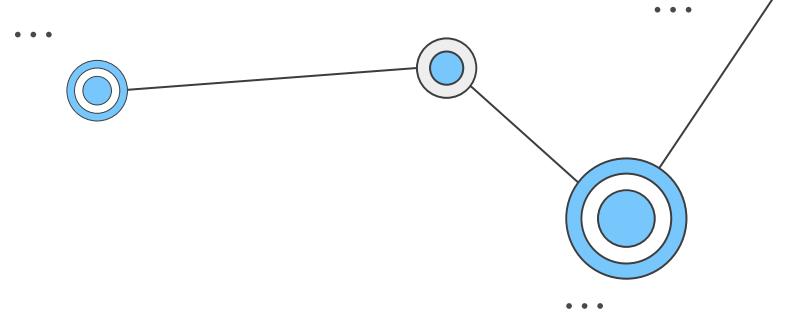


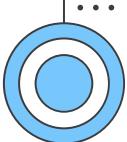


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Basics of Trading CryptoCurrencies using Python





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Disclaimer

**THIS PRESENTATION IS FOR EDUCATIONAL PURPOSES
I am neither a developer, coder, quant, financial analyst,
nor a certified Commodity Trading Advisor. Etc**

**Trading cryptocurrencies, like any financial market
trading, carries a significant risk. There's a very real
possibility of losing all your capital. The crypto market's
volatility can amplify both gains and losses, making it a
high-risk venture.**

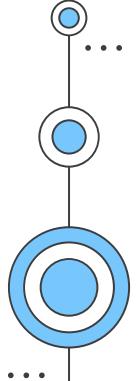


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and BackTesting



CCXT Demo



Market Scanners - Demo

01

Introduction to Trading



What is Trading?



Trading is the buying and selling of financial instruments in order to make a profit. These instruments range from a variety of assets that are assigned a financial value that goes up and down – and you can trade on the direction they take.

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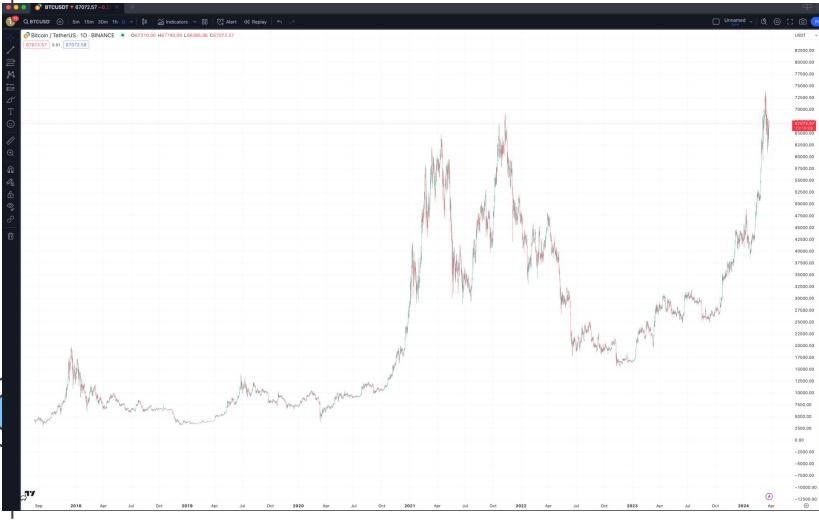
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<https://www.ig.com/au/trading-need-to-knows/what-is-trading>

