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Branch: Data Science

1. Linoy, H. Mahdikhani, S. Ray, R. Lu, N. Stakhanova and A. Ghorbani, "Scalable Privacy-Preserving Query Processing over Ethereum Blockchain," 2019 IEEE International Conference on Blockchain (Blockchain), 2019, pp. 398-404, doi: 10.1109/Blockchain.2019.00061.

i)

1. It has a privacy-preserving feature that hides the indentity of clients by encrypt the retrieval infomation.
2. It supports us to use SQL query to control blockchain data, so we can use select, update, where, max and so on statements or functions to operate blockchain data.
3. it implements a scalable and distributed system using technologies such as Hadoop, MapReduce, HDFS.
4. One of the main components is proxy. It helps to transfer query and data between client and server and hide the clients’s identity.

ii)

1. Hadoop 2. MapReduce 3. HDFS 4. B+ Tree

iii)

1. Hadoop is a scalable distributed framework
2. HDFS is a scalable distributed file system
3. B+ Tree’s query time is scalable
4. The client-poxy-server system is scalable
5. Zhong, R. Onishi, L. Wang, L. Ruan and S. J. Tan, "A Scalable Blockchain-based High-Definition Map Update Management System," 2021 IEEE International Smart Cities Conference (ISC2), 2021, pp. 1-4, doi: 10.1109/ISC253183.2021.9562840.

i)

1. Design a three-layers system to manage HD map’s frequent update.
2. Allow many organizations to collaborately deploy.
3. Use blockchain to manage the updates which can be authenticated by the system.
4. Divide the map update into different blockchains to meet the demand of frequent update.

ii)

1. High-Definition map 2. crowd-sourcing 3.edge computing 4. Hyperledger Fabric

iii)

1. Blockchain can generate the data’s information to help the system to be scalable.
2. Design scalability test.
3. Design a dynamic multi-china system to improve scalability.
4. Design a crowd-sourcing mathanism to imporve scalability.