

Model Optimization and Tuning Phase Template

Date	26 June 2024
Team ID	739711
Project Title	Movie Box Office Gross Prediction
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	Number of trees, max depth, min samples split	100,10,2
Neural network	Number of layers, learning rate, batch size	3,0.01,32

Performance Metrics Comparison Report (2 Marks):

Model	Baseline Metric	Optimized Metric
Random Forest	RMSE 50 million	RMSE 40 million
Neural Network	RMSE 45 million	RMSE 35 million

Final Model Selection Justification (2 Marks):

Final Model	Reasoning
Superior performance	"the best performance in terms of RMSE and R-squared compared to other models. Specifically, it had the lowest RMSE and the highest R-squared value, indicating better accuracy and predictive power."