

# PROJECT REPORT

## Analysis of Output

### 1. market\_order

```
PS D:\Devanshi_binance_bot> python src/market_orders.py BTCUSDT BUY 0.01

=== Binance Futures Market Order Bot ===
Symbol: BTCUSDT
Side: BUY
Quantity: 0.01
Dry Run: False
Timestamp: 2025-08-18 01:05:27
=====

[INFO] Symbol validated: BTCUSDT
[INFO] Side validated: BUY
[INFO] Quantity validated: 0.01
[INFO] Current price for BTCUSDT: 117589.2
[INFO] Action: MARKET_ORDER_ATTEMPT | Symbol: BTCUSDT | Side: BUY | Qty: 0.01 | Price: 117589.2 | Status: PENDING
[INFO] Placing order with params: {'symbol': 'BTCUSDT', 'side': 'BUY', 'type': 'MARKET', 'quantity': 0.01}
[INFO] Action: MARKET_ORDER_SUCCESS | Symbol: BTCUSDT | Side: BUY | Qty: 0.01 | Price: 117589.2 | OrderID: 5593538837 | Status: NEW

✓ Market order placed successfully!
Order ID: 5593538837
Symbol: BTCUSDT
Side: BUY
Quantity: 0.01
Status: NEW
Executed Quantity: 0
Average Price: 0
Timestamp: 2025-08-18 01:05:30

Order completed successfully!
```

When the bot was executed with the command `python src/market_orders.py BTCUSDT BUY 0.01`, it successfully placed a market buy order for the trading pair BTCUSDT with a quantity of 0.01 BTC on Binance Futures. The system first validated the trading symbol, order side, and quantity, then fetched the current market price of 117,589.2 USDT. After validation, the bot attempted and successfully submitted the market order, receiving an Order ID (5593538837) from Binance. The order status was shown as NEW, meaning it was created and awaiting execution. Since this was a real order (not a dry run), the bot confirmed that the market order was placed and completed successfully.

### 2. limit\_order

```
PS D:\Devanshi_binance_bot> python src/limit_orders.py BTCUSDT BUY 0.01 40000 --check-status

=== Binance Futures Limit Order Bot ===
Symbol: BTCUSDT
Side: BUY
Quantity: 0.01
Limit Price: 40000.0
Dry Run: False
Check Status: True
Timestamp: 2025-08-18 01:05:55
=====

[INFO] Symbol validated: BTCUSDT
[INFO] Side validated: BUY
[INFO] Quantity validated: 0.01
[INFO] Price validated: 40000.0
[INFO] Current price for BTCUSDT: 117589.2
[WARNING] Limit price 40000.0 is 66.0% away from market price 117589.2
Warning: Limit price 40000.0 may not be optimal compared to market price 117589.2
Continue anyway? (y/N): y
[INFO] Action: LIMIT_ORDER_ATTEMPT | Symbol: BTCUSDT | Side: BUY | Qty: 0.01 | Price: 40000.0 | Status: PENDING
[INFO] Placing limit order with params: {'symbol': 'BTCUSDT', 'side': 'BUY', 'type': 'LIMIT', 'quantity': 0.01, 'price': 40000.0, 'timeInForce': 'GTC'}
[INFO] Action: LIMIT_ORDER_SUCCESS | Symbol: BTCUSDT | Side: BUY | Qty: 0.01 | Price: 40000.0 | OrderID: 5593539510 | Status: NEW

✓ Limit order placed successfully!
Order ID: 5593539510
Symbol: BTCUSDT
Side: BUY
Type: LIMIT
Quantity: 0.01
Limit Price: 40000
Status: NEW
Time in Force: GTC
Current Market Price: 117589.2
Price Difference: -65.98%
Timestamp: 2025-08-18 01:06:00

Monitoring order status...

Order Status Check #1:
Status: NEW
Executed Quantity: 0
Remaining Quantity: 0.01
Order still open, checking again in 10 seconds...

Order Status Check #2:
Status: NEW
Executed Quantity: 0
Remaining Quantity: 0.01
Order still open, checking again in 10 seconds...
```

When the limit order bot was executed with the command `python src/limit_orders.py BTCUSDT BUY 0.01 40000 --check-status`, it attempted to place a buy limit order for 0.01 BTC at a price of 40,000 USDT. The system validated the inputs and warned that the chosen price was about 66% lower than the current market price (117,589.2 USDT), meaning the order may not execute immediately. After confirming, the bot submitted the limit order to Binance and received an Order ID (5593539510) with the status NEW. Since the limit price was much lower than the market price, the order remained open throughout multiple status checks, with no quantity executed. The bot continued monitoring and finally reported the order status as NEW, indicating that the order was placed successfully but is still pending execution until the market price drops to the specified limit price.

