Model Development Phase Template

Date	15 March 2024
Team ID	LTVIP2024TMID24997
Project Title	Cereal Analysis Based on Ratings by using Machine Learning Techniques
Maximum Marks	6 Marks

Model Selection Report

In the forthcoming Model Selection Report, various models will be outlined, detailing their descriptions, hyperparameters, and performance metrics, including Accuracy or F1 Score. This comprehensive report will provide insights into the chosen models and their effectiveness.

Model Selection Report:

Model	Description	Hyperparameters	Performance Metric (e.g., Accuracy, F1 Score)
Linear Regression	A simple linear model to predict cereal ratings.	Default	R^2: 0.9590, RMSE: 0.2991, MAPE: 1.0911%
Ridge Regression	Linear model with L2 regularization to prevent overfitting.	alpha=1.5	R^2: 0.9590, RMSE: 0.2992, MAPE: 1.0913%
Lasso Regression	Linear model with L1 regularization to prevent overfitting.	alpha=0.001	R^2: 0.9573, RMSE: 0.3086, MAPE: 1.1332%

Decision Tree Regressor	Non-linear model using decision trees to predict ratings.	Default	R^2: 0.8872, RMSE: 0.6155, MAPE: 2.3072%
Random Forest Regressor	Ensemble model using multiple decision trees for predictions.	n_estimators=100, random_state=42	R^2: 0.9504, RMSE: 0.3424, MAPE: 1.2388%