**Project Design Phase-II**

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

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| Date | 26 June 2025 |
| Team ID | LTVIP2025TMID39268 |
| Project Name | Hematovision – Advanced Blood Cell  Classification using Transfer Learning |
| Maximum Marks | 4 Marks |

**Functional Requirements:**

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| --- | --- | --- |
| **FR No.** | **Non-Functional Requirement** | **Description** |
| NFR-1 | **Usability** | UI should be clean, intuitive, and easy to use for medical personnel |
| NFR-2 | **Security** | Only images should be accepted; handle exceptions and invalid inputs safely |
| NFR-3 | **Reliability** | Model should give consistent and accurate predictions for blood cell types |
| NFR-4 | **Performance** | Inference time should be < 3 seconds per |

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 | Blood Cell Classification (Model Inference) | Load pretrained MobileNetV2 model  Run prediction  Display output 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 | Simple web interface using Flask  Upload button and result display  Show loading/processing status |

**Non-functional Requirements:**

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

|  |  |  |
| --- | --- | --- |
|  |  | image |
| NFR-5 | **Availability** | Should work offline or on local system (e.g., via Flask) |
| NFR-6 | **Scalability** | Should support future upgrades (e.g., more cell types, cloud integration) |