Model Optimization and Tuning Phase Report

Date	08 July 2024
Team ID	739728
Project Title	3D printer material prediction using machine learning
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:

Model	Tuned Hyperparameters	Optimal Values
Random Forest	-	-
Decision Tree	-	-
Logistic Regression	-	-
K-Nearest Neighbors	-	-

Performance Metrics Comparison Report :

Model	Optimized Metric
Random Forest	-
Decision Tree	-
Logistic Regression	-
K-Nearest Neighbors	-

Final Model Selection Justification (2 marks)

Final Model	Reasoning
Decision tree	The Decision tree model was selected for its superior performance, exhibiting accurate results during testing. They are easy to understand and interpret, as the tree structure provides a clear visualization of the decision-making process. This transparency helps in explaining the model to non-technical stakeholders. Decision trees can handle both numerical and categorical data, making them versatile in different applications. They require little data preprocessing, as they do not assume any specific data distribution.