

Introduction

This project implements a Python-based trading bot that allows automated placement of Market, Limit, and Advanced orders on the Binance USDT-M Futures Testnet. The bot operates through simple CLI scripts and demonstrates secure API management, modular code design, and multiple order strategies.

Objectives

Place Market and Limit orders using the Binance Testnet

Store sensitive API credentials securely via .env

Implement logging and CLI-friendly execution

Extend functionality with advanced order types:

Simulated OCO (TP + SL)

TWAP Execution (Time-Weighted Average Price)

Grid Orders (spread-based)

Technologies Used

Python 3.8+

python-binance (Binance API SDK)

python-dotenv (for .env management)

PyCharm (IDE)

Binance Futures Testnet

Terminal/CLI for interaction

Project Folder Structure

bash

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sudhanshu_binance_bot/

```
|— .env          # API credentials (Testnet)
|— bot.log       # Order activity logs
|— report.pdf    # This document
|— README.md     # Setup and usage instructions
|— src/
    |— market_orders.py  # Place market orders
    |— limit_orders.py   # Place limit orders
    |— advanced/         # Advanced strategies
        |— oco.py        # Simulated OCO (TP & SL)
        |— twap.py       # Time-Weighted Avg. Price
        |— grid_orders.py # Grid order placement
```

How It Works

Each script accepts parameters via CLI:

Market Order

bash

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```
python src/market_orders.py BTCUSDT BUY 0.01
```

Limit Order

bash

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```
python src/limit_orders.py BTCUSDT SELL 0.01 65000
```

Simulated OCO

You can import and call:

python

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```
place_simulated_oco("BTCUSDT", "BUY", 0.01, 67000, 63000)
```

TWAP Order

python

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```
twap_order("BTCUSDT", "BUY", 0.05, 5, 10)
```

Grid Order

python

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```
place_grid("BTCUSDT", "BUY", 65000, 100, 5, 0.01)
```

Logs and Error Handling

All scripts log important activity and errors into bot.log using Python's logging module.

Test Results

Script, Result

Market Orders, ✓ Orders executed

Limit Orders, ✓ Orders placed

OCO Strategy, ✓ Simulated (TP + SL)

TWAP Execution, ✓ Slices placed

Grid Strategy, ✓ Multiple orders placed

Screenshots:

Tereminal:

```
Terminal Local x + v
[✓] Order 5/5 placed
(.venv) PS C:\Users\LENOVO\Downloads\sudhanshu_binance_bot>
(.venv) PS C:\Users\LENOVO\Downloads\sudhanshu_binance_bot> python src/advanced/grid_orders.py BTCUSDT BUY 65000 100 3 0.01
[✓] Grid order 1/3 placed at 64900.0
[✓] Grid order 2/3 placed at 64800.0
[✓] Grid order 3/3 placed at 64700.0
(.venv) PS C:\Users\LENOVO\Downloads\sudhanshu_binance_bot>
(.venv) PS C:\Users\LENOVO\Downloads\sudhanshu_binance_bot> python src/market_orders.py BTCUSDT BUY 0.01
[✓] Market order placed: BUY 0.01 BTCUSDT
(.venv) PS C:\Users\LENOVO\Downloads\sudhanshu_binance_bot> python src/limit_orders.py BTCUSDT SELL 0.01 65000
[✓] Limit order placed: SELL 0.01 BTCUSDT @ 65000.0
(.venv) PS C:\Users\LENOVO\Downloads\sudhanshu_binance_bot> |
```

Bot log:

```
SB sudhanshu_binance_bot Version control
Current File v
...
4 2025-07-09 11:38:20,903 - ERROR - Market order error: APIError(code=-1021): Timestamp for this request was 1000ms ahead of the server's time.
5 2025-07-09 11:38:42,649 - ERROR - Market order error: APIError(code=-1021): Timestamp for this request was 1000ms ahead of the server's time.
6 2025-07-09 11:42:59,793 - ERROR - Market order error: APIError(code=-1021): Timestamp for this request was 1000ms ahead of the server's time.
7 2025-07-09 11:46:13,826 - ERROR - Market order error: APIError(code=-1021): Timestamp for this request was 1000ms ahead of the server's time.
8 2025-07-09 11:46:27,112 - ERROR - Market order error: APIError(code=-1021): Timestamp for this request was 1000ms ahead of the server's time.
9 2025-07-09 11:54:05,419 - ERROR - Market order error: APIError(code=-1021): Timestamp for this request was 1000ms ahead of the server's time.
10 2025-07-09 11:55:19,526 - ERROR - Market order error: APIError(code=-1021): Timestamp for this request was 1000ms ahead of the server's time.
11 2025-07-09 11:56:18,197 - ERROR - Market order error: APIError(code=-1021): Timestamp for this request was 1000ms ahead of the server's time.
12 2025-07-09 11:57:24,296 - ERROR - Market order error: APIError(code=-1021): Timestamp for this request was 1000ms ahead of the server's time.
13 2025-07-09 12:00:18,155 - ERROR - Market order error: APIError(code=-1021): Timestamp for this request was 1000ms ahead of the server's time.
14 2025-07-09 12:03:50,323 - ERROR - Market order error: APIError(code=-1021): Timestamp for this request was 1000ms ahead of the server's time.
15 2025-07-09 12:04:52,300 - INFO - Market Order: BUY 0.01 BTCUSDT | Order ID: 5229193381
16 2025-07-09 12:05:25,827 - INFO - Limit Order: SELL 0.01 BTCUSDT @ 65000.0 | Order ID: 5229194437
17 2025-07-09 13:11:11,507 - INFO - Market Order: BUY 0.01 BTCUSDT | Order ID: 5229371591
18 2025-07-09 13:11:12,887 - INFO - Limit Order: SELL 0.01 BTCUSDT @ 65000.0 | Order ID: 5229371625
19

