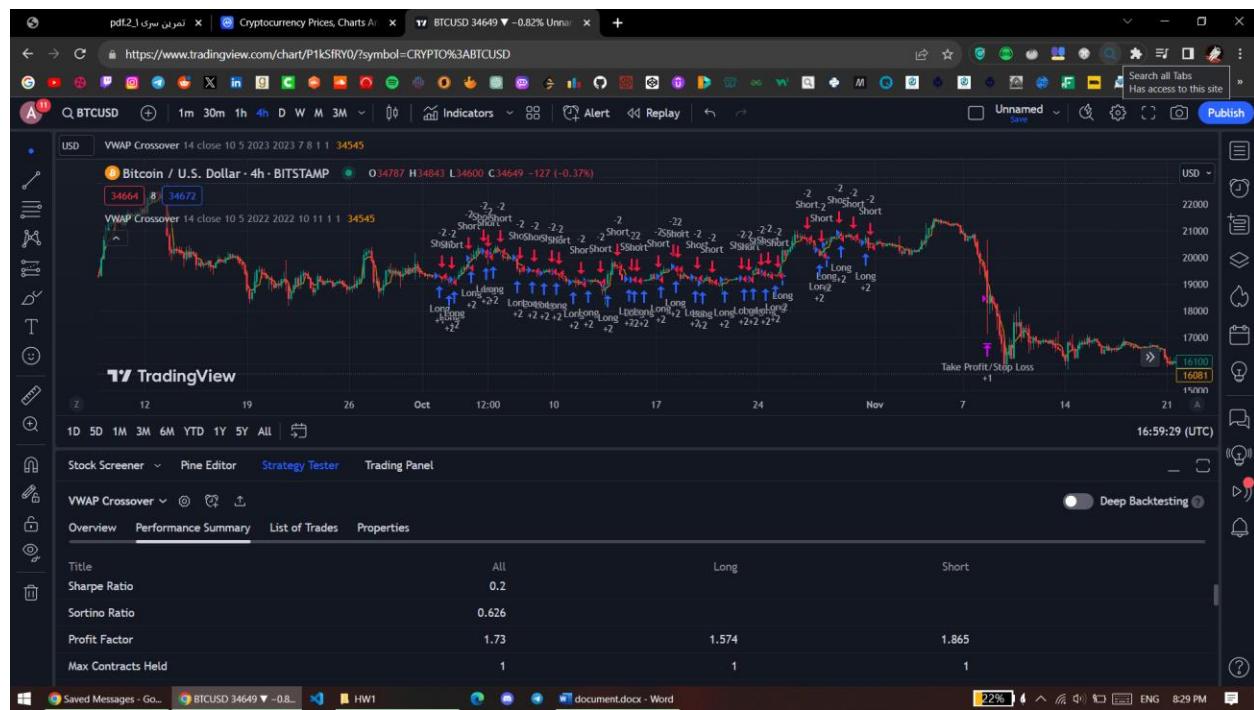
Overview Performance Summary List of Trades Properties

| Title | All | Long | Short |
|------------------------------|-----------------------|-----------------------|----------------------|
| Total Closed Trades | 81 | 41 | 40 |
| Total Open Trades | 0 | 0 | 0 |
| Number Winning Trades | 24 | 13 | 11 |
| Number Losing Trades | 56 | 28 | 28 |
| Percent Profitable | 29.63% | 31.71% | 27.5% |
| Avg Trade | 11.85 USD 0.04% | 56.22 USD 0.21% | -33.62 USD -0.13% |
| Avg Winning Trade | 263.58 USD 0.99% | 361.62 USD 1.35% | 147.73 USD 0.56% |
| Avg Losing Trade | 95.82 USD 0.36% | 85.57 USD 0.32% | 106.07 USD 0.4% |
| Ratio Avg Win / Avg Loss | 2.751 | 4.226 | 1.393 |
| Largest Winning Trade | 2 673.00 USD 9.88% | 2 673.00 USD 9.88% | 404.00 USD 1.51% |
| Largest Losing Trade | 533.00 USD 2.03% | 479.00 USD 1.79% | 533.00 USD 2.03% |
| Avg # Bars in Trades | 4 | 5 | 3 |
| Avg # Bars in Winning Trades | 9 | 12 | 5 |
| Avg # Bars in Losing Trades | 3 | 3 | 3 |
| Margin Calls | 0 | 0 | 0 |

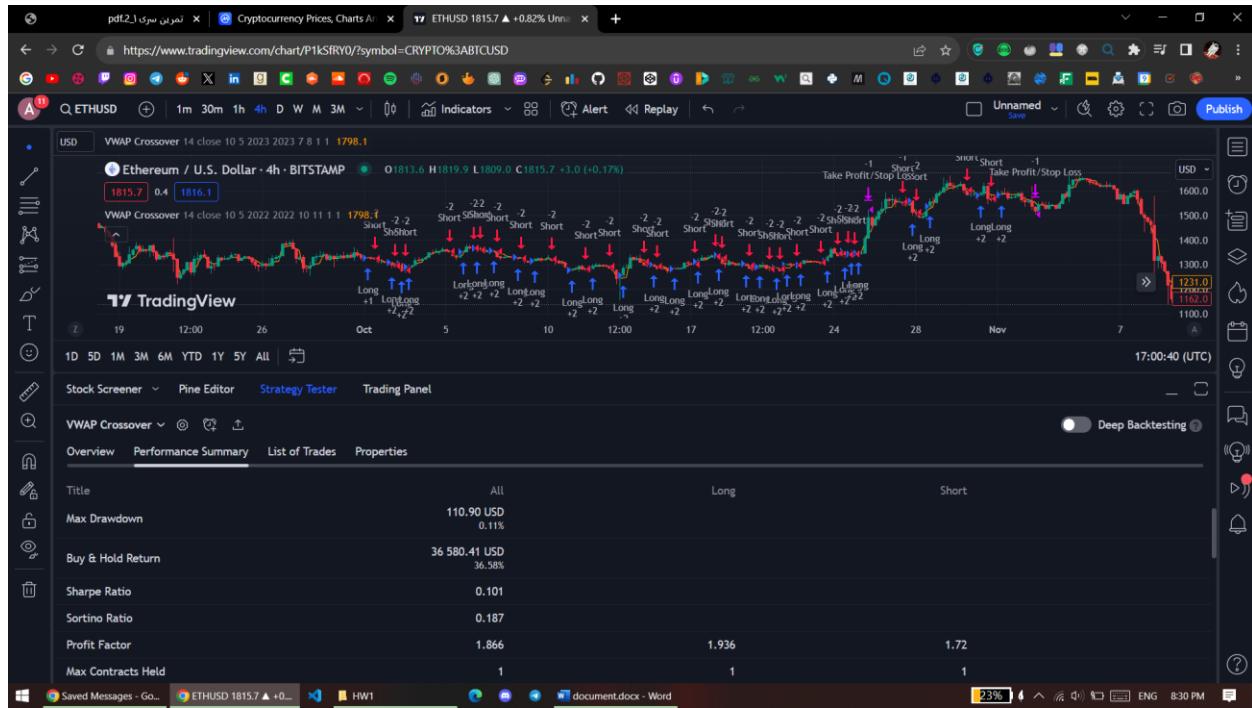
تست استراتژی روی رمزارز های مختلف(باشهای داخل عکس در کنار اسم استراتژی بالای صفحه مینویسد).

