Model Optimization and Tuning Phase Report

Date	10 July 2024
Team ID	740020
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.

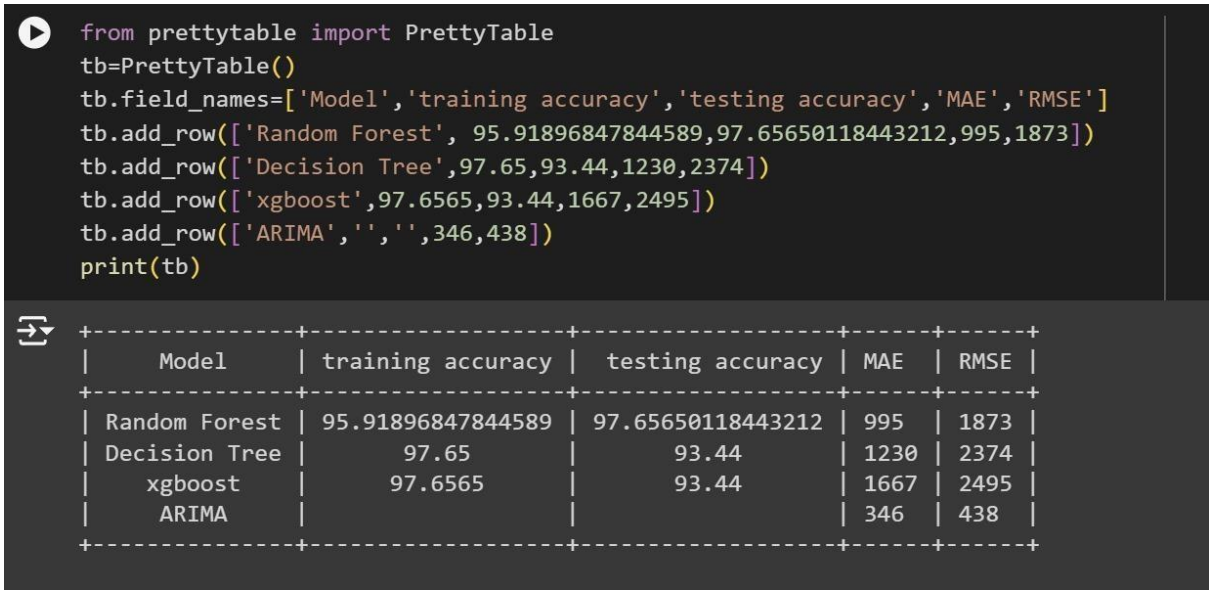
Hyperparameter Tuning Documentation (6 Marks):

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 Justification (2 Marks)

Final Model	Reasoning
Random Forest	

```
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)
```

```
+---------------+-------------------+-------------------+------+------+
|     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  |
+---------------+-------------------+-------------------+------+------+
```