Model Optimization and Tuning Phase Template

Date	15 March 2024
Team ID	SWTID1720014456
Project Title	Thyroid Classification
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):

We achieved high accuracy with our model without needing to utilize hyperparameters.

Performance Metrics Comparison Report (2 Marks):

Model	Baseline Metric	Optimized Metric
Model 1	Accuracy - 93.07901907356948%	Accuracy - 93.07901907356948%

Final Model Selection Justification (2 Marks):

Final Model	Reasoning
Random forest	Random Forest was chosen as the final optimized model due to its high accuracy, robustness against overfitting, and ability to handle complex datasets. Its ensemble approach combines multiple decision trees,

	improving reliability and performance. Additionally, it provides valuable insights into feature importance and can manage missing values effectively. These strengths make it a strong candidate for achieving reliable results in classification and regression tasks