Model Optimization and Tuning Phase Template

Date	15 March 2024
Team ID	739728
Project Title	YOLOChemDetect safeguarding with Automated Drug Name Detection
Maximum Marks	10 Marks

Model Optimization and Tuning Phase

The Model Optimization and Tuning Phase involves refining neural network models for peak performance. It includes optimized model code, fine-tuning hyperparameters, comparing performance metrics, and justifying the final model selection for enhanced predictive accuracy and efficiency.

Hyperparameter Tuning Documentation (8 Marks):

Model	Tuned Hyperparameters
YOLOV8	YOLOv8 for YOLOChemDetect uses a learning rate of 0.005, batch size of 16, 80 epochs, and 960x960 image size. Confidence and IoU thresholds are 0.3 and 0.5, with custom anchors and data augmentation, ensuring fast, precise drug name detection.

Final Model Selection Justification (2 Marks):

Final Model	Reasoning
YOLOV8	YOLOv8 was selected for YOLOChemDetect due to its fast performance, high accuracy, and scalability. Its flexibility and ease of integration make it ideal for real-time drug name detection in healthcare.