



Centurion
UNIVERSITY
*Shaping Lives,
Empowering Communities...*

School: Campus:

Academic Year: Subject Name: Subject Code:

Semester: Program: Branch: Specialization:

Date:

Classroom Learning

(Learning by Listening and Observations)

Name of the Topic: Exanchages (Cryptocurrencies Scene)

Learning Outcome:

Concepts learned (Mention 2/3 principles):

Based on the classwork, the principal concepts I have learned include:

1. The fundamental concept of a cryptocurrency exchange as a platform that facilitates the swapping, trading, and valuation of digital assets.
2. The complete architectural difference between Centralized Exchanges (CEXs), which act as intermediaries, and Decentralized Exchanges (DEXs), which operate via automated smart contracts on a blockchain.
3. The characteristics of order books (used by CEXs) and Automated Market Makers (AMMs - used by DEXs) as the primary mechanisms for determining asset prices and enabling swaps.

*** New techniques learned:**

Additionally, I have acquired new knowledge in the following areas:

1. Techniques for analyzing an order book to understand market depth, bid-ask spread, and placing limit or market orders on a CEX.
2. Procedures for understanding how an Automated Market Maker (AMM) uses a mathematical formula (e.g., $x*y=k$) and liquidity pools to provide prices and execute swaps without an order book.
3. The process of how a user interacts with a DEX smart contract directly from their wallet to swap tokens, maintaining custody of their funds throughout the transaction.
4. Methods for calculating and understanding exchange fees, including trading fees, gas fees (on DEXs), and network transaction fees.

* Related Project/Practice work experienced and learned:

During the practice sessions of the lab work, I engaged in and developed proficiency with programs and simulations in the following areas:

1. Executing simulated trades on a CEX platform's testnet (like Binance Testnet) to practice using spot and limit order types.
2. Interacting with a DEX like Uniswap or PancakeSwap on a testnet (e.g., Goerli, BSC Testnet) to swap test tokens and add liquidity to a pool.
3. Writing a simple script to calculate price impact and slippage for a given trade size on a simulated AMM liquidity pool.
4. Analyzing the transaction hash on a block explorer after a swap to trace the execution path and fees incurred.

* New Software/Machine/Tool/Equipment/Experiment learned:

During the lab session, I used MetaMask to connect to Uniswap (a DEX), used a Binance Testnet account to simulate a CEX, and utilized Etherscan and BscScan to analyze and verify all completed swap transactions on-chain.

* Application of concept(s) (preferably real life scenario):

1. **Centralized Exchanges (CEXs):** Used for onboarding from fiat currency (e.g., USD, EUR) to crypto, trading large volumes with high liquidity, and using advanced order types like stop-loss and margin trading.
2. **Decentralized Exchanges (DEXs):** Used for trustless trading where users maintain control of their private keys, swapping newly launched tokens not listed on CEXs, and earning yield by providing liquidity.
3. **Arbitrage:** Traders use both CEXs and DEXs to exploit price differences of the same asset across different platforms, a process that helps equalize prices market-wide.

* Case Studies/Examples:

1. **High-Frequency Trading:** Large trading firms use CEX APIs to execute algorithmic trading strategies at high speeds, taking advantage of 微小 price movements across markets.
2. **Yield Farming in DeFi:** Users on DEXs like Uniswap V3 or Trader Joe can provide liquidity to specific price ranges, earning a share of the trading fees and often additional reward tokens, optimizing their capital efficiency.
3. **Cross-Chain Swaps:** Platforms like Thorchain or dedicated bridges allow users to swap native Bitcoin for native Ethereum directly, without needing a centralized intermediary, by using interconnected liquidity pools across different blockchains.

Assessment:

Marks Obtained: / 10

Signature of the Faculty:

Signature of the Student:

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* As applicable according to the topic.
One sheet per topic (10-20) to be used.