Web App Link: https://aryan61905.pythonanywhere.com/

Crypto Terminal

The Crypto Terminal is a web-based cryptocurrency trading simulator that provides users with a virtual trading environment to buy, sell, and track digital assets in real-time. Users can put limit - orders as well as have a Leaderboard to track progress.

Functional Requirements

- Users should be able to view market data for available crypto currencies.
- Users should be able to sell and buy crypto currencies using real time data.
- Users should be able to place limit orders for buying and selling coins.
- A Leaderboard is maintained to track net balance.

Non Functional Requirements

- Availability >> Consistency (CAP Theorem): Since the API used for fetching market data has rate limits, the application uses last updated data in case of fallback.(Maintains fresh data by a latency of 1 minute)
- The hosting service has limits of scheduled jobs, so the limit orders are executed once in a day.

API

1. Market Data APIs

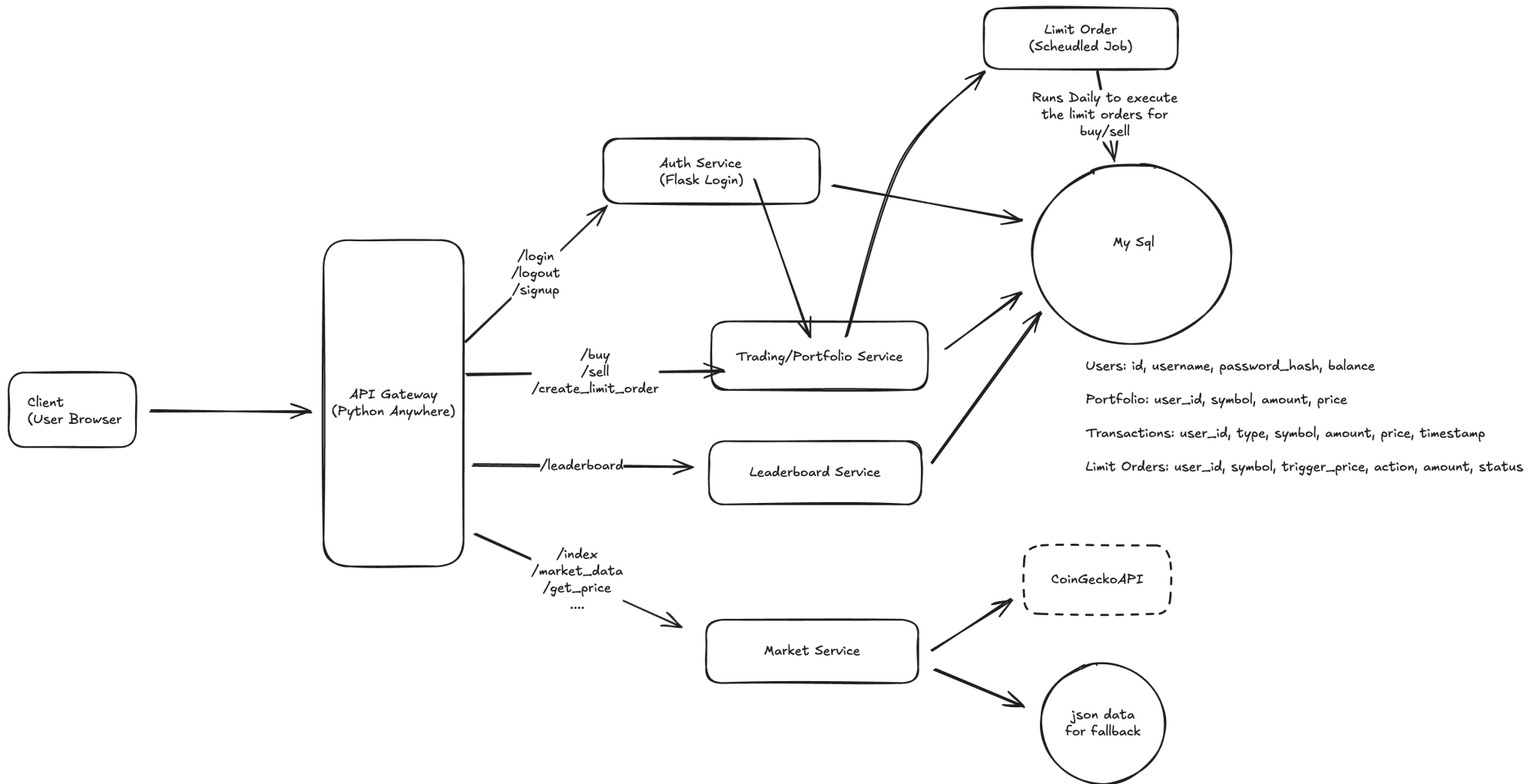| Endpoint	Method	Description	Authentication
/api/market_data	GET	Returns current market data (prices, changes, categories)	Login Required
/get_price/<symbol>	GET	Returns current price for a specific cryptocurrency	Login Required

2. Trading & Portfolio APIs

Endpoint	Method	Description	Authentication
/buy	POST	Execute a cryptocurrency purchase	Login Required
/sell	POST	Execute a cryptocurrency sale	Login Required
/create_limit_order	POST	Create a new limit order	Login Required
/cancel_limit_order/<int:order_id>	POST	Cancel an active limit order	Login Required

3. Portfolio & Leaderboard APIs

Endpoint	Method	Description	Authentication
/api/leaderboard	GET	Returns ranked list of users by net worth	Login Required
/ (index)	GET	Returns complete dashboard data (market, portfolio, orders, leaderboard)	Login Required

4. User Authentication APIs

Endpoint	Method	Description	Authentication
/login	GET/POST	User login page and authentication	Public
/logout	GET	Logs out current user	Login Required
/signup	GET/POST	User registration page and account creation	Public

Client
(User Browser

API Gateway
(Python Anywhere)

/login
/logout
/signup

Auth Service
(Flask Login)

/buy
/sell
/create_limit_order

Trading/Portfolio Service

/leaderboard

Leaderboard Service

/index
/market_data
/get_price
....

