**MZUMBE UNIVERSITY**

  
**FACULTY OF SCIENCE AND TECHNOLOGY**

**COMPUTING SCIENCE STUDIES DEPARTMENT**

**COURCE CODE: CSS 311**

**COURSE NAME: DISTRIBUTED SYSTEM.**

**LECTURER: Mr. LUNODZO.**

**ASSIGNMENT: INDIVIDUAL ASSIGNMENT**

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**QUESTION:**

There is a serious concern of global money transactions to go online. This channels to the use of cryptocurrencies. Social media might also be linked to the use of the same raising technologies. One giant technology that is looked at to oversee these advancements is the blockchain technology.

Comments on these trends. (1) How is the DS playing role on this? (2) Would these technologies stay relevant in the coming years? (3) What of the future of blockchain technology? (4) Is it legit and trusted technology?

**ANSWERS:**

Cryptocurrency: Is the digital or virtual currency that is secured by the cryptography which generate cryptographic algorithm.

Many cryptocurrencies are decentralized networks based on blockchain technology or distributed ledger enforced by a disparate network of computers.

A defining feature of cryptocurrencies is that they are generally not issued by any central authority. In this context we may say that the validity of transaction of either money or other information is done by node (computers) those are participate on system.

* A cryptocurrency is a form of digital asset based on a network that is distributed across a large number of computers. This decentralized structure allows them to exist outside the control of governments and central authorities.
* In case of transaction of currency online cryptocurrency make it faster and it done by decentralized systems that have no single point of failure.

A blockchain is a chain of blocks which contain information, and sometime we may say is a distributed ledger that is used to store an information.

**Blockchain technology** is the technology which involve the recording an information in such a way that it is hard to modify, manipulate or hack. As the name suggest that the block as node or computer is connected or change an information by chain workflow.

(1) How is the DS playing role on this?

1. By the way Blockchain is driven by distributed node with no one which control other so that we may say Distributed system is the core of blockchain technology, in distributed system the node is independent, this node they create its mechanism which is called consensus on how they may make automatic trust of each node for their information to be acceptance transmitted due to peer to peer (P2P) transaction.
2. The features of Distributed system that facilitate the system to act or to be the core on Blockchain is built-in consensus protocol.
3. Blockchain technology is open and transparency, due to this concern the transaction is done in trust manner.
4. The algorithm applied in blockchain for security issues is due to distributed nature of the node. It provides private and public key for signature transactions.
5. Distributed system it provides a distributed ledger as blockchain for cryptocurrency.

Distributed system approach it ensure that each node have a copy of blockchain which it helps in updating of in formation in real time transaction.

(2) Would these technologies stay relevant in the coming years?

Answer: YES, these will stay relevant because of the following reasons:

1. Transaction issues, in this technology the transaction have high security compare to the present mechanism in which the transaction have got many obstacles like delay reaching a particular area by passing into the third party for authority.
2. Security issues, In the current mechanism of transaction of either money or other in formation it has challenged with high risk of attack, in this technology the algorithm (cryptographic) is more complex which make it harder to hack.
3. Due to the High speed of transaction compared to the current approach of transaction which involve the third-party authority of transaction which make it to become slow in transaction example **M-pesa**, **tigo pesa**, **airtel money** as well, so this new technology it will become relevant due to breakage of this third party for authority.
4. In general, in this current transaction has centralized control of transaction whereby in the new blockchain technology is decentralized means of transaction.
5. Immutability, in this context if the transaction is already done or recorded the modification of details was not done in any case.
6. It reduces the compliance cost by removing the intermediate party like bank or government which it needs a fee for completing a transaction.

3: What of the future of blockchain technology?

The future of blockchain it delivered from their applications on different field and the features available on it which may result into future impacts on reality profits from it as mentioned below.

* Time reduction
* unchangeable transaction
* reliability
* security
* collaboration
* decentralized.

According to the mentioned above features the below real projects will be solved

Payment processing and money transfers, monitor supply chains, Retail loyalty rewards programs, Digital IDs, Copyright and royalty protection, Digital voting, Real estate, land, and auto title transfers, Tax regulation and compliance, medical record keeping, Wills or inheritances.

The other main future opportunity of this technology is Tokenization of physical assets into digital asset for easy ownership transaction of property from one area of own to other. And by applying this concept of tokenization of properties it helps us to solve the double spend problem which it tries to solve the problem of send the copy of information from the owner into other and still remain the original to the parent owner, but by applying this technology we send the original information which help the receiver to be the actual owner of properties.

4: Is it legit and trusted technology?

The legit means it allowed by law or done according to the rules of an organization or activity.

Trust means, firm belief in the character, ability, strength or truth of someone or something.

According to mentioned above concept the blockchain technology create its own mechanism to make its processes to be legit and trusted technology due to the structure of data provided on it which have security qualities which requires complete agreement between two parties that want to make exchanges or transaction. And this is done by main three mechanisms which are cryptocurrency, decentralization and consensus which ensure trust in transaction.

All transactions within the blocks are validated and agreed upon by a consensus mechanism, ensuring that each transaction is true and correct.

For the social media to be inked in this technologies the evolution of web is engaged on it which help the user of social media to be an owner of different property(digital property or assets).In the first version of web (web1) it allow the user to read only the information from that social media, on the second version of web (web2) it allow the user to read and to write some contents on it, example in Facebook you allowed to read and to write your options on it, on the third version of web (web3) the user allowed to read, write and to own the property(ownership). In third versions of web (web3) it helps the user to make its own decision on its account and prevent the user from making an account for every social media for example Facebook account is differ from WhatsApp and YouTube account have only one account for interact with social media.

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