Model Development Phase Template

Date	15 March 2024
Team ID	SWTID1727180793
Project Title	SMS- Spam Detection Using NLP
Maximum Marks	5 Marks

Model Selection Report

In the model selection report for future deep learning and computer vision projects, various architectures, such as CNNs or RNNs, will be evaluated. Factors such as performance, complexity, and computational requirements will be considered to determine the most suitable model for the task at hand.

Model Selection Report:

Model	Description	Hyperparameters	Performance Metric(e.g., Accuracy,F1 Score)
Random Forest	**Ensemble of decision trees; robust, handles complex text patterns, reduces overfitting, and provides feature importance for SMS spam detection.**	**n_estimators, max_depth, min_samples_split**	**0.93%**
Decision Tree	**Simple tree structure; interpretable, captures non-linear relationships in text, suitable for initial insights into SMS spam patterns.**	**max_depth, min_samples_ split**	**0.85%**

KNN	**Classifies based on nearest neighbors in text vector space; adapts well to message patterns and effective for local variations in spam criteria.**	**n_neighbors, algorithm, metric**	**0.84%**
Gradient Boosting	**Gradient boosting with trees; optimizes predictive performance, handles complex text relationships, and is suitable for accurate SMS spam detection.**	**learning_rate, n_estimators, max_depth**	**0.98%**