

Model Development Phase

Date	24 June 2025
Team ID	SWUID20250177148
Project Title	Machine Learning Approach for Employee Performance Prediction
Maximum Marks	6 Marks

Model Selection Report

In the following Model Selection Report, multiple machine learning models have been trained and evaluated to predict employee productivity. The table below outlines the model architecture, their hyperparameters, and their performance using both regression (R^2) and classification (F1 Score) metrics. The best-performing model is selected for deployment.

Model Selection Report:

Model	Description	Hyperparameters	Performance Metric (e.g., Accuracy, F1 Score)
Linear Regression	Simple, interpretable baseline model that assumes linear relationship between input and target	Default	$R^2 = 0.72$ F1 Score = 0.74
Random Forest	Ensemble of decision trees; handles non-linearity, reduces overfitting, robust performance	n_estimators=100, random_state=42	$R^2 = 0.79$ F1 Score = 0.81
XG Boost	Gradient boosting trees; highly accurate, handles outliers & feature interactions	n_estimators=100, objective='reg:squarederror', random_state=42	$R^2 = 0.83$ F1 Score = 0.86