**Project Design Phase-II**

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

|  |  |
| --- | --- |
| Date | 16 June 2025 |
| Team ID | LTVIP2025TMID35624 |
| Project Name | Revolutionizing Liver Care: Predicting Liver Cirrhosis Using Advanced Machine Learning Techniques |
| Maximum Marks | 4 Marks |

**Functional Requirements:**

Following are the functional requirements of the proposed solution.

|  |  |  |
| --- | --- | --- |
| **FR No.** | **Functional Requirement (Epic)** | **Sub Requirement (Story / Sub-Task)** |
| FR-1 | User Confirmation for contacting | Confirmation via Email |
| FR-2 | Prediction Interface | - Form to input medical details  - Submit to backend API  - Display liver cirrhosis prediction (YES/NO) |
| FR-3 | Contact Form | - Collect name, email, subject, and message  - Send email to admin via Gmail API |
| FR-4 | Model Management | - Load trained model at API start  - Preprocess input data  - Generate predictions using serialized model |
| FR-5 | Admin Notification | Admin receives user contact information via email |
| FR-6 | API Endpoints | - /api/predict: For prediction  - /api/contact: For contact form  - /: Status check route |

**Non-functional Requirements:**

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

|  |  |  |
| --- | --- | --- |
| **FR No.** | **Non-Functional Requirement** | **Description** |
| NFR-1 | **Usability** | User interface should be simple, responsive, and accessible for all users |
| NFR-2 | **Security** | User inputs and emails are sanitized, backend endpoints are protected |
| NFR-3 | **Reliability** | The model and server must consistently provide accurate and valid predictions |
| NFR-4 | **Performance** | Model predictions should respond in under 2 seconds for API requests |
| NFR-5 | **Availability** | The system should be available 24/7 with minimal downtime |
| NFR-6 | **Scalability** | The system should scale to support thousands of users via cloud infrastructure |