**Project Design Phase-II**

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

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| Date | 21 June 2025 |
| Team ID | LTVIP2025TMID34708 |
| Project Name | Transfer Learning-Based Classification of Poultry Diseases for Enhanced Health Management |
| Maximum Marks | 4 Marks |

**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 | Data Acquisition | - Collect poultry health data (symptoms, mortality, feed intake) - Collect environmental data (temperature, humidity) |
| FR-2 | Data Preprocessing | - Clean and normalize collected data - Encode categorical and numerical features for model ingestion |
| FR-3 | Disease Prediction | - Train machine learning model using historical and real-time poultry health data - Evaluate and validate model performance |
| FR-4 | Real-Time Prediction Service | - Expose prediction results via REST API - Notify farm managers/veterinarians about potential disease risks |
| FR-5 | Farm Management Decision Support | - Suggest preventive measures and early interventions based on predictions - Generate alerts for high-risk zones within the farm |
| FR-6 | Reporting and Monitoring | - Generate disease trend reports for farm planners - Display data on admin and farm dashboards for monitoring |

**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 | **Usability** | User-friendly UI for farmers, veterinarians, and agriculture officers |
| NFR-2 | **Security** | Encrypted data transmission, role-based access control, secure APIs for farm data |
| NFR-3 | **Reliability** | Accurate disease predictions with stable model deployment and monitoring |
| NFR-4 | **Performance** | Real-time prediction responses within 2 seconds for uploaded symptom and environment data |
| NFR-5 | **Availability** | System available 24/7 for farmers with automatic failover and uptime monitoring |
| NFR-6 | **Scalability** | Easily handles increased data volume (multiple farms) and concurrent user access |