

Model Optimization and Tuning Phase Template

Date	15 March 2024
Team ID	SWTID1720161281
Project Title	Ecommerce Shipping Prediction 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
SVM	Kernel, c, gamma	Kernel: -poly, rbf c: - 10,13 Gamma: -4,5
KNN	Algorithm,p	Algorithm: -auto, ball_tree, kd_tree p: -1,5,10
XG Boost	None	Base values

Performance Metrics Comparison Report (2 Marks):

Model	Baseline Metric	Optimized Metric
SVM	Kernel=Liner, C=1, gamma=4	Kernel=poly, c=10, gamma=5
KNN	Algorithm=auto, p=2	Algorithm=auto, p=10
XG Boost	Booster=gbtree, learning rate=3, lambda=1	Booster=gbtree, learning rate=3, lambda=1

Final Model Selection Justification (2 Marks):

Final Model	Reasoning
XGBoost	We have selected this model because this model was able to perfectly classify our problem and predict whether the product was delivered on time or not with a good accuracy