Project Design Phase-II

Solution Requirements (Functional & Non-functional)

Date	24 June 2025
Team ID	LTVIP2025TMID35409
Project Name	HematoVision: Advanced Blood Cell Classification Using Transfer Learning
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 Registration	- Registration through Form - Registration through Gmail - Registration through LinkedIn
FR-2	User Confirmation	- Confirmation via Email - Confirmation via OTP
FR-3	Image Upload	- Upload microscopic blood cell images - Support for multiple image formats (JPG, PNG, etc.)
FR-4	Image Preprocessing	- Normalize image size - Apply filters for clarity - Augmentation for training
FR-5	Blood Cell Classification	- Apply trained deep learning model - Detect and classify cell type (e.g., Neutrophil, Eosinophil, etc.)
FR-6	Result Display	- Show classification result with confidence score - Visual representation with cell annotations
FR-7	Model Training	- Train model using labeled datasets - Use transfer learning (e.g., ResNet, VGG)
FR-8	Report Generation	- Generate downloadable diagnostic report in PDF - Include summary of detected cells and possible conditions

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	Interface should be intuitive and user-friendly for medical professionals and lab technicians.
NFR-2	**Security**	Use encrypted storage and HTTPS. Implement authentication and authorization for access control.
NFR-3	**Reliability**	Ensure model and services work consistently under varied input loads and conditions.
NFR-4	**Performance**	Classification results should be returned in under 3 seconds per image. Model inference should be optimized.
NFR-5	**Availability**	The application should be available 24/7 with minimal downtime (99.5% uptime target).
NFR-6	**Scalability**	System should handle increasing users and image uploads without degradation in performance.