

## **Binance Futures Order Bot**

**Name:** Golu Kumar Gupta

**Role Applied:** Python Developer Intern

**Project Type:** CLI-Based Trading Bot

**Mode:** Binance USDT-M Futures Testnet

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### **1. Introduction**

This project is a command-line based trading bot developed in Python for Binance USDT-M Futures.

The bot allows users to place different types of futures orders using a simple CLI interface with built-in input validation, structured logging, and modular architecture.

The primary goal of this project is to demonstrate:

- Python programming proficiency
  - REST API integration
  - Error handling and validation
  - Clean modular code design
  - Practical understanding of trading order types
- 

### **2. Features Implemented**

#### **Core Orders (Mandatory)**

- Market Orders
- Limit Orders

#### **Advanced Orders**

- OCO (One-Cancels-the-Other) – Stop Loss + Take Profit
- TWAP (Time Weighted Average Price)

#### **Additional Features**

- CLI using argparse
- Interactive menu mode
- Input validation
- Structured logging (bot.log)

- Binance Futures Testnet support
- 

### 3. Technology Stack

- Python 3
  - python-binance
  - argparse
  - python-dotenv
  - Logging module
- 

### 4. Project Structure

golu\_kumar\_gupta\_binance\_bot/

```
├── src/
|   ├── market_orders.py
|   ├── limit_orders.py
|   ├── main.py
|   ├── utils.py
|   ├── config.py
|   └── advanced/
|       ├── oco.py
|       └── twap.py
├── bot.log
├── README.md
├── report.pdf
├── requirements.txt
└── .env.example
```

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## 5. Setup Instructions

1. Install dependencies:

```
pip install -r requirements.txt
```

2. Create .env file:

```
BINANCE_API_KEY=your_testnet_key
```

```
BINANCE_API_SECRET=your_testnet_secret
```

3. Run the bot:

```
python src/main.py
```

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## 6. Usage Examples

### Market Order

```
python src/main.py market BTCUSDT BUY 0.001
```

### Limit Order

```
python src/main.py limit BTCUSDT BUY 0.001 50000
```

### OCO Order

```
python src/main.py oco BTCUSDT BUY 0.001 40000 60000
```

### TWAP Strategy

```
python src/main.py twap BTCUSDT BUY 0.01 60 10
```

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## 7. Logging Mechanism

All actions such as order placement, errors, and validations are logged into bot.log with timestamps.

Log format:

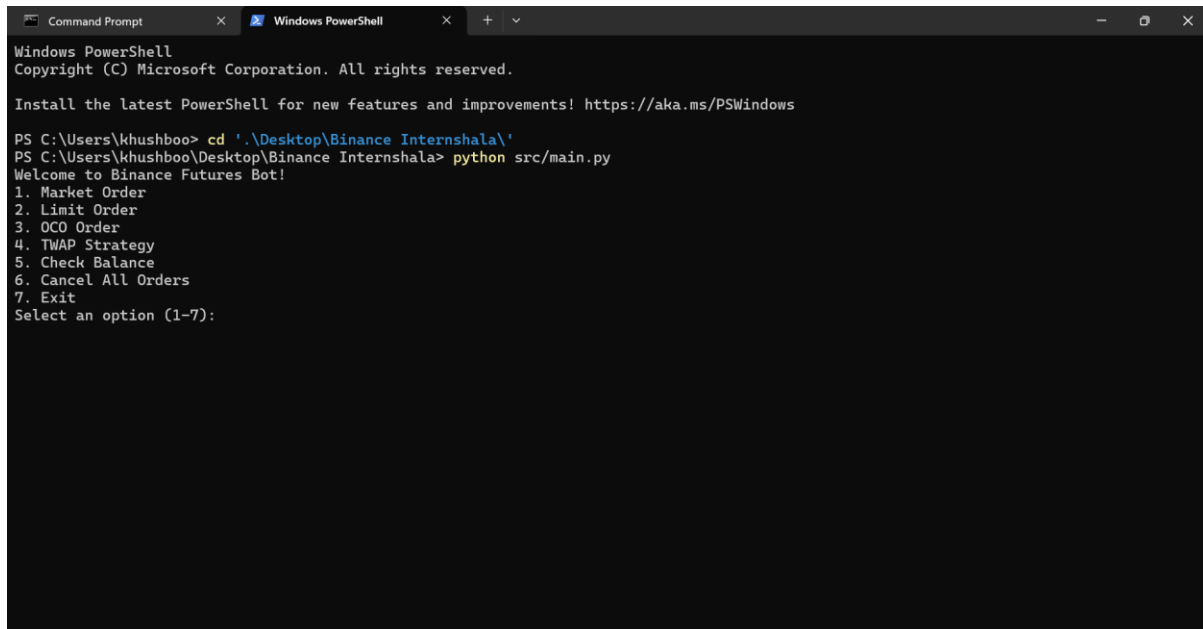
```
YYYY-MM-DD HH:MM:SS - LEVEL - Message
```