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PRICE AND PRICE CHARTS

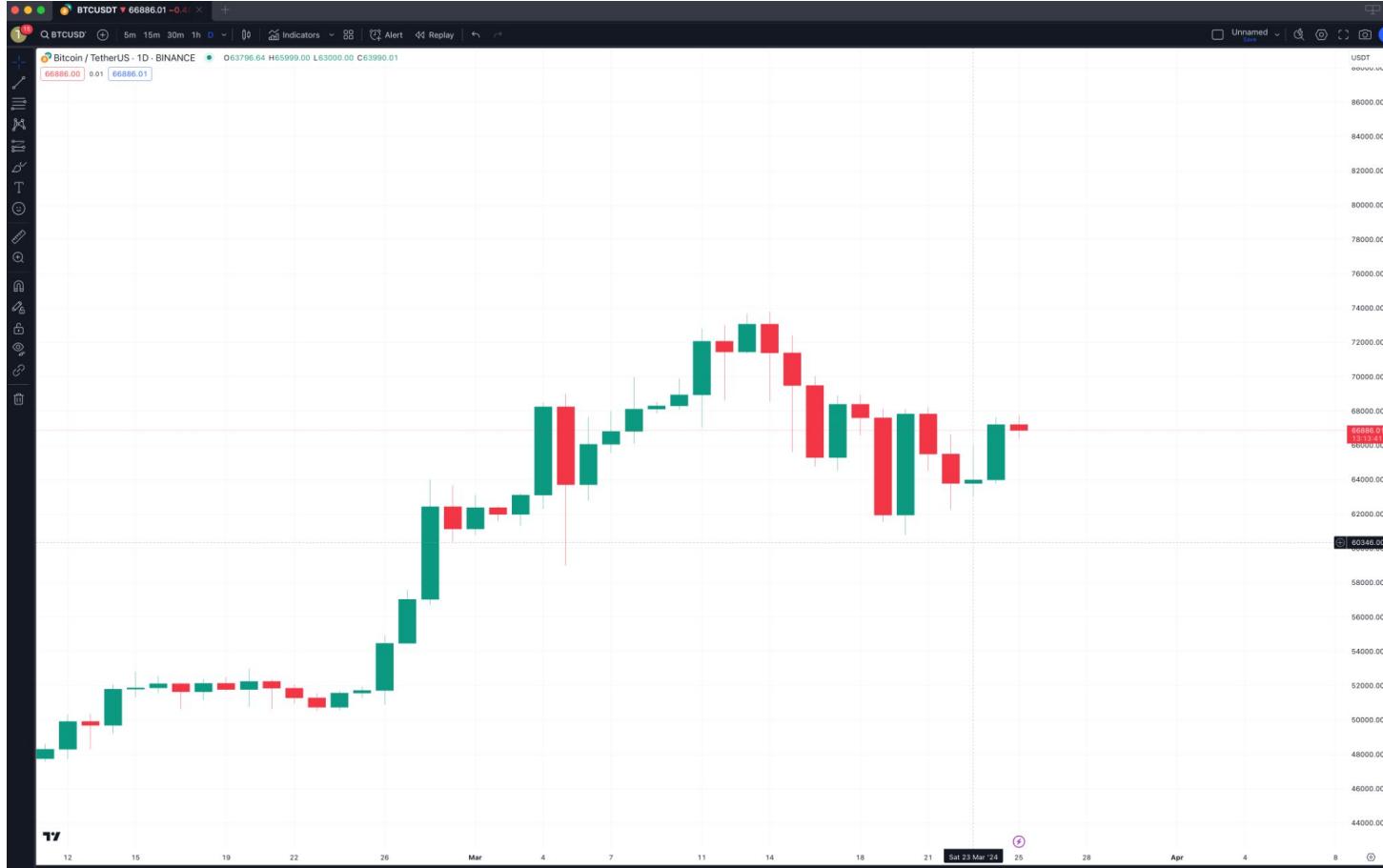


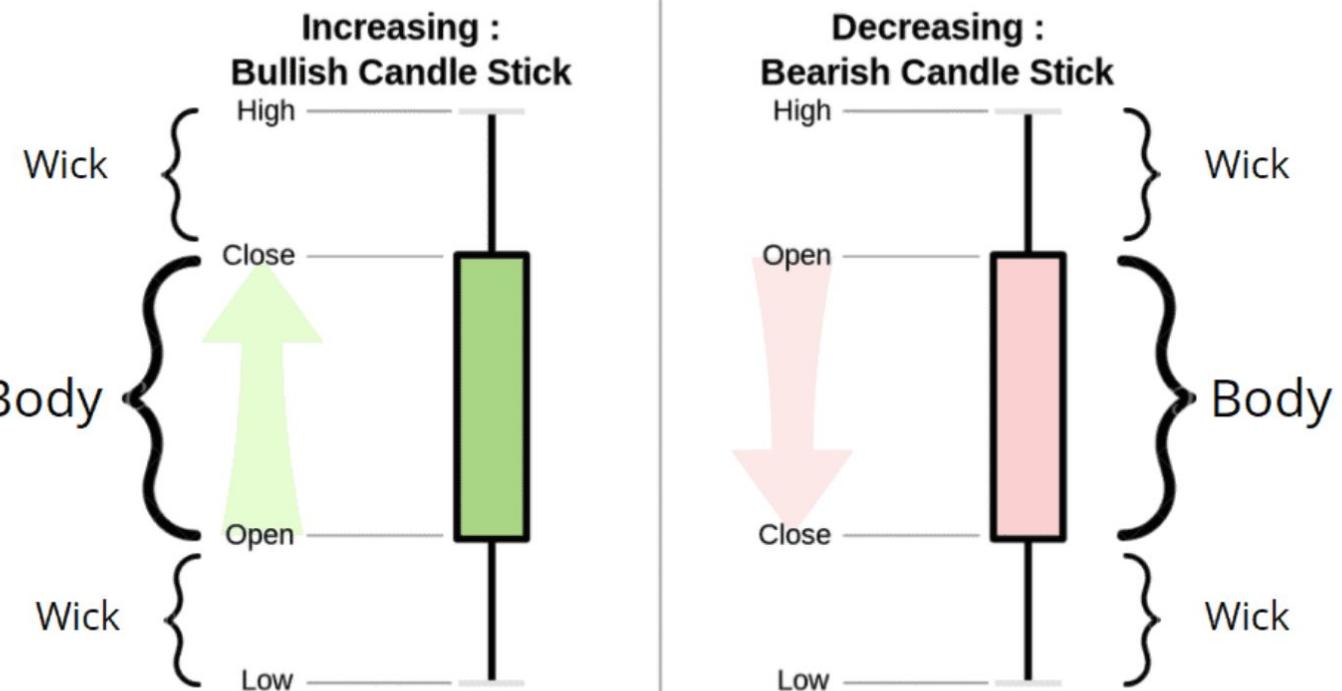
Line vs Candlestick Charts



Candlestick Charts

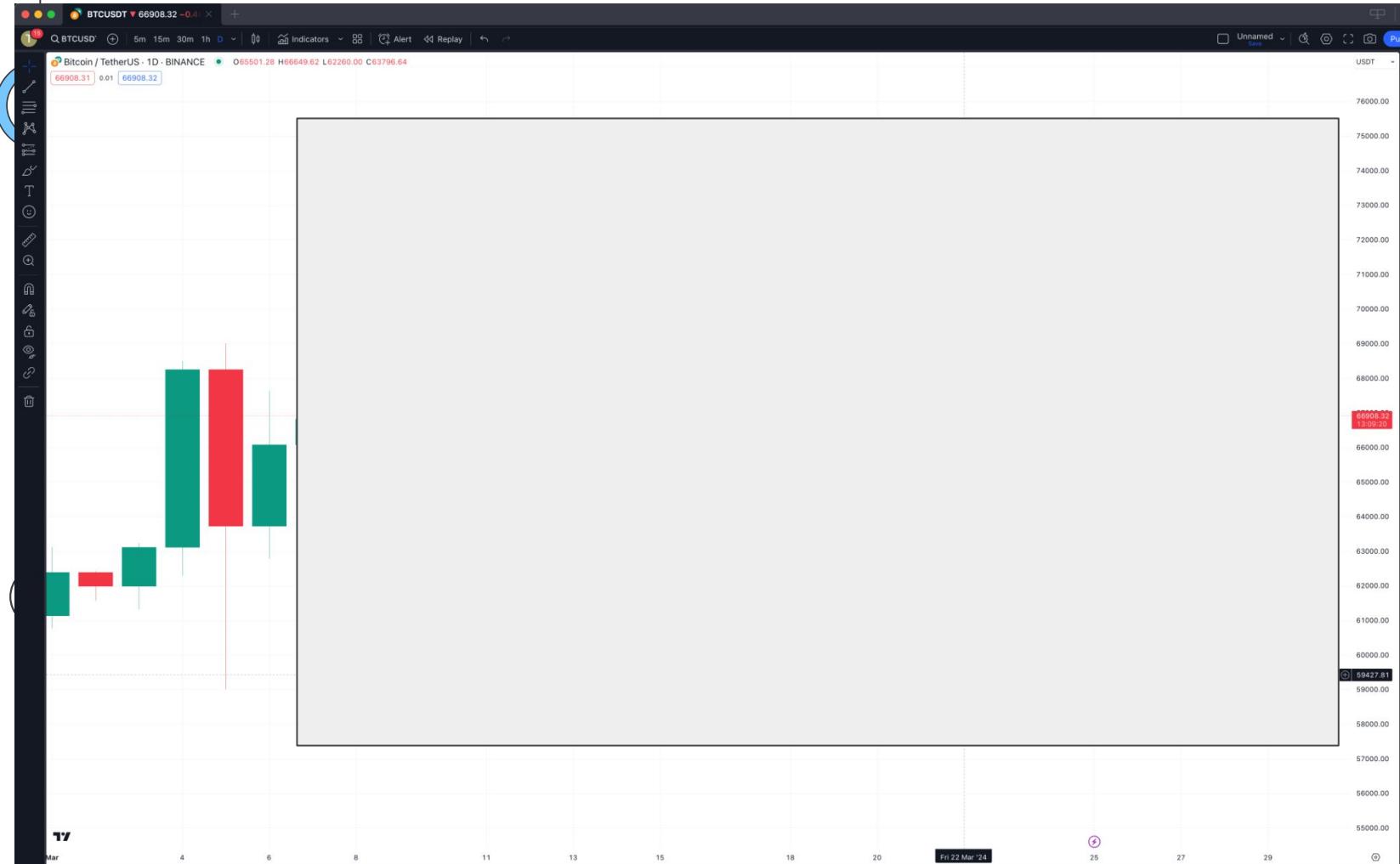






Probe-meteo.com, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons

The elements of a candlestick



















BINANCE_BTCUSDT, 1D_9021

time	open	high	low	close
2017-08-17	4261.48	4485.39	4200.74	4285.
2017-08-18	4285.08	4371.52	3938.77	4108.
2017-08-19	4108.37	4184.69	3850	4139.
2017-08-20	4120.98	4211.08	4032.62	4086.
2017-08-21	4069.13	4119.62	3911.79	4011.
2017-08-22	4016	4104.82	3400	4011.
