



**Course II:**

# **DeFi Primitives**

## **3. Swaps and Loans**

**(i) Swaps**

**(b) Decentralized Exchange**

# Swap

## *What is a swap?*

- A swap is simply the exchange of one type of token to another.
- The key benefit of swapping in DeFi is that it is atomic and noncustodial.
- Funds can be custodied in a smart contract with withdrawal rights that can be exercised at any time before the swap is completed.
- If the swap does not complete, all parties involved retain their custodied funds.

# Swap

## *What is a swap?*

- The swap only executes when the exchange conditions are agreed to and met by all parties, and are enforced by the smart contract.
- If any condition is not met, the entire transaction is cancelled. A platform that facilitates token swapping on Ethereum in a noncustodial fashion is a *decentralized exchange* (DEX).
- There are two primary mechanisms for DEX liquidity: one is an order-matching approach and the other is an *Automated Market Maker*.

# Swap

## *Order book matching*

- *Order-book matching* is a system in which all parties must agree on the swap exchange rate.
- Market makers can post bids and asks to a DEX and allow takers to fill the quotes at the pre-agreed-upon price.
- Until the offer is taken, the market maker retains the right to remove the offer or update the exchange rate as market conditions change.

# Swap

## *Order book matching*

- A leading example of a fully on-chain order book is [Kyber](#).
- “KyberSwap is a non custodial platform. It means you are in total control of your funds. In a typical centralized exchange - Before placing any trade, you are first required to deposit your funds to exchange. In KyberSwap you do not need to deposit any funds. Just connect your Ethereum wallet and place a trade directly from your wallet.”



## Seamless Token Swaps, Anywhere

Kyber is a blockchain-based liquidity protocol that aggregates liquidity from a wide range of reserves, powering instant and secure token exchange in any decentralized application.

Kyber  
Swap

SWAP

LIMIT ORDER

TRANSFER

PORTFOLIO

BUY &amp; SELL

Learn

Token

English

Sign In



KNC/ETH\*

24h Change

-4.11%

Last Price

0.001061

24h High

0.00112

24h Low

0.001056

24h Volume

63.5038 ETH\*



1h



Indicators



KyberNetwork, 60 0.001061 H 0.001066 L 0.001056 C 0.001056 -0.000008 (-0.77%)



Chart by TradingView

-

+

&lt;

&gt;

Mar

2

22:36:12 (UTC)

%

log

auto



## Your Limit Orders

Wonder why your orders are not filled?

Open Orders

Order History

DATE	PAIR	TYPE	PRICE	AMOUNT	TOTAL	STATUS
------	------	------	-------	--------	-------	--------

There is no order here yet.

You must sign in and import your wallet to submit limit order



METAMASK



LEDGER



TREZOR



TORUS

... OTHERS



DAI

ETH\*

WBTC



ETH\* represents the sum of ETH &amp; WETH for easy reference.

PAIR	PRICE	VOLUME	CHANGE
☆ ZRX/ETH*	0.0008569	17.806788	0.98%
☆ WBTC/ETH*	31.82613	1098.7624	-0.98%
☆ UBT/ETH*	0.0007703	30.005478	18.12%
☆ SNX/ETH*	0.013087	62.096516	-2.33%
☆ SNT/ETH*	0.00005331	3.8856799	-3.27%
☆ RLC/ETH*	0.0008832	0	-4.16%

BUY KNC

Price

0.001061

ETH\*

Amount

0

KNC

Total: 0 ETH\*

Buy KNC

SELL KNC

Price

0.001055

ETH\*

Amount

0

KNC

Total: 0 ETH\*

Sell KNC

# Swap

## *Order book matching issues*

- The order-matching approach is expensive and inefficient because each update requires an on-chain transaction.
- An insurmountable inefficiency with an order-book matching is that both counterparties must be willing and able to exchange at the agreed-upon rate for the trade to execute.
- This requirement creates limitations for many smart contract applications in which demand for exchange liquidity cannot be dependent on a counterparty's availability.