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## 8. Screenshots & Execution Proof

[We can just run main.py (and use CLI interface) or type all command at a time to save time.]

### 1.Using CLI (step by step to make operations):

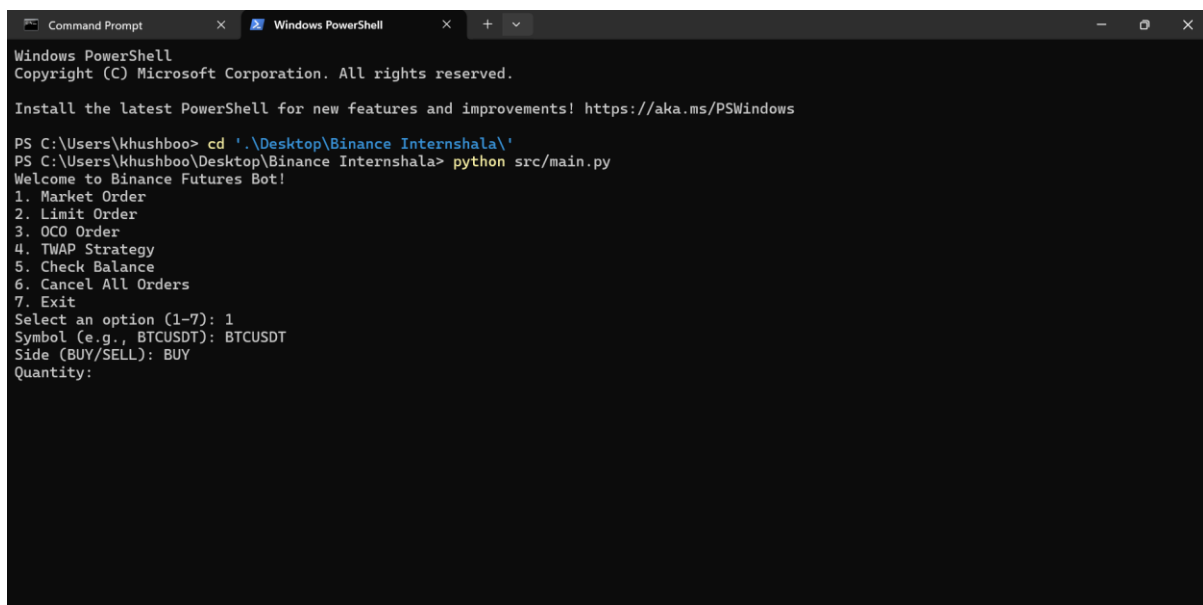


```
Windows PowerShell
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Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\khushboo> cd '..\Desktop\Binance Internshala\'
PS C:\Users\khushboo\Desktop\Binance Internshala> python src/main.py
Welcome to Binance Futures Bot!
1. Market Order
2. Limit Order
3. OCO Order
4. TWAP Strategy
5. Check Balance
6. Cancel All Orders
7. Exit
Select an option (1-7):
```

