Model Optimization and Tuning Phase Report

Date	10 june 2024
Team ID	739879
Project Title	Detection of phishing websites fromURLs
Maximum Marks	10 Marks

Model Optimization and Tuning Phase

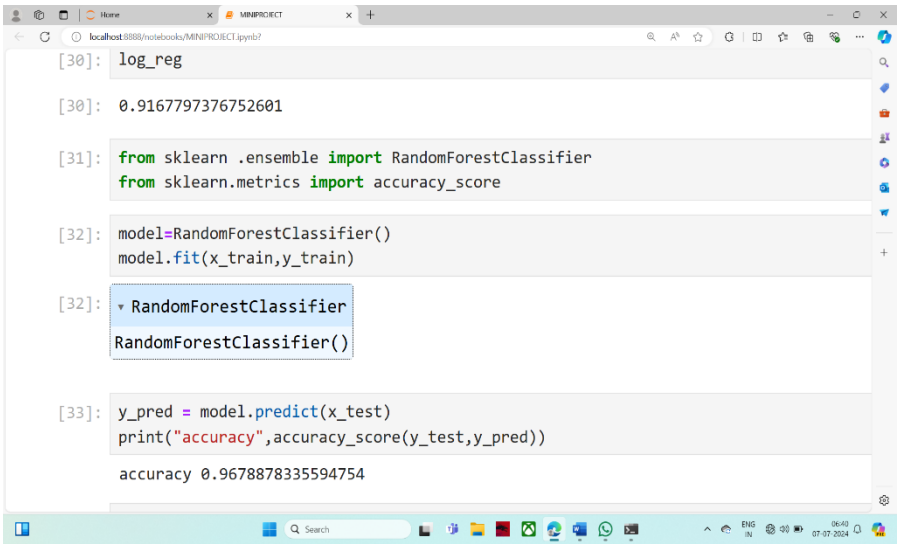
The Model Optimization and Tuning Phase involves refining machine learning models for peak performance. It includes optimized model code, fine-tuning hyperparameters, comparing performance metrics, and justifying the final model selection for enhanced predictive accuracy and efficiency.

Hyperparameter Tuning Documentation (6 Marks):

Model	Tuned Hyperparameters	Optimal Values
Decision Tree	-	-
Random Forest	-	-

KNN	-	-
Gradient Boosting	-	-

Performance Metrics Comparison Report (2 Marks):

Model	Optimized Metric
Random forest	

Logistic regression	[28]: `from sklearn.metrics import accuracy_score` [29]: `log_reg=accuracy_score(y_test,y_pred1)` [30]: `log_reg` [30]: `0.9167797376752601`
KNN	-
Gradient Boosting	-

Final Model Selection Justification (2 Marks):

Final Model	Reasoning
Random forest	Random forest is a popular machine learning algorithm chosen for its ability to handle high- dimensional data, missing values, non linear relationships, and categorical variables, while being robust to overfitting and providing feature importance scores for interpretability. It's also suitable for imbalanced datasets, and is relatively fast in both training and prediction , making it applicable to a wide range of problems, including classification, regression, and feature selection. Additionally, random forest can capture non-linear interactions between variables, handle complex relationships, and provide accurate predictions, making it a versatile and powerful algorithm in machine learning.