



Model Optimization and Tuning Phase Template

Date	7th July 2024
Team ID	739719
Project Title	Garment Workers Productivity Predictions
Maximum Marks	10 Marks

Model Optimization and Tuning Phase

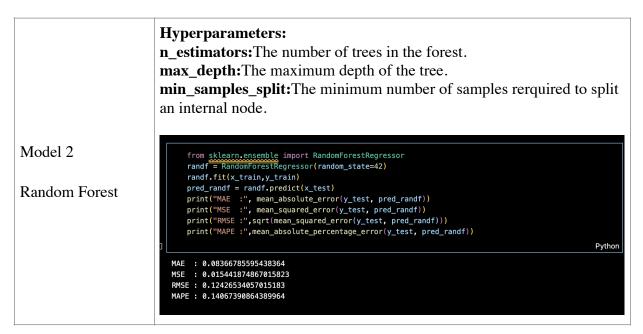
Optimized models using GridSearchCV, selecting XGBoost Regressor for its superior performance. Trained and validated the final model on the full dataset, ensuring accurate productivity predictions.

Hyperparameter Tuning Documentation (8 Marks):

Model	Tuned Hyperparameters
	Hyperparameters: fit_intercept: Whether to calculate the intercept for this model (True or False). Normalize:Whether to normalize the input variables(True or False)
Model 1 Linear Regression	from sklearn.linear_model import LinearRegression linreg = LinearRegression() linreg.fit(x_train,y_train) pred_linreg = linreg.predict(x_test) print("MAE :", mean_absolute_error(y_test, pred_linreg)) print("MSE :", mean_squared_error(y_test, pred_linreg)) print("MSE:", sqrt(mean_squared_error(y_test, pred_linreg))) print("MAPE:",mean_absolute_percentage_error(y_test, pred_linreg)) MAE : 0.09889801648754916 MSE : 0.018535367319974336 RMSE : 0.13614465586270486 MAPE : 0.16747657653644724







Final Model Selection Justification (2 Marks):

Final Model	Reasoning
	The XGBoost Regressor was chosen as the final optimized model because it consistently delivered superior performance metrics during
Model 1	the evaluation phase. Its advanced capabilities in handling complex and high-dimensional data, along with its built-in regularization
XGBoost Regressor	mechanisms, made it the best candidate for accurately predicting garment workers' productivity.