TECHNICAL ARCHITECTURE

Date	**06 NOVEMBER 2023**
Team ID	**NM2023TMID02250**
Project Name	**Project- Farmer Insurance Chain**
Maximum Marks	**4 Marks**

The technical architecture for the Farmer Insurance Chain outlines the underlying technologies, platforms, and components that make up the system. Below is a high-level description of the technical architecture:

Blockchain Technology:

The core of the Farmer Insurance Chain relies on blockchain technology, specifically the Ethereum blockchain. Ethereum's smart contract functionality provides the backbone for automating policy management, premium calculations, and claim processing. The choice of Ethereum is driven by its robustness, widespread adoption, and support for decentralized applications (DApps).

Smart Contracts:

Smart contracts are the heart of the system, containing the logic and rules for policy creation, premium calculations, and claim processing. These contracts are written in Solidity, the Ethereum smart contract programming language. They executeautonomously and transparently on the

Ethereum blockchain, ensuring trust and immutability in the insurance processes.

Frontend Application:

The frontend is developed using modern web technologies, including HTML, CSS, and JavaScript. It's accessible through web browsers and mobile devices, offering a user-friendly interface for farmers, insurance providers, and administrators to interact with the system. Web3.js, a JavaScript library for Ethereum, is used to connect the frontend to the Ethereum blockchain.

Backend Application:

The backend serves as the bridge between the frontend and the blockchain. It's responsible for handling business logic, data processing, and interactions with external data providers. It's typically built using a server-side technology stack such as Node.js, Python, or Java. The backend connects to the Ethereum network through Ethereum client libraries.

External Data Providers:

The system relies on external data sources to assess crop conditions and validate claims. Weather APIs, IoT devices, and remote sensing technology contribute valuable data. This data is integrated into the system through APIs and middlewareto automate policy assessments and claim verifications.

Payment Gateway:

A secure and efficient payment gateway is integrated to enable premium payments by farmers and claim

disbursements. It supports various payment methods, ensuring that financial transactions are processed seamlessly.

Databases:

Multiple databases are employed to store and manage various types of data. The User Database maintains user account information and authentication details. The Policy Database contains information about available insurance policies, while the Claim Database records submitted claims, their status, and related documentation. Transaction Records maintain records of all financial transactions, including premium payments and claim disbursements.