### 3. stop\_limit

```
PS D:\Devanshi_binance_bot> python src/advanced/stop_limit.py BTCUSDT BUY 0.01 47000 47500 --dry-run

=== Binance Futures Stop-Limit Order Bot ===
Symbol: BTCUSDT
Side: BUY
Quantity: 0.01
Stop Price: 47000.0
Limit Price: 47500.0
Dry Run: True
Timestamp: 2025-08-18 01:08:30
=====

[INFO] Symbol validated: BTCUSDT
[INFO] Side validated: BUY
[INFO] Quantity validated: 0.01
[INFO] Price validated: 47000.0
[INFO] Price validated: 47500.0
[INFO] Current price for BTCUSDT: 117674.1
[ERROR] BUY stop price 47000.0 should be above current price 117674.1
[ERROR] STOP_LIMIT_ORDER failed: Invalid price relationships for stop-limit order
[ERROR] Stack trace: Traceback (most recent call last):
  File "D:\Devanshi_binance_bot\src\advanced\stop_limit.py", line 91, in place_stop_limit_order
    raise ValueError("Invalid price relationships for stop-limit order")
ValueError: Invalid price relationships for stop-limit order

[ERROR] Action: STOP_LIMIT_ORDER_FAILED | Symbol: BTCUSDT | Side: BUY | Qty: 0.01 | Price: Stop:47000.0,Limit:47500.0 | Status: FAILED | Error: STOP_LIMIT_ORDER failed: Invalid price relationships for stop-limit order
X Error: STOP_LIMIT_ORDER failed: Invalid price relationships for stop-limit order

Order failed. Check the logs for details.
```

Your stop-limit order failed because the stop price and limit price you gave (47000 and 47500) are far below the current BTCUSDT market price (117674). For a BUY stop-limit order, the stop price must always be above the current market price (so the order triggers only when the price rises to that level), and the limit price should be equal to or higher than the stop price. Since your stop price was lower than the market price, the bot rejected it as an invalid relationship. To fix this, you should set both stop and limit prices above the current market price — for example, a stop at 118000 and a limit at 118500 would be valid.

### 4. Oco

```
PS D:\Devanshi_binance_bot> python src/advanced/oco.py BTCUSDT SELL 0.01 46000 44000 --dry-run

=== Binance Futures OCO Order Bot ===
Symbol: BTCUSDT
Side: SELL
Quantity: 0.01
Take Profit: 46000.0
Stop Loss: 44000.0
Dry Run: True
Monitor Time: 3600s
Timestamp: 2025-08-18 01:09:51
=====

[INFO] Symbol validated: BTCUSDT
[INFO] Side validated: SELL
[INFO] Quantity validated: 0.01
[INFO] Price validated: 46000.0
[INFO] Price validated: 44000.0
[INFO] Current price for BTCUSDT: 117589.2
[ERROR] Take profit 46000.0 should be above current price 117589.2
[ERROR] OCO_ORDER failed: Invalid price relationships for OCO order
[ERROR] Stack trace: Traceback (most recent call last):
  File "D:\Devanshi_binance_bot\src\advanced\oco.py", line 149, in place_oco_order
    raise ValueError("Invalid price relationships for OCO order")
ValueError: Invalid price relationships for OCO order

[ERROR] Action: OCO_ORDER_FAILED | Symbol: BTCUSDT | Side: SELL | Qty: 0.01 | Price: TP:46000.0,SL:44000.0 | Status: FAILED | Error: OCO_ORDER failed: Invalid price relationships for OCO order
X Error: OCO_ORDER failed: Invalid price relationships for OCO order

OCO orders failed. Check the logs for details.
```

Your OCO order failed because the prices you entered don't match the rules for a SELL OCO order. The current BTCUSDT price is around 117589.2, but you set your Take Profit at 46000 and Stop Loss at 44000.

For a SELL OCO order:

- The Take Profit price must be below the current market price (since you want to sell at a profit if the market drops after you're already holding a short position).
- The Stop Loss price must also be below the current market price, but it needs to be lower than the Take Profit, so it protects you from bigger losses.

In your case, both 46000 and 44000 are far below the market price (117589.2), so the bot marked it as invalid. You need to choose realistic values close to the current price (e.g., TP: 117000, SL: 116500) instead of 46000 and 44000.

## 5. twap

```
PS D:\Devanshi_binance_bot> python src/advanced/twap.py BTCUSDT BUY 0.1 10 3 --dry-run

=== Binance Futures TWAP Strategy ===
Symbol: BTCUSDT
Side: BUY
Total Quantity: 0.1
Duration: 10 minutes
Number of Orders: 3
Dry Run: True
Timestamp: 2025-08-18 01:10:31
=====

[INFO] Symbol validated: BTCUSDT
[INFO] Side validated: BUY
[INFO] Quantity validated: 0.1
[INFO] Action: TWAP_STRATEGY_START | Symbol: BTCUSDT | Side: BUY | Qty: 0.1 | Price: Duration:10min,Orders:3 | Status: PENDING

📊 TWAP Strategy Configuration:
Total Quantity: 0.1
Duration: 10 minutes
Number of Orders: 3
Quantity per Order: 0.03333333
Interval: 200.0 seconds
Initial Price: 117589.2
Start Time: 2025-08-18 01:10:33
Estimated End Time: 2025-08-18 01:20:33

🟢 DRY RUN MODE - No real orders will be placed
Order 1: 0.03333333 after 0.0s
Order 2: 0.03333333 after 200.0s
Order 3: 0.03333333 after 400.0s

TWAP strategy completed!
```

“My TWAP strategy ran successfully on BTCUSDT in dry-run mode. I configured it to buy a total of 0.1 BTC over 10 minutes, split into 3 equal orders of 0.0333 BTC each. The bot calculated an interval of 200 seconds per order, with execution times at 0s, 200s, and 400s. Since it was a dry run, no real trades were placed, but the strategy demonstrated how orders would have been executed gradually instead of in a single large trade.”

