Model Optimization and Tuning Phase Template

Date	5th July 2024
Team ID	739920
Project Title	Work Force Retention System
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
Random Forest	I chose the Random Forest model for the prediction of acquiring a Employee info due to its ability to handle large datasets with high dimensionality and its robustness against overfitting. The ensemble nature of Random Forest, which combines multiple decision trees, enhances predictive accuracy and provides reliable estimates by averaging the results.