Terminal Local x
[✓] Order 5/5 placed
(.venv) PS C:\Users\LENOVO\Downloads\sudhanshu_binance_bot>
(.venv) PS C:\Users\LENOVO\Downloads\sudhanshu_binance_bot> python src/advanced/grid_orders.py BTCUSDT BUY 65000 100 3 0.01
[✓] Grid order 1/3 placed at 64900.0
[✓] Grid order 2/3 placed at 64800.0
[✓] Grid order 3/3 placed at 64700.0
(.venv) PS C:\Users\LENOVO\Downloads\sudhanshu_binance_bot>
(.venv) PS C:\Users\LENOVO\Downloads\sudhanshu_binance_bot> python src/market_orders.py BTCUSDT BUY 0.01
[✓] Market order placed: BUY 0.01 BTCUSDT
(.venv) PS C:\Users\LENOVO\Downloads\sudhanshu_binance_bot> python src/limit_orders.py BTCUSDT SELL 0.01 65000
[✓] Limit order placed: SELL 0.01 BTCUSDT @ 65000.0
(.venv) PS C:\Users\LENOVO\Downloads\sudhanshu_binance_bot> |
```

Binance Order History:

108659.8 | BTC/USDT USDT

testnet.binancefuture.com/en/futures/BTC/USDT

Limit Sell Order Price Floor Ratio50 %

Max. Market Order Amount1000 BTC

Max. Limit Order Amount1000 BTC

Max. Number of Open Orders200

Min. Notional Value100 USDT

108659.80.2575.855

108635.10.5185.783

108629.30.1305.913

Trades

Top Movers

FAQ

...

Price (USDT)

Amount (BTC)

Time

108,659.80.20013:13:35

108,659.80.01613:13:31

108,659.90.00113:13:28

108,659.90.00813:13:24

108,659.90.00013:13:21

Supercharge return with BFUSD

BFUSD Balance0.00 BFUSD

Reward0.00 USDT

Buy

Redeem

Cross20x\$

LimitMarketStop Limit

Avail 14999.02 USDT

Price108670.0USDTBBO

Size

Buy 0.000 BTCSell 0.000 BTC

TP/SL

Reduce-OnlyTIFGTC

Buy/LongSell/Short

Liq Price -- USDTCost 0.00 USDTMax 2.745 BTC

Liq Price -- USDTCost 0.00 USDTMax 2.757 BTC

Finish Quiz to Get Started

Positions(0)Open Orders(0)Order HistoryTrade HistoryTransaction HistoryPosition HistoryAPI KeyBotsAssets

BasicConditional

1 Day1 Week1 Month3 MonthsTime2025-07-08 → 2025-07-09SearchReset

Time	Symbol	Type	Side	Average	Price	Executed	Amount	Reduce Only	Post Only	Trigger Conditions	Status
2025-07-09 12:58:02	BTC/USDT (Perp)	Market	Buy	108,669.80	-	0.010 BTC	0.010 BTC	No	No	-	Filled
2025-07-09 12:57:52	BTC/USDT (Perp)	Market	Buy	108,670.09	-	0.010 BTC	0.010 BTC	No	No	-	Filled
2025-07-09 12:57:42	BTC/USDT (Perp)	Market	Buy	108,670.10	-	0.010 BTC	0.010 BTC	No	No	-	Filled
2025-07-09 12:57:32	BTC/USDT (Perp)	Market	Buy	108,670.10	-	0.010 BTC	0.010 BTC	No	No	-	Filled
2025-07-09 12:57:22	BTC/USDT (Perp)	Market	Buy	108,670.09	-	0.010 BTC	0.010 BTC	No	No	-	Filled
2025-07-09 12:55:23	BTC/USDT (Perp)	Limit	Sell	108,654.90	67,000.00	0.010 BTC	0.010 BTC	No	No	-	Filled
2025-07-09 12:05:25	BTC/USDT (Perp)	Limit	Sell	108,659.91	65,000.00	0.010 BTC	0.010 BTC	No	No	-	Filled

Stable connection

Terms

Futures Chatroom

Cookie Preferences