**Project Design Phase-II**

**Solution Requirements (Functional & Non-functional)**

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| Date | 19 Oct 2023 |
| Project Name | Food Tracking System |

**Functional Requirements:**

Following are the functional requirements of the proposed solution.

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| **FR No.** | **Functional Requirement (Epic)** | **Sub Requirement (Story / Sub-Task)** |
| FR-1 | User Interface | * Develop an intuitive user interface allowing consumers to search and verify food product details. * Create a separate interface for supply chain stakeholders (farmers, distributors, retailers) to manage product data and logistics efficiently. |
| FR-2 | User Registration and Access Control | * Enable users to register within the system, providing necessary information and preferences. * Define distinct user roles, such as consumers, producers, and regulatory authorities, with role-specific access permissions. * Implement role-based access control to safeguard sensitive data and restrict actions based on user roles. |
| FR-3 | Blockchain Integration | * Establish a secure and efficient blockchain infrastructure (e.g., Ethereum) for data immutability and transparency. * Develop and deploy smart contracts for tracking and tracing food products throughout the supply chain. |
| FR-4 | Cataloging and Resource Management | * Implement a decentralized cataloging and indexing system for food products, assigning unique digital identities. * Enable stakeholders to input comprehensive product data, including origin, processing, and transportation details. |
| FR-5 | Lending and Returns | * Allow consumers to verify the origin, authenticity, and safety of food products. * Implement a process for stakeholders to record and verify the movement of food products along the supply chain. |

**Non-functional Requirements:**

Following are the non-functional requirements of the proposed solution.

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| **FR No.** | **Non-Functional Requirement** | **Description** |
| NFR-1 | **Resource Optimization** | The system should efficiently utilize hardware and software resources to minimize operational costs and ensure cost-effective operation. |
| NFR-2 | **Security** | The system should accommodate a growing number of users and food resources without a significant performance decline, and it should be designed to easily scale to handle future expansion while maintaining robust security measures. |
| NFR-3 | **Reliability** | The system should exhibit high reliability, minimizing downtime and disruptions to provide consistent access to food-related data and resources. |
| NFR-4 | **Performance** | The system must be highly responsive, capable of managing a substantial number of concurrent users, and deliver swift response times for tasks such as real-time tracking, data verification, and origin authentication. |
| NFR-5 | **Availability** | The system should be available around the clock (24/7) to ensure users can access food-related information and track products at any time. Scheduled maintenance or downtime should be brief and infrequent. |
| NFR-6 | **Data Backup and Recovery** | The system must conduct regular data backups to prevent data loss. It should also include disaster recovery and data restoration mechanisms to safeguard against unforeseen events that may lead to data loss or system disruptions. |