

## Model Optimization and Tuning Phase Template

Date	15 July 2024
Team ID	739956
Project Title	Revolutionizing Automotive Resale: AI-Driven Prediction of Used Toyota Corolla Car Prices
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):

Model	Tuned Hyperparameters	Optimal Values
Linear Regression	—	—
Random Forest	—	—
Decision Tree	—	—
XG Boost	—	—

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

Model	Baseline Metric	Optimized Metric
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Linear Regression	—	—
Random Forest	—	—
Decision Tree	—	—
XG Boost	—	—

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

<b>Final Model</b>	<b>Reasoning</b>
Random Forest	The Random Forest model was selected for its superior performance, exhibiting high accuracy during accuracy. Its ability to handle complex relationships, minimize overfitting, and optimize predictive accuracy aligns with project objectives, justifying its selection as the final model