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: Digital Currencies

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 digital currency as any currency that is available exclusively in an electronic form, encompassing a wide spectrum from Central Bank Digital Currencies (CBDCs) to cryptocurrencies.
2. The complete architecture of different digital currency types, including their underlying technology (blockchain vs. centralized databases), issuance authority (centralized vs. decentralized), and degree of privacy.
3. The characteristics that differentiate various digital currencies, such as their legal status, monetary policy, transaction privacy, and settlement finality.

* New techniques learned:

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

1. Techniques for categorizing digital currencies based on their infrastructure, including token-based (e.g., Bitcoin) and account-based (e.g., potential CBDC) models.
2. Procedures for understanding the trade-offs between different consensus mechanisms (e.g., PoW, PoS, Permissioned) used in digital currencies and their impact on security, decentralization, and scalability.
3. The process of how programmable money, via smart contracts, enables complex financial operations like automated lending and conditional payments that are not possible with physical cash.
4. Methods for analyzing the privacy implications of digital currencies, ranging from the pseudonymity of Bitcoin to the enhanced privacy of Zcash and the potential transparency of CBDCs.

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. Creating and transacting with different types of digital currencies on testnets, including an Ethereum-based ERC-20 token and a privacy-focused token.
2. Developing a simple smart contract on a blockchain to demonstrate programmable conditional payments.
3. Analyzing transaction trails on a public blockchain explorer to understand the transparency and pseudonymous nature of transactions.
4. Debating and modeling the potential economic impacts of a widely adopted CBDC, such as its effect on commercial banks and monetary policy implementation.

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

During the lab session, I used **MetaMask** and **Remix IDE** to interact with digital currencies, **CBDC simulation tools** from the BIS or IMF to understand their potential design, and **privacy-focused wallets** to experiment with confidential transactions..

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

1. **Financial Inclusion:** Digital currencies can provide financial services to unbanked populations who have internet access but lack access to traditional banking infrastructure.
2. **Efficient Payments and Settlements:** They enable near-instantaneous and low-cost domestic and cross-border transactions, streamlining the existing financial system and reducing reliance on intermediaries.
3. **Monetary Policy Tools:** CBDCs could provide central banks with new tools for implementing monetary policy, such as the ability to apply negative interest rates or distribute funds directly to citizens ("helicopter money").

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* Case Studies/Examples:

1. **The Digital Yuan (e-CNY):** China's CBDC pilot is one of the most advanced, being tested for use in the 2022 Winter Olympics. It aims to increase domestic payment efficiency and provide the state with greater visibility into the economy, raising questions about privacy and state control.
2. **Cross-Border Payment Projects:** Initiatives like Project mBridge, a multi-CBDC platform involving several central banks, are exploring the use of digital currencies for faster and cheaper international settlements between financial institutions.
3. **Stablecoins in Remittances:** Digital currencies like USDC and USDT are extensively used for cross-border remittances, allowing migrant workers to send money home more quickly and cheaply than through traditional services like Western Union, demonstrating a real-world application that challenges existing systems.

Assessment:

Marks Obtained: ..... / 10

Signature of the Student:

Name : PN Archana

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Signature of the Faculty:

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