2017-08-23	4040	4265.8	4013.89	4114.
2017-08-24	4147	4371.88	4085.01	4316.
2017-08-25	4316.01	4453.91	4247.48	4280.
2017-08-26	4280.71	4367	4212.41	4337.
2017-08-27	4332.51	4400	4285.54	4310.
2017-08-28	4310.41	4399.82	4124.54	4386.
2017-08-29	4353.65	4625.85	4313.55	4587.
2017-08-30	4564.52	4647.51	4416.01	4555.
2017-08-31	4555.14	4745.42	4555.14	4724.
2017-09-01	4689.89	4865.55	4658.48	4834.
2017-09-02	4796.16	4939.19	4286.87	4472.
2017-09-03	4505.8	4714.76	4988.33	4509.
2017-09-04	4505	4527.49	3972.51	4100.
2017-09-05	4106.97	4484.99	3603	4366.
2017-09-06	4366.49	4662.87	4335.26	4619.
2017-09-07	4619.77	4788.59	4438.19	4691.
2017-09-08	4691.66	4735.39	4028.93	4282.
2017-09-09	4282.8	4426.62	4150.06	4528.
2017-09-10	4258.81	4283	3801	4130.
2017-09-11	4153.62	4334.43	4089.91	4208.
2017-09-12	4208.6	4394.59	4040.8	4163.
2017-09-13	4159.72	4165.38	3760	3944.
2017-09-14	3944	3993	3165.13	3189.
2017-09-15	3188.01	3856	2817	3700.
2017-09-16	3674.01	3950	3470.66	3714.
2017-09-17	3685.23	3748.21	3499.02	3699.
2017-09-18	3690	4123.2	3690	4035.
2017-09-19	4060	4089.97	3830.91	3910.
2017-09-20	3910.04	4046.08	3820	3910.
2017-09-21	3889.99	3910	3567	3609.
2017-09-22	3592.84	3750	3505.55	3595.
2017-09-23	3595.88	3817.19	3542.91	3700.
2017-09-24	3779.54	3789.99	3622.76	3660.
2017-09-25	3660.02	3979.87	3653.69	3920.