After selecting based on our choice:



```
Windows PowerShell
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PS C:\Users\khushboo> cd '..\Desktop\Binance Internshala\'
PS C:\Users\khushboo\Desktop\Binance Internshala> python src/main.py
Welcome to Binance Futures Bot!
1. Market Order
2. Limit Order
3. OCO Order
4. TWAP Strategy
5. Check Balance
6. Cancel All Orders
7. Exit
Select an option (1-7): 1
Symbol (e.g., BTCUSDT): BTCUSDT
Side (BUY/SELL): BUY
Quantity:
```

Similarly selecting any option and giving input then we can perform any operation :

```
Windows PowerShell
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Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\khushboo> cd '..\Desktop\Binance Internshala\'
PS C:\Users\khushboo\Desktop\Binance Internshala> python src/main.py
Welcome to Binance Futures Bot!
1. Market Order
2. Limit Order
3. OCO Order
4. TWAP Strategy
5. Check Balance
6. Cancel All Orders
7. Exit
Select an option (1-7): 1
Symbol (e.g., BTCUSDT): BTCUSDT
Side (BUY/SELL): BUY
Quantity: 0.003
Placing Market Order: BUY 0.003 BTCUSDT
Market Order Placed Successfully: ID 11994786826, Status: NEW
PS C:\Users\khushboo\Desktop\Binance Internshala>
```

2. And can also directly insert all command at a time to make order at single time

### 8.1 Market Order Execution

```
PS C:\Users\khushboo\Desktop\Binance Internshala> python src/main.py market BTCUSDT BUY 0.003
Placing Market Order: BUY 0.003 BTCUSDT
Market Order Placed Successfully: ID 11994861758, Status: NEW
```

### 8.2 Limit Order Execution

```
PS C:\Users\khushboo\Desktop\Binance Internshala> python src/main.py limit BTCUSDT BUY 0.003 50000
Placing Limit Order: BUY 0.003 BTCUSDT at 50000.0
Limit Order Placed Successfully: ID 11994863586, Status: NEW
```

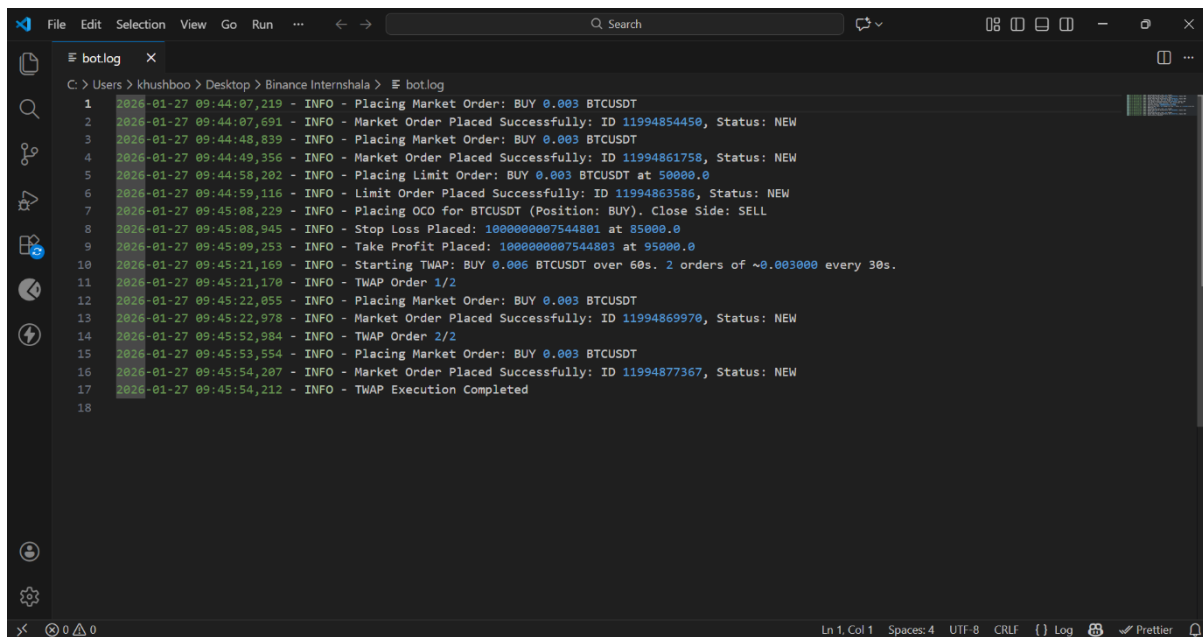
### 8.3 OCO Order Execution

```
PS C:\Users\khushboo\Desktop\Binance Internshala> python src/main.py oco BTCUSDT BUY 0.003 85000 95000
Placing OCO for BTCUSDT (Position: BUY). Close Side: SELL
Stop Loss Placed: 1000000007544801 at 85000.0
Take Profit Placed: 1000000007544803 at 95000.0
```