BTC



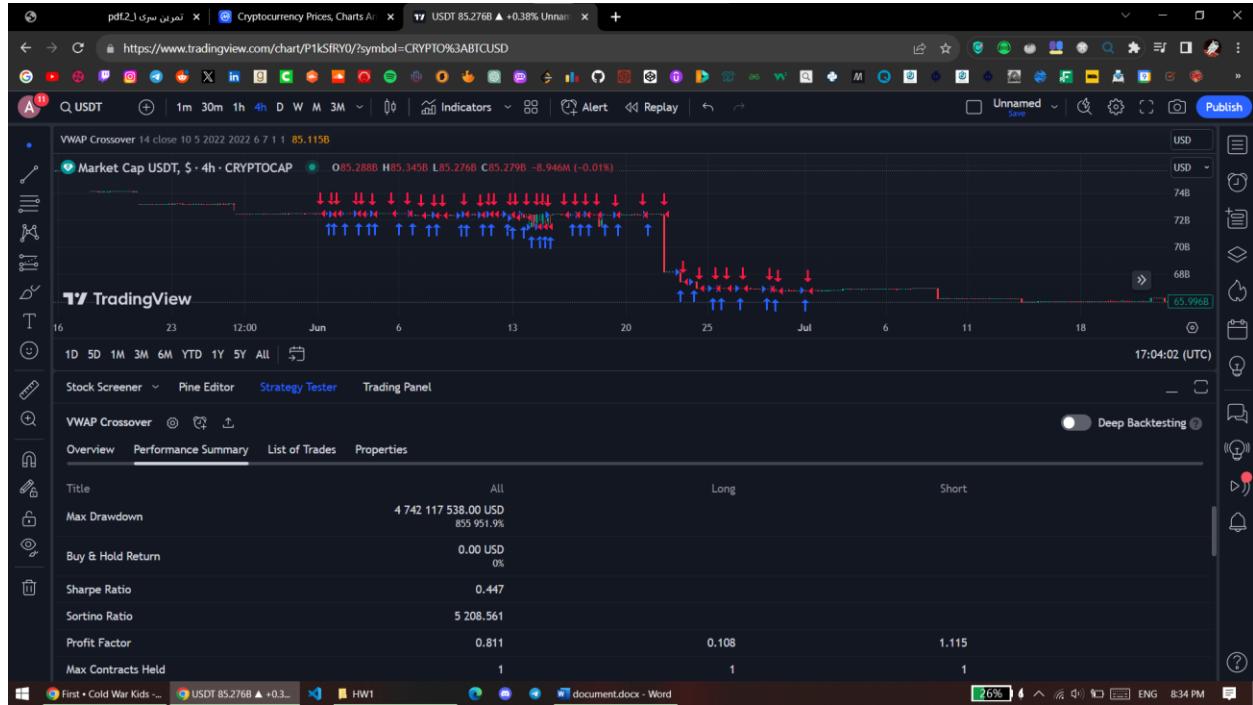


ETH





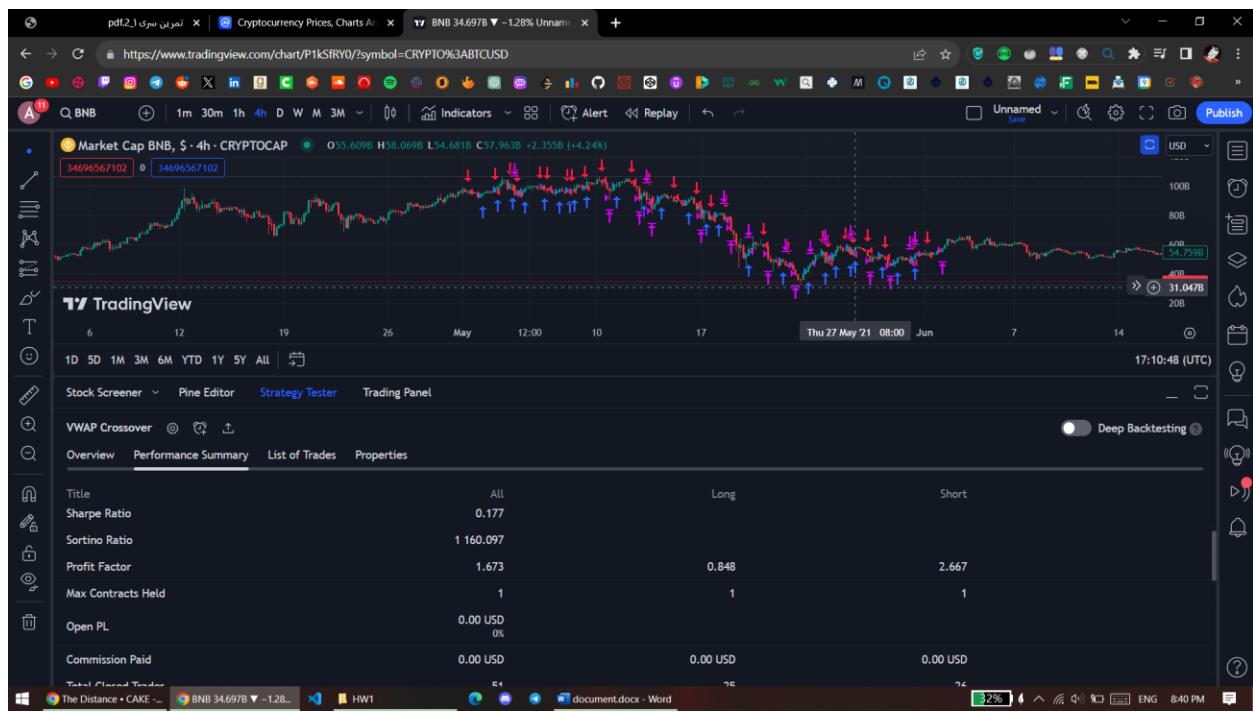
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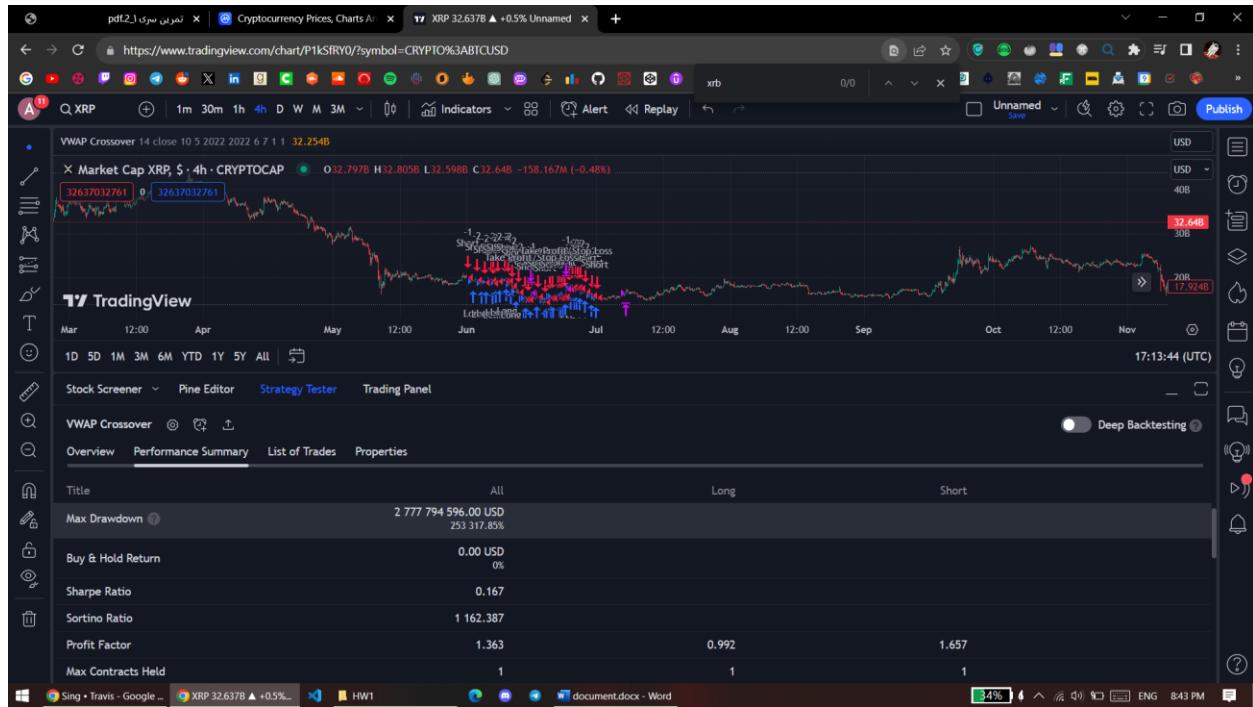


