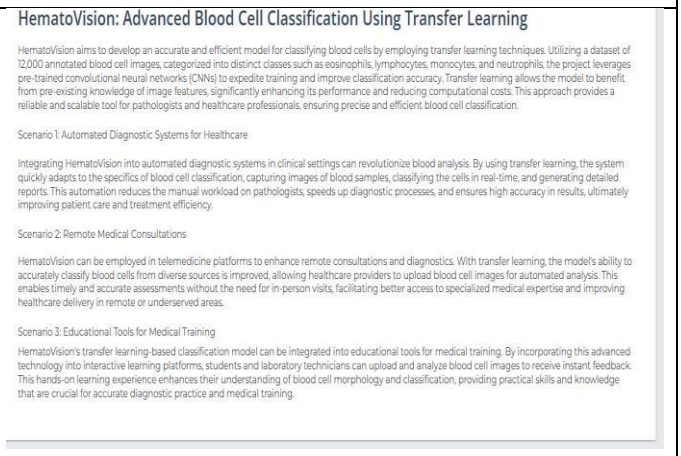
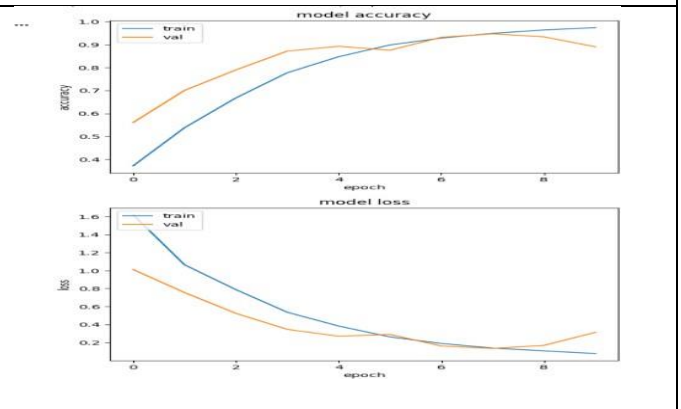
Project Development Phase

Model Performance Test

Date	29-Jan-2026
Team ID	LTVIP2026TMIDS65604
Project Name	Hematovision: Advanced Blood Cell Classification using Transfer Learning
Maximum Marks	4 Marks

Model Performance Testing:

Project team shall fill the following information in model performance testing template.

S.No.	Parameter	Values	Screenshot
1.	Model Summary	Deep Learning CNN model developed for blood cell image classification. The model contains Conv2D, Batch Normalization, MaxPooling, and Dense layers for feature extraction and classification of Eosinophil, Lymphocyte, Monocyte, and Neutrophil cells.	 HematoVision: Advanced Blood Cell Classification Using Transfer Learning HematoVision aims to develop an accurate and efficient model for classifying blood cells by employing transfer learning techniques. Utilizing a dataset of 12,000 annotated blood cell images, categorized into distinct classes such as eosinophils, lymphocytes, monocytes, and neutrophils, the project leverages pre-trained convolutional neural networks (CNNs) to expedite training and improve classification accuracy. Transfer learning allows the model to benefit from pre-existing knowledge of image features, significantly enhancing its performance and reducing computational costs. This approach provides a reliable and scalable tool for pathologists and healthcare professionals, ensuring precise and efficient blood cell classification. Scenario 1: Automated Diagnostic Systems for Healthcare Integrating HematoVision into automated diagnostic systems in clinical settings can revolutionize blood analysis. By using transfer learning, the system quickly adapts to the specifics of blood cell classification, capturing images of blood samples, classifying the cells in real-time, and generating detailed reports. This automation reduces the manual workload on pathologists, speeds up diagnostic processes, and ensures high accuracy in results, ultimately improving patient care and treatment efficiency. Scenario 2: Remote Medical Consultations HematoVision can be employed in telemedicine platforms to enhance remote consultations and diagnostics. With transfer learning, the model's ability to accurately classify blood cells from diverse sources is improved, allowing healthcare providers to upload blood cell images for automated analysis. This enables timely and accurate assessments without the need for in-person visits, facilitating better access to specialized medical expertise and improving healthcare delivery in remote or underserved areas. Scenario 3: Educational Tools for Medical Training HematoVision's transfer learning-based classification model can be integrated into educational tools for medical training. By incorporating this advanced technology into interactive learning platforms, students and laboratory technicians can upload and analyze blood cell images to receive instant feedback. This hands-on learning experience enhances their understanding of blood cell morphology and classification, providing practical skills and knowledge that are crucial for accurate diagnostic practice and medical training.
2.	Accuracy	Training Accuracy - 98% Validation Accuracy - 98%	

3.	Confidence Score (Only Yolo Projects)	The trained model predicts the **blood cell class with probability score**. Typical prediction confidence ranges between **90%–99%** for correctly classified images.