### 8.4 TWAP Execution

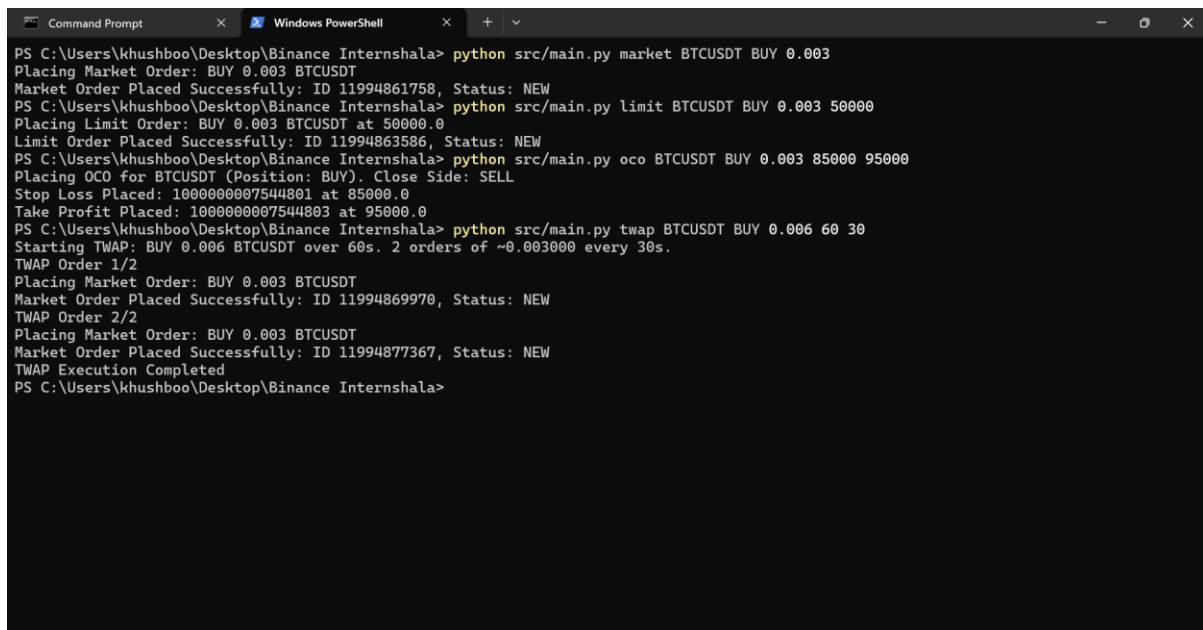
```
PS C:\Users\khushboo\Desktop\Binance Internshala> python src/main.py twap BTCUSDT BUY 0.006 60 30
Starting TWAP: BUY 0.006 BTCUSDT over 60s. 2 orders of ~0.003000 every 30s.
TWAP Order 1/2
Placing Market Order: BUY 0.003 BTCUSDT
Market Order Placed Successfully: ID 11994869970, Status: NEW
TWAP Order 2/2
Placing Market Order: BUY 0.003 BTCUSDT
Market Order Placed Successfully: ID 11994877367, Status: NEW
TWAP Execution Completed
PS C:\Users\khushboo\Desktop\Binance Internshala>
```