BNB



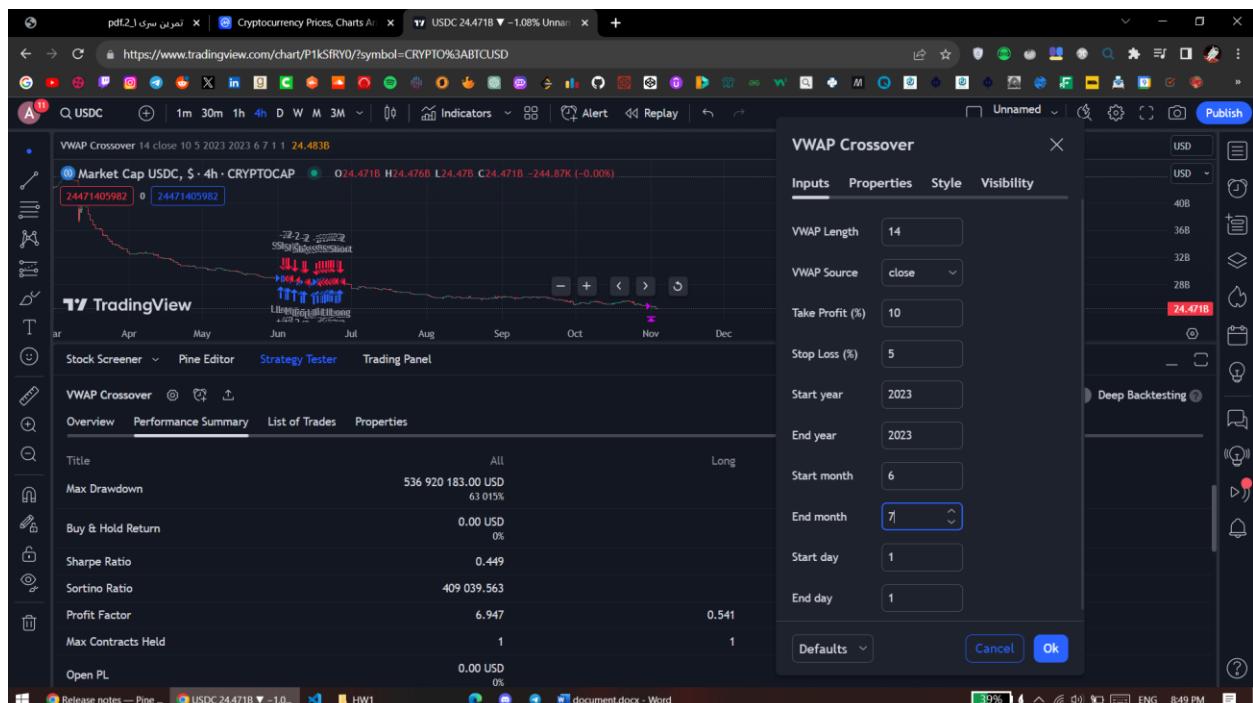
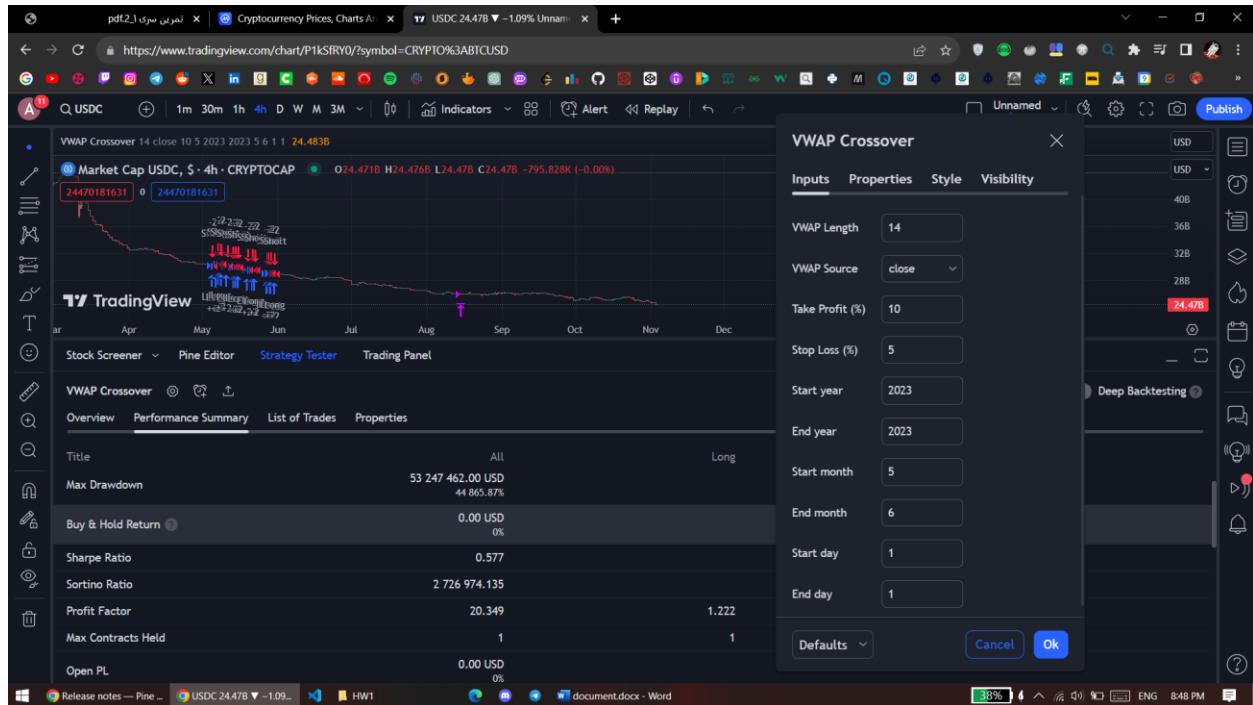


