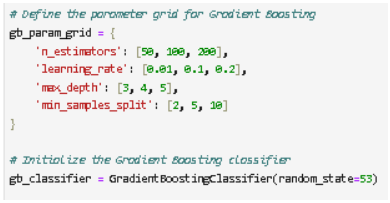
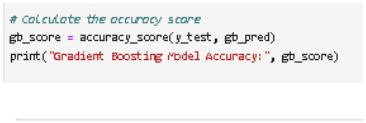
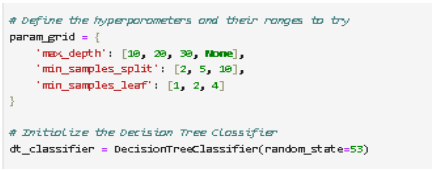
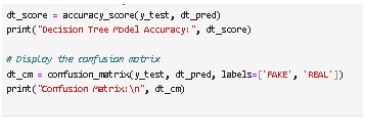
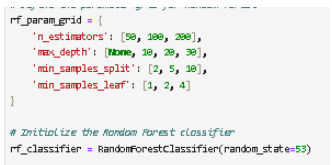
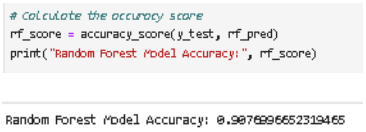
Model Optimization and Tuning Phase Template

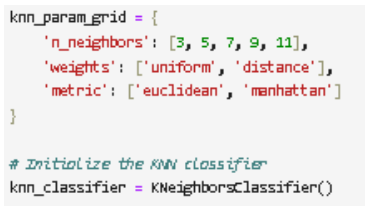
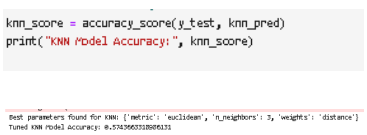
Date	02 November 2024
Team ID	SWTID1726834817
Project Title	Fake News Analysis in social media in NLP.
Maximum Marks	10 Marks

Model Optimization and Tuning Phase

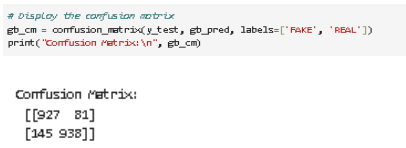
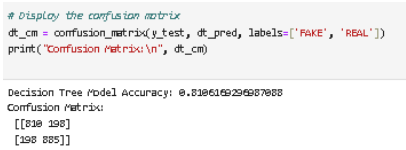
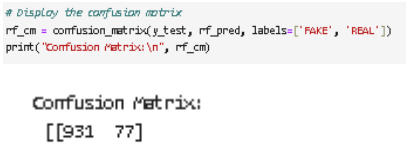
The Model Optimization and Tuning Phase involves refining machine learning models for peak performance. It includes optimized model code, fine-tuning hyperparameters, comparing performance metrics, and justifying the final model selection for enhanced predictive accuracy and efficiency.

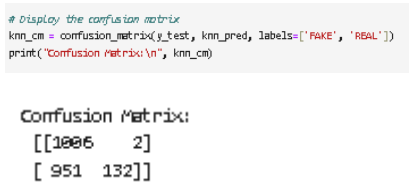
Hyperparameter Tuning Documentation (6 Marks):

Model	Tuned Hyperparameters	Optimal Values
Gradient Boosting		
Decision Tree		
Random Forest		

KNN		

Performance Metrics Comparison Report (2 Marks):

Model	Optimized Metric
Gradient Boosting	
Decision Tree	
Random Forest	

KNN	

Final Model Selection Justification (2 Marks):

Final Model	Reasoning
Naïve Bayes	Naïve Bayes is used in the provided code because it is a common and effective baseline model for text classification tasks, especially wit h high-dimensional datasets like text data. It is included because of it's efficiency, suitability for high- dimensional text data, effectiveness in binary classification, and role as a baseline for comparing other algorithms.