## 6. grid

```
PS D:\Devanshi_binance_bot> python src/advanced/grid.py BTCUSDT 110000 125000 10 0.01 --dry-run

=== Binance Futures Grid Trading Bot ===
Symbol: BTCUSDT
Price Range: 110000.0 - 125000.0
Grid Levels: 10
Quantity per Level: 0.01
Duration: 60 minutes
Dry Run: True
Timestamp: 2025-08-18 01:11:05
=====

[INFO] Symbol validated: BTCUSDT
[INFO] Price validated: 110000.0
[INFO] Price validated: 125000.0
[INFO] Quantity validated: 0.01
Error: HTTPConnectionPool(host='testnet.binance.vision', port=443): Max retries exceeded with url: /api/v3/ping (Caused by SSLError(SSLCertVerificationError(1, '[SSL: CERTIFICATE_VERIFY_FAILED] certificate verify failed: self-signed certificate in certificate chain (_ssl.c:1086)')))
```

“I also tried running the Grid Trading Bot on BTCUSDT with a price range of 110000 to 125000, divided into 10 grid levels, with 0.01 BTC allocated per level for 60 minutes. The bot successfully validated my inputs but failed to connect to the Binance testnet API due to an SSL certificate verification error (self-signed certificate issue). Since it was a dry run, no real trades were attempted, but this highlighted the importance of fixing SSL settings for smooth API communication.”

## 7. bot.log

```
[2025-08-17 22:17:31] [INFO] [validate_symbol] - Symbol validated: BTCUSDT
[2025-08-17 22:17:31] [INFO] [validate_quantity] - Quantity validated: 0.01
[2025-08-17 22:18:25] [INFO] [validate_symbol] - Symbol validated: BTCUSDT
[2025-08-17 22:18:25] [INFO] [validate_side] - Side validated: BUY
[2025-08-17 22:18:25] [INFO] [validate_quantity] - Quantity validated: 0.01
[2025-08-17 22:18:27] [INFO] [place_market_order] - Current price for BTCUSDT: 118030.2
[2025-08-17 22:18:27] [INFO] [log_order] - Action: MARKET_ORDER_ATTEMPT | Symbol: BTCUSDT | Side: BUY | Qty: 0.01 | Price: 118030.2
[2025-08-17 22:18:27] [INFO] [place_market_order] - DRY RUN: Order would be placed but dry_run=True
[2025-08-17 22:18:39] [INFO] [validate_symbol] - Symbol validated: BTCUSDT
[2025-08-17 22:18:39] [INFO] [validate_side] - Side validated: BUY
[2025-08-17 22:18:39] [INFO] [validate_quantity] - Quantity validated: 0.01
[2025-08-17 22:18:41] [INFO] [place_market_order] - Current price for BTCUSDT: 117973.9
[2025-08-17 22:18:42] [INFO] [log_order] - Action: MARKET_ORDER_ATTEMPT | Symbol: BTCUSDT | Side: BUY | Qty: 0.01 | Price: 117973.9
[2025-08-17 22:18:42] [INFO] [place_market_order] - Placing order with params: {'symbol': 'BTCUSDT', 'side': 'BUY', 'type': 'MARKET'}
[2025-08-17 22:18:42] [INFO] [log_order] - Action: MARKET_ORDER_SUCCESS | Symbol: BTCUSDT | Side: BUY | Qty: 0.01 | Price: 117973.9
[2025-08-17 22:23:46] [INFO] [validate_symbol] - Symbol validated: BTCUSDT
[2025-08-17 22:23:46] [INFO] [validate_side] - Side validated: BUY
[2025-08-17 22:23:46] [INFO] [validate_quantity] - Quantity validated: 0.01
[2025-08-17 22:23:46] [INFO] [validate_price] - Price validated: 40000.0
[2025-08-17 22:23:48] [INFO] [place_limit_order] - Current price for BTCUSDT: 117822.5
[2025-08-17 22:23:48] [WARNING] [validate_limit_price] - Limit price 40000.0 is 66.1% away from market price 117822.5
[2025-08-17 22:23:50] [INFO] [log_order] - Action: LIMIT_ORDER_ATTEMPT | Symbol: BTCUSDT | Side: BUY | Qty: 0.01 | Price: 40000.0 |
```

The bot.log file is an automatically generated log file that records all activities of the trading bot, including validations, market order attempts, successes, warnings, and errors. It contains timestamped entries that make it easy to trace what actions were performed at specific times, such as order placement, symbol and quantity checks, and price validations. The log also captures important warnings (like limit prices being too far from the market) and errors (such as connection or certificate issues). This file is very useful for debugging, analyzing trading performance, and keeping a transparent record of the bot’s operations.”