## 8.5 bot.log File Entries



```
1 2026-01-27 09:44:07,219 - INFO - Placing Market Order: BUY 0.003 BTCUSDT
2 2026-01-27 09:44:07,691 - INFO - Market Order Placed Successfully: ID 11994854450, Status: NEW
3 2026-01-27 09:44:48,839 - INFO - Placing Market Order: BUY 0.003 BTCUSDT
4 2026-01-27 09:44:49,356 - INFO - Market Order Placed Successfully: ID 11994861758, Status: NEW
5 2026-01-27 09:44:58,202 - INFO - Placing Limit Order: BUY 0.003 BTCUSDT at 50000.0
6 2026-01-27 09:44:59,116 - INFO - Limit Order Placed Successfully: ID 11994863586, Status: NEW
7 2026-01-27 09:45:08,229 - INFO - Placing OCO for BTCUSDT (Position: BUY). Close Side: SELL
8 2026-01-27 09:45:08,945 - INFO - Stop Loss Placed: 1000000007544801 at 85000.0
9 2026-01-27 09:45:09,253 - INFO - Take Profit Placed: 1000000007544803 at 95000.0
10 2026-01-27 09:45:21,169 - INFO - Starting TWAP: BUY 0.006 BTCUSDT over 60s. 2 orders of ~0.003000 every 30s.
11 2026-01-27 09:45:21,170 - INFO - TWAP Order 1/2
12 2026-01-27 09:45:22,055 - INFO - Placing Market Order: BUY 0.003 BTCUSDT
13 2026-01-27 09:45:22,978 - INFO - Market Order Placed Successfully: ID 11994869970, Status: NEW
14 2026-01-27 09:45:52,984 - INFO - TWAP Order 2/2
15 2026-01-27 09:45:53,554 - INFO - Placing Market Order: BUY 0.003 BTCUSDT
16 2026-01-27 09:45:54,207 - INFO - Market Order Placed Successfully: ID 11994877367, Status: NEW
17 2026-01-27 09:45:54,212 - INFO - TWAP Execution Completed
18
```

## Screenshot containing all operations:



```
PS C:\Users\khushboo\Desktop\Binance Internshala> python src/main.py market BTCUSDT BUY 0.003
Placing Market Order: BUY 0.003 BTCUSDT
Market Order Placed Successfully: ID 11994861758, Status: NEW
PS C:\Users\khushboo\Desktop\Binance Internshala> python src/main.py limit BTCUSDT BUY 0.003 50000
Placing Limit Order: BUY 0.003 BTCUSDT at 50000.0
Limit Order Placed Successfully: ID 11994863586, Status: NEW
PS C:\Users\khushboo\Desktop\Binance Internshala> python src/main.py oco BTCUSDT BUY 0.003 85000 95000
Placing OCO for BTCUSDT (Position: BUY). Close Side: SELL
Stop Loss Placed: 1000000007544801 at 85000.0
Take Profit Placed: 1000000007544803 at 95000.0
PS C:\Users\khushboo\Desktop\Binance Internshala> python src/main.py twap BTCUSDT BUY 0.006 60 30
Starting TWAP: BUY 0.006 BTCUSDT over 60s. 2 orders of ~0.003000 every 30s.
TWAP Order 1/2
Placing Market Order: BUY 0.003 BTCUSDT
Market Order Placed Successfully: ID 11994869970, Status: NEW
TWAP Order 2/2
Placing Market Order: BUY 0.003 BTCUSDT
Market Order Placed Successfully: ID 11994877367, Status: NEW
TWAP Execution Completed
PS C:\Users\khushboo\Desktop\Binance Internshala>
```

## 9. Validation & Error Handling

The bot validates:

- Trading symbol format
- Order side (BUY/SELL)
- Positive quantity and prices

If invalid input is detected, execution stops and an appropriate error message is logged.

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## 10. Conclusion

This project demonstrates the development of a robust and modular Binance Futures trading bot using Python.

The implementation follows clean coding practices, includes advanced trading strategies, and provides reproducible execution steps.

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