**Model Optimization and Tuning Phase Template**

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| Date | 11-03-2025 |
| Team ID | 740047 |
| Project Title | AI-POWERED VEHICLE DAMAGE ASSESSMENT FOR COST ESTIMATION AND INSURANCE CLAIMS. |
| Maximum Marks | 10 Marks |

**Model Optimization and Tuning Phase**

The Model Optimization and Tuning Phase involves refining machine learning 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 (6 Marks):

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| --- | --- | --- |
| **Model** | **Tuned Hyperparameters** | **Optimal Values** |
| Model 1 | ------ | ---- |
| Model 2 | ----- | ----- |
| ---- | ----- | ----- |

### Performance Metrics Comparison Report (2 Marks):

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| --- | --- |
| **Model** | **Optimized Metric** |
| Vgg16 |  |
| Vgg16 |  |

### Final Model Selection Justification (2 Marks):

|  |  |
| --- | --- |
| **Final Model** | **Reasoning** |
| Vgg16 | I was chosen vgg16 model due to its proven performance in image classification tasks and its simplicity in architecture and also it’s ability to extract hierarchical image features made it suitable for accurately identifying and classifying vehicle damage types. |