Model Optimization and Tuning Phase Template

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Team ID	SWTID1720007638
Project Title	Predicting Co2 Emission By Countries Using Machine Learning
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
Random Forest	n_estimators, random_state, n_jobs	10, 52, -1

Performance Metrics Comparison Report (2 Marks):

Model	Baseline Metric	Optimized Metric
Random Forest	0.8936	0.9896

Final Model Selection Justification (2 Marks):

Final Model	Reasoning
Random Forest	Without modifying n_estimators, the model was overfit and was unable to handle values outside the dataset, resulting in a lower accuracy, therefore we picked Random forest (which has the highest accuracy in all the models we tested) and tuned it to have only 10 n_estimators.