Model Development Phase Template

Date	8 July 2024
Team ID	SWTID1720195303
Project Title	Predictive Modeling For Fleet Fuel Management Using Machine Learning
Maximum Marks	6 Marks

Model Selection Report

In the forthcoming Model Selection Report, various models will be outlined, detailing their descriptions, hyperparameters, and performance metrics, including Accuracy or F1 Score. This comprehensive report will provide insights into the chosen models and their effectiveness.

Model Selection Report:

Model	Description	Hyperparameters	Performance Metric (e.g., Accuracy, F1 Score)
Model 1	Random Forest Classifier: An ensemble learning method that constructs multiple decision trees and outputs the mode of their predictions.	n_estimators=100, max_depth=10, min_samples_split=2	Accuracy: 0.92, F1 Score: 0.89
Model 2	Gradient Boosting Classifier: An ensemble technique that builds trees sequentially, each correcting the errors of its predecessor.	n_estimators=150, learning_rate=0.1, max_depth=3	Accuracy: 0.88, F1 Score: 0.85

Model 3	Support Vector Machine (SVM): A supervised learning model that finds the optimal hyperplane for classification tasks.	C=1.0, kernel='rbf', gamma='scale'	Accuracy: 0.85, F1 Score: 0.83
Model 4	XGBoost Classifier: An optimized distributed gradient boosting library designed to be highly efficient and flexible.	n_estimators=200, learning_rate=0.05, max_depth=4	Accuracy: 0.90, F1 Score: 0.87
Model 5	Logistic Regression: A linear model for binary classification that estimates the probability of a binary response using a logistic function.	C=1.0, solver='lbfgs', max_iter=100	Accuracy: 0.80, F1 Score: 0.78