

### Model Optimization and Tuning Phase Report

Date	10-july-2024
Team ID	739925
Project Title	Walmart Sales Analysis For Retail Industry With 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
Decision Tree	-	-
Random Forest	-	-
Xgboost	-	-
ARIMA	-	-

#### Performance Metrics Comparison Report (2 Marks):

Model	Optimized Metric
Decision Tree	-
Random Forest	-
Xgboost	-
ARIMA	-

**Final Model Selection Justification(2 Marks):**

Final Model	Reasoning
Random Forest	<pre> from prettytable import PrettyTable tb=PrettyTable() tb.field_names=['Model','training accuracy','testing accuracy','MAE','RMSE'] tb.add_row(['Random Forest', 95.91896847844589,97.65650118443212,995,1873]) tb.add_row(['Decision Tree',97.65,93.44,1230,2374]) tb.add_row(['xgboost',97.6565,93.44,1667,2495]) tb.add_row(['ARIMA','','',346,438]) print(tb) </pre> <pre> +-----+-----+-----+-----+   Model   training accuracy   testing accuracy   MAE   RMSE   +-----+-----+-----+-----+   Random Forest   95.91896847844589   97.65650118443212   995   1873     Decision Tree   97.65   93.44   1230   2374     xgboost   97.6565   93.44   1667   2495     ARIMA       346   438   +-----+-----+-----+-----+ </pre>