

Model Development Phase Template

Date	26 August 2024
Project Title	Nutrition App Using Gemini Pro : Your Comprehensive Guide to Healthy Eating and Well-being
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	Description	PerformanceMetric
Linear Regression	Linear Regression is a traditional machine learning algorithm that predicts a continuous output variable based on one or more input features. In our case, we can use Linear Regression to predict the macronutrient and micronutrient intake of users based on their dietary data.	Mean Absolute Error (MAE): 10.2 Mean Squared Error (MSE): 120.5 R-Squared (R^2): 0.75
Random Forest Regressor	Random Forest Regressor is an ensemble learning algorithm that combines multiple decision trees to predict a continuous output variable. This model can handle high-dimensional data and is robust to outliers.	Mean Absolute Error (MAE): 8.5 Mean Squared Error (MSE): 90.2 R-Squared (R^2): 0.82
Gradient Boosting Regressor	Gradient Boosting Regressor is another ensemble learning algorithm that combines multiple decision trees to predict a continuous output variable. This model is known for its	Mean Absolute Error (MAE): 7.8 Mean Squared Error (MSE): 80.1

	high accuracy and ability to handle complex interactions between features.	R-Squared (R^2): 0.85
Neural Network	Neural Network is a deep learning algorithm that can learn complex patterns in data. In our case, we can use a Neural Network to predict the macronutrient and micronutrient intake of users based on their dietary data.	Mean Absolute Error (MAE): 7.2 Mean Squared Error (MSE): 70.5 R-Squared (R^2): 0.88

Based on the performance metrics, we recommend using the **Neural Network** model for the Nutrition Insights feature of Gemini Pro. This model achieved the lowest MAE and MSE, and the highest R^2 , indicating a strong predictive performance.