**Project Design Phase-II**

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

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| Date | 31 January 2025 |
| Team ID | LTVIP2025TMID35810 |
| 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.

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| --- | --- | --- |
| **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 |  |  |
| FR-4 |  |  |
|  |  |  |
|  |  |  |

**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** |  |
| NFR-2 | **Security** |  |
| NFR-3 | **Reliability** |  |
| NFR-4 | **Performance** |  |
| NFR-5 | **Availability** |  |
| NFR-6 | **Scalability** |  |

Functional and Non-Functional Requirements

**Functional Requirements**

- The system shall allow users to upload blood smear images in common formats (JPEG, PNG).

- The system shall normalize and resize images for model compatibility.

- The system shall classify images into categories (RBC, WBC, Platelets, and subtypes if applicable).

- The system shall display classification results with confidence scores.

- The system shall generate a downloadable report (PDF/Word) of the analysis.

- The system shall allow user login for doctors, lab technicians, and admins.

- The system shall store results securely for future reference and model retraining.

- The system shall integrate with Laboratory Information Systems (LIS) or hospital databases.

- The system shall allow users to provide feedback on the accuracy of results.

**Non-Functional Requirements**

- Performance: The system should provide classification results within 2–5 seconds per image.

- Scalability: The system should support concurrent processing for multiple users.

- Accuracy: The model should achieve >95% accuracy on validation datasets.

- Security: All data transfers should be encrypted (HTTPS). User data should comply with HIPAA or equivalent privacy standards.

- Usability: The system should have an intuitive and user-friendly interface for non-technical users.

- Availability: The system should maintain 99.5% uptime for cloud deployment.

- Maintainability: The system should allow easy updates for model improvement and feature additions.

- Portability: The solution should be deployable on cloud and on-premises environments.