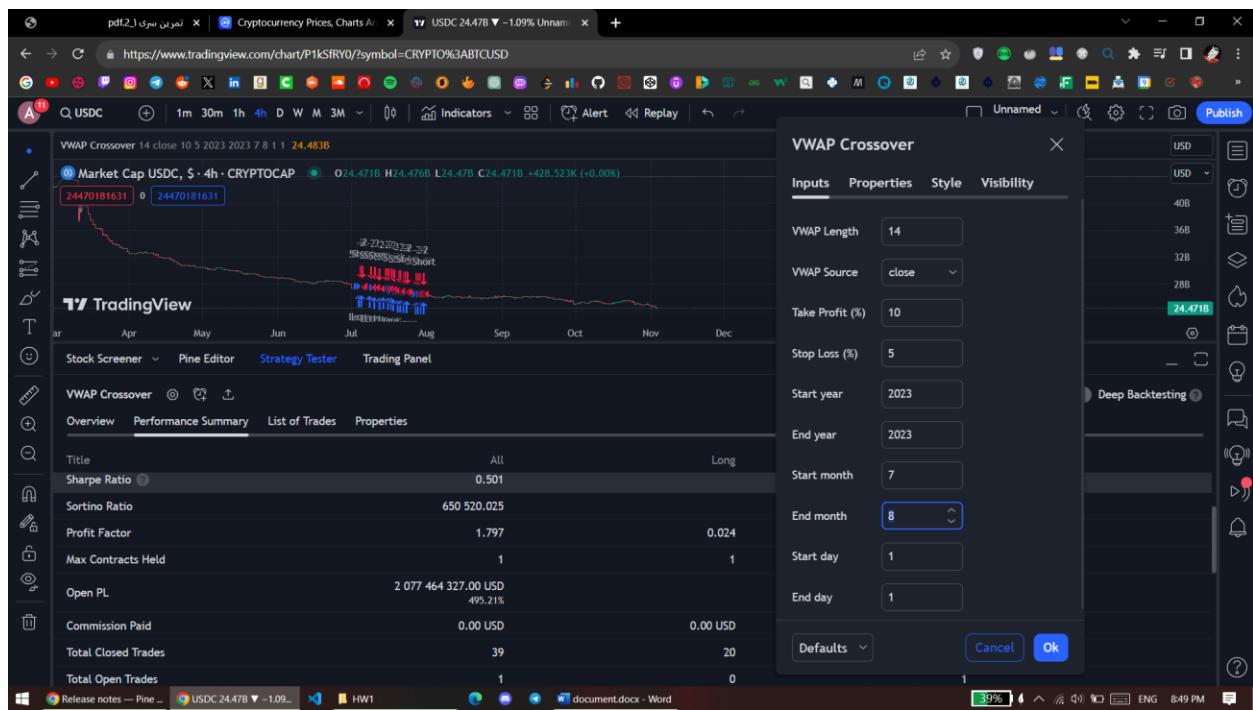
XRP



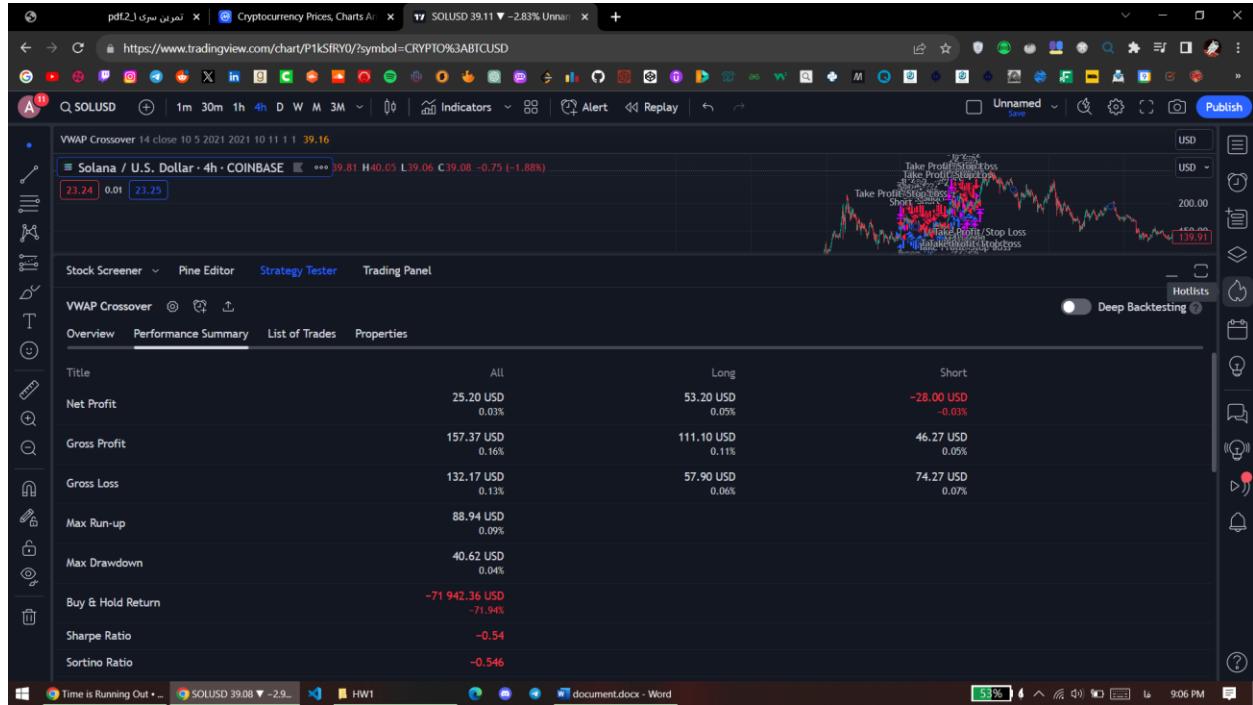


