

## Model Development Phase Template

Date	23 September 2024
Team ID	LTVIP2024TMID24998
Project Title	Flight Delays Prediction 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)
Decision Tree	Simple, interpretable model; captures non-linear patterns in flight delay data.	—	Accuracy = 98%, F1 Score = 82%
Logistic Regression	A linear model suitable for binary classification (delayed vs. on-time); useful for baseline comparisons.	—	Accuracy = 100%, F1 Score = 100%

Random Forest	Ensemble of decision trees; handles complex relationships and provides feature importance for delay prediction.	—	Accuracy = 85%, F1 Score = 82%
K-Nearest Neighbors (KNN)	Classifies based on the closest neighboring data points; effective for local patterns in flight delays.	—	Accuracy = 77%, F1 Score = 75%
Naïve Bayes	It is efficient and effective for large datasets, particularly for text classification and spam filtering.	—	Accuracy = 83%, F1 Score = 59%
Support Vector Machine (SVM)	Finds the optimal boundary to classify delayed vs. on-time flights; good for complex relationships.	—	Accuracy = 81%, F1 Score = 79%