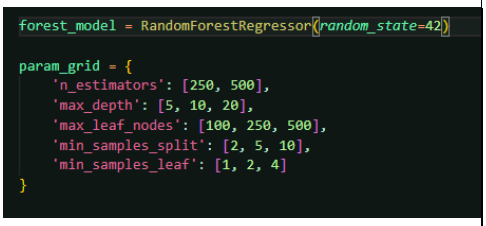
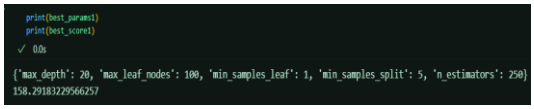
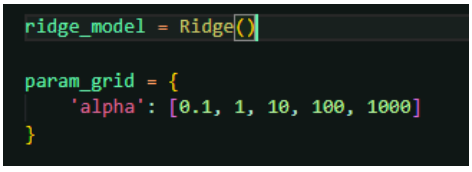
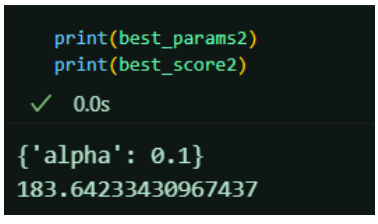
Model Optimization and Tuning Phase Template

Date	18 July 2024
Team ID	xxxxxx
Project Title	Predicting The Energy Output Of Wind Turbine Based On Weather Condition
Maximum Marks	10 Marks

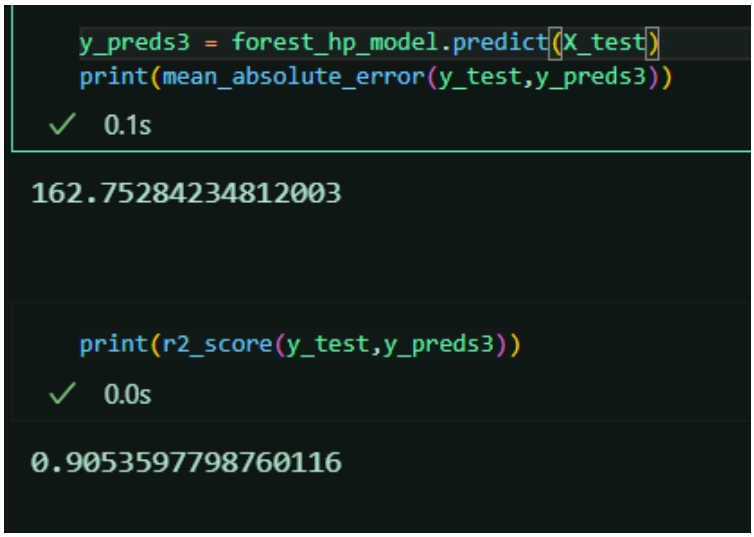
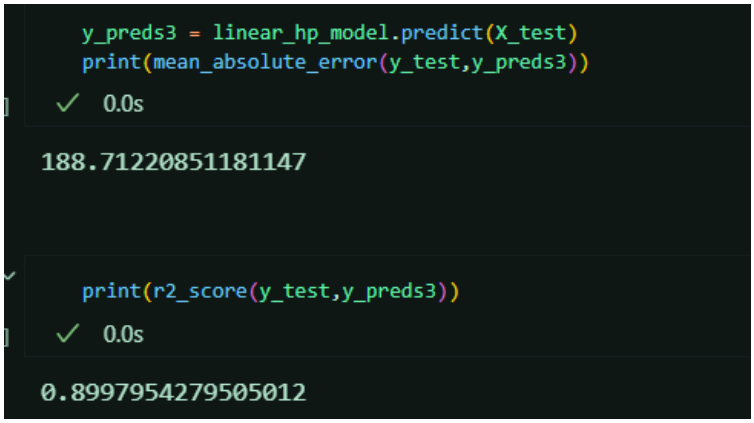
Model Optimization and Tuning Phase

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
Random Forest Regressor		
Ridge Regression		

Performance Metrics Comparison Report (2 Marks):

Model	Performance of Model
Random Forest Regressor	
Ridge Regression	

Final Model Selection Justification (2 Marks):

Final Model	Reasoning
Random Forest Regressor	The Random Forest Regressor was selected for its robust performance in handling complex relationships and minimizing overfitting. With its ensemble approach, it effectively reduces variance and provides valuable insights into feature importance. During hyperparameter tuning, it demonstrated high accuracy, aligning well with the project's objectives and justifying its selection as the final model.