

Ideation Phase

Define the Problem Statements

Date	29 June 2025
Team ID	LTVIP2025TMID46471
Project Name	Hematovision : advanced blood cell classification using transfer learning
Maximum Marks	2 Marks

Objective:

To leverage deep learning and transfer learning techniques to automatically classify various types of human blood cells from microscopic images, assisting medical professionals in diagnostics.

1. Problem Statement:

Manually identifying and classifying different types of blood cells under a microscope is time-consuming, error-prone, and requires skilled professionals. In resource-constrained settings, timely and accurate diagnostics are difficult to achieve. There is a need for an automated solution that assists in blood cell identification to support medical diagnostics.

2. Proposed Solution:

HematoVision is a deep learning-based web application that uses transfer learning to classify microscopic images of blood cells into categories like Neutrophils, Lymphocytes, Monocytes, and Eosinophils. The trained model is integrated into a user-friendly Flask interface, enabling users to upload an image and receive an instant prediction of the blood cell type.

3. Target Users:

- Medical laboratories and diagnostic centers.
- Healthcare professionals and pathologists
- Rural health workers and clinics with limited access to expert pathologists
- Medical students for educational purposes

4. Expected Outcome:

- A fully functional AI-powered blood cell classification tool
- Reduced manual workload and improved accuracy in blood cell identification
- Faster diagnosis support in medical setups
- A deployable web-based tool that can be integrated into existing lab workflows