Model Optimization and Tuning Phase Report

Date	5 July 2024
Team ID	739857
Project Title	Predictive Pulse: Harnessing Machine Learning For Blood Pressure Analysis
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

Linear Regression	-	-
Decision Tree	-	-
Random Forest	-	-

Performance Metrics Comparison Report (2 Marks):

Model	Optimized Metric

Decision Tree	-

Random Forest	-

Final Model Selection Justification (2 Marks):

Final Model	**Reasoning**

Random Forest Regressor	The Random Forest Regressor is an ensemble learning method used for regression tasks. Here it got the high performance. It operates by constructing a multitude of decision trees during training and outputting the mean prediction of the individual trees. Key features include: • **Robustness**: Reduces overfitting by averaging multiple decision trees. • **Feature Importance**: Provides insights into the importance of different features in the prediction process. • **Versatility**: Can handle both linear and non-linear relationships.