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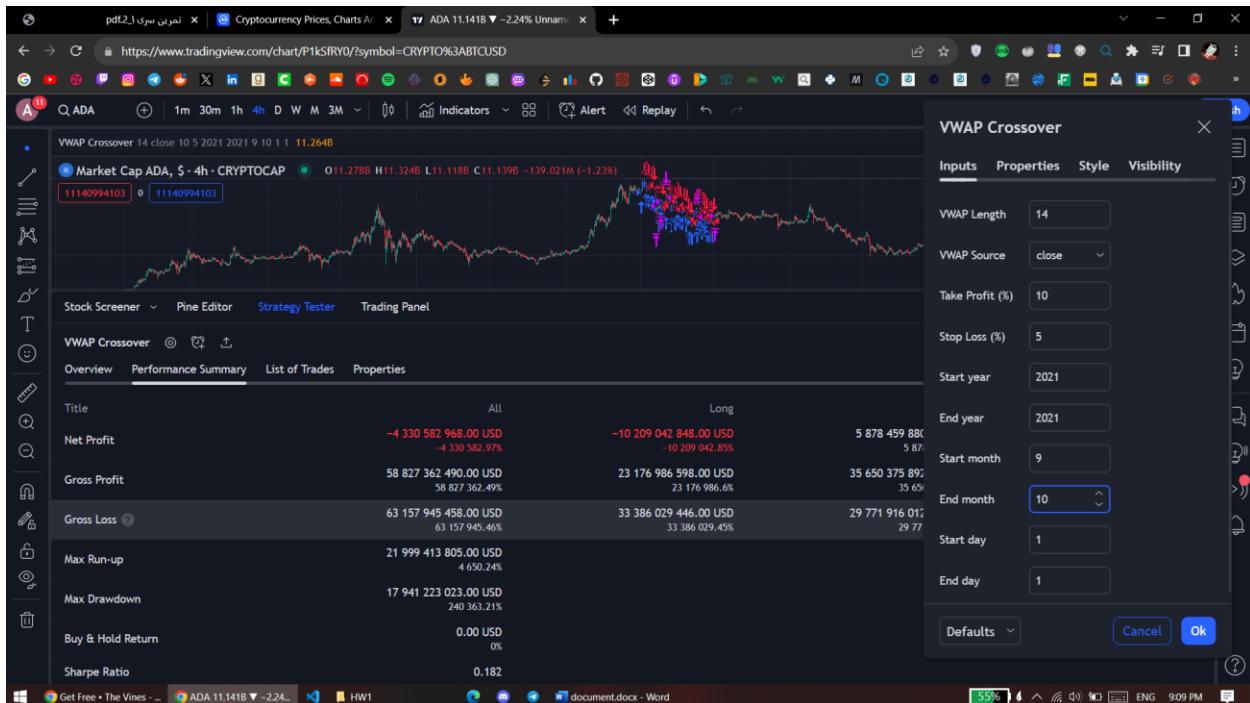
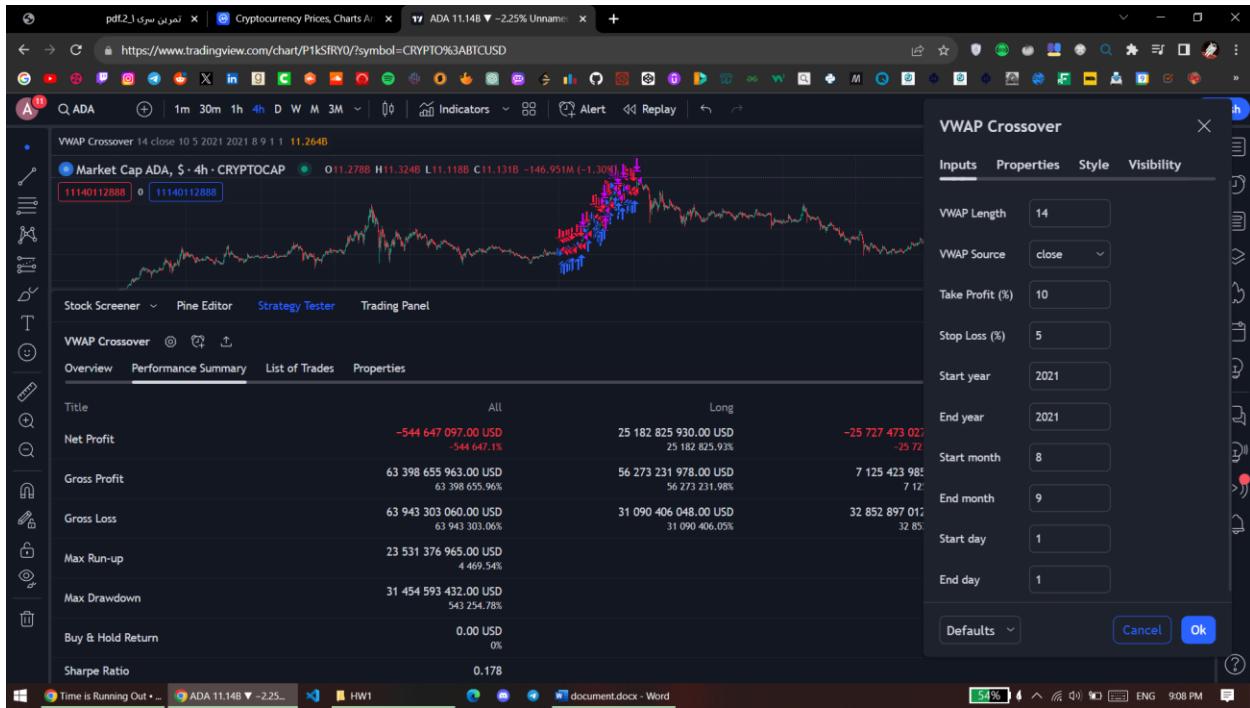


