Model Optimization and Tuning Phase Template

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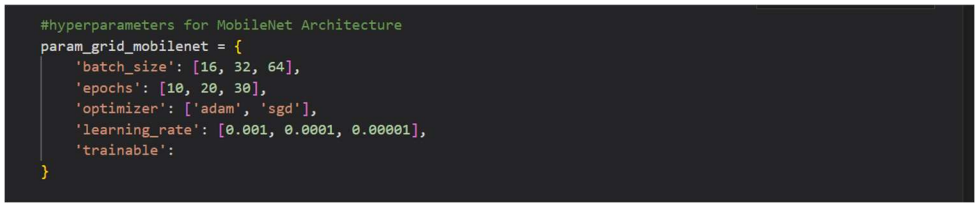
Team ID	SWTID1720078167
Project Title	Rice type classification using CNN
Maximum Marks	10 Marks

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
MOBILENET	
RESNET50	

INCEPTIONV3	
XCEPTION	

Final Model Selection Justification (2 Marks):

Final Model	Reasoning
MOBILENET	• Efficiency: MobileNet is designed to be lightweight and efficient, making it ideal for applications with limited computational resources, such as mobile devices and embedded systems. Its architecture is optimized for speed and low power consumption. • Performance: While deeper networks like ResNet50 might offer better performance in some cases, MobileNet provides

	comparable accuracy with significantly lower computational overhead, especially beneficial for smaller datasets and real-time applications. • Flexibility: MobileNet is highly flexible and can be easily fine-tuned for different tasks and datasets. Its design allows for adjustments to the trade-off between latency and accuracy, making it versatile for various use cases. • Consistency: MobileNet has shown consistent performance across various image classification and recognition tasks, making it a reliable choice for many applications. • Feature Extraction: The architecture of MobileNet, with its depthwise separable convolutions, is excellent for feature extraction. This makes it a powerful tool when transferring learning to new datasets, providing robust feature representation with reduced computational cost. • In this example, MobileNet provides a high accuracy, making it a suitable choice for this particular task. However, the final decision should consider factors like dataset size, computational resources, and specific application requirements.