TRADING STRATEGY

What is a Trading Strategy?

A method/rules of buying and selling in markets that is based on predefined rules used to make trading decisions.

Strategy Design?

- Edge
- Hypothesis
- Why it works?
- Why it should work
- Portfolio Structure
- Risk Parameters
- Position Management
- When do you know it does not work anymore?

Sources Of Edge

Data Analytics

<https://www.coinglass.com/>
<https://coinalyze.net/>
<https://www.coingecko.com/>
<https://coinmarketcap.com/>

Crypto News

<https://www.coindesk.com/>
<https://cointelegraph.com/>

Social Sentiment Data

<https://santiment.net/>
<https://lunarcrush.com/>

OnChain Data

<https://www.blockchain.com/>
<https://glassnode.com/>
<https://www.intothefblock.com/>

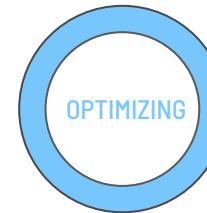
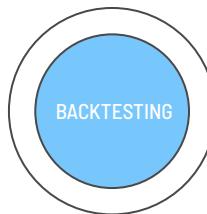
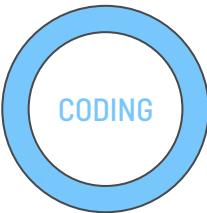
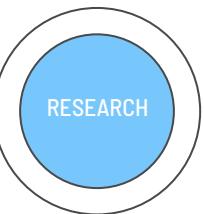
OnChain Data

<https://messari.io/>
<https://www.thetie.io/>

Other Interesting:

<https://bookmap.com/en>

BUILDING A BOT OR AN ALGO



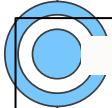




02

Why Crypto and Python

Key Advantages



High volatility: The cryptocurrency market is highly volatile, which means there are opportunities for significant gains if you get it right. Note that high volatility can also raise the risk of losses.



Accessibility: Provided you meet the criteria to open a trading account with a broker, cryptocurrency trading is accessible to anyone with an internet connection and a computer or smartphone.

24/7 trading: Unlike some markets, which close at the end of a trading day and remain closed overnight, the decentralised crypto markets remain open 24 hours a day.

Low fees: Cryptocurrency trading fees are often lower than those associated with traditional financial markets.

Decentralisation: The cryptocurrency market is decentralised, meaning there is no central authority governing it.

Security: Being built on blockchain technology makes cryptocurrencies inherently secure and resistant to fraud.

Diversification: Adding cryptocurrencies to an existing investment portfolio can provide diversification, which can be an effective way to help manage risk.

Key Disadvantages

Volatility: While high volatility can be a major advantage, it can also lead to significant losses.

Lack of liquidity: Some cryptocurrencies have low liquidity, meaning that they can be difficult to buy and sell without affecting the price significantly.

