

Model Development Phase

Date	22 June 2025
Team ID	SWTID1749705685
Project Title	Movie Box Office Gross Prediction using Machine Learning
Maximum Marks	6 Marks

Model Selection Report

The upcoming Model Selection Report will present and compare different machine learning models, along with their descriptions, key hyperparameters, and evaluation metrics such as MAE, RMSE, and R^2 Score. It will help identify the most effective model for accurate box office revenue prediction.

Model Selection Report:

Model	Description	Hyperparameters	Performance Metric (e.g., Accuracy, F1 Score)
Linear Regression	A simple baseline model that assumes a linear relationship between inputs & output	Default parameters	MAE: \$65.77M RMSE: \$132.75M R^2 : 0.6679
Random Forest Regressor	Ensemble model using multiple decision trees for robust, non-linear predictions	n_estimators=100, max_depth=None (fully grown trees), random_state=42	MAE: \$62.17 million RMSE: \$126.85 million R^2 Score: 0.6967

XGBoost Regressor	Boosted trees optimizing gradient loss, handles outliers & variance effectively	n_estimators=100, max_depth=3, learning_rate=0.1, subsample=1.0, random_state=42	MAE: \$63.18 million RMSE: \$129.01 million R ² Score: 0.6863
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