# Project Design Phase-II

# Solution Requirements (Functional & Non-functional)

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| 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.

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| 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.

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| 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 |