

Project Design Phase-II

Solution Requirements (Functional & Non-functional)

Date	28 June 2025
Team ID	LTVIP2025TMID43759
Project Name	HematoVision: Advanced Blood Cell Classification Using TransferLearning
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	Image Upload & Preprocessing	Upload blood cell image Validate image format (e.g., JPG/PNG) Resize and normalize image for model
FR-2	Cell Type Prediction (Model Inference)	Load pretrained transfer learning model (e.g., ResNet, EfficientNet) Run prediction Show predicted cell type with confidence score
FR-3	Result Logging & Storage	Save image and prediction locally (e.g., SQLite or CSV) Record timestamp and result
FR-4	User Interface	Provide a simple web interface using Flask Upload button, preview, and result display Show loading/processing state

Non-functional Requirements

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

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	UI should be clean, simple, and easy to understand for lab technicians/doctors
NFR-2	Security	Only images should be accepted; handle exceptions and errors securely
NFR-3	Reliability	The model should produce consistent and accurate results for blood cell classes
NFR-4	Performance	Prediction should take <3 seconds per image; UI should remain responsive
NFR-5	Availability	The app should be available during testing, offline or localhost-based
NFR-6	Scalability	Should support easy upgrade to more cell classes or a cloud-based version in future