BSc (Hons) in IT Specialized in CS

Year 2, 2022

Tutorial 07

SNP **Blockchains**

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1. What are smart contracts?

- Smart contracts are self-executing contracts that are written in code and stored on a blockchain. They can be used to automate a variety of transactions, including financial transactions, legal contracts, and more.

2. Explain the advantages of using a smart contract?

- Smart contracts offer a number of advantages over traditional contracts. First, they are much more efficient since they can be executed automatically. This means that there is no need for a third party to mediate the contract, which can save time and money. Second, smart contracts are more secure since they are stored on a blockchain. This makes it very difficult for anyone to tamper with the contract or for the contract to be lost. Finally, smart contracts can be used to create trustless relationships between parties. This means that parties do not need to trust each other in order for the contract to be executed.

3. What's the difference between centralized and decentralized ledgers?

   A centralized ledger is one that is maintained by a central authority, such as a government or a bank. A decentralized ledger, on the other hand, is one that is maintained by a network of computers, with no central authority.

4. Why are smart contracts considered to be immutable?

   Smart contracts are considered to be immutable because they are stored on a blockchain, and once they are stored on a blockchain, they cannot be changed. This is because each block in a blockchain is linked to the previous block, and changing a smart contract would require changing all of the blocks that come after it, which is not possible.

5. What are the different security concerns associated with smart contracts?

   There are a few different security concerns associated with smart contracts. First, because smart contracts are executed on a blockchain, they are immutable. This means that once a contract is deployed, it cannot be changed. This can be a problem if there is a bug in the contract, as it cannot be fixed. Second, smart contracts are often open source, which means that anyone can view the code. This can be a problem if the contract contains sensitive information, as it can be viewed by anyone. Finally, smart contracts can be used to create tokens. These tokens can be used to represent anything, including real-world assets. This can be a problem if the tokens are not properly secured, as they can be stolen or lost.