Team Feedback Report 1

1. What theme have you decided for your project?

Digital Society

2. What is your problem statement?

This project aims to create a blockchain-based system with practical applications in real-life scenarios, such as secure electronic payments, digital identity management, supply chain management, and financial transactions.

The objective is to design and implement a Java data structure for a blockchain-based digital society that can efficiently store and retrieve transactions, even with large volumes of data, while ensuring data integrity and security.

Key features of the data structure include the use of a Merkle tree for data integrity, the SHA-256 hash function for generating unique hash values, a search function for easy transaction location, and a verification function for transaction validity. Additionally, the system should have a conflict resolution mechanism for security purposes and an intuitive user interface for seamless interaction with the blockchain. The final product should be optimized for performance, scalability, and maintainability to ensure its practicality and usefulness in real-world applications

3. What is the scope of your project?

- Blockchain technology has the potential to revolutionize the digital society by providing a secure and decentralized system for storing and sharing data.
- It can be applied in various fields, such as finance, supply chain management, identity management, and voting systems.
- With its key features of security, immutability, transparency, and decentralization, blockchain technology can enhance data privacy and security, reduce costs, and increase efficiency in various industries.

- It can also facilitate trust and collaboration between different parties without the need for intermediaries.
- Overall, blockchain technology has a broad scope in the digital society, and its potential is yet to be fully explored.

4. What data structure have you decided to use and why?

We ought to build and deploy a distributed ledger system that is capable of recording transactions in a safe, transparent, and tamper-proof manner in order to construct a digital society utilising blockchain technology. To accomplish these goals, the blockchain technology offers the essential cryptographic tools.

- Linked lists: The chain of blocks that makes up the blockchain can be made using linked lists. A reference to the preceding block in the chain and transaction data can both be stored in each block.

- Hash tables can be used to build a data structure that links account balances to public keys. The amount of each user's account may be tracked using this data structure, and transactions can be validated.

- Binary search trees to categorize and look for transactions. Each node in the tree represents a transaction, and its key can serve as a particular transaction's distinctive identity.

- Graphs: To model the blockchain's network of participating nodes.

5. Did you think of any other data structures with similar functionality required for your project? Why did you not choose them instead?

Stack and Queue. It couldn’t be used because it doesn’t form any chain or a connected node. However it could be used for some basic operations but it might not be the primary data structure as per the blockchain technology

6. Have you started working on your project and what all did you accomplish in the past 2 weeks?

We have started with basic implementation of the project. In the past 2 weeks we have formed the prototype of the project and decided with the workload of each team member.

7. Did you face any problems in these 15 days and were you able to resolve them?

Yes. We faced problem with collaborating the code. We resolved it using github for collaboration and Trello application for tracking the progress as to do, do and done.