Lack of regulation: Because the cryptocurrency market is mostly unregulated, there is a risk of uncertainty and accountability in the event of adverse events or market conditions.

Cybersecurity risks: Cryptocurrency exchanges and digital wallets may be vulnerable to hacking and other security breaches, potentially putting traders' assets at risk.

Complexity: The recent technology behind cryptocurrencies can be complex, making it difficult for novice traders to understand and navigate.

Why Python

Simple and Easy to Understand

Supports Parallel Processing

Data Analysis and Visualization

Easily Integrate with Financial Data Sources and Trading Platforms

An Open-Source Programming Language with open source libraries

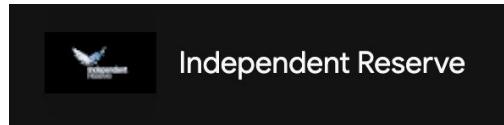
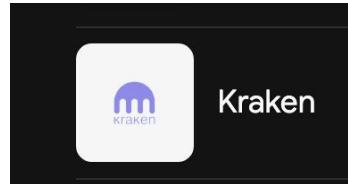
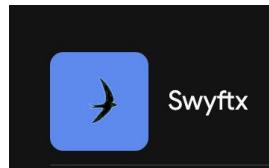
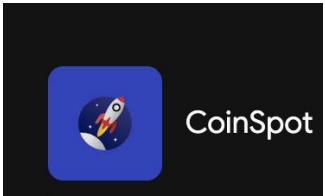
03

Understanding API and Exchanges



EXCHANGES

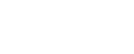
FIAT AUD SPOT MARKET



EXCHANGES SPOT

Top Crypto Exchanges Ranked by Trust Score

As of today, we track 215 crypto exchanges with a total 24h trading volume of \$128 Billion, a 44.94% change in the last 24 hours. Currently, the 3 largest cryptocurrency exchanges are Binance, Bybit, and OKX. Total tracked crypto exchange reserves currently stands at \$214 Billion.

#	Exchange	Trust Score	24h Volume (Normalized)	24h Volume	Monthly Visits	Last 7 Days
1	Binance	10/10	\$19,233,608,638	\$28,357,873,157	72.3 M	
2	Bybit	10/10	\$5,313,837,093	\$5,313,837,093	24.8 M	
3	OKX	10/10	\$4,672,133,467	\$4,672,133,467	27.7 M	
4	Coinbase Exchange	10/10	\$4,592,628,125	\$4,592,628,125	43.1 M	
5	KuCoin	10/10	\$2,302,270,717	\$2,302,270,717	9.44 M	
6	Kraken	10/10	\$1,621,390,259	\$1,621,390,259	8.69 M	
7	Crypto.com Exchange	10/10	\$1,180,100,885	\$1,722,345,390	4.44 M	
8	Binance US	10/10	\$40,312,458	\$40,312,458	1.23 M	
9	Gate.io	9/10	\$3,026,755,546	\$3,026,755,546	12.1 M	
10	Bitget	9/10	\$2,810,201,729	\$2,810,201,729	15.4 M	

<https://www.coingecko.com/en/exchanges>

EXCHANGES DERIVATIVES

Top Derivative Exchanges Ranked by Open Interest & Trade Volume

The total derivatives volume is \$377 Billion, a 24.64% change in the last 24 hours. We track 89 crypto derivative exchanges with dYdX Chain, Binance (Futures), and Bybit (Futures) in the top 3 rankings.

#	Exchange	Settlement	24h Open Interest	24h Volume	Perpetuals	Futures	Open Interest (7d)	Volume (7d)
1	dYdX Chain		\$180,692,989,664	\$1,072,203,724	62	0		
2	Binance (Futures)	Cash	\$19,954,614,711	\$83,746,771,474	325	33		
3	Bybit (Futures)	Cash	\$12,213,348,518	\$24,347,964,090	351	60		
4	BYDFI (Futures)		\$10,382,927,206	\$1,267,698,643	200	0		
5	Deepcoin (Derivatives)		\$9,928,185,788	\$9,895,180,007	104	0		
6	Bitget Futures	Cash	\$8,619,951,318	\$23,100,026,942	244	0		
7	OKX (Futures)	Cash	\$6,985,523,042	\$31,389,270,507	219	246		
8	BingX (Futures)	Cash	\$6,303,334,022	\$14,130,623,884	241	0		
9	Blofin		\$5,650,267,487	\$8,197,049,790	319	0		
10	KuCoin Futures	Cash	\$3,832,709,441	\$2,806,623,967	289	3		

