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Topic

MOOCS.
(Massive Open Online Courses)

* INTRODUCTION :-

→ A massive open online course (MOOC) is a web-based platform which provides unlimited number of student worldwide. with a chance of distance education with the best institutes in the world.

It was established back in 2008 and gain momentum in 2012 as a popular learning tool. Many MOOC have communities that have interactive sessions and forums, between the student, professors and teaching Assistant (TAs) along with the study/course material and video lectures.

So, if there is a particular course you want to pursue but cannot, you have an option of considering a MOOC for your chosen higher education path.

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* How does it work?

Think of it like an online platform where students and teachers come together, and form an online tool of resources, which are readily available. For you to utilise you have option of listening to lectures, downloading notes, contributing your own, and most importantly.

* MOOCS in India and Abroad

→ There are various notable institution both non-profit and commercial, that offer there courses worldwide with the help of MOOC providers. A few of there are listed below-

- NEPTEL (India)
- Wizlq (India and USA)
- Open 2study
- Coursera
- Edx
- Udemy.

→ Due to some leaked identities, signature of users and to track their malicious behaviour, and the high computation and communication overhead make it impractical for mobile learning.

↳ Motivated by the above issues, we propose a block-chain-based scheme for MOOCs learning, named MOOCs chain.

* BLOCKCHAIN.

→ Blockchain is a type of networking and data architecture, which means that blockchain is a specific type of configuration of computers and data.

Block chain refers to a database called a "ledger" that's distributed between the communication points (nodes) of a network.

Blockchain is also known as distributed ledger technology (DLT).

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How does blockchain work?

Like typical databases, a blockchain ledger stores information electronically in a digital format.

Unlike typical databases, which collect data in tables, a blockchain ledger collects data in units with capacity limit.

These units are known as blocks. Once the capacity limit of a block is reached, the block is closed and gets linked to the last block to have reached its capacity, creating a chain of blocks known as Blockchain.

The process, repeats, growing the blockchain in both chronological and linear order.

The entirety of the blockchain is updated on each node in the decentralized network.

Why learn blockchain?

Examples of blockchain technology can be found in healthcare, manufacturing, transportation, crypto-currency, retail, energy production, artificial intelligence, and more.

In these areas, blockchain technology provides transparency, security and efficiency to systems where a lot of data needs to be stored, processed and tracked.

⇒ Blockchain technology was first applied in Bitcoin and Ether to enable decentralized finance.

→ With the introduction of Ethereum and Hyperledger fabric, the applicability of Blockchain technology is greatly enhanced.

→ Based on Peer-to-Peer (P2P) network, all nodes in blockchain act equally as server and client to upload

a complete copy of the current ledger. Due to decentralized structure, individual nodes of the blockchain cannot manipulate the stored data. Thus, the blockchain brings new promising features for secure storage.

→ There are three main blockchain types-

(1) PUBLIC :- There are open to anyone who wants to be part of the peer-to-peer network. (ie they are permissionless).

- Public blockchains achieve maximum immutability, decentralization and transparency, but they are very inefficient, since a lot of processing power, storage and electricity are required to reach a consensus.

- Bitcoin and Ethereum are examples of this type.

(2.) Private :-

- participants may only join if they are invited (ie permissioned).

- There are rules set by the organization that controls the network.
- In these highly centralized blockchains, immutability and transparency of the chain are limited.
- Hyperledger is an example of this type.

(3.) Consortium :-

- It is a combination of two previous types.

→ It is controlled by group of them like private or public.

=> There are four stages of blockchain maturity

(i) Blockchain 1.0 was focused on transactions and it was mainly used on the development of crypto-currencies in cash-related applications.

(ii) Blockchain 2.0 adds privacy, smart contracts, and non-native tokens,

among the other features.

(iii) Blockchain 3.0 incorporates decentralized applications (dApps), back-end code that is executed on a decentralized peer-to-peer network, expanding the uses of blockchain to different markets as health, supply chain, government, education etc.

(iv.) Blockchain 4.0 introduces artificial intelligence (AI), supporting decentralized AI based decision making based on blockchain reliable data without the need for direct human intervention.

⇒ According to Bashir blockchain has ten features (distributed consensus, transaction verification, platforms for smart contracts, transferring value between peers, generating cryptocurrency / incentives; smart property security provision, immutability, uniqueness, and smart contracts) that make it worthy of investigation for enhancing educational systems,

Overall, this topic can be summarized as follows:-

→ we propose a blockchain-based secure storage systems for ELRs. (Expected loss ratio). In the system, the key materials of ELRs are stored in the blockchain, and the original data are stored in the InterPlanetary File System (IPFS).

→ we design a blockchain-assisted architecture that implements conditional anonymity and conditional traceability and revocability.

→ we implemented the proposed MOOCschain and conduct several experiments to evaluate its efficiency in terms of computational overhead.