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: Payments

Learning Outcome:

Concepts learned (Mention 2/3 principles):

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

1. The fundamental concept of cryptocurrency payments as peer-to-peer transactions that are broadcast, verified, and recorded on a decentralized public ledger (blockchain).
2. The complete architecture of a crypto payment transaction, including the role of digital signatures, public/private keys, and the process of achieving finality.
3. The characteristics that differentiate blockchain payments from traditional systems, such as decentralization, censorship resistance, transparency, and operational hours.

* New techniques learned:

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

1. Techniques for calculating and managing transaction fees (gas fees), which compensate network validators and vary based on network congestion and transaction complexity.
2. Procedures for using a wallet to construct a transaction, specifying the recipient's address, amount, and fee, before signing it with a private key.
3. The process of how merchants can integrate payment gateways to accept cryptocurrencies, instantly converting them to fiat currency to mitigate volatility risk.
4. Methods for understanding on-chain vs. off-chain payment channels (e.g., Lightning Network), which enable fast, low-cost microtransaction.

* 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 Bitcoin and Ethereum testnet transactions from a self-custodied wallet to understand the structure and components of a payment.
2. Using a blockchain explorer to track a transaction's status, confirmations, and view its details on the public ledger.
3. Integrating a crypto payment API (e.g., BitPay, Coinbase Commerce) into a simple mock e-commerce website to simulate a checkout process.
4. Calculating the cost and time for a transaction under different network conditions and fee settings.

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

During the lab session, I used **MetaMask** and **Electrum** wallets to create and sign transactions, **Blockchain.com Explorer** and **Etherscan** to analyze them, and **Lightning Network** wallets like Phoenix to experience instant, feeless payments.

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

1. **Cross-Border Remittances:** Used by migrant workers to send money back to their home countries quickly and with significantly lower fees than traditional money transfer services like Western Union.
2. **Censorship-Resistant Transactions:** Allows individuals in politically unstable regions or under sanctions to receive payments for services, donations, or access global markets without reliance on a central banking authority.
3. **Microtransactions and Tipping:** Enables new business models, such as tipping content creators online with tiny fractions of cryptocurrency or paying per article on a news site, which is not feasible with traditional payment processors due to high fees.

* Case Studies/Examples:

1. **El Salvador's Bitcoin Law:** El Salvador became the first country to adopt Bitcoin as legal tender, allowing citizens to use it for everyday payments like buying groceries or paying taxes, aiming to promote financial inclusion.
2. **Global Freelance Platforms:** Websites like Upwork and Freelancer.com allow freelancers to receive payments in cryptocurrency, providing a faster, cheaper alternative to international bank transfers and enabling direct access to their funds.
3. **B2B Supply Chain Payments:** Companies like IBM Blockchain use distributed ledger technology to facilitate automated, transparent, and immediate payments between international businesses upon fulfillment of smart contract terms, reducing delays and disputes.

Assessment:

Marks Obtained: ..... / 10

Signature of the Student:

Name : PN Archana

Regn. No. : 240720100147

Signature of the Faculty:

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