<https://www.coingecko.com/en/exchanges>

EXCHANGES DECENTRALIZED

#	Exchange	24h Volume	% Market Share by Volume	# Coins / # Pairs	Monthly Visits ⓘ	Most Traded Pair
1	Uniswap V3 (Ethereum)	\$1,403,945,464	17.8%	1,129 / 2,036	10,146,432.0	WETH/0XA0... \$347,362,152.51
2	Pancakeswap V3 (BSC)	\$875,786,022	11.1%	432 / 1,353	4,436,916.0	BSC-USD/OX... \$532,474,630.33
3	Jupiter	\$842,053,895	10.7%	766 / 14,370	7,805,610.0	USDC/SO11... \$287,393,509.32
4	Orca	\$532,398,488	6.8%	280 / 1,277	533,691.0	SOL/EPJFWD... \$104,352,925.81
5	Uniswap V3 (Arbitrum One)	\$428,964,415	5.4%	221 / 635	10,146,432.0	USDC/0X82A... \$118,410,267.84
6	THORChain	\$422,762,199	5.4%	24 / 34	90,615.0	BTC/RUNE \$201,835,330.65
7	Uniswap V2 (Ethereum)	\$278,045,454	3.5%	2,616 / 5,595	10,146,432.0	WETH/0XDAC... \$16,796,892.19
8	Curve (Ethereum)	\$241,931,856	3.1%	135 / 301	346,776.0	USDC/0XDAC... \$57,840,226.16
9	Radium	\$240,458,873	3.1%	826 / 20,806	2,695,714.0	NUB/SO111... \$38,785,808.52
10	Uniswap V3 (Base)	\$183,074,216	2.3%	92 / 905	6,302,813.0	USDBC/0X42... \$43,970,009.34

<https://www.coingecko.com/en/exchanges>

03

Important Python Libraries and Frameworks

BROKER API

Broker APIs

Repository	Description	Stars	Made with
ccxt	A JavaScript / Python / PHP cryptocurrency trading API with support for more than 100 bitcoin/altcoin exchanges	stars 31K	Made with Python
lb_insync	Python sync/async framework for Interactive Brokers.	stars 2.6K	Made with Python
Coinnect	Coinnect is a Rust library aiming to provide a complete access to main crypto currencies exchanges via REST API.	stars 148	Made with Rust
PENDAX	Javascript SDK for Trading, Data, and Websockets for FTX, FTXUS, OKX, Bybit, & More.	stars 41	Made with Javascript

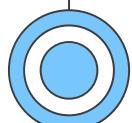


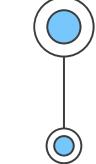
BACKTESTING AND LIVE TRADING

General - Event Driven Frameworks

Repository	Description	Stars	Made with
vnpy	Python-based open source quantitative trading system development framework, officially released in January 2015, has grown step by step into a full-featured quantitative trading platform	stars 23.2K	Made with Python
zipline	Zipline is a Pythonic algorithmic trading library. It is an event-driven system for backtesting.	stars 17K	Made with Python
backtrader	Event driven Python Backtesting library for trading strategies	stars 12.8K	Made with Python
QUANTAXIS	QUANTAXIS 支持任务调度 分布式部署的 股票/期货/期权/港股/虚拟货币 数据/回测/模拟/交易/可视化/多账户 纯本地量化解决方案	stars 7.8K	Made with Python
QuantConnect	Lean Algorithmic Trading Engine by QuantConnect (Python, C#)	stars 8.6K	Made with Python
Rqalpha	A extendable, replaceable Python algorithmic backtest && trading framework supporting multiple securities	stars 5.2K	Made with Python
finmarketpy	Python library for backtesting trading strategies & analyzing financial markets (formerly pythaleians)	stars 3.3K	Made with Python
backtesting.py	Backtesting.py is a Python framework for inferring viability of trading strategies on historical (past) data. Improved upon the vision of Backtrader, and by all means surpassingly comparable to other accessible alternatives, Backtesting.py is lightweight, fast, user-friendly, intuitive, interactive, intelligent and, hopefully, future-proof.	stars 4.7K	Made with Python

