

Model Optimization and Tuning Phase Template

Date	5th July 2024
Team ID	739687
Project Title	SMS SPAM DETECTION
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	-	-
Decision Tree	-	-
Gradient Boosting Regressor	-	-

Performance Metrics Comparison Report (2 Marks):

Model	Baseline Metric	Optimized Metric
Random Forest	-	-
Decision Tree	-	-
Gradient Boosting	-	-

Final Model Selection Justification (2 Marks):

Final Model	Reasoning
Multinomial Naïve Baye's	I used Multinomial Naive Bayes for my project because it is particularly well-suited for classification tasks involving discrete data, such as text-based features or word frequencies. Since my dataset involved categorical or count-based features, MNB was an ideal choice due to its ability to model the probability distribution of words or terms in each class effectively.