

Model Development Phase

Date	24 July 2025
ProjectName	Machine Learning Approach for Employee Performance Prediction
Maximum Marks	

Model Selection Report:

In the forthcoming Model Selection Report, various models will be outlined, detailing their descriptions, hyperparameters, and performance metrics, including MAE or MSE or R2 score. This comprehensive report will provide insights into the chosen models and their effectiveness.

Model	Description	Hyperparameter	Performance Metric (R2 Score)
Linear Regression	A simple and interpretable model that assumes a linear relationship between input features and the target variable.	-	0.290
Random Forest	Ensemble of decision trees; robust, handles complex relationships, reduces overfitting, and provides feature importance for loan approval prediction.	n_estimators=100, random_state=42	0.470

XGBoost	An advanced gradient boosting algorithm that builds an ensemble of decision trees in a sequential manner to minimize errors	<code>objective='reg:squarederror', n_estimators=250, max_depth=3, learning_rate=0.1, random_state=40</code>	0.521
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