Market Service

Limit Order
(Scheudled Job)

Runs Daily to execute
the limit orders for
buy/sell

My Sql

CoinGeckoAPI

json data
for fallback

Users: id, username, password_hash, balance

Portfolio: user_id, symbol, amount, price

Transactions: user_id, type, symbol, amount, price, timestamp

Limit Orders: user_id, symbol, trigger_price, action, amount, status

```
+=====================================+
|            Crypto Terminal          |
|              Dashboard              |
+=====================================+
```
DISCLAIMER: This simulator is for learning purposes only.
It does not involve real money or actual cryptocurrency trading.
No financial risk. Just learning.

USER: Test1 |
LOGOUT
BALANCE: $3730.73 |
PORTFOLIO VALUE: $2277.63 |
LAST UPDATE: 10:01:00 PM

| MARKET | PORTFOLIO | ORDERS | LEADERBOARD |

Market Data

↻ Refresh Prices

Source: CoinGecko ✔

BUY CRYPTO

BTC — $95720.00 ▼

Current Price: $95720.00

| Amount | EXECUTE BUY |

SYMBOL	NAME	PRICE (USD)	24H CHANGE	CATEGORY
BTC	Bitcoin	$95720.00	-0.60%	COIN
ETH	Ethereum	$1836.07	-0.35%	PLATFORM
USDT	Tether	$1.00	-0.01%	STABLECOIN
XRP	XRP	$2.18	-0.38%	PAYMENT
BNB	BNB	$589.94	-1.51%	EXCHANGE
SOL	Solana	$146.90	-0.55%	PLATFORM
USDC	USDC	$0.999974	+0.00%	STABLECOIN
DOGE	Dogecoin	$0.172882	-2.13%	MEME

SYMBOL	NAME	PRICE (USD)	24H CHANGE	CATEGORY
BTC	Bitcoin	$95746.00	-0.57%	COIN
ETH	Ethereum	$1835.87	-0.36%	PLATFORM
USDT	Tether	$1.00	-0.01%	STABLECOIN
XRP	XRP	$2.18	-0.51%	PAYMENT
BNB	BNB	$589.82	-1.58%	EXCHANGE
SOL	Solana	$146.80	-0.61%	PLATFORM
USDC	USDC	$0.999968	+0.01%	STABLECOIN
DOGE	Dogecoin	$0.172567	-2.36%	MEME
ADA	Cardano	$0.687738	-2.51%	PLATFORM
TRX	TRON	$0.247089	+0.65%	PLATFORM
STETH	Lido Staked Ether	$1834.94	-0.34%	PLATFORM
WBTC	Wrapped Bitcoin	$95523.00	-0.71%	COIN
SUI	Sui	$3.31	-0.45%	PLATFORM
LINK	Chainlink	$14.17	-1.21%	ORACLE
AVAX	Avalanche	$20.15	-3.08%	PLATFORM
LEO	LEO Token	$9.07	+1.44%	EXCHANGE
XLM	Stellar	$0.269940	-0.91%	PAYMENT
	USDS	$0.999933	-0.01%	COIN
	Wrapped stETH	$2202.29	-0.47%	COIN
TON	Toncoin	$3.07	-1.25%	COIN

[0] Exit Terminal -> LOGOUT

Limit order created successfully!

```
+=======================================+
|             Crypto Terminal           |
|                Dashboard              |
+=======================================+
```

USER: Test1 |
LOGOUT
BALANCE: $3730.73 |
PORTFOLIO VALUE: $2277.13 |
LAST UPDATE: 9:49:03 PM

| MARKET | PORTFOLIO | ORDERS | LEADERBOARD |

SYMBOL	NAME	AMOUNT	PURCHASE PRICE	CURRENT PRICE	CURRENT VALUE	ACTION
DOGECOIN	Dogecoin	5.000000	$0.17	$0.17	$0.86	$0.172567 Amount SELL
ETHEREUM	Ethereum	1.000000	$1829.27	$1835.87	$1835.87	$1835.87 Amount SELL
SOLANA	Solana	3.000000	$146.38	$146.80	$440.40	$146.80 Amount SELL

[0] Exit Terminal -> LOGOUT

Limit order created successfully!

```
+=====================================+
|            Crypto Terminal          |
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+=====================================+
```

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| MARKET | PORTFOLIO | ORDERS | LEADERBOARD |

CREATE LIMIT ORDER

| BTC ⌄ | Trigger Price | BUY ⌄ | Amount |

[PLACE ORDER]

ID	SYMBOL	TRIGGER	ACTION	AMOUNT	STATUS	ACTION
2	ETH	$2000.00	BUY	2.000000	ACTIVE	CANCEL

[0] Exit Terminal —> LOGOUT

```
+=======================================+
|            Crypto Terminal            |
|               Dashboard               |
+=======================================+
```

USER: Test1 |
LOGOUT
BALANCE: $3730.73 |
PORTFOLIO VALUE: $2277.13 |
LAST UPDATE: 9:49:03 PM

| MARKET | PORTFOLIO | ORDERS | LEADERBOARD |

Leaderboard

Ranked by total net worth (portfolio + balance)

RANK	USER	BALANCE	PORTFOLIO VALUE	TOTAL NET WORTH
1	Test2	$10000.00	$0.00	$10000.00
2	Test1	$3730.73	$2277.13	$6007.86

[0] Exit Terminal —> LOGOUT