zvt	Modular quant framework	stars 2.9K	Made with Python
WonderTrader	WonderTrader——量化研发交易一站式框架	stars 3.3K	Made with Python
nautilus_trader	A high-performance algorithmic trading platform and event-driven backtester	stars 1.5K	Made with Python
PandoraTrader	High-frequency quantitative trading platform based on c++ development, supporting multiple trading APIs and cross-platform	stars 763	Made with C++
aat	An asynchronous, event-driven framework for writing algorithmic trading strategies in python with optional acceleration in C++. It is designed to be modular and extensible, with support for a wide variety of instruments and strategies, live trading across (and between) multiple exchanges.	stars 589	Made with Python
sdoosa-algo-trade-python	This project is mainly for newbies into algo trading who are interested in learning to code their own trading algo using python interpreter.	stars 468	Made with Python
lumibot	A very simple yet useful backtesting and sample based live trading framework (a bit slow to run...)	stars 650	Made with Python
quantrader	Backtest and live trading in Python. Event based. Similar to backtesting.py.	stars 417	Made with Python
gobacktest	A Go implementation of event-driven backtesting framework	stars 216	Made with Go
FlashFunk	High Performance Runtime in Rust	stars 110	Made with Rust

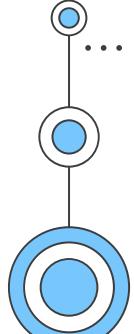




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PYTHON CRYPTO TRADING FRAMEWORKS

Repository	Description	Stars	Made with
Freqtrade	Freqtrade is a free and open source crypto trading bot written in Python. It is designed to support all major exchanges and be controlled via Telegram. It contains backtesting, plotting and money management tools as well as strategy optimization by machine learning.	stars 25.1K	Made with Python
Jesse	Jesse is an advanced crypto trading framework which aims to simplify researching and defining trading strategies.	stars 5.2K	Made with Python
OctoBot	Cryptocurrency trading bot for TA, arbitrage and social trading with an advanced web interface	stars 2.8K	Made with Python
Kelp	Kelp is a free and open-source trading bot for the Stellar DEX and 100+ centralized exchanges	stars 1.1K	Made with Go
openlimits	A Rust high performance cryptocurrency trading API with support for multiple exchanges and language wrappers.	stars 268	Made with Rust
bTrader	Triangle arbitrage trading bot for Binance	stars 266	Made with Rust
crypto-crawler-rs	Crawl orderbook and trade messages from crypto exchanges	stars 203	Made with Rust
Hummingbot	A client for crypto market making	stars 147	Made with Python
cryptotrader-core	Simple to use Crypto Exchange REST API client in rust.	stars 22	Made with Rust



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INDICATORS

Repository	Description	Stars	Made with
ta-lib	Perform technical analysis of financial market data	stars 8.9K	Made with Python
pandas-ta	Pandas Technical Analysis (Pandas TA) is an easy to use library that leverages the Pandas package with more than 130 Indicators and Utility functions and more than 60 TA Lib Candlestick Patterns	stars 4.6K	Made with Python
finta	Common financial technical indicators implemented in Pandas	stars 2K	Made with Python
ta-rust	Technical analysis library for Rust language	stars 606	Made with Rust

CCXT DEMO





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BACKTEST DEMO

Using Backtrader Library

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MARKET SCANNER DEMO

Thanks!