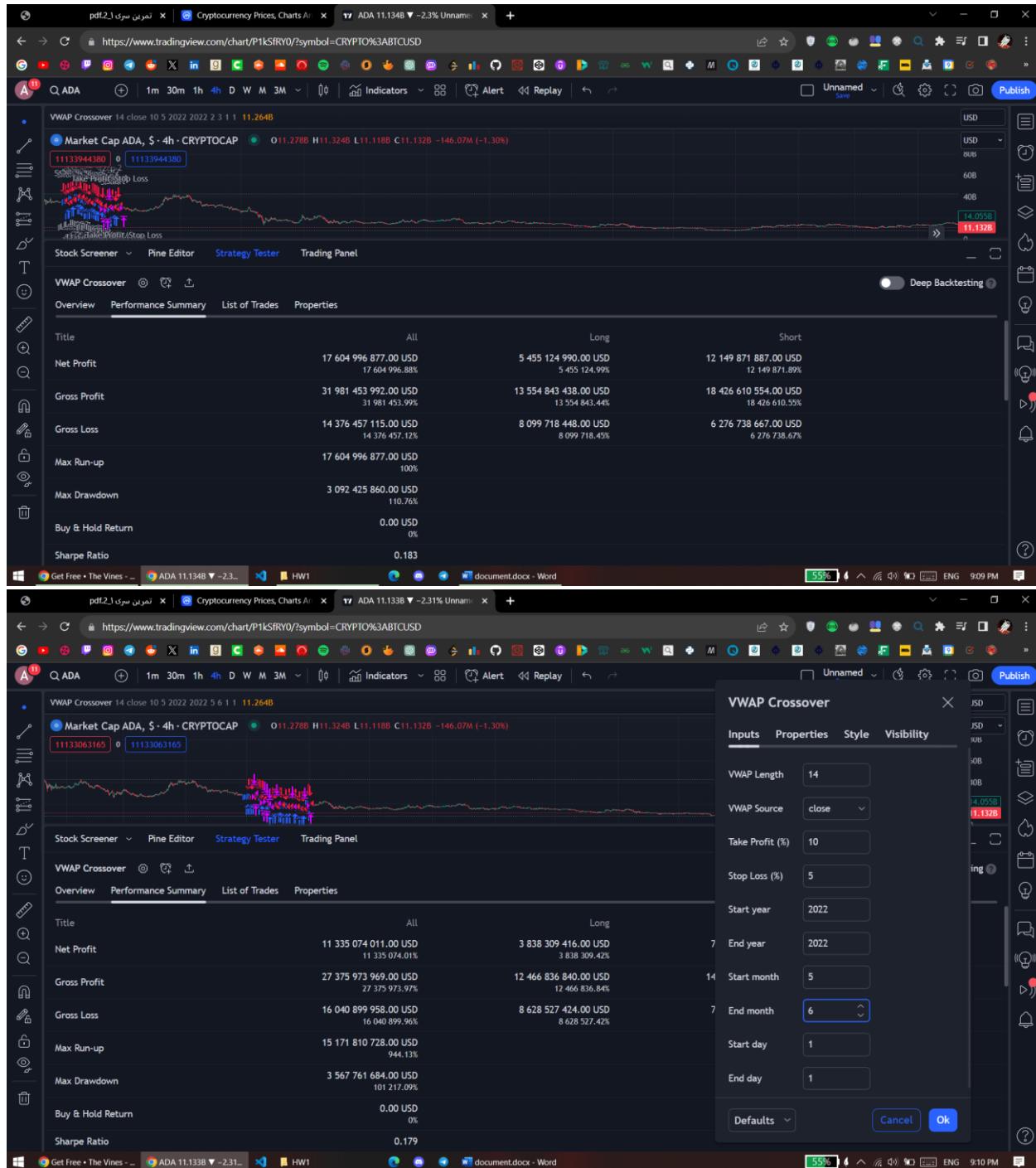
SOLANA



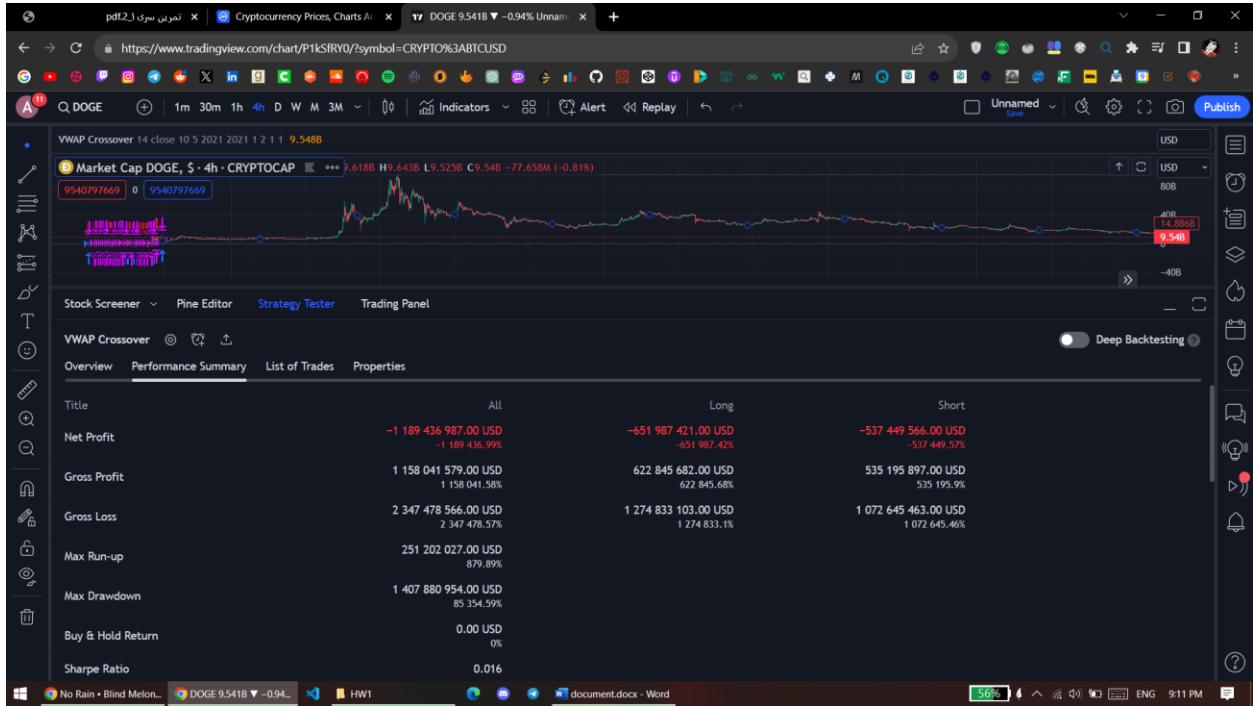
*یک ماه یک ماه جلو رفتم و بازه ای رو نتونستم پیدا کنم که sharp ratio مثبت بده 😞

