

**Model Development Phase Template**

Date

Team ID

Project Title

Maximum Marks

10th July 2024

739918

Food Demand Forecasting For Food Delivery Company

6 Marks

**Model Selection Report**

The goal of this report is to recommend suitable models for forecasting food demand in a food delivery company. Accurate forecasting is crucial for optimizing inventory management, resource allocation, and customer satisfaction. This report outlines the methodology used to select appropriate models based on data characteristics and business requirements

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  | **Performance** |
|  |  |  | **Metric (e.g.,** |
|  |  |  | **Accuracy, F1** |
|  |  |  | **Score)** |
| **Model** | **Description** | **Hyperparameters** |  |
|  |  |  |  |
| Random | Ensemble learning method using | - n\_estimators: | **MAE**: 10.5<br>- |
| Forest | multiple decision trees | Number of trees in the | **RMSE**: 15.2 |
|  |  | forest<br>- |  |
|  |  | max\_depth: |  |
|  |  | Maximum depth of |  |
|  |  | each tree<br>- |  |
|  |  | min\_samples\_split: |  |
|  |  | Minimum number of |  |
|  |  | samples required to |  |
|  |  | split an internal |  |
|  |  | node<br>- |  |
|  |  | min\_samples\_leaf: |  |
|  |  | Minimum number of |  |
|  |  | samples required to be |  |
|  |  | at a leaf node |  |
|  |  |  |  |



|  |  |  |  |
| --- | --- | --- | --- |
| Decision | Non-linear model that predicts the target | - max\_depth: | **MAE**: 12.1<br>- |
| Tree | variable by learning simple decision | Maximum depth of the | **RMSE**: 17.3 |
|  | rules inferred from the data | tree<br>- |  |
|  |  | min\_samples\_split: |  |
|  |  | Minimum number of |  |
|  |  | samples required to |  |
|  |  | split an internal |  |
|  |  | node<br>- |  |
|  |  | min\_samples\_leaf: |  |
|  |  | Minimum number of |  |
|  |  | samples required to be |  |
|  |  | at a leaf node |  |
|  |  |  |  |
| Gradient |  | - n\_estimators: | **MAE**: 9.8<br>- |
| Boosting | Ensemble learning method that builds a | Number of boosting | **RMSE**: 14.5 |
| Regressor | model in a stage-wise fashion and | stages to be |  |
|  | combines weak learners (typically | performed<br>- |  |
|  | decision trees) to improve predictive | learning\_rate: Rate |  |
|  | performance | at which model learns |  |
|  |  | by minimizing |  |
|  |  |  |  |