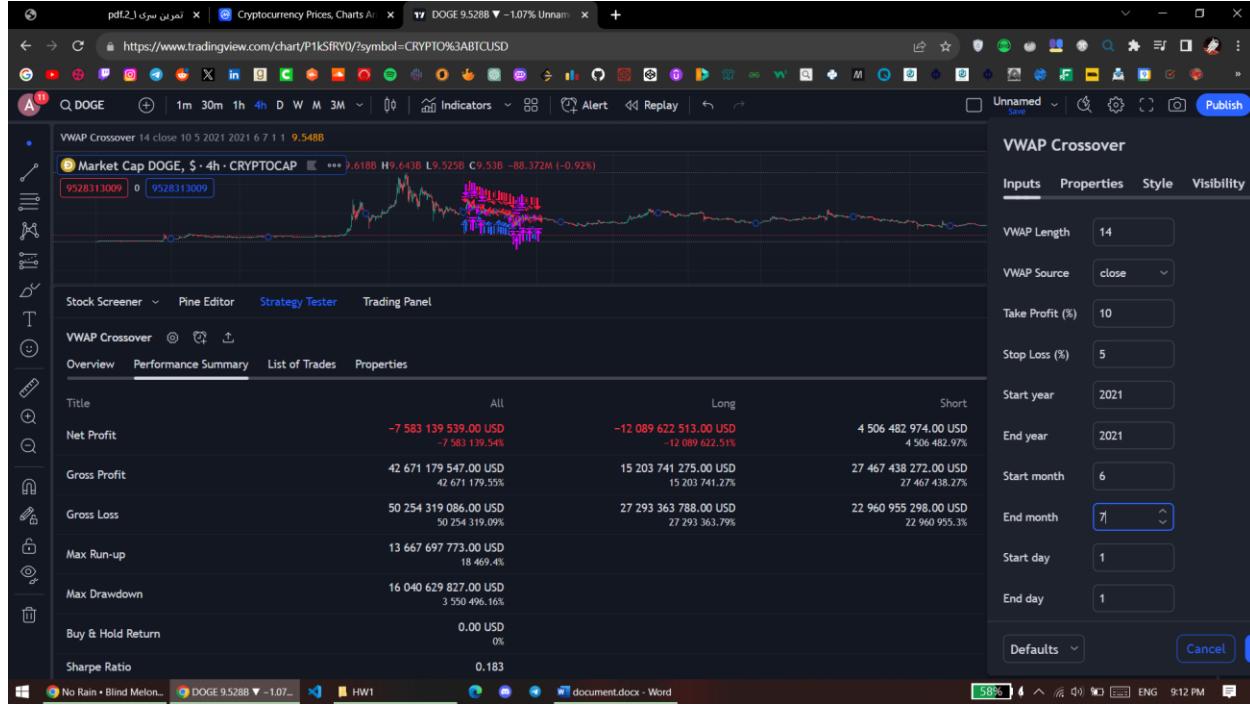
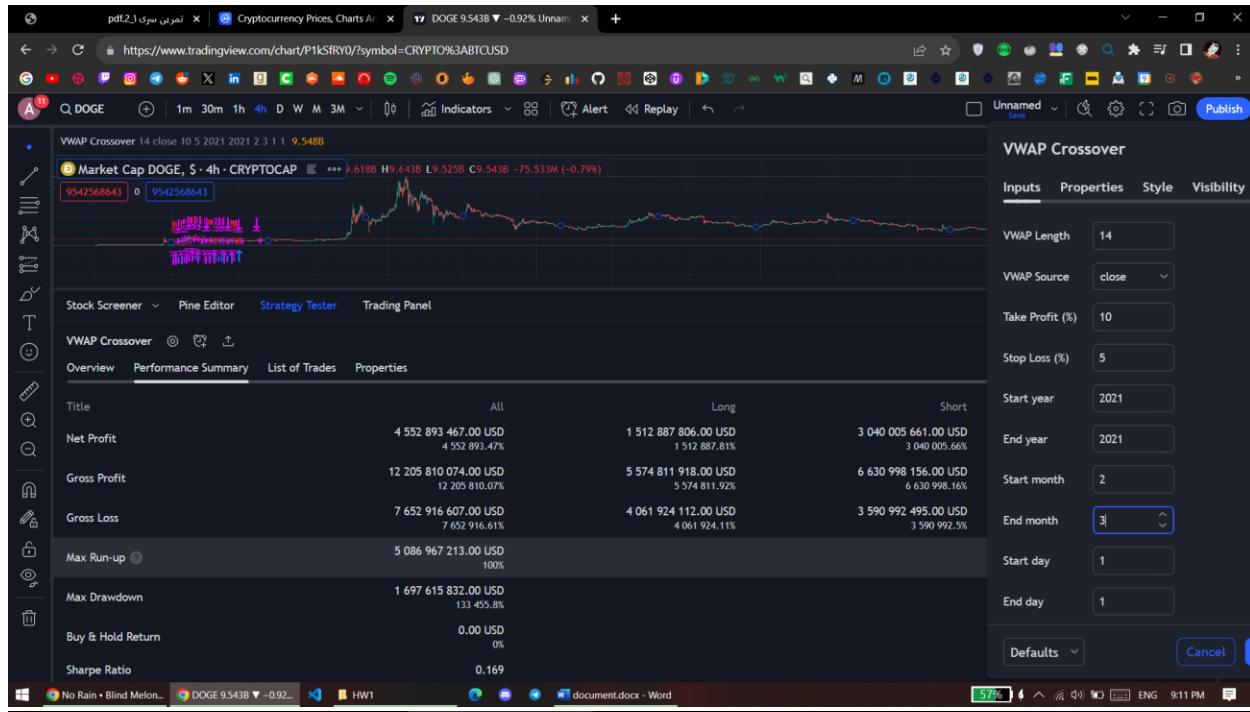
ADA



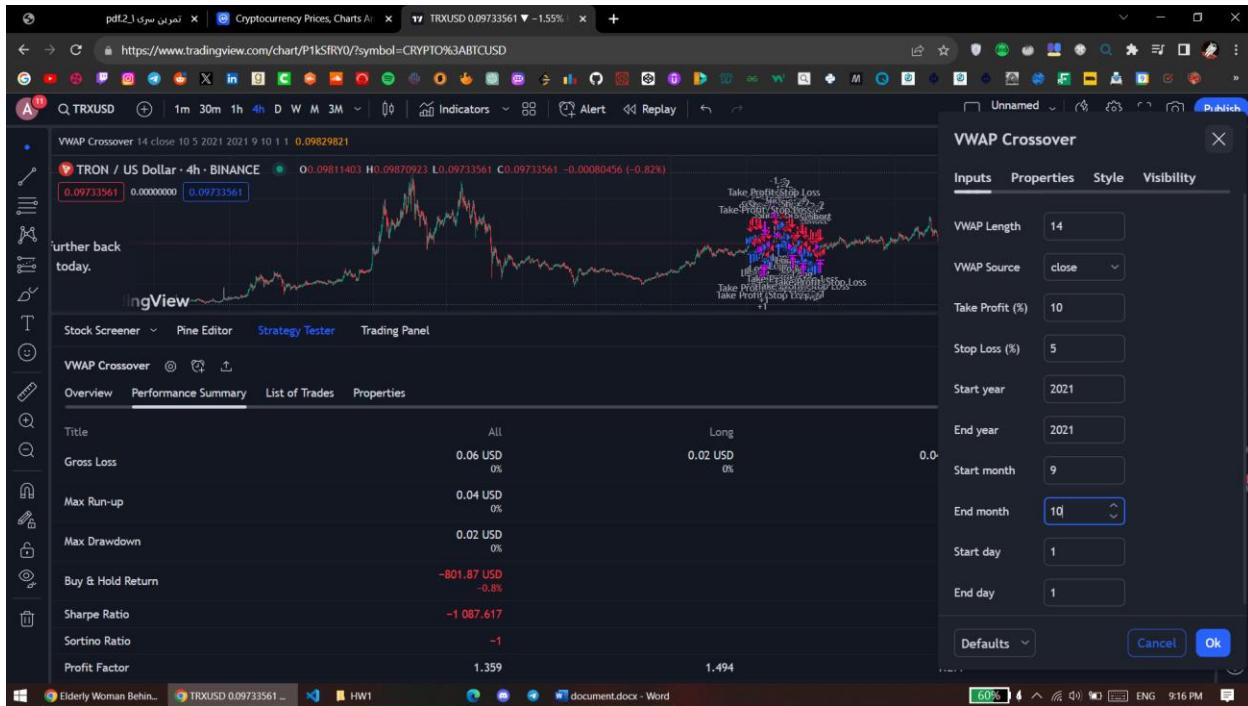


DOGE





TRX



*مثُل رمزارز SOLANA نتوانستم بازه ای را پیدا کنم که شارپ مثبت بدهد

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داکیومنت [pine script](#)

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